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Baseline Human Health Risk
Assessment

Peterson Puritan Site – Operable Unit 2
Cumberland and Lincoln, Rhode Island

June 2007

Revised November 2007

Revised September 2008

Updated April 2009



STATEMENT OF LIMITATIONS

This Baseline Human Health Risk Assessment (BHHRA) for the Peterson Puritan Superfund Site - Operable Unit 2 in Cumberland and Lincoln, Rhode Island (dated April 2009) is a revision of the version prepared by Arcadis in September 2008, for the PRP Group under the requirements of the Administrative Order by Consent (AOC), U.S. EPA Docket No.1-87-1064, May 29, 1987; as amended. The revisions, which were made by the United States Environmental Protection Agency (EPA) with assistance from its oversight contractor, AECOM (formerly M&E|AECOM), consist of updating the document by incorporating current risk assessment guidance.

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Acronyms

ADAF	age-dependent adjustment factor
ALM	Adult Lead Model
ANOVA	Analysis of Variance
AOV	One-Way Analysis of Variance
BBL	Blasland, Bouck & Lee, Inc.
bgs	below ground surface
cm ²	square centimeters
COPC	constituent of potential concern
CTE	Central Tendency Exposure
EPC	exposure point concentration
ft ³ /min	cubic feet per minute
HHRA	baseline human health risk assessment
HI	hazard index
HQ	hazard quotient
IRIS	Integrated Risk Information System
KM	Kaplan Meier
m ³ /hr	cubic meters per hour
m ³ /sec	cubic meters per second
MassDEP	Massachusetts Department of Environmental Protection

MassDOH	Massachusetts Department of Health
MCL	Maximum Contaminant Level
µg/L	micrograms per liter
mg/cm ²	milligrams per square centimeters
mg/day	milligrams per day
mg/kg	milligrams per kilogram
mg/m ³	milligrams per cubic meter
mg/kg-day	milligrams per kilogram of body weight per day
NCDC	National Climatic Data Center
OU2	Operable Unit 2
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
ppb	parts per billion
Q-Q	Quantile-Quantile
RfD	reference dose
RI	remedial investigation
RIDEM	Rhode Island Department of Environmental Management
RIDOH	Rhode Island Department of Health
RME	Reasonable Maximum Exposure
SF	slope factor

Shield	Shield Environmental Associates, Inc.
STSC	Superfund Technical Support Center
SVOC	semivolatile organic compound
TIC	tentatively identified compound
UCL	Upper Confidence Level
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VDEQ	Virginia Department of Environmental Quality
VOC	volatile organic compound

6. Baseline Human Health Risk Assessment

6.1 Introduction

6.1.1 Purpose and Scope

This baseline human health risk assessment (HHRA) evaluates potential human health risks associated with the Peterson Puritan Operable Unit 2 (OU2) Superfund Site located in Cumberland and Lincoln, Rhode Island (site). As previously mentioned in this *Remedial Investigation Report* (RI Report), the site consists of several general subareas, including the J.M. Mills Landfill; debris fields (upstream of the J.M. Mills Landfill); Quinville Wellfield; Unnamed Island; Wetlands A, B, C, and D; and the Nunes Parcel. This HHRA was conducted pursuant to the Statement of Work under the Administrative Order by Consent and is based on the results of the RI completed at the site. The goal of this HHRA is to evaluate potential human health risks posed by site-related constituents in environmental media from OU2 and to support any remedial action decision needed to address those risks.

This HHRA has been conducted in accordance with the United States Environmental Protection Agency (USEPA) guidance (USEPA, 1989; 1991; 1997a; and 2001), and involves the following four steps: 1) data evaluation, to identify site-related chemicals of interest; 2) exposure assessment, to determine potential exposure pathways and quantify the magnitude of potential exposure; 3) toxicity assessment, to determine types of effects associated with exposures; and 4) risk characterization, to quantify cancer risks and non-cancer health hazards associated with specific exposures at OU2. This HHRA is presented in the format outlined in the USEPA guidance entitled *Risk Assessment Guidance for Superfund Volume I – Human Health Evaluation Manual, Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments* (USEPA, 2001). Per the USEPA's request, interim deliverables (i.e., individual Risk Assessment Guidance for Superfund Part D tables) were submitted throughout the HHRA process, and USEPA comments were subsequently addressed in this HHRA, as appropriate.

The HHRA evaluation steps are discussed in Sections 6.2 through 6.5. An uncertainty analysis is presented in Section 6.6. Summary and conclusions of this HHRA are presented in Section 6.7. Finally, Section 7 lists the references cited in this HHRA.

6.1.2 Land Use

The site is located in the towns of Cumberland and Lincoln, Rhode Island (see Figure 1-1) along the banks of the Blackstone River, beginning at approximately 1 mile below the Ashton Dam and ending at the Pratt Dam. OU2 includes the land formerly owned and operated as a landfill by Mr. Joseph Marzalkowski and his agent(s)/associate(s) for the purposes of waste transfer and disposal. Specifically, the site is defined in the *Statement of Work for the Remedial Investigation and Feasibility Study for the Peterson Puritan, Inc. Superfund Site, Operable Unit 2: J.M. Mills Landfill* (USEPA, 2000) as including the following areas:

- The J.M. Mills Landfill area, encompassed by the fence line erected by the USEPA to restrict access to the landfill in 1992.
- The associated debris fields, staging areas, and suspected disposal trenches along the bank of the Blackstone River.
- The gravel/paved access roads in the immediate vicinity of the J.M. Mills Landfill.
- The solid waste transfer station property (now or formerly owned by Nunes Disposal, Inc.), the railroad easement, Pratt Dam, the associated river channel(s) and Unnamed Island within the river, the adjacent wetlands, the former Lenox Street municipal well, and the former Quinnville Wellfield.

Land use within OU2 consists of recreational (e.g., Unnamed Island, Pond F, bikeway, river bank) and light industrial/commercial (e.g., Nunes Parcel, landfill, railroad right-of-way). There is no current potable use of groundwater, either on site or off site (the nearest well field is approximately 4 miles upstream of the site). According to the *Ashton-Pratt Redevelopment Plan* for Cumberland and Lincoln, Rhode Island (Crossman Engineering, Inc., 2004), the following land uses are present in the vicinity of the site:

- Interstate 295 Interchange – Predominately commercial
- Route 116 (George Washington Highway) – Primarily office, public facilities, and light industrial uses

- Mendon Road (Route 122) – Mix of residential, office, commercial, retail, and mixed commercial/residential
- Martin Street – Industrial with interspersed recreational facilities
- Lonsdale Mill Complex – Mixed commercial and light industrial
- Route 126 (Old River Road) – Residential

The *Ashton-Pratt Redevelopment Plan* indicates that redevelopment would consist of enhancing recreational uses of the area, maximizing river and canal access, improving transportation facilities and traffic, and overall improvement of aesthetics. According to the *Cumberland Comprehensive Plan* (Cumberland Planning Board, 2004), developed land within the Town of Cumberland is primarily residential (27 percent), with commercial, industrial, institutional, and transport and utilities comprising approximately 2 percent of the total developed land use. Recreational land use constitutes a little less than 1 percent of total land use (Cumberland Town Council, 2004). According to the *Lincoln Comprehensive Plan* (Lincoln Planning Board, 2003), approximately 55 percent of the Town of Lincoln is zoned as residential, and 15 percent as industrial/commercial, with the remaining land classified as other (e.g., utilities) and vacant (undeveloped).

Table 1 (presented in Appendix S) presents the exposure pathways evaluated in this HHRA for OU2.

For some areas of the site where sufficient subsurface soil sampling did not take place due to the presence of buried waste (i.e., J.M. Mills Landfill and the Nunes Parcel), a presumptive remedy approach will be applied in lieu of the quantification of potential risks and hazards associated with subsurface soils in contact with buried waste. The presumptive remedy approach acknowledges that risks from exposure to buried waste may exist and that appropriate remedial actions will be addressed for these subareas and subsurface media in the feasibility study. Because subsurface soils data primarily from outside the limits of the buried waste areas are available for the Nunes Parcel, potential subsurface soil risks and hazards for areas where buried waste is not present are quantified for this subarea. However, the presumptive remedy approach applies to the areas of buried waste at the Nunes Parcel, since the existing soil data set is unlikely to be representative of the nature and extent of impacts to soils from the buried waste.

Since the presumptive remedy approach was initially considered appropriate for the Unnamed Island, soil data were not collected to characterize the impacts of the buried waste on soil quality and to evaluate the risks associated with future soil exposure pathways. However, more recently, complications associated with application of the presumptive remedy to areas of buried and surficial waste on the Unnamed Island have been recognized. The complications, both technical and regulatory, arise primarily from the island's location within the floodway of the Blackstone River, which results in its complete inundation during flood events. Therefore, since the presumptive remedy may not be applicable, supplemental soil sampling will be performed for the Unnamed Island in order to determine the need to perform remedial actions at this subarea. Risk and hazard estimation cannot be included in this HHRA for the Unnamed Island due to the inadequacy of the soil database for this area. Once supplemental soil data have been collected, a comprehensive risk evaluation for exposures to soil, leachate, sediment, and surface water will be performed for the Unnamed Island. Groundwater data collected from the Unnamed Island have been used in the site-wide groundwater evaluation included in this HHRA.

6.2 Data Evaluation

This section briefly describes the datasets used to derive exposure point concentrations (EPCs) and how constituents of potential concern (COPCs) were identified.

6.2.1 Analytical Data

The analytical data evaluated in this HHRA were those collected during the RI. Only validated data were used in the HHRA. Results without data qualifiers, plus those values with J, JEB, JTB, EB, and TB qualifiers, were treated as detected concentrations at the reported/estimated concentrations. Values qualified with U and UJ were treated as non-detects. Values with R qualifiers, indicating the result was rejected during data validation, were not used in the HHRA.

Surface soil samples were collected from several areas of the site, including the J.M. Mills Landfill, Quinnville Wellfield, north of the railroad tracks that traverse the site (south of Wetlands A through D), Nunes Parcel, the debris fields upstream of the J.M. Mills Landfill, and along the southern bank of the Blackstone River (referred to as the Southern Bank, Lincoln side), as well as several background locations downstream of Ashton Dam. Subsurface soil samples were collected from the Nunes Parcel. Groundwater data were collected from the J.M. Mills Landfill, Quinnville Wellfield,

Unnamed Island, and Nunes Parcel, as well as several background/upgradient locations. Surface water and sediment samples were collected from the Blackstone River; Wetlands A through D; and Ponds C and F. Sediment samples were also collected from Pond B located adjacent to the J.M. Mills Landfill. Background surface water and sediment samples were collected from the Blackstone River near Ashton Dam. Biota (fish) samples were collected from upstream areas of the Blackstone River (BR-1 and BR-2), the portion of the Blackstone River within OU2 (BR-3 and Ponds A and F), and a background location (P-6). Figure 1-3 and Figures 2-1 through 2-7 in the RI Report show the location of the site features of interest and the sampling locations. Soil, sediment, and surface water data collected from the Unnamed Island will be evaluated as part of a supplemental risk evaluation, once supplemental soil data collection has been completed.

Background data were not used to eliminate COPCs in the screening process, but are presented in the RAGS D Table 2 series (Appendix S) for completeness. Consistent with the USEPA (2002a) guidance, background concentrations are considered in the risk characterization section of this HHRA, as necessary, to place site-related risks in proper perspective.

Tentatively identified compounds (TICs) were summarized and evaluated by Blasland, Bouck & Lee, Inc. (BBL) in April 2005. Please refer to the RI Report (Section 6.2.1) for additional information on TICs.

6.2.2 Constituents of Potential Concern

The COPC screening conducted as part of this HHRA used USEPA-recommended screening criteria, which were compared to maximum detected concentrations in site media. To be conservative, COPC screening was conducted by combining sitewide analytical data for each medium, with the exception of environmental samples collected from the Nunes Parcel and the wetland areas, which were evaluated separately.

The screening criteria used to identify COPCs for environmental media (i.e., soil, sediment, groundwater, leachate, surface water, outdoor air, indoor air, and fish) are listed below. Details on COPC screening methodology are briefly discussed in the following subsections.

- Soil – USEPA (2008) Screening Levels for residential soil
- Groundwater – USEPA (2008) Screening Levels for tap water

- Leachate – USEPA (2008) Screening Levels for tap water
- Sediment – USEPA (2008) Screening Levels for residential soil
- Surface Water – USEPA (2008) Screening Levels for tap water
- Ambient Air – USEPA (2008) Screening Levels for residential air
- Indoor Air – USEPA (2008) Screening Levels for residential air and USEPA (2002b) Generic Screening Levels for the Vapor Intrusion Pathway
- Fish – USEPA (2008) Screening Levels for fish

6.2.2.1 Soil

Prior to selecting COPCs, soils data were divided into surface (0 to 1 foot below ground surface [bgs]) and subsurface (greater than 1 foot bgs) data sets. (It should be noted that the Rhode Island Department of Environmental Management's [RIDEM's] definitions of surface soil [0 to 2 feet bgs] and subsurface soil [greater than 2 feet bgs] differ from USEPA Region 1's definitions of surface soil [0 to 1 foot bgs] and subsurface soil [from 1 foot bgs to up to 10 feet bgs or the water table].) The impact of these differences in regulatory definitions of soil intervals on site cleanup decisions will be addressed in the Feasibility Study.

Duplicate soil samples were averaged with their parent sample prior to data evaluation. However, duplicate samples were treated as discrete samples in the COPC screening process. Soil COPCs for direct contact exposures (i.e., incidental ingestion and dermal contact) were identified by comparing maximum detected soil concentrations to the USEPA (2008) Screening Levels for residential soil. Screening levels for non-carcinogens were adjusted to reflect a target hazard quotient (HQ) of 0.1. Those constituents that exceeded these screening levels were selected as COPCs for the direct contact soil pathway. Site-wide surface soil COPCs for this pathway are presented in Table 2.1 (Appendix S). For the purposes of selecting site-wide surface soil COPCs, existing Unnamed Island surface soil data were included in the site-wide surface soil data set. Surface and subsurface soil COPCs for the direct contact soil pathway for the Nunes Parcel are presented in Tables 2.3 and 2.4 (Appendix S), respectively. Surface soil COPCs for the direct contact soil pathway for the wetland areas are presented in Table 2.11 (Appendix S).

6.2.2.2 Groundwater

Site-wide groundwater COPCs for direct contact exposures (i.e., ingestion, dermal contact and inhalation during household water usage) were identified by comparing maximum detected groundwater concentrations to the USEPA (2008) Screening Levels for tap water. Groundwater samples were treated as discrete samples. Screening levels for non-carcinogens were adjusted to reflect a target HQ of 0.1. Those constituents that exceeded these screening levels were selected as COPCs for the direct contact groundwater pathway. Site-wide groundwater COPCs for this pathway are presented in Table 2.7 (Appendix S).

6.2.2.3 Leachate

As requested by the USEPA, surrogate groundwater samples were used to quantitatively evaluate the leachate pathway for the J.M. Mills Landfill. The surrogate groundwater samples used to evaluate the leachate pathway are presented in Appendix W (Sample Groupings). Groundwater samples were treated as discrete samples. To identify leachate COPCs for direct contact exposure (i.e., dermal contact), maximum detected concentrations from the grab water samples were compared to the USEPA (2008) Screening Levels for tap water. Screening levels for non-carcinogens were adjusted to reflect a target HQ of 0.1. Those constituents that exceeded these screening levels were selected as COPCs for the direct contact leachate pathway. Leachate COPCs for this pathway are presented in Table 2.10 (Appendix S).

6.2.2.4 Sediment

Sediment COPCs for direct contact exposures (i.e., incidental ingestion and dermal contact) were identified by comparing maximum detected sediment concentrations in the Blackstone River and site ponds to the USEPA (2008) Screening Levels for residential soil. (Note: Because there is no human health, risk-based screening criteria for sediment, sediment data were compared to the USEPA [2008] Screening Levels for residential soil per the USEPA's request.) Data for duplicate sediment samples were averaged with their parent sample prior to data evaluation. However, duplicate samples were treated as discrete samples in the COPC screening process. Screening levels for non-carcinogens were adjusted to reflect a target HQ of 0.1. Those constituents that exceeded these screening levels were selected as COPCs for the direct contact sediment pathway. Site-wide sediment COPCs for this pathway are presented in Table 2.5 (Appendix S). For the purposes of selecting site-wide sediment

COPCs, Unnamed Island sediment data were included in the site-wide sediment data set. Sediment COPCs for the wetlands areas are presented in Table 2.12 (Appendix S).

6.2.2.5 Surface Water

Surface water COPCs for incidental ingestion and dermal contact were identified by comparing maximum detected surface water concentrations in the Blackstone River and site ponds to the USEPA (2008) Screening Levels for tap water. (Note: Because there is no human health, risk-based screening criteria for surface water, surface water data were compared to the USEPA [2008] Screening Levels for tap water per the USEPA's request.) Screening levels for non-carcinogens were adjusted to reflect a target HQ of 0.1. Those constituents that exceeded these screening levels were selected as COPCs for the direct contact surface water pathway. Duplicate surface water sample data were averaged with their parent sample prior to data evaluation. However, duplicate samples were treated as discrete samples in the COPC screening process. Both dissolved and total metals surface water data were used in the COPC screening process, but consistent with the USEPA (1989) guidance, only total metals surface water data were used to evaluate the surface water pathway (i.e., dissolved metals data were not used in the quantification of potential risks and hazards). Site-wide surface water COPCs for this pathway are presented in Table 2.6 (Appendix S). For the purposes of selecting site-wide surface water COPCs, existing Unnamed Island surface water data were included in the site-wide surface water data set. Surface water COPCs for the wetlands areas are presented in Table 2.13 (Appendix S).

6.2.2.6 Ambient Air (J.M. Mills Landfill)

As requested by the USEPA, air vent data from the J.M. Mills Landfill were used to identify COPCs for the ambient air pathway for the J.M. Mills Landfill (i.e., exposure of trespassers, site workers, and recreational users), although the use of air vent data is extremely conservative. Duplicate air vent samples were treated as discrete samples in the COPC screening process. While these data would not reflect chemical concentrations in the surrounding air, maximum detected concentrations of air vent constituents were compared to the USEPA (2008) Screening Levels for residential air to identify COPCs for ambient air per the USEPA's request. Screening levels for non-carcinogens were adjusted to reflect a target HQ of 0.1. Those constituents that exceeded screening levels were selected as COPCs for the ambient air pathway at the J.M. Mills Landfill and are presented in Table 2.2 (Appendix S).

To quantitatively evaluate potential risks/hazards for exposure of trespassers, site workers, and recreational users to ambient air across the J.M. Mills Landfill, potential ambient air concentrations were estimated using the USEPA SCREEN3 model and the air vent data; this modeling is discussed in Section 6.3.2.3.3.

6.2.2.7 Outdoor Air (Trench Scenario)

To evaluate potential outdoor air exposures for intrusive (construction) workers under a trenching scenario, groundwater and soils data from the Nunes Parcel were used to estimate potential trench air concentrations resulting from vapor intrusion. Surface and subsurface soil and groundwater data were used in the Johnson & Ettinger (USEPA, 2004b) model to estimate potential trench concentrations; these concentrations were subsequently compared to the USEPA (2008) Screening Levels for residential air to identify COPCs for this pathway. Specifically, maximum detected concentrations in soil and groundwater were used in the Johnson & Ettinger (USEPA, 2004b) slab-on-grade model to estimate possible indoor air concentrations (Cbuilding). The Cbuilding concentrations were subsequently compared to the USEPA (2008) Screening Levels for residential air to identify COPCs for trench air. Outdoor (trench) air COPCs for the Nunes Parcel are presented in Tables 2.15 and 2.17 (Appendix S), respectively. Outputs from the Johnson & Ettinger advanced soil (SL-ADV) and groundwater (GW-ADV) models for outdoor (trench) air are presented as Appendix T to this RI Report. To model trench air (Cbuilding) using the Johnson & Ettinger model, default parameters were used, except for the following assumptions: groundwater was assumed to be approximately 13 feet bgs, the trench was assumed to measure 3 feet wide by 8 feet long by 8 feet high, the soil type was assumed to be sandy, and the air exchange rate (2 per hour) represents that for a trench scenario derived from the Virginia Department of Environmental Quality (VDEQ) (2007).

To identify outdoor (trench) air COPCs for the Quinnville Wellfield, groundwater data were compared to the USEPA (2002b) target groundwater concentrations at a risk level of 1×10^{-6} from the *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils*. For those constituents that presented USEPA Maximum Contaminant Levels (MCLs) as screening levels, risk-based levels reflecting a 1×10^{-6} target were derived by EPA Region I. Screening levels based on non-cancer endpoints were adjusted to reflect an HQ of 0.1. COPCs for this pathway are presented in Table 2.18 (Appendix S). As shown in Table 2.18, naphthalene was the only sufficiently volatile and toxic constituent detected in the Quinnville Wellfield groundwater, although its maximum concentration was below its associated screening criterion. No screening was performed for Quinnville Wellfield soils because, as

indicated in the USEPA's October 31, 2006 comments on the Table 2s, "[u]se of the groundwater screening criteria from the draft Vapor Intrusion Guidance (USEPA, 2002; Table 2c) to select COPCs for the Johnson & Ettinger modeling is appropriate for the evaluation to be performed at the Quinnville Wellfield area, where volatile compounds in soil are negligible." Therefore, only groundwater data were used in the HHRA to evaluate the future outdoor (trench) air pathway for the Quinnville Wellfield. For naphthalene, the modeled air concentration was less than the screening level, and therefore, no COPCs were identified for this pathway.

COPC screening for the Southern Bank was limited to surface soils because no groundwater data were collected from the Southern Bank. As shown in Table 2.19 (Appendix S), methyl acetate and toluene were the only volatile organic compounds (VOCs) detected in Southern Bank soils. Similar to the methodology used for the Nunes Parcel outdoor air evaluation, maximum soil concentrations were used in the Johnson & Ettinger model to estimate possible indoor air concentrations (C_{building}) (see Appendix T for model outputs); these values were then compared to the USEPA (2008) Screening Levels for residential air (see Table 2.19). For both methyl acetate and toluene, modeled air concentrations were less than the screening level, and therefore, no COPCs were identified for this pathway.

6.2.2.8 Indoor Air

With respect to the vapor intrusion to indoor air pathway for the Nunes Parcel and Quinnville Wellfield, potential indoor air concentrations of VOCs and semivolatile organic compounds (SVOCs) resulting from migration from surface and subsurface soil and groundwater were estimated using the Johnson & Ettinger (USEPA, 2004b) model. Specifically, maximum detected soil and groundwater concentrations of VOCs and SVOCs were used to model potential indoor air concentrations (C_{building}); these concentrations were subsequently compared to the USEPA (2008) Screening Levels for residential air to identify COPCs for the indoor air pathway.

Specifically, COPCs for the vapor intrusion to indoor air pathway for the Quinnville Wellfield were identified by comparing maximum groundwater concentrations in Quinnville Wellfield samples to target groundwater concentrations for a risk level of 1×10^{-6} from the *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* (USEPA, 2002b). For those constituents listing MCLs as screening levels, risk-based screening levels reflecting a 1×10^{-6} target were derived by EPA Region I. Screening levels based on non-cancer endpoints were adjusted to reflect an HQ of 0.1. COPCs for this pathway are presented in Table 2.8 (Appendix S).

As shown in Table 2.8, naphthalene was the only sufficiently volatile and toxic constituent detected in Quinville Wellfield groundwater [bis(2-ethylhexyl)phthalate was also detected, but is not sufficiently volatile or toxic], and its maximum concentration was below its associated screening criterion. No screening was performed for Quinville Wellfield soils because, as indicated in the USEPA's October 31, 2006 comments on the Table 2s, "[u]se of the groundwater screening criteria from the draft Vapor Intrusion Guidance (USEPA, 2002; Table 2c) to select COPCs for the Johnson & Ettinger modeling is appropriate for the evaluation to be performed at the Quinville Wellfield area, where volatile compounds in soil are negligible." Therefore, only groundwater data were used in the HHRA to evaluate the future indoor air pathway for Quinville Wellfield.

With respect to the vapor intrusion to indoor air pathway for the Nunes Parcel, potential indoor air concentrations resulting from migration of VOCs and SVOCs from surface and subsurface soils and groundwater were estimated using the Johnson & Ettinger model. Specifically, maximum detected soil and groundwater concentrations of VOCs and SVOCs in Nunes Parcel samples were used to model potential indoor air concentrations (C_{building}); these concentrations were subsequently compared to the USEPA (2008) Screening Levels for residential air to identify COPCs for the indoor air pathway. Specifically, the Johnson & Ettinger basement model was used with standard residential defaults (as requested by the USEPA) to evaluate the indoor air pathway for the Nunes Parcel; the only assumption in the model was a sandy soil type. Soil and groundwater COPCs for this pathway are presented in Tables 2.14 and 2.16 (Appendix S), respectively. Outputs from the Johnson & Ettinger advanced soil (SL-ADV) and groundwater (GW-ADV) models for indoor air are presented as Appendix T to this RI Report.

6.2.2.9 Fish

Fish fillet samples of largemouth bass, white sucker, bluegill, and pumpkinseed were collected and data were used to evaluate potential human exposures. Fillet samples were intended to represent portions of edible-size fish that could be consumed by local anglers.

Fish tissue COPCs were identified by comparing maximum detected fish tissue concentrations to the USEPA (2008) Screening Levels for fish tissue. Screening levels for non-carcinogens were adjusted to reflect a target HQ of 0.1. Those constituents that exceeded these screening levels were selected as COPCs for the fish ingestion

pathway. Site-wide fish tissue COPCs for this pathway are presented in Table 2.9 (Appendix S).

6.2.3 Exposure Point Concentrations

EPCs (e.g., 95 percent Upper Confidence Levels [UCLs]) were derived from existing site data using the USEPA ProUCL Software (Version 4.0-Beta and Version 4.00.02) as requested by the USEPA. ProUCL statistical software was used to calculate the UCL of the unknown population arithmetic mean (USEPA, 2006). The EPCs used in the draft HHRA (September 2008) were generated utilizing ProUCL v4.0-Beta, as the latest version (ProUCL v4.00.02) was not available at the time the EPC calculations were performed. Any EPCs generated after the September 2008 date were developed utilizing ProUCL v4.00.02. The differences between the two ProUCL v4.0 versions are minor, making the effect of using the Beta version on the risk results minimal. The rationale for calculating the UCL term followed the procedures outlined in the ProUCL's User's Guide. Each data set was tested for normality using the Shapiro-Wilk W Test statistic with accompanying Quantile-Quantile (Q-Q) plots. Each data set was also tested for the gamma distribution using the Anderson-Darling and Kolmogorov-Smirnov Empirical Distribution Functions test statistics with accompanying Q-Q plots.

Based on the distribution of the data set, a recommended UCL calculation procedure was followed. In instances where the recommended UCL exceeded the maximum detected concentration, a lower percentage UCL (not less than 95 percent) was used as the EPC consistent with USEPA (2007) guidance. The UCL computation for data sets without any non-detects follows the recommendations in the ProUCL (USEPA, 2006) User's Guide.

For data sets with non-detect observations occurring at multiple detection limits, the Kaplan Meier (KM) estimate method was used. The KM estimate method adjusts for censoring by calculating an estimate of standard error of the mean, which then can be used to calculate a UCL for various methods (e.g., normal approximations, percentile bootstrap, Chebyshev inequality) (USEPA, 2006).

Per the USEPA's request, the same EPCs were used for both the Reasonable Maximum Exposure (RME) and Central Tendency Exposure (CTE) scenarios. If ProUCL recommended a UCL that exceeded the maximum detected concentration, a lower percentile UCL or the maximum detected concentration was selected as the EPC. Maximum detected concentrations were also used as EPCs when the sample size was less than 8. In instances where the maximum detected concentration was

used as the EPC for the RME scenario, the arithmetic mean was then used as the EPC for the CTE scenario. Groundwater EPCs were developed consistent with the USEPA Region 1 guidance in that the RME EPCs represent the maximum detected concentrations, and the CTE EPCs represent the arithmetic mean.

Media- and receptor-specific EPCs are presented in Tables 3.1 through 3.29 (Appendix S). As requested by the USEPA, a subset of ProUCL outputs is provided as Appendix V to this RI Report. Sample groupings that were used to calculate EPCs are provided as Appendix W to this RI Report.

6.3 Exposure Assessment

The exposure assessment identifies potential pathways of human exposure to site-related constituents and estimates the magnitude of that exposure.

6.3.1 Exposure Pathways

The exposure pathways quantitatively evaluated in the HHRA are discussed below for each medium; Table 1 (Selection for Exposure Pathways) (Appendix S) presents a summary of these pathways. In addition to those exposure pathways identified in Table 1, the site also presents other physical hazards, such as asbestos, metal debris, tires, dilapidated buildings, and broken glass. Although these materials are not quantitatively evaluated in this HHRA, potential direct contact exposure of receptors to these materials may also be associated with some risks. Asbestos, in particular, may present significant health risks due to its status as a Class A (known human) carcinogen if fibers are released into the air and inhaled. These physical hazards will be further considered in the Feasibility Study.

6.3.1.1 Surface Soil

Surface soil represents a potentially complete sitewide exposure pathway for adolescent (ages 9 through 18) trespassers, recreational users (adults and older children 6 through 12 years of age), and commercial workers. Under a future use scenario, construction workers and residents may also be exposed to surface soil. Specifically, trespassers and recreational users may be exposed to surface soils within the J.M. Mills Landfill, Quinnville Wellfield, along the southern bank of the Blackstone River (Lincoln side), upstream of the J.M. Mills Landfill (debris fields), and/or within the wetlands area north of the J.M. Mills Landfill (Wetlands A, B, C, and D). These receptors may also be exposed to surface soils within the Nunes Parcel. Commercial

workers may be exposed to surface soils within the Nunes Parcel and the Quinnville Wellfield. Construction workers may be exposed to soil at the Nunes Parcel, Quinnville Wellfield and Southern Bank areas, while residential exposures are only feasible at the Nunes Parcel. Potential exposure routes that were quantitatively evaluated as part of the HHRA are incidental ingestion and dermal contact. Inhalation of fugitive dust is likely insignificant due to lack of intrusive activities and dust generation except for the construction worker (see Table 1 [Appendix S]).

Current scenarios that were quantitatively evaluated as part of this HHRA included:

- exposure of trespassers to surface soils within the J.M. Mills Landfill, debris fields, Nunes Parcel, wetlands, and the Quinnville Wellfield
- exposure of recreational users (adults and older children) to surface soils along the Southern Bank
- exposure of commercial workers to surface soils within the Nunes Parcel and Quinnville Wellfield

Future scenarios that were quantitatively evaluated as part of this HHRA included:

- exposure of recreational users (adults and older children) to surface soils within the J.M. Mills Landfill, Southern Bank, Nunes Parcel, wetlands, and Quinnville Wellfield
- exposure of commercial workers to surface soils within the Nunes Parcel and Quinnville Wellfield
- exposure of construction workers to surface soils within the Nunes Parcel, Quinnville Wellfield and Southern Bank
- exposure of construction workers to fugitive dust within the Nunes Parcel, Quinnville Wellfield, and Southern Bank
- exposure of residents to surface soils within the Nunes Parcel

6.3.1.2 Subsurface Soil

Subsurface soil within the Nunes Parcel represents a potentially complete future exposure pathway for recreational users, residents and commercial workers via incidental ingestion and dermal contact, and for construction workers via incidental ingestion, dermal contact, and inhalation of fugitive dust.

Future scenarios that were quantitatively evaluated as part of this HHRA included:

- exposure of construction workers to subsurface soils, including fugitive dust, within the Nunes Parcel
- exposure of future commercial workers to subsurface soils within the Nunes Parcel
- exposure of future recreational users (adults and older children) to subsurface soils within the Nunes Parcel
- exposure of future hypothetical residents (adults and young children) to subsurface soils within the Nunes Parcel

Subsurface soil data from the buried waste areas were not collected to fully characterize the nature and extent of subsurface impacts for the Nunes Parcel due to the presumed risk caused by the buried waste in this area, similar to the approach taken at the J.M. Mills Landfill under the USEPA's presumptive remedy approach for municipal landfills.

6.3.1.3 Sediment

Sediment represents a potentially complete exposure pathway for adolescent (ages 9 through 18) trespassers and recreational users (adults and older children 6 through 12 years). Specifically, trespassers and recreational users may be exposed to sediments within the Blackstone River, site ponds (i.e., Ponds B, C and F), and within the wetlands area north of the J.M. Mills Landfill (Wetlands A, B, C, and D). Potential exposure routes quantitatively evaluated as part of this HHRA are incidental ingestion and dermal contact representative of a wading scenario.

Current scenarios quantitatively evaluated as part of this HHRA are:

- exposure of trespassers to sediments in the Blackstone River (i.e., upstream of the J.M. Mills Landfill, adjacent to the J.M. Mills Landfill, downstream of the J.M. Mills Landfill), within the wetland areas north of J.M. Mills Landfill, and along the Southern Bank (i.e., within Pond F and the backwater area of the Blackstone River)
- exposure of recreational users (adults and older children) to sediments along the Southern Bank

Future scenarios quantitatively evaluated as part of this HHRA are:

- exposure of recreational users (adults and older children) to sediments within the Blackstone River (i.e., upstream of the J.M. Mills Landfill, adjacent to the J.M. Mills Landfill, downstream of the J.M. Mills Landfill), within the wetland areas north of the J.M. Mills Landfill, and along the Southern Bank (i.e., within Pond F and the backwater area of the Blackstone River)

6.3.1.4 Surface Water

Surface water represents a potentially complete sitewide exposure pathway for adolescent (ages 9 through 18) trespassers and recreational users (adults and older children 6 through 12 years). Specifically, trespassers and recreational users may be exposed to surface water within the Blackstone River, site ponds (i.e., Ponds C and F), and within the wetlands area north of the J.M. Mills Landfill (Wetlands A, B, C, and D). Potential exposure routes that were quantitatively evaluated as part of this HHRA are dermal contact for a wading scenario and incidental ingestion and dermal contact for a swimming scenario.

Current scenarios quantitatively evaluated as part of this HHRA are:

- exposure of trespassers to surface water in the Blackstone River (i.e., upstream of the J.M. Mills Landfill, adjacent to the J.M. Mills Landfill, downstream of the J.M. Mills Landfill), and within the wetland areas north of the J.M. Mills Landfill
- exposure of recreational users (adults and older children) to surface water along the Southern Bank

Future scenarios quantitatively evaluated as part of this HHRA are:

- exposure of recreational users (adults and older children) to surface water within the Blackstone River (i.e., upstream of the J.M. Mills Landfill, adjacent to the J.M. Mills Landfill, downstream of the J.M. Mills Landfill), within the wetland areas north of the J.M. Mills Landfill, and along the Southern Bank (i.e., within Pond F and the backwater area of the Blackstone River)

6.3.1.5 Groundwater

Groundwater represents a potentially complete future exposure pathway for residents (adults and young children age 1 through 6 years) and construction workers. Although there is no current potable use of groundwater, there are no institutional controls in place at the site, with the exception of the Quinville Wellfield that was included in the Record of Decision under Operable Unit 1 that would prohibit the future installation of potable wells. Therefore, at the request of the USEPA, potential residential risks/hazards were quantitatively evaluated for a hypothetical future potable use scenario. Potential exposure routes that were evaluated for the potable groundwater scenario were ingestion, dermal contact, and inhalation.

Construction workers may be exposed to shallow groundwater during intrusive activities. Potential exposure routes that were quantitatively evaluated for the construction worker are incidental ingestion and dermal contact.

6.3.1.6 Leachate

Potential exposures to leachate were quantitatively evaluated as part of this HHRA at the request of the USEPA. Specifically, leachate at the J.M. Mills Landfill was assumed to represent a potentially complete exposure pathway via dermal contact for adolescent (ages 9 through 18) trespassers. Because true leachate data are not available for the site, groundwater data collected near the toe of the J.M. Mills Landfill were used as a surrogate to evaluate this pathway. Exposure of trespassers to leachate was quantitatively evaluated under a current scenario, and exposure of recreational users (adults and older children) was quantitatively evaluated under a future scenario.

6.3.1.7 Ambient Air (J.M. Mills Landfill)

Ambient air at the J.M. Mills Landfill represents a potentially complete exposure pathway for the adolescent (ages 9 through 18) trespasser, recreational user, and site worker. Specifically, receptors may be exposed to COPCs that volatilize from soils

and/or groundwater to ambient air. Because there are no true ambient air samples from the J.M. Mills Landfill, air vent data were used to model potential ambient air concentrations across the J.M. Mills Landfill (see Section 3.2.3.3).

Current scenarios quantitatively evaluated as part of this HHRA are:

- exposure of trespassers to ambient air across the J.M. Mills Landfill
- exposure of site workers to ambient air across the J.M. Mills Landfill

Future scenarios quantitatively evaluated as part of this HHRA are:

- exposure of recreational users (adults and older children) to ambient air across the J.M. Mills Landfill

6.3.1.8 Outdoor Air (Trench)

Outdoor air within an excavation trench represents a potentially complete future exposure pathway for the construction workers at the Nunes Parcel. Specifically, receptors may be exposed to COPCs that volatilize from soils and/or groundwater to ambient air within an excavation trench. Potential outdoor (trench) air concentrations (C_{building}) were estimated using the Johnson & Ettinger model. These estimated air concentrations were used in the quantification of potential risks and hazards for the construction worker.

6.3.1.9 Fish Tissue

Fish consumption represents a potentially complete current and future exposure pathway for recreational users (adults and young children age 1 through 6 years). Specifically, recreational users may consume fish from the Blackstone River and site ponds. Consumption of fish by recreational users was evaluated separately for different stretches of the Blackstone River. Potential risks/hazards were quantified for the following areas:

- BR-1: The portion of the Blackstone River upstream of Ashton Dam.
- BR-2: The portion of the Blackstone River downstream of Ashton Dam, but upstream of OU2.

- OU2: The portion of the Blackstone River adjacent to OU2, including site ponds and waters upstream of Pratt Dam.
- P-6: Background (“reference”) pond located north of the site.

6.3.1.10 Indoor Air

Indoor air at the Nunes Parcel represents a potentially complete exposure pathway for future commercial workers and residents. Specifically, if this area of the site was developed for commercial or residential use in the future, volatile COPCs in soils and/or groundwater could migrate into occupied buildings. Potential indoor air (Cbuilding) concentrations were estimated using the Johnson & Ettinger model. These estimated indoor air concentrations were used in the quantification of potential risks and hazards for the resident and commercial worker.

6.3.2 Exposure Factors

This HHRA used exposure factors that reflect conditions at the site consistent with current scientific and regulatory policy. While some exposure factors are USEPA default values, others are site-specific values that more accurately reflect exposures at the site. Per the USEPA's request, both the RME and CTE scenarios were evaluated in this HHRA. The RME scenario is intended to represent the “highest exposure that is reasonably expected to occur at a site” (USEPA, 1989), and the CTE scenario is intended to represent more realistic exposures. The exposure factors used for the receptors/pathways identified previously are presented in the Table 4 series (Appendix S) and are briefly discussed below for each medium (i.e., soil, groundwater, sediment, surface water, leachate, outdoor air, indoor air, and fish).

6.3.2.1 Reasonable Maximum Exposure

6.3.2.1.1 Soil

The RME scenario used USEPA (2002c) default values for soil ingestion (100 milligrams per day [mg/day] for the trespasser, recreational user, adult resident and commercial worker, 200 mg/day for the young child resident, and 330 mg/day for the construction worker). As requested by the USEPA, this HHRA used a soil ingestion rate of 330 mg/day for construction workers as recommended in the USEPA soil screening guidance (USEPA, 2002c). According to the USEPA (2002b), this high-end soil ingestion rate was chosen because construction workers “are likely to experience

substantial exposures to soils during excavation and other work activities..." The soil ingestion rate of 330 mg/day is based on a study by Stanek et al. (1997) and is the 95th percentile soil intake value for adults in that study.

The exposure frequencies used to quantitatively evaluate potential soil exposures for trespassers, recreational users, commercial workers, residents, and construction workers were recommended by the USEPA. For the trespasser and recreational user, it was assumed that these receptors visit the site 104 days per year, which assumes 4 days per week for approximately 6 months. Given the climate in Rhode Island and the relative size of each subarea compared to the entire site, these values are considered to be conservative. Residential exposures were assumed to occur 350 days per year for a total of 30 years (24 years as an adult, 6 years as a child). Construction workers were assumed to have more significant exposures to surface and subsurface soils, but for a shorter period of time. Given the types of intrusive activities that might occur at the site, it was assumed that a construction worker may be exposed to on-site soils for 125 days per year for 1 year (assumes that construction activities would occur during a single construction season). For the fugitive dust pathway, construction worker exposures were estimated using a particulate emission factor of 1.36×10^9 m³/kg (USEPA, 2002c). Dust inhalation was assumed to occur 8 hours on each day of the construction activities (125 days per year for 1 year). It was assumed that commercial workers may be exposed to on-site soils 250 days per year for 25 years.

To evaluate dermal contact with on-site soils for commercial and construction workers, the USEPA (2002c and 2004a) default value for skin surface area was used (3,300 square centimeters [cm²]; assumes hands, arms, and head). The USEPA (2002c and 2004a) default exposure factor for skin surface area for adults, based on residential exposures to soil, is 5,700 cm², which represents head, forearms, hands, and lower legs; this value was used for the adult recreational user and adult resident. The USEPA (2004a) default surface area for the young child resident is 2,800 cm². The surface area for the adolescent trespasser (SA = 5,900 cm²) and older child recreational user (SA = 4,400 cm²) represents the head, forearms, hands, lower legs, and feet. The USEPA (2002c and 2004a) default exposure factors for dermal adherence were used to evaluate potential soil exposures for commercial and construction workers (0.2 milligrams per square centimeters [mg/cm²] and 0.3 mg/cm², respectively). The dermal adherence factor for the commercial worker is based on the 50th percentile for utility workers, and the dermal adherence factor for the construction worker is based on the 95th percentile for construction workers (USEPA, 2004a). The USEPA (2002c and 2004a) default exposure factors for dermal adherence for adults and children, based on residential exposures to soil, are 0.07 mg/cm² (based on the

50th percentile for gardeners) and 0.2 mg/cm² (based on the 50th percentile for children playing in wet soil), respectively; these values were used for the adolescent trespasser and adult recreational user and resident (0.07) and child recreational user and resident (0.2), respectively.

6.3.2.1.2 Groundwater

The exposure pathways evaluated in this HHRA included hypothetical future residential exposure to groundwater via ingestion, dermal contact, and inhalation; exposure of construction workers to shallow groundwater via incidental ingestion and dermal contact during intrusive activities; and exposure of construction workers to volatiles in ambient air originating from groundwater. Potential risks/hazards associated with residential groundwater exposure were quantitatively evaluated for both an adult and young child receptor. The USEPA (1989 and 2002c) default exposure parameters for adult ingestion rate (IR = 2 liters per day), exposure frequency (EF = 350 days per year), and exposure duration (adult ED = 24 years, child ED = 6 years) were used for residential exposures to groundwater. As requested by the USEPA, a conservative child ingestion rate of 1.5 liters per day, which represents the USEPA's (1997a) 90th percentile value for children less than 5 years of age, was used to quantify potential risks/hazards for the child receptor. (The USEPA [1989 and 2002c] default for a child drinking water ingestion rate is 1 liter per day.)

To evaluate dermal exposure of construction workers to shallow groundwater, a skin surface area of 2,100 cm² was used (assumes arms and hands). Similar to the evaluation of soil exposures, it was assumed that a construction worker may be exposed to shallow groundwater for 125 days per year for 1 year (assumes that construction activities would be of limited duration).

6.3.2.1.3 Sediment

The exposure pathways evaluated in this HHRA for sediment included current and future exposure of trespassers and recreational users to sediments within the Blackstone River and site ponds via incidental ingestion and dermal contact. The exposure parameters used for the trespasser and recreational user under a wading scenario were the same as those used to evaluate soil exposures, except for the EF and dermal adherence factor. An exposure frequency of 52 days per year was used, which equals 2 days per week for approximately 6 months. A dermal adherence factor of 0.3 was used to evaluate sediment exposures; this value represents the 95th percentile for children playing in moist soil (USEPA, 2004a).

6.3.2.1.4 Surface Water

The exposure pathways evaluated in this HHRA for surface water included current and future exposure of trespassers and recreational users to surface water within the Blackstone River and site ponds via dermal contact under a wading scenario. Also, exposure to surface water via incidental ingestion and dermal contact was evaluated under a swimming scenario. The exposure parameters used to quantitatively evaluate dermal surface-water exposures for the trespasser and recreational user under a wading scenario were the same as those used to evaluate sediment exposures. The skin surface areas used for the trespasser and recreational user ($SA = 7,600$ and $7,310 \text{ cm}^2$, respectively) wading scenario assume hands, feet, forearms, and lower legs.

Skin surface areas used for swimming scenarios are the USEPA (1997a and 2004a) defaults. Likewise, the incidental ingestion rate for the swimming scenario is the USEPA (1989) default rate (0.05 liters per hour). The exposure frequency for the RME swimming scenario is 32 days per year.

6.3.2.1.5 Leachate

The exposure pathways evaluated in this HHRA for leachate included current and future exposure of trespassers and recreational users to leachate at the J.M. Mills Landfill. Although no seeps were observed at the site by BBL personnel, this pathway was quantitatively evaluated at the request of the USEPA using surrogate groundwater data collected near the toe of the J.M. Mills Landfill. Receptors were assumed to be exposed via dermal contact, and the exposure parameters used in the quantification of potential risks/hazards for leachate were the same as those used for surface water, except for the skin surface area. Skin surface areas for the trespasser, adult recreational user, and older child recreational user assumed lower legs, feet, and hands ($SA = 3,700$, $4,500$, and $2,700 \text{ cm}^2$, respectively). The RME exposure frequency was 52 days per year.

6.3.2.1.6 Outdoor Air (J.M. Mills Landfill)

This HHRA evaluated current and future exposure of trespassers, site workers, and recreational users to ambient air across the J.M. Mills Landfill. The exposure parameters (i.e., exposure frequency and exposure duration) used to quantitatively evaluate potential outdoor air exposures were the same as those used to evaluate soil exposures. It was assumed that the trespasser and recreational user would be

exposed for 1 hour per day, while the site worker was assumed to be exposed for 8 hours per day. The RME exposure frequency was 104 days per year for the trespasser and recreational user and 150 days per year for the site worker. The site worker exposure duration under the RME scenario was 25 years.

6.3.2.1.7 Outdoor Air (Trench)

To evaluate potential future exposure of construction workers to ambient air within an excavation trench at the Nunes Parcel, trench concentrations (C_{building}) were estimated using the Johnson & Ettinger model. Construction workers were assumed to be exposed for 8 hours per day for 125 days per year, which was consistent with the exposure frequency used to evaluate potential soil exposures.

6.3.2.1.8 Indoor Air

This HHRA evaluated future exposure of commercial workers and residents to indoor air at the Nunes Parcel. Commercial receptors were assumed to be exposed for 8 hours per day for 250 days per year, which is the USEPA (2002c) default exposure frequency for indoor workers under an RME scenario. Residential receptors were assumed to be exposed for 24 hours per day for 350 days per year, which are USEPA (1997a) defaults.

6.3.2.1.9 Fish

The exposure pathways evaluated in this HHRA for fish included consumption of edible-sized fish from the Blackstone River and site ponds by recreational users (adults and young child age 1 through 6 years). It was assumed that all fish species from all water bodies (i.e., river and ponds) were consumed at an equal rate. Per the USEPA's request, fish ingestion rates for the adult and young child were taken from Ebert and Harrington (1993). The RME adult fish ingestion rate used was 14 grams per day, and the child fish ingestion rate was 6.1 grams per day. The USEPA (1989) default residential values were used for the exposure frequencies and exposure durations.

6.3.2.1.10 Fraction Ingested from the Site

It was assumed that site media (e.g., soil, groundwater, sediment, surface water, fish) account for 100 percent of potential exposures. However, this value is conservative as it assumes that trespasser and recreational users only use site resources, and it does

not consider exposure of these receptors to other larger and potentially more attractive areas in the region.

6.3.2.2 Central Tendency Exposure

6.3.2.2.1 Soil

The CTE scenario used USEPA (2002c) default values for soil ingestion (50 mg/day for the trespasser, recreational user, adult resident, and commercial worker, 100 mg/day for the young child resident, and 330 mg/day for the construction worker). As requested by the USEPA, this HHRA used a soil ingestion rate of 330 mg/day for construction workers as recommended in the USEPA soil screening guidance (USEPA, 2002c). According to the USEPA (2002b), this high-end soil ingestion rate was chosen because construction workers “are likely to experience substantial exposures to soils during excavation and other work activities...” The soil ingestion rate of 330 mg/day is based on a study by Stanek et al. (1997) and is the 95th percentile soil intake value for adults in that study.

The exposure frequencies used to quantitatively evaluate potential soil exposures for trespassers, recreational users, commercial workers, residents, and construction workers were recommended by the USEPA. For the trespasser and recreational user, it was assumed that these receptors are visiting the site 52 days per year, which assumes 2 days per week for approximately 6 months. Given the climate in Rhode Island and the relative size of each subarea compared to the entire site, these values likely overstate exposure, and therefore, risks. Residential exposures were assumed to occur 350 days per year for a total of 13 years (7 years as an adult, 6 years as a child). Construction workers were assumed to have more significant exposures to surface and subsurface soils, but for a shorter period of time. Given the types of intrusive activities that might occur at the site, it was assumed that a construction worker may be exposed to on-site soils for 62 days per year for 1 year (assumes that construction activities would occur during a single construction season). For the fugitive dust pathway, construction worker exposures were estimated using a particulate emission factor of $1.36 \times 10^9 \text{ m}^3/\text{kg}$ (USEPA, 2002c). Dust inhalation was assumed to occur 8 hours on each day of the construction activities (62 days per year for 1 year). It was assumed that commercial workers may be exposed to on-site soils 219 days per year over the course of 9 years.

The exposure parameters (e.g., adherence factors, skin surface areas) used to evaluate dermal contact with on-site soils for trespassers, recreational users,

commercial workers, residents, and construction workers were the same as those used for the RME scenario.

6.3.2.2.2 Groundwater

The exposure pathways evaluated in this HHRA included hypothetical future residential exposure to groundwater via ingestion, dermal contact and inhalation, and exposure of construction workers to shallow groundwater via incidental ingestion and dermal contact during intrusive activities. However, it is assumed that institutional controls will eliminate any groundwater ingestion potential following site closure. Potential risks/hazards associated with residential groundwater exposure were quantitatively evaluated for both an adult and young child receptor. The drinking water ingestion rates (adult IR = 1.4 liters per day and child IR = 0.87 liters per day) used for the CTE scenario represent the 50th percentile value from the USEPA (1997a). Based on the USEPA (1994a) Region 1 guidance, a combined 9-year residential exposure duration was used for the CTE scenario (adult ED = 7 years, child ED = 2 years).

To evaluate dermal exposure of construction workers to shallow groundwater, a skin surface area value of 2,100 cm² was used. Similar to the evaluation of soil exposures, it was assumed that a construction worker may be exposed to shallow groundwater for 62 days per year for 1 year (assumes that construction activities would be of limited duration).

6.3.2.2.3 Sediment

The exposure pathways evaluated in this HHRA for sediment included current and future exposure of trespassers and recreational users to sediments within the Blackstone River and site ponds via incidental ingestion and dermal contact. The exposure parameters used to quantitatively evaluate sediment exposures for the trespasser and recreational user under a CTE wading scenario were the same as those used to evaluate soil exposures, except for the exposure frequency and dermal adherence factor. An exposure frequency of 26 days per year was used, which equals 2 days per week for approximately 3 months. A dermal adherence factor of 0.3 was used to evaluate sediment exposures; this value represents the 95th percentile for children playing in moist soil (USEPA, 2004a).

6.3.2.2.4 Surface Water

The exposure pathways evaluated in this HHRA for surface water included current and future exposure of trespassers and recreational users to surface water within the Blackstone River and site ponds via dermal contact under a wading scenario. Also, exposure to surface water via incidental ingestion and dermal contact was evaluated under a swimming scenario. The exposure parameters used to quantitatively evaluate dermal surface-water exposures for the trespasser and recreational user under a wading scenario were the same as those used to evaluate sediment exposures. The skin surface areas used for the trespasser and recreational user ($SA = 7,600$ and $7,310 \text{ cm}^2$, respectively) wading scenario assume hands, feet, forearms, and lower legs.

Skin surface areas used for swimming scenarios are the USEPA (1997a and 2004a) defaults. Likewise, the incidental ingestion rate for the swimming scenario was the USEPA (1989) default contact rate (0.05). The exposure frequency used for the CTE swimming scenario was 16 days per year.

6.3.2.2.5 Leachate

The exposure pathways evaluated in this HHRA for leachate included current and future exposure of trespassers and recreational users to leachate at the J.M. Mills Landfill. Although no seeps were observed at the site by BBL personnel, this pathway was quantitatively evaluated at the request of the USEPA using surrogate groundwater data collected near the toe of the J.M. Mills Landfill. Receptors were assumed to be exposed via dermal contact, and the exposure parameters used in the quantification of potential risks/hazards for leachate were the same as those used for surface water, except for the skin surface area. Skin surface areas for the trespasser, adult recreational user, and older child recreational user assumed lower legs, feet, and hands ($SA = 3,700$, $4,500$, and $2,700 \text{ cm}^2$, respectively). The CTE exposure frequency was 26 days per year.

6.3.2.2.6 Outdoor Air (J.M. Mills Landfill)

This HHRA evaluated current and future exposure of trespassers, site workers, and recreational users to ambient air across the J.M. Mills Landfill. The exposure parameters (i.e., exposure frequency and exposure duration) used to quantitatively evaluate potential outdoor air exposures were the same as those used to evaluate soil exposures. It was assumed that the trespasser and recreational user would be

exposed for 1 hour per day, while the site worker was assumed to be exposed for 8 hours per day. The CTE exposure frequency was 52 days per year for the trespasser and recreational user and 150 days per year for the site worker. The site worker exposure duration under the CTE scenario was 9 years.

6.3.2.2.7 Outdoor Air (Trench)

To evaluate potential future exposure of construction workers to ambient air within an excavation trench at the Nunes Parcel, trench concentrations were estimated using the Johnson & Ettinger model. Construction workers were assumed to be exposed for 8 hours per day for 62 days per year, which was consistent with the exposure frequency used to evaluate potential soil exposures.

6.3.2.2.8 Indoor Air

This HHRA evaluated future exposure of commercial workers and residents to indoor air at the Nunes Parcel. Commercial receptors were assumed to be exposed for 8 hours per day for 219 days per year under the CTE scenario. Residential receptors were assumed to be exposed for 16 hours per day for 350 days per year.

6.3.2.2.9 Fish

The exposure pathways evaluated in this HHRA for fish included consumption of fish from the Blackstone River and site ponds by recreational users (adults and young child age 1 through 6 years). It was assumed that all fish species from all water bodies (i.e., river and ponds) were consumed at an equal rate. Per the USEPA's request, fish ingestion rates for the adult and young child were taken from Ebert and Harrington (1993). The adult CTE fish ingestion rate used was 8.9 grams per day, and the child fish ingestion rate was 3.7 grams per day. The USEPA (1989) default residential values were used for the exposure frequencies and exposure durations.

6.3.2.2.10 Fraction Ingested from the Site

It was assumed that site media (e.g., soil, groundwater, sediment, surface water, fish) account for 100 percent of potential exposures. However, this value is conservative as it assumes that trespassers and recreational users only use site resources, and it does not consider exposure of these receptors to other larger and potentially more attractive areas in the region.

6.3.2.3 Air Modeling

Two types of models (indoor air and ambient air) were used in this HHRA to estimate potential indoor, ambient, and outdoor (trench) air concentrations for the following pathways:

- current exposure of trespassers and site workers to ambient air across the J.M. Mills Landfill (SCREEN3 model)
- future exposure of recreational users (adults and older children) to ambient air across the J.M. Mills Landfill (SCREEN3 model)
- future exposure of construction workers to outdoor air within a trench for the Nunes Parcel (Johnson & Ettinger model)
- future exposure of commercial workers to indoor air for buildings on the Nunes Parcel (Johnson & Ettinger model)
- future exposure of residents to indoor air for buildings on the Nunes Parcel (Johnson & Ettinger model)

6.3.2.3.1 Indoor Air

To estimate potential indoor air concentrations for the Nunes Parcel resulting from migration of VOCs and SVOCs from soil and/or groundwater, the Johnson & Ettinger (USEPA, 2004b) basement model was used. Standard default model parameters (e.g., soil-building pressure differential, enclosed space floor dimensions) for the advanced soil (SL-ADV) and groundwater (GW-ADV) models were used to estimate the infinite source building concentrations (C_{building}), which were used as the EPC to quantitatively evaluate potential risks/hazards. To be conservative, it was assumed that soils at the Nunes Parcel primarily consisted of sand. Use of the standard default model parameters is likely conservative because they represent residential single

family dwellings rather than industrial buildings, which may likely have a greater air exchange rate and larger mixing dimensions.

Johnson & Ettinger model outputs for the COPC screening are included as Appendix T to this RI Report. The same model parameters were used to develop EPCs (i.e., Cbuilding concentrations that were used as EPCs in the quantification of potential risks and hazards). To develop EPCs using the model, UCLs were calculated for the soil and groundwater COPC data using ProUCL; these UCLs were then used in the model to estimate the infinite source building concentrations (Cbuilding) that were used in the quantitative evaluation of risks and hazards for the indoor air pathway.

6.3.2.3.2 Outdoor Air (Trench)

To estimate potential outdoor (trench) air concentrations for the Nunes Parcel resulting from migration of VOCs and SVOCs from soil and/or groundwater, the Johnson & Ettinger (USEPA, 2004b) slab-on-grade model was used. To be conservative, it was assumed that soils at the Nunes Parcel primarily consisted of sand. It was assumed that the excavated trench was 8 feet high, 8 feet long, and 3 feet wide. Depth to groundwater was assumed to be 13 feet bgs. The VDEQ (2007) air exchange rate of 2 per hour was used for the trenching scenario. The VDEQ (2007) air exchange rate of 2 per hour is based on measured ventilation rates of buildings. According to the VDEQ (2007), the air exchange rate is dependent on the ratio of trench width (relative to wind direction) to trench depth; if this ratio is equal to or less than 1, a circulation cell(s) will be set up within the trench that limits the degree of gas exchange with the atmosphere. However, if the ratio of trench width to trench depth is greater than 1, the air exchange is not restricted and is assumed to be upwards of 360 per hour (VDEQ, 2007). Therefore, use of the 2 per hour air exchange rate is thought to be conservative.

The Johnson & Ettinger model outputs for the COPC screening are included in Appendix T to this RI Report. The same model parameters were used to develop EPCs (i.e., Cbuilding concentrations that were used as EPCs in the quantification of potential risks and hazards). To develop EPCs using the model, UCLs were calculated for the soil and groundwater COPC data using ProUCL; these UCLs were then used in the model to estimate the infinite source building concentrations that were used in the quantitative evaluation of risks and hazards for the outdoor (trench) air pathway.

6.3.2.3.3 Ambient Air (J.M. Mills Landfill)

COPC concentrations were estimated at discrete distance intervals from passive gas vents located on the J.M. Mills Landfill using analytical data from ambient air (vent) grab samples and conservative exposure assumptions in the USEPA SCREEN3 air dispersion model. Meteorological data for the model was obtained from the National Oceanic and Atmospheric Administration National Climatic Data Center (NCDC) for the Pawtucket, Rhode Island weather station; this information indicated that winds generally blow from the southwest, west, or north in the vicinity of the site (NCDC, 2007).

SCREEN3 is a single source Gaussian plume model that provides maximum ground-level ambient air concentrations for point, area, flare, and volume sources. SCREEN3 can also generate concentration estimates for the cavity zone in building downwash scenarios and concentrations due to inversion break-up and shoreline fumigation. SCREEN3 is a screening version of the Industrial Source Complex model, Version 3. SCREEN3 assumes that the constituents do not undergo chemical transformation, and no other removal processes, such as wet or dry deposition, act on the plume during transport (USEPA, 1995).

Appendix X (Table 1) to this RI Report presents the SCREEN3 model input parameters used for this analysis. Limited data were available to characterize the landfill vents. Shield Environmental Associates, Inc. (Shield) indicates that vent height ranges from ground surface to approximately 3 feet, and inside vent diameter is 4 inches (pers. comm., J. Knauss, May 1, 2007). Default values were used for stack gas temperature (298 K) and ambient gas temperature (293 K). Receptor height (1.75 meters or 5.7 feet aboveground) was estimated using professional judgment for standard breathing zone height.

The J.M. Mills Landfill vent gas flow rate was estimated based on the range of values provided in the literature. Two studies present landfill gas flow rates (Kleinfelder, 2006; Gebert and Groengroeft, 2006). Kleinfelder (2006) reports gas flow rates from passive vents at the Old Southington Landfill Superfund Site in Connecticut ranging from 0.088 cubic feet per minute (ft^3/min) (0.000042 cubic meters per second [m^3/sec]) to $16.1 \text{ ft}^3/\text{min}$ ($0.00760 \text{ m}^3/\text{sec}$). Gebert and Groengroeft (2006) reported gas flow rates from biofiltered passive vents at a harbor sludge disposal landfill in Hamburg, Germany ranging from -4 cubic meters per hour (m^3/hr) ($-0.001 \text{ m}^3/\text{sec}$) to $4 \text{ m}^3/\text{hr}$ ($0.001 \text{ m}^3/\text{sec}$). As noted by Gebert and Groengroeft (2006), passive emission rates of landfill gas are influenced by the pressure gradient between the landfill and the atmosphere, and as such, these rates are sensitive to local conditions. Therefore, the rates from the Old Southington Landfill in Connecticut were considered more representative of

potential emission rates for the J.M. Mills Landfill, located in Rhode Island, than the landfill located in Hamburg, Germany. For conservatism, the maximum reported gas emission rate from the Old Southington Landfill in Connecticut was selected for this analysis.

Site-specific gas emission rates from landfill vents were unavailable. Emission rates were, therefore, estimated using the landfill vent gas flow rate and the analytical results of ambient air grab samples collected by Shield in October 2003 near three vents located near the crest of the landfill (AR001-LF, ARFD-1, AR002-LF, and AR003-LF). Half detection limits were used for COPCs that were not detected in air grab samples. Emission rates for each vent were estimated using the following equation:

$$ER = EC * CF * GFR \quad 6.1$$

where:

- ER = emission rate (grams per second)
- EC = air emission concentration (micrograms per cubic meter)
- CF = conversion factor (10^{-6} grams per microgram)
- GFR = gas flow rate (m^3/sec)

Model assumptions include a single point emission source for a “representative stack.” The *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised* (USEPA, 1992) recommends merging emissions parameters for multiple stacks with similar parameters. As the vents on the J.M. Mills Landfill occupy an area less than 100 meters in linear distance and have similar construction, emission rates from each vent were summed to generate the emission rates used for each COPC in the model. These point emission rates are presented in Appendix X (Table 2) to this RI Report.

Given the environmental setting for the J.M. Mills Landfill, particularly the distance to buildings and other urban structures, rural dispersion coefficients were used in the model, and no building downwash was assumed.

The J.M. Mills Landfill vents are located near and just below the crest of the J.M. Mills Landfill. The crest may exceed vent openings by up to approximately 10 feet within a lateral distance of 20 to 30 feet from the vents. This scenario was modeled using the complex terrain option in SCREEN3. Complex terrain scenarios are utilized for

scenarios in which terrain elevations exceed stack height. In these calculations, receptor height is assumed to be at ground surface on the elevated terrain.

Flat terrain was also modeled, assuming full meteorology (i.e., the model evaluates potential plume concentrations for each stability class and associated wind speeds) for distances from the “representative stack” of 1 to 650 meters. The nearest fence line to the vents is located approximately 90 meters to the northeast. The farthest fence line to the vents is located approximately 650 meters to the northwest.

SCREEN3 outputs include the maximum modeled 1 hour concentration across stability classes for each distance modeled from the source (USEPA, 1995). The results of the complex terrain modeling indicate that plume height is less than the terrain height at the crest of the J.M. Mills Landfill. As such, modeled exposure to receptors at ground surface on the crest of the J.M. Mills Landfill is negligible.

The results of the modeling indicate that maximum concentrations are present nearest the source (the vents); concentrations decrease as distance increases laterally toward the fence line and away from the vent location. The results from the flat terrain scenario were assumed to represent COPC concentrations on concentric circles radiating out from the “representative stack,” which was assumed to occupy the location of the central vent, Vent 3 (see Figure 1 in Appendix X). Modeled concentrations for locations within the area of the J.M. Mills Landfill were used to estimate RME and CTE ambient air concentrations across the J.M. Mills Landfill.

Specifically, RME ambient air concentrations for the J.M. Mills Landfill were estimated by averaging modeled 1 hour maximum concentrations for points within the J.M. Mills Landfill along the approximate four cardinal (north, south, east, west) and four intercardinal (northeast, southeast, southwest, northwest) directions at each modeled distance from the plume. Appendix X (Figure 1) presents approximate locations for the modeled air concentration locations included in the RME ambient air concentration calculations (in red). RME EPCs are presented in Appendix X (Table 3).

CTE ambient air concentrations for the J.M. Mills Landfill were estimated by multiplying the RME ambient air concentration by a factor of 0.7 to estimate the maximum 8-hour concentration across the J.M. Mills Landfill. The USEPA (1992) recommends the use of this factor to convert 1 hour maximum concentrations into 8-hour maximum concentrations. CTE EPCs are presented in Appendix X (Table 3).

6.3.3 Intakes

Intakes (i.e., average daily doses) for the ingestion and dermal contact exposure pathways are expressed in milligrams per kilogram of body weight per day (mg/kg-day) and were calculated using the EPC and applying the exposure factors that account for ingestion rates, exposure frequency, exposure duration, body weight, and averaging time.

Intakes for the inhalation exposure pathways are expressed in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and were calculated using the EPC and applying the exposure factors that account for exposure time, exposure frequency, exposure duration, and averaging time.

Intake equations and associated exposure factors used in this HHRA are presented in the Tables 4 series (Tables 4.1 RME through 4.13 CTE) (Appendix S). Intakes for individual exposure pathways and receptors are presented in the Table 7 series (Appendix S).

6.4 Toxicity Assessment

The toxicity assessment identifies the potential effects that are associated with exposure to a given chemical. The USEPA's guidance evaluates two types of toxic effects: carcinogenic effects and non-carcinogenic effects. To quantify carcinogenic effects, the USEPA has derived slope factors (SFs) for those chemicals found to cause a dose-related, statistically significant increase in tumor incidence in an exposed population relative to the incidence of tumors observed in an unexposed population. These dose-related incidence rates are usually determined in a laboratory study. SFs are typically developed based on oral toxicity studies and are reported as risk per dose in units of $(\text{mg}/\text{kg}\cdot\text{day})^{-1}$. The SFs are used to quantify the potential risk of cancer associated with a given exposure. Unit risk factors are based on inhalation studies and are reported in units of $(\mu\text{g}/\text{m}^3)^{-1}$. The weight-of-evidence classifications for carcinogenic COPCs for the oral/dermal pathways are presented in Table 6.1 (Appendix S). The weight-of-evidence classifications for carcinogenic COPCs for the inhalation pathway are presented in Table 6.2 (Appendix S).

To quantify non-carcinogenic effects, the USEPA has derived oral reference doses (RfDs) in units of mg/kg-day that represent a threshold of toxicity. RfDs are intended to represent "an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to

be without an appreciable risk of deleterious effects during a lifetime" (USEPA, 1989). Reference concentrations were derived for the inhalation pathway and are presented in units of $\mu\text{g}/\text{m}^3$. Table 5.1 (Appendix S) presents non-cancer toxicity data for the oral/dermal pathways, and Table 5.2 (Appendix S) presents non-cancer toxicity data for the inhalation pathway. Consistent with the USEPA Region 1 guidance, surrogate RfDs were used for non-carcinogenic PAHs lacking toxicity values (e.g., naphthalene for 2-methylnaphthalene).

The oral SFs and RfDs described above were used to evaluate both ingestion and dermal contact exposure routes. Because most oral toxicity values are based on an administered dose, these toxicity values were sometimes adjusted (expressed as an absorbed dose) when evaluating dermal exposure scenarios. The USEPA requires this adjustment only when the gastrointestinal absorption of a compound is less than 50 percent (USEPA, 2004b).

Toxicity data presented are from the USEPA Integrated Risk Information System on-line database (USEPA, 2009), the USEPA Superfund Technical Support Center (STSC), the California Environmental Protection Agency (CalEPA), the Agency for Toxic Substances and Disease Registry (ATSDR), and the USEPA (1997b) Health Effects Assessment Summary Tables. The selection of toxicity values was based on the USEPA (2003b) recommended hierarchy for human health toxicity values. The USEPA (2003b) memorandum on human health toxicity values describes a three-tiered hierarchy that consists of: Tier 1 – Integrated Risk Information System (IRIS); Tier 2 – Provisional Peer Reviewed Toxicity Values developed by STSC; and Tier 3 – Other Toxicity Values, including USEPA and non-USEPA sources, such as CalEPA, (ATSDR), and Health Effects Assessment Summary Table(s).

The quantitative evaluation of potential risks for carcinogens with a mutagenic mode of action (i.e., carcinogenic PAHs, vinyl chloride) followed the USEPA guidance entitled *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens* (USEPA, 2005). Specifically, the quantification of cancer risks for child receptors involves the use of age-dependent adjustment factors (ADAFs). An ADAF of 10 was used for exposures occurring before 2 years of age (0 to less than 2), and an ADAF of 3 was used for exposures occurring between 2 and less than 16 years of age, and an ADAF of 1 was used for exposures occurring after 16 years of age (USEPA, 2005). These ADAFs were used to quantify potential cancer risks for children and adolescents for all exposure pathways (i.e., ingestion, dermal contact, and inhalation). This approach was used for all carcinogenic PAHs [i.e., all PAHs with a toxic equivalency factor related to benzo(a)pyrene]. The evaluation of potential carcinogenic

risks for child receptors for inhalation of vinyl chloride used pro-rated equations as presented in the *Toxicological Profile for Vinyl Chloride* (IRIS, 2000). These methodologies are further discussed in Section 6.5.2.

6.5 Risk Characterization

The risk characterization integrates the results of the data evaluation, toxicity assessment, and exposure assessment to evaluate potential risks associated with exposure to site-related constituents in site soils, groundwater, sediments, surface water, leachate, ambient air, outdoor (trench) air, indoor air, and fish. Consistent with the USEPA (1989) guidance, the potential for carcinogenic risks and non-carcinogenic health hazards are evaluated separately.

The RAGS D Table 7 series and the Table 9 series (Appendix S) present the cancer and non-cancer intakes, as well as the cancer risks and non-cancer hazards, respectively. The Table 8 series are not presented as part of this HHRA because radiation risks are not of concern for the site. The Table 10 series (Appendix S) presents the media and exposure points with risks and hazards above the risk management range (i.e., risks greater than 1×10^{-4} and target organ hazard indices [HIs] greater than 1).

6.5.1 Non-Carcinogenic Health Hazards

The HI is used to characterize potential non-carcinogenic health hazards associated with exposure to multiple chemicals. This approach assumes that sub-threshold chronic exposures to multiple chemicals are additive. However, HQs should only be summed for constituents with the same target organ. The Table 7 series presents a cumulative HI, while the Table 9 series (Appendix S) presents target organ-specific HIs. The Table 10 series (Appendix S) presents exposure pathways with non-cancer target organ hazards greater than 1. The HI is calculated as follows:

$$HI = E1/RfD1 + E2/RfD2 + \dots + Ei/RfDi \quad 6.2$$

where:

HI = Hazard Index

E/RfD = HQ

E_i = Exposure intake for the i^{th} chemical (mg/kg-day)

RfD_i = RfD for the i^{th} chemical

An HQ value greater than 1 indicates that a calculated exposure is greater than the RfD for a given constituent and that there may be some potential for health concerns. Similarly, an HI greater than 1 indicates that overall exposure to all chemicals of interest may present a concern (USEPA, 1989).

The quantification of potential non-cancer hazards associated with the water pathways (i.e., surface water and groundwater) followed Exhibit 1-2 in the USEPA (2004a) RAGS Part E guidance. Specifically, if dermal assessment was not recommended in USEPA (2004a) RAGS Part E, no further evaluation of the dermal pathway was conducted for that constituent. Documentation related to the dermal pathway is provided in Appendix U to this RI Report.

Non-carcinogenic health hazards for each subarea of the site are discussed separately below.

6.5.1.1 J.M. Mills Landfill

RME and CTE non-cancer hazards for current landfill scenarios (i.e., exposure of receptors to surface soil, leachate, surface water, sediment, and ambient air) were equal to or below the USEPA target (HI = 1).

The future RME scenario involving exposure of recreational users (older children) to surface soil, sediments, surface water, ambient air, and leachate under a swimming scenario has HIs slightly above the USEPA target (RME HI for a swimming scenario was 2). Polychlorinated biphenyls (PCBs) in surface soil and metals (aluminum, cadmium and chromium) in surface water were the primary hazard drivers for this exposure scenario. However, target organ HIs were less than 1 for all media.

Non-cancer hazards for all other future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the landfill were equal to or less than the USEPA target.

6.5.1.2 Debris Fields

Non-cancer hazards for all current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the debris fields were less than the USEPA target for both RME and CTE scenarios.

6.5.1.3 Quinnville Wellfield

Non-cancer hazards for all current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the Quinnville Wellfield were less than or equal to the USEPA target for both RME and CTE scenarios.

6.5.1.4 Southern Bank

Non-cancer hazards for all current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the Southern Bank were less than or equal to the USEPA target for both RME and CTE scenarios.

6.5.1.5 Nunes Parcel

Non-cancer hazards for all current and future exposure pathways for non-residential receptors involving direct exposure of receptors to environmental media (i.e., soil, sediment, and surface water for recreational users and trespassers; soil, outdoor (trench) air and shallow groundwater for construction workers) within (or adjacent to) the Nunes Parcel were less than or equal to 1 for both RME and CTE scenarios. The non-cancer RME and CTE HI for exposure of future commercial workers to surface and subsurface soils and indoor air at the Nunes Parcel was 2, but target organ HQs were less than or equal to 1. Benzene had the highest HQ for indoor air (HQ of 1 for both RME and CTE scenarios).

As requested by the USEPA, a hypothetical residential scenario was evaluated for the Nunes Parcel (i.e., residential exposure to surface and subsurface soils and indoor air). The non-cancer RME and CTE HIs for the resident were 10 and 7, respectively. Target organ HIs exceeded 1 due to benzene in indoor air (HQ of 5 for RME scenario; HQ of 3 for the CTE scenario)

6.5.1.6 Wetlands

Non-cancer hazards for all current and future exposure pathways involving exposure of receptors to environmental media within the wetlands were less than the USEPA target for both RME and CTE scenarios.

6.5.1.7 Blackstone River and Operable Unit 2 Ponds

The current/future scenarios involving exposure of recreational receptors (adults and young children) to fish tissue via fish consumption have HIs greater than the USEPA target (RME HIs range from 20 to 4; CTE HIs range from 10 to 2). Area-specific HIs generally decrease in the following order: BR-2 (downstream of Ashton Dam, but upstream of OU2), OU2 (includes stretch of river adjacent to the site and site ponds), BR-1 (upstream of Ashton Dam), and P-6 (background pond). Non-cancer hazards associated with consumption of fish from the background pond (P-6) were also greater than the USEPA target, though target organ HIs were less than 1 for the CTE scenario. PCBs were the primary hazard driver for the Blackstone River and site ponds (BR-1, BR-2, and OU2). PCBs and mercury were the primary hazard drivers for the background pond (P-6).

6.5.1.8 Site-wide Groundwater (Potable Use)

The future scenarios involving exposure of residential receptors (adults and young children) to site-wide groundwater via ingestion, dermal contact, and inhalation have HIs greater than the USEPA target (RME HI of 200; CTE HI of 10). Naphthalene, PCBs, aluminum, arsenic, cadmium, cobalt, iron, manganese, thallium, and benzene were the primary hazard drivers for this exposure scenario.

6.5.1.9 Lead Evaluation

As requested by the USEPA, a lead evaluation was conducted for OU2. The lead evaluation is presented in Appendix CC and summarized briefly here. Specifically, the USEPA (2003c) Adult Lead Model (ALM) and the USEPA (1994b) Integrated Exposure Uptake Biokinetic Model were used to evaluate potential risks associated with exposure of human receptors to lead in site-related media. As requested by the USEPA, each subarea of the site was evaluated separately. The lead evaluation identified the following scenarios as having estimated (potential) lead risks above the USEPA target:

- exposure of commercial workers to soils within the RIDEM Soil Removal Area
- exposure of construction workers to soils at the Quinnville Wellfield, Southern Bank, Nunes Parcel, and RIDEM Soil Removal Area
- exposure of hypothetical young child residents to soil and groundwater from the RIDEM Soil Removal Area

However, the quantification of potential risks for the commercial worker, construction worker, and hypothetical young child resident exposed to soils within the RIDEM Soil Removal Area is based on a very limited ($n = 5$) sample size, which may present an artificially high average due to lead concentrations in sample SO-033-NP (2,380 milligrams per kilogram [mg/kg] in the 0 to 1 foot interval and 5,460 mg/kg in the 1 to 5-foot interval). Although the potential exposure of construction workers to site soils produces risks above the USEPA target, these risks would likely be mitigated with the use of proper health and safety protocols, properly trained personnel, and personal protective equipment.

6.5.2 Carcinogenic Risk

Carcinogenic risk is expressed as a probability of developing cancer over the course of a lifetime as a result of a given level of exposure (USEPA, 1989) (also referred to as "excess cancer risk"). The Table 7 series and Table 9 series (Appendix S) present cancer risks for individual COPCs for each exposure pathway and receptor. As stated previously, the Table 8 series is not presented as part of this HHRA because radiation risks are not of concern for the site. As requested by the USEPA, the Table 10 series (Appendix S) presents exposure pathways with cancer risks greater than 10^{-4} .

For a given chemical and exposure route, carcinogenic risk is calculated as follows:

$$\text{Risk} = E \times SF \quad 6.3$$

where:

$E =$ Exposure Intake (mg/kg-day)

$SF =$ Slope Factor (mg/kg-day)⁻¹

To assess overall cancer risk, risks from various COPCs are assumed to be additive and are summed (USEPA, 1989).

The USEPA uses a range of cancer risks of 1×10^{-4} to 1×10^{-6} as a “target range within which the Agency strives to manage risks as part of a Superfund cleanup” (USEPA, 1991). The National Contingency Plan states that “for known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual of between 1×10^{-4} to 1×10^{-6} ” (USEPA, 2003d). The RIDEM’s target risk range is 1×10^{-5} to 1×10^{-6} .

The quantification of potential cancer risks associated with the water pathways (i.e., surface water and groundwater) followed Exhibit 1-2 in the USEPA (2004a) RAGS Part E guidance. Specifically, if dermal assessment was not recommended in USEPA (2004a) RAGS Part E, no further evaluation of the dermal pathway was conducted for that constituent. Documentation related to the dermal pathway is provided in Appendix U to this RI Report.

For child receptors (i.e., young child, older child, and adolescent), the quantification of potential cancer risks for carcinogens with a mutagenic mode of action (i.e., carcinogenic polycyclic aromatic hydrocarbons [PAHs], vinyl chloride) followed the USEPA guidance entitled *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens* (USEPA, 2005). The quantification of cancer risks for child receptors involves the use of ADAFs. Specifically, an ADAF of 10 was used for exposures occurring before 2 years of age (0 to less than 2), an ADAF of 3 was used for exposures occurring between 2 and less than 16 years of age, and an ADAF of 1 was used for exposures occurring after 16 years of age (USEPA, 2005). These ADAFs were used to quantify potential cancer risks for children and adolescents for all exposure pathways (i.e., ingestion, dermal contact, and inhalation), where applicable. The following general equation demonstrates how ADAFs were incorporated into the risk calculations:

$$\text{Risk} = \text{Intake (mg/kg-day)} \times \text{SF (mg/kg-day)}^{-1} \times \text{ADAF}$$

The above equation was used to quantify potential cancer risks for child receptors for carcinogenic PAHs [i.e., all PAHs with a toxic equivalency factor related to benzo(a)pyrene].

Carcinogenic risks for child receptors for inhalation of vinyl chloride followed that presented in the Toxicological Profile for Vinyl Chloride (IRIS, 2000). The following

equations present the pro-rated equations used to evaluate inhalation exposures to vinyl chloride:

$$\text{Early life risk} = (4.4 \times 10^{-6} \mu\text{g}/\text{m}^3) \times \text{EPC} (\mu\text{g}/\text{m}^3)$$

$$\text{Later life risk} = (4.4 \times 10^{-6} \mu\text{g}/\text{m}^3) \times \text{EPC} (\mu\text{g}/\text{m}^3) \times (\text{ED} [\text{years}]/70)$$

$$\text{Total risk} = \text{early life risk} + \text{later life risk}$$

Carcinogenic risks for each subarea of the site are discussed separately below.

6.5.2.1 J.M. Mills Landfill

Cancer risks for current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the J.M. Mills Landfill were within or less than the USEPA target risk range of 1×10^{-4} to 1×10^{-6} for both RME and CTE scenarios.

Landfill exposure scenarios that exceeded a risk level of 1×10^{-6} were:

- current exposure of trespassers to surface soil, sediment, surface water, leachate, and ambient air (RME risk = 3×10^{-5} ; CTE risk = 9×10^{-6})
- future exposure of recreational users while wading to surface soil, sediment, surface water, leachate, and ambient air (RME risk = 5×10^{-5} ; CTE risk = 2×10^{-5})
- future exposure of recreational users while swimming to surface soil, sediment surface water, leachate, and ambient air (RME risk = 5×10^{-5} ; CTE risk = 2×10^{-5})

Exposure scenarios with risks less than 1×10^{-6} were:

- current exposure of site workers to ambient air (RME risk = 5×10^{-7} ; CTE risk = 1×10^{-7})

6.5.2.2 Debris Fields

Cancer risks for current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the debris fields were within or less than the USEPA target risk range of 1×10^{-4} to 1×10^{-6} for both RME and CTE scenarios.

Both exposure scenarios evaluated for the debris fields exceeded a risk level of 1×10^{-6} , including:

- current exposure of trespassers to surface soil, sediment, and surface water (RME risk = 2×10^{-5} ; CTE risk = 3×10^{-6})
- future exposure of recreational users while wading and swimming to surface soil, sediment, and surface water (RME risk = 3×10^{-5} ; CTE risk = 6×10^{-6})

6.5.2.3 Quinnville Wellfield

Cancer risks for current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the Quinnville Wellfield were within or less than the USEPA target risk range of 1×10^{-4} to 1×10^{-6} for both RME and CTE scenarios.

Exposure scenarios for the Quinnville Wellfield that exceeded a risk level of 1×10^{-6} were:

- current exposure of commercial workers to surface soil (RME risk = 2×10^{-5} ; CTE risk = 4×10^{-6})
- current exposure of trespassers to surface soil, sediment, and surface water (RME risk = 1×10^{-5} ; CTE risk = 4×10^{-6})
- future exposure of recreational users while wading to surface soil, sediment, and surface water (RME risk = 2×10^{-5} ; CTE risk = 7×10^{-6})
- future exposure of recreational users while swimming to surface soil, sediment, and surface water (RME risk = 2×10^{-5} ; CTE risk = 7×10^{-6})
- future exposure of commercial workers to surface soil (RME risk = 2×10^{-5} ; CTE risk = 4×10^{-6})

Exposure scenarios with risks less than 1×10^{-6} were:

- future exposure of construction workers to surface soil, including fugitive dust, and shallow groundwater (RME risk = 1×10^{-6} ; CTE risk = 6×10^{-7})

6.5.2.4 Southern Bank

Cancer risks for current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the Southern Bank were within or less than the USEPA target risk range of 1×10^{-4} to 1×10^{-6} for both RME and CTE scenarios.

Exposure scenarios for the Southern Bank that exceeded a risk level of 1×10^{-6} were:

- current/future exposure of recreational users while wading to surface soil, sediment, and surface water (RME risk = 3×10^{-5} ; CTE risk = 8×10^{-6})
- current/future exposure of recreational users while swimming to surface soil, sediment, and surface water (RME risk = 3×10^{-5} ; CTE risk = 8×10^{-6})
- current exposure of trespassers to sediment (RME risk = 5×10^{-6} ; CTE risk = 2×10^{-6})
- future exposure of construction workers to surface soil, including fugitive dust, and shallow groundwater (RME risk = 2×10^{-6})

Exposure scenarios with risks less than 1×10^{-6} were:

- future exposure of construction workers to surface soil, including fugitive dust, and shallow groundwater (CTE risk = 6×10^{-7})

6.5.2.5 Nunes Parcel

Cancer risks for current and future exposure pathways involving exposure of receptors to environmental media within (or adjacent to) the Nunes Parcel were within or less than the USEPA target risk range of 1×10^{-4} to 1×10^{-6} for both RME and CTE scenarios, except for the future hypothetical resident (adult + child) exposed to surface and subsurface soils and indoor air (RME risk = 1×10^{-3} ; CTE risk = 5×10^{-4}) and future

commercial worker exposed to surface and subsurface soils and indoor air (RME risk = 2×10^{-4}).

Exposure scenarios for the Nunes Parcel that exceeded a risk level of 1×10^{-6} were:

- current exposure of commercial workers to surface soil (RME risk = 4×10^{-5} ; CTE risk = 8×10^{-6})
- current exposure of trespassers to surface soil, sediment, and surface water (RME risk = 3×10^{-5} ; CTE risk = 1×10^{-5})
- future exposure of recreational users while wading to surface and subsurface soil, sediment, and surface water (RME risk = 7×10^{-5} ; CTE risk = 2×10^{-5})
- future exposure of recreational users while swimming to surface and subsurface soil, sediment, and surface water (RME risk = 7×10^{-5} ; CTE risk = 2×10^{-5})
- future exposure of commercial workers to surface and subsurface soil and indoor air (RME risk = 2×10^{-4} ; CTE risk = 5×10^{-5})
- future exposure of construction workers to surface and subsurface soil, including fugitive dust, outdoor (trench) air, and shallow groundwater (RME risk = 5×10^{-6} ; CTE risk = 2×10^{-6})
- future exposure of hypothetical residents to surface and subsurface soil (RME risk = 1×10^{-3} ; CTE risk = 5×10^{-4})

6.5.2.6 Wetlands

Cancer risks for current and future exposure pathways involving exposure of receptors to environmental media within the wetlands were within or less than the USEPA target risk range of 1×10^{-4} to 1×10^{-6} for both RME and CTE scenarios.

All wetland exposure scenarios exceeded a risk level of 1×10^{-6} , including:

- current exposure of trespassers to surface soil, sediment, and surface water (RME risk = 9×10^{-6} ; CTE risk = 3×10^{-6})

- future exposure of recreational users while wading to surface soil, sediment, and surface water (RME risk = 1×10^{-5} ; CTE risk = 4×10^{-6})
- future exposure of recreational users while swimming to surface soil, sediment, and surface water (RME risk = 1×10^{-5} ; CTE risk = 5×10^{-6})

6.5.2.7 Blackstone River and Operable Unit 2 Ponds

The future scenarios involving exposure of recreational receptors (adults and young children) via fish consumption from OU2, BR-1, and BR-2 have cumulative cancer risks (adult + child) greater than the USEPA target risk range (total RME risk for OU2 = 2×10^{-4} ; total RME risk for BR-1 = 2×10^{-4} ; total RME risk for BR-2 = 3×10^{-4}). RME cancer risks for the background pond (P-6 = 5×10^{-5}) were within the USEPA target risk range of 1×10^{-4} to 1×10^{-6} . Under a CTE scenario, cancer risks for OU2, BR-1, BR-2, and P-6 were within the USEPA target risk range (4×10^{-5} , 3×10^{-5} , 6×10^{-5} , and 1×10^{-5} , respectively). All risks associated with fish consumption were above a risk level of 1×10^{-6} , including the background (reference) pond.

Area-specific risks generally decrease in the following order: BR-2 (downstream of Ashton Dam, but upstream of OU2), OU2 (includes stretch of river adjacent to the site and site ponds), BR-1 (upstream of Ashton Dam), and P-6 (background pond). Cancer risks (adult + child) associated with consumption of fish from the background pond (P-6) were above 1×10^{-6} (RME risk = 5×10^{-5} ; CTE risk = 1×10^{-5}). PCBs, carcinogenic PAHs, pesticides, and arsenic were the primary risk driver for the Blackstone River and site ponds (BR-1, BR-2, and OU2).

Because there was no apparent association between the proximity to OU2 and elevated risks from the consumption of fish, a statistical evaluation (i.e., analysis of variance) was conducted to determine if there were statistically significant differences in fish tissue PCB concentrations in the various areas evaluated in this assessment. The results of this analysis are provided in Section 6.6.3.1. This analysis concluded that, in general, PCB concentrations in fish collected from OU2 ponds and the portion of the Blackstone River adjacent to the site were not significantly different from PCB homolog concentrations in fish collected from upstream locations within the Blackstone River (BR-1 and BR-2). A memorandum describing the Analysis of Variances (ANOVAs) is included as Appendix Y to this RI Report. It should be noted that the Massachusetts Department of Environmental Protection issued a Fish Advisory for the Blackstone River in Massachusetts for elevated PCBs in fish tissue in the 1990s.

6.5.2.8 Site-wide Groundwater (Potable Use)

The future scenarios involving exposure of residential receptors (adults and young children) to sitewide groundwater via ingestion, dermal contact, and inhalation have cumulative RME cancer risks greater than the USEPA target of 1×10^{-4} to 1×10^{-6} (total RME risk = 7×10^{-3} [adult + child]). However, under a CTE scenario, cumulative cancer risks are within the USEPA target risk range of 1×10^{-4} to 1×10^{-6} , but above 1×10^{-6} (total CTE risk = 1×10^{-4} [adult + child]). Arsenic, carcinogenic PAHs, 1,4-dioxane, 4-chloroaniline, atrazine, bis(2-ethylhexyl)phthalate, naphthalene, 1,4-dichlorobenzene, chloroform, ethylbenzene, methyl tert-butyl ether, tetrachloroethene, trichloroethene, vinyl chloride, aldrin, dieldrin, PCBs, and benzene were the primary risk drivers for this exposure scenario.

6.5.3 Summary

The following table presents a summary of total risks and hazards (risks/hazards that exceed a cancer risk of 1×10^{-4} and a target organ HI of 1 are highlighted):

Exposure Point	Scenario/Receptor	Exposure Media	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
Southern Bank	Current Older Child/Adult Rec. User	surface soil, surface water, sediment	RME	3E-05	3E-01		N/A
			CT	8E-06	6E-02		
Nunes Parcel	Current Adult Commercial Worker	surface soil	RME	4E-05	3E-01		N/A
			CT	8E-06	2E-01		
Quinnville Wellfield	Current Adult Commercial Worker	surface soil	RME	2E-05	3E-01		N/A
			CT	4E-06	1E-01		
Nunes Parcel	Current Adolescent Trespasser	surface soil, surface water, sediment	RME	3E-05	3E-01		N/A
			CT	1E-05	1E-01		
Quinnville Wellfield	Current Adolescent Trespasser	surface soil, surface water, sediment	RME	1E-05	3E-01		N/A
			CT	4E-06	6E-02		

Exposure Point	Scenario/ Receptor	Exposure Media	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
Upstream of Landfill (Debris Fields)	Current Adolescent Trespasser	surface soil, surface water, sediment	RME CT	2E-05 3E-06	3E-01 4E-02		N/A
Wetlands	Current Adolescent Trespasser	surface soil, surface water, sediment	RME CT	9E-06 3E-06	9E-02 2E-02		N/A
Landfill	Current Adolescent Trespasser	surface soil, surface water, sediment, leachate, ambient air	RME CT	3E-05 9E-06	8E-01 3E-01		N/A
Southern Bank	Current Adolescent Trespasser	sediment	RME CT	5E-06 2E-06	4E-02 1E-02		N/A
Landfill	Current Adult Site Worker	ambient air	RME CT	5E-07 1E-07	1E-02 7E-03		N/A
OU2	Current/Future Young Child/Adult Rec. User	Fish Tissue (Fillet)	RME CT	2E-04 4E-05	1E+01 8E+00	Fish Tissue	(C) - benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCBs, aldrin, dieldrin, arsenic (NC) - PCBs
BR-1	Current/Future Young Child/Adult Rec. User	Fish Tissue (Fillet)	RME CT	2E-04 3E-05	1E+01 6E+00	Fish Tissue	(C) - benzo(a)pyrene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCBs, dieldrin, heptachlor epoxide, arsenic (NC) - PCBs
BR-2	Current/Future Young Child/Adult Rec. User	Fish Tissue (Fillet)	RME CT	3E-04 6E-05	2E+01 1E+01	Fish Tissue	(C) - benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCBs, dieldrin, arsenic (NC) - PCBs
P-6	Current/Future Young Child/Adult Rec. User	Fish Tissue (Fillet)	RME CT	5E-05 1E-05	4E+00 2E+00	Fish Tissue	(NC) - PCBs, mercury

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Exposure Point	Scenario/ Receptor	Exposure Media	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
			CT	7E-06	9E-02		
Quinnville Wellfield/Upstream of Landfill	Future Older Child/Adult Rec. User	surface soil, surface water (swimming), sediment	RME	2E-05	4E-01		N/A
			CT	7E-06	1E-01		
Debris Fields/Upstream of Landfill	Future Older Child/Adult Rec. User	surface soil, surface water (wading), sediment	RME	3E-05	4E-01		N/A
			CT	6E-06	6E-02		
Debris Fields/Upstream of Landfill	Future Older Child/Adult Rec. User	surface soil, surface water (swimming), sediment	RME	3E-05	4E-01		N/A
			CT	6E-06	7E-02		
Wetlands	Future Older Child/Adult Rec. User	surface soil, surface water (wading), sediment	RME	1E-05	1E-01		N/A
			CT	4E-06	3E-02		
Wetlands	Future Older Child/Adult Rec. User	surface soil, surface water (swimming), sediment	RME	1E-05	1E-01		N/A
			CT	5E-06	3E-02		
Nunes Parcel	Future Adult Commercial Worker	surface + subsurface soil, indoor air (vapor intrusion)	RME	2E-04	2E+00	Soil, indoor air	(C) - benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, bis(2- ethylhexyl)phthalate, dibenz(a,h)anthracene, dieldrin, dioxin, arsenic; naphthalene, benzene, tetrachloroethene
			CT	5E-05	2E+00		
Quinnville Wellfield	Future Adult Commercial Worker	surface soil	RME	2E-05	3E-01		N/A
			CT	4E-06	1E-01		
Quinnville Wellfield	Future Adult Construction Worker	surface soil, groundwater	RME	1E-06	3E-01		N/A
			CT	6E-07	2E-01		
Southern Bank	Future Adult Construction Worker	surface soil, groundwater	RME	2E-06	4E-01		N/A
			CT	6E-07	1E-01		
Nunes Parcel	Future Adult Construction Worker	surface + subsurface soil, groundwater, outdoor (trench) air	RME	5E-06	8E-01		N/A

Exposure Point	Scenario/ Receptor	Exposure Media	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
			CT	2E-06	4E-01		
Nunes Parcel	Future Young Child/Adult Resident	surface + subsurface soil, indoor air (vapor intrusion)	RME	1E-03	1E+01	soil	(C) - benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, bis(2- ethylhexyl)phthalate, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCBs, dieldrin, dioxin, arsenic; naphthalene, 1,4-dichlorobenzene, benzene, ethylbenzene, tetrachloroethene, vinyl chloride (NC) - benzene
			CT	5E-04	7E+00		

Notes

Bolded values exceed a cancer risk of 1E-04 or a target organ HI of 1.

HI - Hazard Index

RME - Reasonable Maximum Exposure

CT - Central Tendency Exposure

(C) - Carcinogenic Risk

(NC) - Noncarcinogenic Risk

NE - Not Evaluated

N/A - Not Applicable

6.6 Uncertainty Analysis

There are various sources of uncertainty inherent in the risk assessment process. These include uncertainties associated with exposure parameters and toxicity factors for which conservative assumptions are typically used so as not to underestimate risk. The objective of an uncertainty analysis is to present key information regarding assumptions and uncertainties in the risk assessment process to place the quantitative risk estimates in proper perspective (USEPA, 1989).

6.6.1 Exposure Factors

Sources of uncertainty in this HHRA include exposure factors, such as ingestion rates, area use factors, and exposure frequencies. The majority of the exposure factors used in this HHRA were USEPA-recommended default values that may not accurately

reflect actual site exposure conditions. For example, the USEPA-recommended soil ingestion rate of 330 mg/day for the construction workers (USEPA, 2002c) was used, although more recent information (Calabrese, 2003) suggests that this soil ingestion rate may be too high. Stanek et al. (1997) reported a 95th percentile soil ingestion rate for adults of 331 mg/day. This soil ingestion rate, however, was apparently influenced by a single individual with a compromised health status, and was characterized in the study as being “substantially uncertain.” According to Calabrese (one of the paper’s coauthors), the result obtained from this individual does not reflect a daily soil ingestion rate, but rather, represents soil accumulation over a 3- to 4-day period (Calabrese, 2003). As such, Calabrese (2003) stated that the soil ingestion rate of 331 mg/day is “uncertain, unstable, and artificially inflated,” and recommended use of the upper 75th percentile value from this study (49 mg/day), which represents a more stable high-end soil ingestion rate.

Other high-end soil ingestion rates have been recommended by the USEPA and state agencies that are less than 330 mg/day. For example, in deriving soil screening levels, the USEPA (2002c) recommends a soil ingestion rate of 100 mg/day for outdoor workers engaged in “contact intensive activities.” A “contact-intense” soil ingestion rate of 100 mg/day is also recommended by the USEPA for use in the ALM (USEPA, 2003a). As such, use of the 330 mg/day soil ingestion rate for construction workers is a conservative approach in that actual exposures are unlikely to be higher and may actually be much lower than the default value.

The exposure frequencies used to evaluate soil, sediment, surface water, and leachate exposures for trespassers, recreational users, and commercial workers may be overly conservative given the size of each subarea relative to the entire site. The site generally lacks distinguishing physical features that would indicate selective use of one subarea over another. Further, on-site media were assumed to represent 100 percent of potential exposure (i.e., FI = 1), which may be conservative given that recreational users may be frequenting other attractive areas within the region rather than just the OU2 site itself. The ingestion factors (e.g., soil, sediment, fish) are conservative in that they assume an individual’s exposure occurs only at the site (i.e., limited to subareas of OU2), and it does not consider the exposure to other environmental media associated with other non-site-related activities (e.g., residential gardening). Using these exposure parameters to estimate potential risk is a conservative approach, indicating risks are unlikely to be higher and may actually be much lower than the risk estimates presented in this HHRA.

6.6.2 Implementation of Supplemental Cancer Guidance

At the request of the USEPA, this HHRA used the *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposures to Carcinogens* (USEPA, 2005) in the quantitative evaluation of carcinogenic risks for PAHs and vinyl chloride. Specifically, the USEPA requested that ADAFs be applied to increase potential risk estimates for child receptors (i.e., young children, older children, and adolescents) exposed to PAHs (vinyl chloride risks were quantified using pro-rated equations consistent with the USEPA [2005] guidance). The basis for this adjustment, as reported in the USEPA guidance (2005), is a limited number of animal studies in which tumor incidences were reported for both early-life stages and adults as separate experimental groups. To quantify the potential difference in susceptibility between early-life and adult exposure, the USEPA (2005) estimated the ratio of potency from early life exposure to the potency from adult exposure (USEPA, 2005). The resulting ADAFs are primarily based on studies of acute, repeated, and lifetime exposures for six chemicals with a mutagenic mode of action (USEPA, 2005). The ADAF of 10 for children ages 0 to less than 2 years represents “an approximation of the weighted geometric mean tumor incidence ratio from juvenile or adult exposures in the repeated dosing studies” (USEPA, 2005). The ADAF of 3 for children ages 2 to less than 16 years represents a midpoint between 1 (i.e., no adjustment for adult exposure) and 10 (i.e., 10-fold adjustment for first 2 years of life) on a logarithmic scale (USEPA, 2005). These ADAFs are conservative in that many of the chemical-specific ratios were less than 1 (i.e., 45 percent of the ratios used to derive the ADAF of 10 were less than 1 as indicated in Table 8 of the USEPA guidance [2005]). Further, applying these ADAFs to already-conservative upper-bound SFs provides a conservative upper-bound estimate of potency.

6.6.3 Consideration of Background Concentrations

PCBs were the primary risk driver for fish tissue. Arsenic was a primary risk driver for groundwater. The USEPA (2002a and 2002c) guidance on the use of background data in risk assessments indicates that under the Comprehensive Environmental Response, Compensation, and Liability Act program, cleanup levels are generally not set below natural or anthropogenic background concentrations. The following subsections discuss background/reference area concentrations of PCBs in fish and arsenic in groundwater and how these concentrations generally compare to those found on site.

6.6.3.1 Fish

PCBs were the primary risk driver for the fish consumption pathway. A statistical evaluation (i.e., analysis of variance) of fish tissue PCB data (fillet and whole-body) was conducted to determine if there are statistically significant differences in fish tissue PCB concentrations in samples collected from various stretches of the Blackstone River, OU2 ponds, and a background/reference area pond.

The statistical evaluation of fish PCB homolog data consisted of ANOVA using a software package (Statistix 7). Prior to analysis, the fish data were separated into species and sample type (i.e., fillet and whole-body), and in some instances, size ranges, if sufficient data were available. Subsequently, the data sets were tested for normality.

A parametric One-Way Analysis of Variance (AOV) was conducted for data sets that followed a normal or lognormal distribution. Following the One-Way AOV, a Bonferroni Comparison of Means ($\alpha = 0.05$) was used to compare the means of the different groups.

For non-normal data sets, the Kruskal-Wallis One-Way AOV procedure was used, which relies on a ranking system to determine if there are significant differences in central values (i.e., medians) between groups. Following the Kruskal-Wallis One-Way AOV, a Comparison of Mean Ranks ($\alpha = 0.05$) was used to compare the different groups.

Analyses were performed on both lipid-normalized and non-normalized PCB fish tissue data.

In general, PCB concentrations in fish collected from OU2 ponds and the portion of the Blackstone River adjacent to the site were not significantly different from PCB homolog concentrations in fish collected from upstream locations within the Blackstone River (BR-1 and BR-2). A memorandum describing the ANOVAs is included as Appendix Y to this RI Report. This statistical conclusion is further supported by fish tissue PCB results of the Blackstone River Initiative Investigation reported in 1998 (Wright et al., 1998) that reported PCB presence in fish tissue at locations upstream of the site as far as Fisherville Impoundment, located in Grafton, Massachusetts, 25 to 30 miles upstream of OU2. In June 1994, the Massachusetts Department of Public Health issued fish consumption advisories for PCB contamination for Riverdale Pond, Rice City Pond, and the Blackstone River above Blackstone Gorge (Tupperware); the

closest reference being the area north of the Gorge (Massachusetts/Rhode Island state line), which is approximately 13 miles upstream of OU2.

Additionally, the U.S. Geological Survey (USGS) sampled fish tissue near Manville Dam, which is approximately 4 to 5 miles upstream of OU2 (USGS, 2002). Specifically, both fillet and whole-body samples of white suckers were collected during 1998 and 1999; fillet samples were analyzed for select metals, and whole-body samples were analyzed for organic compounds. The median total PCB concentration in fish tissue was 1,200 parts per billion (ppb) (USGS, 2002), which is similar to the median total PCB concentration in whole-body white suckers from OU2 (median for entire OU2 [river and ponds] was 1,250 ppb). The median total PCB concentration in whole-body white suckers from BR-3 (i.e., portion of the Blackstone River adjacent to OU2) was 1,850 ppb. However, it should be noted that the USGS data are from a single sampling event at a single sampling location, and field data (e.g., length, weight) were not provided in the USGS (2002) report.

The Massachusetts Department of Public Health (MassDOH) currently has a fish consumption advisory in effect for PCBs for the portion of the Blackstone River above Blackstone Gorge (MassDOH, 2008). Specifically, the advisory is “do not eat” for all fish species for children younger than 12 years of age, pregnant women, women of childbearing age who may become pregnant, and nursing mothers; and “do not eat” for carp and white sucker for the general public (MassDOH, 2008).

The Rhode Island Department of Health (RIDOH) currently recommends no consumption of any fish species, with the exception of trout, from the Blackstone River (RIDOH, 2008). However, this recommendation is based on mercury and applies to all areas of the Blackstone River, both upstream and downstream of the site (RIDOH, 2008).

6.6.3.2 Groundwater

Arsenic was a primary risk driver for hypothetical future residential exposure to groundwater. Site-wide groundwater samples had arsenic concentrations varying from non-detect (detection limit = 0.061 micrograms per liter [$\mu\text{g/L}$]) to 190 $\mu\text{g/L}$, with an average concentration of 15.4 $\mu\text{g/L}$. Arsenic concentrations in site-specific background/reference area groundwater samples ($n = 9$; MW-EA-1, MW-EA-3, MW-110A, MW-110B and MW-110C) ranged from non-detect (detection limit = 0.074 $\mu\text{g/L}$) to 1.1 $\mu\text{g/L}$, with an average concentration of 0.2 $\mu\text{g/L}$. Ayotte et al. (2003) suggested arsenic concentrations in New England bedrock aquifers commonly occur at

concentrations greater than 10 µg/L. Consistent with the USEPA (1989) guidance, risks/hazards for residential groundwater were calculated using data for unfiltered water samples, and arsenic concentrations in OU2 wells may be attributed to particulates, and not necessarily reflective of bioavailable arsenic concentrations at the exposure point. In addition, arsenic concentrations appear elevated in the area, and OU1 is currently asking for a waiver from the arsenic groundwater standard.

6.7 Summary and Conclusions

Results of this HHRA indicate that risks/hazards for soil, sediment, surface water, leachate, and/or ambient air for trespassers and recreational users, and soil, shallow groundwater, and outdoor (trench) air for construction workers were generally less than or within USEPA target levels (i.e., risk range of 1×10^{-4} to 1×10^{-6} ; HI of 1). The majority of the cancer risks were on the order of 10^{-5} (i.e., above 1×10^{-6}).

Non-cancer hazards (expressed as an HQ) for ingestion of potable groundwater by future residents and consumption of fish from the Blackstone River and OU2 ponds were greater than the USEPA target of 1. In addition, risks to hypothetical future residential receptors from ingestion, dermal contact, and inhalation due to potable use of groundwater were greater than 1×10^{-4} , even though some COPCs contributing to elevated risks/hazards were generally present at concentrations less than their respective drinking water MCLs (e.g., benzene). The major contributors to the groundwater risk and hazard are arsenic, carcinogenic PAHs, 1,4-dioxane, 4-chloroaniline, atrazine, bis(2-ethylhexyl)phthalate, naphthalene, 1,4-dichlorobenzene, chloroform, ethylbenzene, methyl tert-butyl ether, tetrachloroethene, trichloroethene, vinyl chloride, aldrin, dieldrin, PCBs, benzene, aluminum, cadmium, cobalt, iron, manganese, and thallium.

Additionally, risks and hazards to recreational receptors eating resident fish from OU2, BR-1, and BR-2 were greater than 1×10^{-4} and target organ HIs of 1. However, the background/reference area pond (P-6) also had target organ hazards greater than 1 and risks in the range of 10^{-5} , which places site risks into a more regional perspective. Based on the statistical evaluation conducted for fish tissue PCB data, concentrations in fish from upstream portions of the Blackstone River are not significantly different from concentrations found in fish from OU2. Further, consumption of fish from the background/reference area pond (P-6) at the same rates as those used in the OU2 calculations resulted in hazards above the USEPA target of 1.

Risk to a future commercial worker exposed to soil and indoor air at the Nunes Parcel exceeded 1×10^{-4} due primarily to benzene in indoor air. Major contributors to risk are carcinogenic PAHs, bis(2-ethylhexyl)phthalate, dieldrin, dioxins, and/or arsenic in soil and benzene, naphthalene, and/or tetrachloroethene in indoor air. In addition, hazard and risk to a future resident exposed to soil and indoor air at the Nunes Parcel exceeded target organ HIs of 1 and a cancer risk of 1×10^{-4} . The exceedances are primarily due to benzene, naphthalene, 1,4-dichlorobenzene, ethylbenzene, tetrachloroethene, and/or vinyl chloride in indoor air and carcinogenic PAHs, PCBs, dieldrin, dioxins, bis(2-ethylhexyl)phthalate, and/or arsenic in soil.

The lead evaluation (Appendix CC to this RI Report) identified the following scenarios as having estimated (potential) lead risks above the USEPA target:

- Exposure of commercial workers to soils within the RIDEM Soil Removal Area
- Exposure of construction workers to soils at Quinnville Wellfield, Southern Bank, Nunes Parcel, and RIDEM Soil Removal Area
- Exposure of hypothetical young child residents to soil and groundwater from the RIDEM Soil Removal Area

In addition to the quantified risks and hazards mentioned above, physical hazards, such as asbestos, metal debris, tires, dilapidated buildings, and broken glass at the site may also present some risks. Asbestos, in particular, may present significant health risks due to its status as a Class A (known human) carcinogen if fibers are released into the air and inhaled. These physical hazards will be further considered in the Feasibility Study.

In summary, future residential and commercial exposure to soil and indoor air at the Nunes Parcel, hypothetical future residential potable use of site-wide groundwater, and consumption of fish from the Blackstone River and site ponds by recreational receptors were the only exposure pathways with risks/hazards greater than the USEPA targets (i.e., carcinogenic risks greater than 1×10^{-4} and non-carcinogenic hazards greater than 1). Risks/hazards for all other receptors and pathways were less than or within the USEPA target ranges. However, an evaluation of lead indicates that the USEPA target would be exceeded for site-wide groundwater, for construction-related exposures to soil at the Quinnville Wellfield, Southern Bank, and Nunes Parcel, and for commercial, residential, and construction-related exposures in the vicinity of the RIDEM Soil Removal Area of the Nunes Parcel.

Sufficient soil data were not collected at the Unnamed Island to characterize the impacts of the buried waste on soil quality. Therefore, risk and hazard estimation has

not been included in this HHRA for the Unnamed Island due to the inadequacy of the soil database for this area. Once supplemental soil data have been collected, a comprehensive risk evaluation for soil, leachate, sediment, and surface water will be performed for the Unnamed Island.

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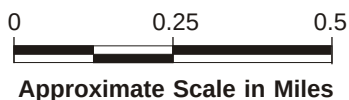
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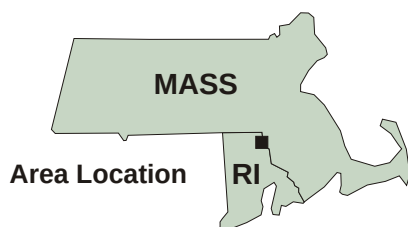
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PETERSON PURITAN SUPERFUND SITE - OU2
CUMBERLAND AND LINCOLN, RHODE ISLAND
REMEDIAL INVESTIGATION REPORT

SITE LOCATION MAP

TABLE 0
SITE RISK ASSESSMENT IDENTIFICATION INFORMATION
Peterson Puritan Superfund Site - Operable Unit 2

Site Name/OU:	Peterson Puritan Superfund Site - Operable Unit 2
Region:	I
EPA ID Number:	Index No. _
State:	Rhode Island
Status:	Fund Lead Remedial Investigation
Federal Facility (Y/N):	Y
EPA Project Manager:	Dave Newton
EPA Risk Assessor:	Chau Vu
Prepared by (Organization):	Arcadis BBL
Prepared for (Organization):	Peterson Puritan PRP Group
Document Title:	Baseline Human Health Risk Assessment
Document Date:	April 2009
Probabilistic Risk Assessment (Y/N):	N
Comments:	

**TABLE 1
SELECTION OF EXPOSURE PATHWAYS**

Peterson Puritan Superfund Site – Operable Unit 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point (1)	Reception Population	Receptor Age (2)	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Soil	Surface Soil	(1) Debris Fields; (2) Landfill; (3) Quinnville Wellfield; (4) Nunes Parcel; and (5) Wetlands	Trespasser	Adolescent	Dermal	Quant	Evidence of trespassing exists. Access by boat may occur infrequently.
						Inhalation	Qual	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Evidence of trespassing exists. Access by boat may occur infrequently.
			Southern Bank (Lincoln side)	Recreational User	Adult	Dermal	Quant	Access may occur during use of recreational trail.
						Inhalation	Qual	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Access may occur during use of recreational trail.
					Older Child	Dermal	Quant	Access may occur during use of recreational trail.
						Inhalation	Qual	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Access may occur during use of recreational trail.
			(1) Nunes Parcel and (2) Quinnville Wellfield	Commercial Worker	Adult	Dermal	Quant	Commercial workers have access to these areas and may contact surface soils.
						Inhalation	Qual	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Commercial workers have access to these areas and may contact surface soils.

**TABLE 1
SELECTION OF EXPOSURE PATHWAYS**

Peterson Puritan Superfund Site – Operable Unit 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point (1)	Reception Population	Receptor Age (2)	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current (cont.)	Soil	Surface Soil	(1) Nunes Parcel; (2) Wetlands; and (3) Quinnsville Wellfield	Trespasser	Adolescent	Dermal Inhalation Ingestion	Quant Qual Quant	Access may occur infrequently by adolescents living nearby. Dust inhalation likely insignificant due to lack of invasive activities and dust generation. Access may occur infrequently by adolescents living nearby.
	Soil/ Groundwater	Ambient Air	Landfill	Trespasser	Adolescent	Inhalation	Quant	Volatile compounds present in soil and groundwater may impact outdoor air.
				Site Worker	Adult	Inhalation	Quant	Volatile compounds present in soil and groundwater may impact outdoor air.
	Leachate	Leachate	Landfill	Trespasser	Adolescent	Dermal	Quant	Contact with leachate while trespassing may occur.
	Surface Water	Surface Water	(1) Upstream of Landfill; (2) Adjacent to Landfill; (3) Downstream of Landfill; and (4) Wetlands	Trespasser	Adolescent	Dermal	Quant	Wading may occur following access via boat.
						Ingestion	Qual	Wading scenario. Ingestion of surface water unlikely during wading.
					Adolescent	Dermal	Qual	Accidental submersion in river while boating may occasionally occur, resulting in total body dermal contact.
						Ingestion	Qual	Accidental submersion in river while boating may occasionally occur, resulting in total body dermal contact.
			Southern Bank (Lincoln side)	Recreational User	Adult	Dermal	Quant	Contact may occur during recreational use.
						Ingestion	Qual	Wading scenario. Ingestion of surface water unlikely during wading.
					Older Child	Dermal	Quant	Contact may occur during recreational use.
						Ingestion	Qual	Wading scenario. Ingestion of surface water unlikely during wading.
					Adult	Dermal	Qual	Accidental submersion in river while boating may occasionally occur, resulting in total body dermal contact.
						Ingestion	Qual	Accidental submersion in river while boating may occasionally occur, resulting in total body dermal contact.
					Older Child	Dermal	Qual	Accidental submersion in river while boating may occasionally occur, resulting in total body dermal contact.
						Ingestion	Qual	Accidental submersion in river while boating may occasionally occur, resulting in incidental ingestion.

**TABLE 1
SELECTION OF EXPOSURE PATHWAYS**

Peterson Puritan Superfund Site – Operable Unit 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point (1)	Reception Population	Receptor Age (2)	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current (cont.)	Sediment	Sediment	(1) Upstream of Landfill; (2) Adjacent to Landfill; (3) Downstream of Landfill; (4) Wetlands; and (5) Southern Bank	Trespasser	Adolescent	Dermal	Quant	Wading may occur following access via boat.
						Ingestion	Quant	Wading scenario. Ingestion of sediment likely during wading.
			Southern Bank (Lincoln Side)	Recreational User	Adult	Dermal	Quant	Wading may occur during recreational use.
						Ingestion	Quant	Wading scenario. Ingestion of sediment likely during wading.
					Older Child	Dermal	Quant	Wading may occur during recreational use.
Current/Future	Fish Tissue	Fish Tissue	(1) OU2 (Blackstone River and Ponds); (2) BR-1 (Blackstone River); (3) BR-2 (Blackstone River); and (4) P-6	Recreational User	Adult	Ingestion	Quant	Site data indicate the presence of site-related constituents in fish tissue.
					Young Child	Ingestion	Quant	Site data indicate the presence of site-related constituents in fish tissue.

**TABLE 1
SELECTION OF EXPOSURE PATHWAYS**

Peterson Puritan Superfund Site – Operable Unit 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point (1)	Reception Population	Receptor Age (2)	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Groundwater	Groundwater	On-Site Monitoring Wells	Resident	Adult	Dermal	Quant	Organic compounds are present in monitoring wells.
						Inhalation	Quant	Volatile compounds are present in monitoring wells. Exposures may occur during bathing/showering.
						Ingestion	Quant	On-site groundwater may be used as a source of drinking water or may migrate and impact off-site potable wells.
			Shallow Monitoring Wells	Construction Worker	Young Child	Dermal	Quant	Organic compounds are present in monitoring wells.
						Inhalation	Quant	Volatile compounds are present in monitoring wells. Exposures may occur during bathing/showering.
						Ingestion	Quant	On-site groundwater may be used as a source of drinking water or may migrate and impact off-site potable wells.
	Soil	Surface/ Subsurface Soil	(1) Landfill; (2) Southern Bank (Lincoln side); (3) Nunes Parcel; (4) Wetlands; (5) Quinnville Wellfield; (6) and Debris Fields	Recreational User	Adult	Dermal	Quant	Assumes future recreation site use.
						Inhalation	Qual	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Assumes future recreational site use.
					Older Child	Dermal	Quant	Assumes future recreation site use.
						Inhalation	Qual	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Assumes future recreational site use.
			(1) Nunes Parcel and (2) Quinnville Wellfield	Commercial Worker	Adult	Dermal	Quant	Commercial workers have access to these areas and may contact soils.
						Inhalation	Qual.	Dust inhalation likely insignificant due to lack of invasive activities and dust generation.
						Ingestion	Quant	Commercial workers have access to these areas and may contact soils.
	Soil	Surface/ Subsurface Soil	(1) Nunes Parcel and (2) Quinnville Wellfield; and (3) Southern Bank (Lincoln side)	Construction Worker	Adult	Dermal	Quant	Future utility/construction work on-site may be necessary during recreational development.
						Inhalation	Quant	Exposure to fugitive dust likely during trenching activities.
						Ingestion	Quant	Future utility/construction work on-site may be necessary during recreational development.

**TABLE 1
SELECTION OF EXPOSURE PATHWAYS**

Peterson Puritan Superfund Site – Operable Unit 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point (1)	Reception Population	Receptor Age (2)	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future (cont.)	Soil	Surface/ Subsurface Soil	Nunes Parcel	Resident	Adult	Ingestion	Quant	Residents may be exposed to surface and/or subsurface soils during future development.
						Dermal	Quant	Residents may be exposed to surface and/or subsurface soils during future development.
					Young Child	Ingestion	Quant	Residents may be exposed to surface and/or subsurface soils during future development.
						Dermal	Quant	Residents may be exposed to surface and/or subsurface soils during future development.
	Soil/ Groundwater	Ambient/Trench Air	(1) Nunes Parcel and (2) Quinnville Wellfield; and (3) Southern Bank (Lincoln side)	Construction Worker	Adult	Inhalation	Quant	Volatile compounds present in soil and groundwater may impact outdoor air.
			Landfill	Recreational User	Adult	Inhalation	Quant	Volatile compounds present in soil and groundwater may impact outdoor air.
					Older Child	Inhalation	Quant	Volatile compounds present in soil and groundwater may impact outdoor air.
		Indoor Air	(1) Nunes Parcel and (2) Quinnville Wellfield	Commercial Worker	Adult	Inhalation	Quant	Volatile compounds present in soil and groundwater may impact outdoor air.
	Leachate	Leachate	Landfill	Recreational User	Adult	Dermal	Quant	Contact with leachate may occur during recreational use.
					Older Child	Dermal	Quant	Contact with leachate may occur during recreational use.
	Surface Water	Surface Water	(1) Upstream of Landfill; (2) Adjacent to Landfill; (3) Downstream of Landfill; (4) Southern Bank (Lincoln side); and (5) Wetlands	Recreational User	Adult	Dermal	Quant	Assumes future recreational site use.
						Ingestion	Qual	Wading scenario. Ingestion of surface water unlikely during wading.
					Older Child	Dermal	Quant	Assumes future recreational site use.
						Ingestion	Qual	Wading scenario. Ingestion of surface water unlikely during wading.
					Adult	Dermal	Quant	Future recreational site use may include swimming in the river.
						Ingestion	Quant	Swimming scenario. Ingestion of surface water likely during swimming.
					Older Child	Dermal	Quant	Future recreational site use may include swimming in the river.
						Ingestion	Quant	Swimming scenario. Ingestion of surface water likely during swimming.

**TABLE 1
SELECTION OF EXPOSURE PATHWAYS**

Peterson Puritan Superfund Site – Operable Unit 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point (1)	Reception Population	Receptor Age (2)	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
	Sediment	Sediment	(1) Upstream of Landfill; (2) Adjacent to Landfill; (3) Downstream of Landfill; (4) Southern Bank (Lincoln side); and (5) Wetlands	Recreational User	Adult	Dermal	Quant	Assumes future recreational site use.
						Ingestion	Quant	Wading scenario. Ingestion of sediment is likely during wading.
					Older Child	Dermal	Quant	Assumes future recreational site use.
						Ingestion	Quant	Wading scenario. Ingestion of sediment is likely during wading.

(1) An adolescent is age 9-18 years old, a young child is age 1-6 years old; an older child is age 6-12 years old.

Errata for TARA Table 2s

Note that the following analytes on Tables 2.7:

2,4-Dimethylphenol
2-Chlorophenol
Benzaldehyde
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
2-Butanone
Bromodichloromethane
Chloroethane
Toluene
4,4'-DDD
4,4'-DDE
4,4'-DDT
alpha-BHC
Endosulfan Sulfate
Gamma-BHC (Lindane)
Heptachlor
Silver

and Table 2.9:

4-Chloro-3-methylphenol
Endosulfan I
Endosulfan II
Endosulfan Sulfate

were erroneously indicated to be COPCs (i.e., with rationale being “ASL” [Above Screening Levels]) even though the maximum detected concentration was below screening values. The COPC flag for these analytes should have been “N” with a rationale of “BSL” [Below Screening Levels].

In all cases, the inclusion of these analytes as COPCs in the subsequent calculations did not change any risk assessment conclusions.

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Site-Wide (Excluding Nunes Parcel and Wetlands)	91-57-6	2-Methylnaphthalene	0.041 J	0.47	mg/kg	LQW-011	45/79	0.0079 - 0.83	0.47	0.27 (J)	31 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.028	1.3	mg/kg	SO-015-UI	50/79	0.0079 - 0.59	1.3	0.88	340 N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.014	1	mg/kg	LQW-011	62/79	0.0085 - 0.41	1	0.73	3.9 C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.018	2	mg/kg	SO-020-LF	72/79	0.0085 - 0.39	2	4	1700 N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.02	4.5	mg/kg	SO-020-LF	79/79	N/A	4.5	7.5	0.015 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.032	6.4	mg/kg	SO-015-UI	75/75	N/A	6.4	7.8	0.15 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.02	2.7	mg/kg	SO-015-UI	79/79	N/A	2.7	4.4	3.9 C	N/A	N/A	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.01	2.3	mg/kg	SO-015-UI	79/79	N/A	2.3	3.4 (J)	1.5 C	N/A	N/A	Y	ASL
	56-55-3	Benzo(a)anthracene	0.016	5.4	mg/kg	SO-020-LF	79/79	N/A	5.4	9.3	0.15 C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.02	6.7	mg/kg	SO-020-LF	78/79	0.37	6.7	8.9	15 C	N/A	N/A	N	BSL
	53-70-3	Dibenz(a,h)anthracene	0.01	0.75	mg/kg	SO-015-UI	70/79	0.0085 - 3.4	0.75	0.94 (J)	0.015 C	N/A	N/A	Y	ASL
	206-44-0	Fluoranthene	0.044	9 J	mg/kg	SO-015-UI	79/79	N/A	9	15	230 N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.035 J	1.1	mg/kg	SO-015-UI, SO-020-LF	57/79	0.0079 - 0.41	1.1	1.2	230 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.016	2.4	mg/kg	SO-015-UI	79/79	N/A	2.4	2.6 (J)	0.15 C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.038 J	0.87	mg/kg	SO-015-UI	57/79	0.0079 - 0.5	0.87	0.28 (J)	3.9 C	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.018	13 J	mg/kg	SO-015-UI	79/79	N/A	13	14	3.9 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.036	18	mg/kg	SO-015-UI	79/79	N/A	18	19 (J)	170 N	N/A	N/A	N	BSL
	92-52-4	1,1'-Biphenyl	0.027 J	0.16 J	mg/kg	LQW-012	9/79	0.16 - 0.86	0.16	0.13 (J)	390 N	N/A	N/A	N	BSL
	106-47-8	4-Chloroaniline	0.085 J	1.5 J	mg/kg	SO-046-DF	10/79	0.16 - 0.83	1.5	0.48 (U)	9 C	N/A	N/A	N	BSL
	106-44-5	4-Methylphenol	0.059 J	0.059 J	mg/kg	UI-TT-10, SO-W02-UI	1/79	0.16 - 0.86	0.059	0.48 (U)	31 N	N/A	N/A	N	BSL
	100-01-6	4-Nitroaniline	0.053 J	0.053 J	mg/kg	SO-W06-DF	1/79	0.16 - 2.2	0.053	1.2 (U)	18 N	N/A	N/A	N	BSL
	98-86-2	Acetophenone	0.042 J	0.86 J	mg/kg	SO-086-UI	5/79	0.16 - 0.86	0.86	0.48 (U)	780 N	N/A	N/A	N	BSL
	100-52-7	Benzaldehyde	0.021 J	3.4	mg/kg	LQW-012	36/79	0.18 - 0.86	3.4	0.2 (J)	780 N	N/A	N/A	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.13 J	260 J	mg/kg	SO-086-UI	41/79	0.16 - 1.6	260	12	35 C	N/A	N/A	Y	ASL
	85-68-7	Butylbenzylphthalate	0.036 J	1.1	mg/kg	SO-027-LF	28/79	0.16 - 3.4	1.1	3.5 (U)	260 C	N/A	N/A	N	BSL
	105-60-2	Caprolactam	2.5 J	2.5 J	mg/kg	LQW-009	1/79	0.16 - 0.86	2.5	0.48 (U)	3100 N	N/A	N/A	N	BSL
	86-74-8	Carbazole	0.024 J	0.99	mg/kg	SO-015-UI	55/79	0.16 - 0.41	0.99	0.55	N/A	N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.045 J	1.1	mg/kg	SO-015-UI	38/79	0.16 - 0.83	1.1	0.44	N/A	N/A	N/A	Y	NSL
	84-66-2	Diethylphthalate	0.46 J	0.56 J	mg/kg	UI-TT-10, SO-W02-UI	2/79	0.16 - 0.86	0.56	0.48 (U)	4900 N	N/A	N/A	N	BSL
	131-11-3	Dimethylphthalate	0.036 J	0.11 J	mg/kg	SO-042-LF	2/79	0.16 - 0.86	0.11	0.48 (U)	4900 N	N/A	N/A	N	BSL
	84-74-2	Di-n-butylphthalate	0.023 J	0.74 J	mg/kg	SO-024-LF	26/79	0.16 - 0.83	0.74	0.48 (U)	610 N	N/A	N/A	N	BSL
	117-84-0	Di-n-octylphthalate	0.04 J	27 J	mg/kg	UI-TT-03, SO-W04-UI	14/79	0.34 - 3.4	27	0.51 (J)	610 N	N/A	N/A	N	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	98-95-3	Nitrobenzene	0.53 J	0.53 J	mg/kg	UI-TT-10, SO-W02-UI	1/79	0.16 - 0.86	0.53	0.48 (U)	3.1 N	N/A	N/A	N	BSL
	86-30-6	N-Nitrosodiphenylamine	1.8	1.8	mg/kg	UI-TT-06, SO-W01-UI	1/79	0.16 - 0.83	1.8	0.48 (U)	99 C	N/A	N/A	N	BSL
	108-95-2	Phenol	0.009 J	0.12 J	mg/kg	SO-086-UI, UI-TT-03, SO-W04-UI	3/79	0.16 - 0.86	0.12	0.48 (U)	1800 N	N/A	N/A	N	BSL
	75-35-4	1,1-Dichloroethene	0.005 J	0.005 J	mg/kg	SO-007-UI	1/78	0.0016 - 0.019	0.005	0.004 (J)	25 N	N/A	N/A	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.011	0.011	mg/kg	UI-TT-06, SO-W01-UI	1/78	0.0016 - 0.019	0.011	0.014 (U)	8.7 N	N/A	N/A	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.003 J	0.075	mg/kg	UI-TT-06, SO-W01-UI	2/78	0.0016 - 0.019	0.075	0.014 (U)	2.6 C	N/A	N/A	N	BSL
	78-93-3	2-Butanone	0.0018 J	0.044	mg/kg	UI-TT-06, SO-W01-UI	5/78	0.0016 - 0.019	0.044	0.011 (J)	2800 N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.001 J	0.17	mg/kg	SO-030-LF	23/78	0.0041 - 0.09	0.17	0.27 (J)	6100 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.002 J	0.002 J	mg/kg	UI-TT-01,02, SO-W03-UI	1/78	0.0016 - 0.019	0.002	0.014 (U)	1.1 C	N/A	N/A	N	BSL
	75-15-0	Carbon disulfide	0.005 JTB	0.005 JTB	mg/kg	SO-013-UI	1/78	0.0016 - 0.019	0.005	0.014 (U)	67 N	N/A	N/A	N	BSL
	56-23-5	Carbon tetrachloride	0.004 J	0.004 J	mg/kg	UI-TT-03, SO-W04-UI	1/78	0.0016 - 0.019	0.004	0.014 (U)	0.25 C	N/A	N/A	N	BSL
	108-90-7	Chlorobenzene	0.003 J	0.005 J	mg/kg	UI-TT-06, SO-W01-UI	2/78	0.0016 - 0.019	0.005	0.014 (U)	31 N	N/A	N/A	N	BSL
	110-82-7	Cyclohexane	0.002 J	0.002 J	mg/kg	UI-TT-06, SO-W01-UI	1/78	0.0016 - 0.019	0.002	0.014 (U)	720 N	N/A	N/A	N	BSL
	108-87-2	Methylcyclohexane	0.004 J	0.004 J	mg/kg	UI-TT-06, SO-W01-UI	1/78	0.0016 - 0.019	0.004	0.014 (U)	720 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.001 J	0.001 J	mg/kg	UI-TT-06, SO-W01-UI	1/78	0.0016 - 0.019	0.001	0.014 (U)	5.7 C	N/A	N/A	N	BSL
	98-82-8	Isopropylbenzene	0.006 J	0.006 J	mg/kg	UI-TT-06, SO-W01-UI	1/78	0.0016 - 0.019	0.006	0.014 (U)	220 N	N/A	N/A	N	BSL
	79-20-9	Methyl acetate	0.002 J	0.007 J	mg/kg	SO-069-BR	3/78	0.0016 - 0.019	0.007	0.014 (U)	7800 N	N/A	N/A	N	BSL
	127-18-4	Tetrachloroethene	0.003 J	0.025	mg/kg	UI-TT-01,02, SO-W03-UI	2/78	0.0016 - 0.019	0.025	0.014 (U)	0.57 C	N/A	N/A	N	BSL
	108-88-3	Toluene	0.0008 J	0.003 J	mg/kg	SO-046-DF	13/78	0.0016 - 0.019	0.003	0.0009 (J)	500 N	N/A	N/A	N	BSL
	1330-20-7	Xylene (Total)	0.015	0.015	mg/kg	UI-TT-06, SO-W01-UI	1/78	0.0049 - 0.019	0.015	0.014 (U)	60 N	N/A	N/A	N	BSL
	12672-29-6	Aroclor-1248	6.2 J	6.2 J	mg/kg	SO-W05-DF	1/79	0.016 - 0.18	6.2	0.2 (U)	0.22 C	N/A	N/A	Y	ASL
	11097-69-1	Aroclor-1254	0.077 J	2.5	mg/kg	SO-W06-DF	11/79	0.016 - 0.18	2.5	0.2 (U)	0.11 N	N/A	N/A	Y	ASL
	11096-82-5	Aroclor-1260	0.045	1.6	mg/kg	LQW-010	60/79	0.016 - 0.043	1.6	0.2 (U)	0.22 C	N/A	N/A	Y	ASL
	72-54-8	4,4'-DDD	0.001	0.058 J	mg/kg	LQW-010	36/72	0.0008 - 0.018	0.058	0.0081 (J)	2 C	N/A	N/A	N	BSL
	72-55-9	4,4'-DDE	0.0016 J	0.083 J	mg/kg	LQW-011	60/76	0.0034 - 0.042	0.083	0.012	1.4 C	N/A	N/A	N	BSL
	50-29-3	4,4'-DDT	0.0017 J	0.066 J	mg/kg	LQW-010	22/60	0.0034 - 0.052	0.066	0.052	1.7 C	N/A	N/A	N	BSL
	319-84-6	Alpha-BHC	0.0017 J	0.0017 J	mg/kg	SO-W06-DF	1/79	0.0008 - 0.0092	0.0017	0.011 (U)	0.077 C	N/A	N/A	N	BSL
	5103-71-9	Alpha-chlordane	0.001	0.026 J	mg/kg	LQW-010	46/73	0.0008 - 0.021	0.026	0.56 (J)	1.6 C	N/A	N/A	N	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	60-57-1	Dieldrin	0.0031 J	0.81	mg/kg	SO-010-UI	70/79	0.0008 - 0.017	0.81	0.033	0.03 C	N/A	N/A	Y	ASL
	959-98-8	Endosulfan I	0.0042 J	0.0042 J	mg/kg	SO-044-QW	1/78	0.0008 - 0.0092	0.0042	0.013 (J)	37 N	N/A	N/A	N	BSL
	33213-65-9	Endosulfan II	0.0021 J	0.026 J	mg/kg	LQW-010	8/78	0.0008 - 0.018	0.026	0.020 (U)	37 N	N/A	N/A	N	BSL
	1031-07-8	Endosulfan sulfate	0.0013	0.011 J	mg/kg	SO-022-LF	18/50	0.0008 - 0.052	0.011	0.0075 (J)	37 N	N/A	N/A	N	BSL
	7421-36-3	Endrin aldehyde	0.0041 J	0.058 J	mg/kg	SO-W06-DF	14/64	0.0008 - 0.042	0.058	0.0071 (J)	1.8 N	N/A	N/A	N	BSL
	53494-70-5	Endrin ketone	0.014 J	0.014 J	mg/kg	SO-016-UI	1/66	0.0008 - 0.018	0.014	0.0063 (J)	1.8 N	N/A	N/A	N	BSL
	5103-74-2	Gamma-Chlordane	0.00094 J	0.019 J	mg/kg	LQW-011	19/42	0.0008 - 0.022	0.019	0.6	1.6 C	N/A	N/A	N	BSL
	1024-57-3	Heptachlor epoxide	0.0023 J	0.013 J	mg/kg	SO-083-UI	2/78	0.0008 - 0.013	0.013	0.11 (U)	0.053 C	N/A	N/A	N	BSL
	72-43-5	Methoxychlor	0.0027	0.028 J	mg/kg	SO-078-UI, UI-TT-10, SO-W02-UI	6/78	0.0008 - 0.092	0.028	0.034	31 N	N/A	N/A	N	BSL
	1746-01-6	Dioxin TEQ	0.0000088	0.000059	mg/kg	LLF-002	6/6	N/A	0.000059	NA	4.5E-06 C	N/A	N/A	Y	ASL
	7429-90-5	Aluminum	3370	14600	mg/kg	SO-028-LF	78/78	N/A	14600	6350	7700 N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	0.1 J	63.6 J	mg/kg	UI-TT-06, SO-W01-UI	15/78	0.1 - 21	63.6	12 (U)	3.1 N	N/A	N/A	Y	ASL
	7440-38-2	Arsenic	2	26.1	mg/kg	SO-010-UI	78/78	N/A	26.1	9.5	0.39 C	N/A	N/A	Y	ASL
	7440-39-3	Barium	18	881 J	mg/kg	UI-TT-01,02, SO-W03-UI	64/78	31 - 50	881	49.6	1500 N	N/A	N/A	N	BSL
	7440-41-7	Beryllium	0.11 J	2.4	mg/kg	UI-TT-10, SO-W02-UI	73/78	0.06 - 0.075	2.4	0.5	16 N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.13	23.5	mg/kg	SO-028-LF	75/78	0.87 - 1.1	23.5	1.9	7 N	N/A	N/A	Y	ASL
	7440-70-2	Calcium	336 J	11600 J	mg/kg	UI-TT-01,02, SO-W03-UI	58/78	770 - 1435	11600	1180	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	14	560	mg/kg	LQW-012	78/78	N/A	560	89.6	23 N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	2 J	12.8	mg/kg	UI-TT-03, SO-W04-UI	30/78	7.2 - 17.3	12.8	4.7 (J)	2.3 N	N/A	N/A	Y	ASL
	7440-50-8	Copper	15.7	1420 J	mg/kg	UI-TT-03, SO-W04-UI	78/78	N/A	1420	75.1	310 N	N/A	N/A	Y	ASL
	57-12-5	Cyanide	0.2 J	3.8	mg/kg	SO-083-UI	55/78	0.14 - 0.57	3.8	0.63 (U)	160 N	N/A	N/A	N	BSL
	7439-89-6	Iron	5200	79600 J	mg/kg	SO-W06-DF	78/78	N/A	79600	11800	5500 N	N/A	N/A	Y	ASL
	7439-92-1	Lead	11	2230 J	mg/kg	UI-TT-01,02, SO-W03-UI	78/78	N/A	2230	161	40 N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	1380	4630	mg/kg	SO-028-LF	78/78	N/A	4630	2070	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	86.1 J	1050	mg/kg	SO-030-LF	78/78	N/A	1050	175	180 N	N/A	N/A	Y	ASL
	7439-97-6	Mercury	0.021	2.4	mg/kg	LQW-012	78/78	N/A	2.4	0.7	0.78 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	4.6 J	158 J	mg/kg	UI-TT-10, SO-W02-UI	76/78	7 - 9	158	9	160 N	N/A	N/A	N	BSL
	7440-09-7	Potassium	380 J	1400 J	mg/kg	LQW-010	14/78	720 - 1734	1400	1,200 (U)	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.094	2.4	mg/kg	LQW-012	14/59	0.11 - 1	2.4	0.62 (U)	39 N	N/A	N/A	N	BSL
	7440-22-4	Silver	0.066	12.3	mg/kg	SO-045-QW	57/78	0.35 - 2.5	12.3	7.3	39 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	21	122 J	mg/kg	SO-007-UI	11/78	720 - 1734	122	1,200 (U)	N/A	N/A	N/A	N	NUT

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-28-0	Thallium	0.064	1.8 J	mg/kg	SO-043-LF, SO-046-DF	28/78	0.29 - 1.4	1.8	0.83 (U)	0.51 N	N/A	N/A	Y	ASL
	7440-62-2	Vanadium	8	82.9 J	mg/kg	SO-W06-DF	77/78	12	82.9	21.3	55 N	N/A	N/A	Y	ASL
	7440-66-6	Zinc	19	2560 J	mg/kg	SO-W06-DF	78/78	N/A	2560	74.5	2300 N	N/A	N/A	Y	ASL

Notes:

Site-wide surface soils data set does not include surface soils collected from Nunes Parcel or the wetland areas. Separate COPC tables are presented for soils data from the Nunes Parcel and wetland areas.

N/A = Not Applicable or Not Available

[1]

Organic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

T = The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

Inorganic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).

[3] Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment.

U = Non-detect. Value is associated detection limit.

[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Soil.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The PRG values for noted analytes are as follows:

PRG for cadmium associated with water intake.

PRG for chlordanes has been used for alpha-chlordane and gamma-chlordane.

PRG for chromium VI (particulates) used for chromium.

PRG for cyclohexane has been used for methylcyclohexane.

PRG for dibutyl phthalate has been used for di-n-octylphthalate.

PRG for diethylphthalate has been used for dimethylphthalate.

PRG for endosulfan has been used for endosulfan I, endosulfan II, and endosulfan sulfate.

PRG for endrin has been used for endrin aldehyde and endrin ketone.

PRG for methyl mercury has been used for mercury.

PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.

[5] Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil/Groundwater
Exposure Medium: Ambient Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Landfill	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.62 J	0.69 J	ug/m3	AR-FD1	3/4	7.77	0.69	N/A	3100 N	N/A	N/A	N	BSL
	75-34-3	1,1-Dichloroethane	9.72 J	9.72 J	ug/m3	AR-002-LF	1/4	0.2	9.72	N/A	1.5 C	N/A	N/A	Y	ASL
	76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.33 J	174.85	ug/m3	AR-002-LF	2/4	0.63	174.9	N/A	N/A	N/A	N/A	Y	NSL
	95-50-1	1,2-Dichlorobenzene	0.58 J	122.7	ug/m3	AR-002-LF	2/4	0.43	122.7	N/A	21 N	N/A	N/A	Y	ASL
	108-67-8	1,3,5-Trimethylbenzene	1.23 J	16.69 J	ug/m3	AR-002-LF	4/4	N/A	16.7	N/A	0.63 N	N/A	N/A	Y	ASL
	541-73-1	1,3-Dichlorobenzene	0.8 J	251.53	ug/m3	AR-002-LF	2/4	0.49	251.5	N/A	0.22 C	N/A	N/A	Y	ASL
	106-46-7	1,4-Dichlorobenzene	0.45 J	674.85	ug/m3	AR-002-LF	4/4	N/A	674.9	N/A	0.22 C	N/A	N/A	Y	ASL
	78-93-3	2-Butanone	5.3	6.18	ug/m3	AR-003-LF	3/4	11.78	6.2	N/A	520 N	N/A	N/A	N	BSL
	622-96-8	4-Ethyltoluene	2.06	103.07	ug/m3	AR-002-LF	4/4	N/A	103.1	N/A	N/A	N/A	N/A	Y	NSL
	67-64-1	Acetone	22.77	40.33 J	ug/m3	AR-002-LF	4/4	N/A	40.3	N/A	3200 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.8	1722.7	ug/m3	AR-002-LF	4/4	N/A	1722.7	N/A	0.31 C	N/A	N/A	Y	ASL
	95-63-6	1,2,4-Trimethylbenzene	3.09	112.88	ug/m3	AR-002-LF	4/4	N/A	112.9	N/A	0.73 N	N/A	N/A	Y	ASL
	75-15-0	Carbon disulfide	0.44 J	0.44 J	ug/m3	AR-001-LF	1/4	0.44 - 12.43	0.4	N/A	73 N	N/A	N/A	N	BSL
	56-23-5	Carbon tetrachloride	0.61 J	0.67 J	ug/m3	AR-003-LF	3/4	6.13	0.7	N/A	0.16 C	N/A	N/A	Y	ASL
	108-90-7	Chlorobenzene	0.43 J	3959.1	ug/m3	AR-002-LF	4/4	N/A	3959.1	N/A	5.2 N	N/A	N/A	Y	ASL
	75-00-3	Chloroethane	29.24	29.24	ug/m3	AR-002-LF	1/4	0.37	29.2	N/A	1000 N	N/A	N/A	N	BSL
	74-87-3	Chloromethane	1.06	1.15	ug/m3	AR-001-LF	3/4	4.17	1.2	N/A	1.4 C	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	21.03	21.03	ug/m3	AR-002-LF	1/4	0.2	21.0	N/A	6.3 N	N/A	N/A	Y	ASL
	75-71-8	Dichlorodifluoromethane	2.9	33.37	ug/m3	AR-002-LF	4/4	N/A	33.4	N/A	21 N	N/A	N/A	Y	ASL
	100-41-4	Ethylbenzene	3.28	1304.7	ug/m3	AR-002-LF	4/4	N/A	1304.7	N/A	0.97 C	N/A	N/A	Y	ASL
	75-09-2	Methylene chloride	0.38 J	6.26	ug/m3	AR-003-LF	3/4	5.56	6.3	N/A	5.2 C	N/A	N/A	Y	ASL
	100-42-5	Styrene	0.36 J	1.68	ug/m3	AR-FD1	3/4	4.91	1.7	N/A	100 N	N/A	N/A	N	BSL
	108-88-3	Toluene	2.26	71.49	ug/m3	AR-002-LF	4/4	N/A	71.5	N/A	520 N	N/A	N/A	N	BSL
	156-60-5	trans-1,2-Dichloroethene	22.61	22.61	ug/m3	AR-002-LF	1/4	0.28	22.6	N/A	6.3 N	N/A	N/A	Y	ASL
	79-01-6	Trichloroethene	1.38	23.39	ug/m3	AR-001-LF	4/4	N/A	23.4	N/A	1.2 C	N/A	N/A	Y	ASL
	75-69-4	Trichlorofluoromethane	1.6 J	1.78 J	ug/m3	AR-003-LF	3/4	5.73	1.8	N/A	73 N	N/A	N/A	N	BSL
	75-01-4	Vinyl Chloride	0.21 J	211.29	ug/m3	AR-002-LF	3/4	0.15	211	N/A	0.16 C	N/A	N/A	Y	ASL
	1330-20-7	Xylene (Total)	8.1	629.86	ug/m3	AR-002-LF	4/4	N/A	629.86	N/A	10 N	N/A	N/A	Y	ASL

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil/Groundwater
Exposure Medium: Ambient Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)

Notes:

Data represent air vent data from landfill which are used for COPC screening purposes only.

N/A = Not available/Not applicable

[1] **Organic Data Qualifiers**

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used.

[3] Site-specific background air data are not available. If other appropriate background values are identified in the future, these may be considered in the risk characterization portion of the risk assessment.

[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The PRG values for noted analytes are as follows:

PRG for 1,4-Dichlorobenzene has been used for 1,3-Dichlorobenzene.

PRG for trans-1,2-dichloroethene has been used for cis-1,2-dichloroethene.

[5] Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Nunes Parcel	91-57-6	2-Methylnaphthalene	0.058 J	0.21 J	mg/kg	SO-037-NP	16/18	0.35 - 0.39	0.21	0.27 (J)	31 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.068 J	1.3	mg/kg	SO-037-NP	15/18	0.35 - 0.41	1.3	0.88	340 N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.06 J	0.68 J	mg/kg	SO-057-NP	15/21	0.14	0.68	0.73	3.9 C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.066 J	2.1	mg/kg	SO-037-NP	18/21	0.14	2.1	4	1700 N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.09 J	5.4	mg/kg	SO-037-NP	21/21	N/A	5.4	7.5	0.015 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.14	6.9	mg/kg	SO-037-NP	21/21	N/A	6.9	7.8	0.15 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.087 J	2.7	mg/kg	SO-037-NP	21/21	N/A	2.7	4.4	3.9 C	N/A	N/A	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.12 J	3	mg/kg	SO-037-NP	20/21	0.14	3	3.4 (J)	1.5 C	N/A	N/A	Y	ASL
	56-55-3	Benzo(a)anthracene	0.081 J	5.8	mg/kg	SO-037-NP	21/21	N/A	5.8	9.3	0.15 C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.11 J	5.8	mg/kg	SO-037-NP	21/21	N/A	5.8	8.9	15 C	N/A	N/A	N	BSL
	53-70-3	Dibenz(a,h)anthracene	0.04 J	0.81	mg/kg	SO-037-NP	19/21	0.14	0.81	0.94 (J)	0.015 C	N/A	N/A	Y	ASL
	206-44-0	Fluoranthene	0.14	16	mg/kg	SO-037-NP	21/21	N/A	16	15	230 N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.061 J	1.1	mg/kg	SO-037-NP	16/18	0.35 - 0.39	1.1	1.2	230 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.073 J	2.8	mg/kg	SO-037-NP	21/21	N/A	2.8	2.6 (J)	0.15 C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.065 J	0.7	mg/kg	SO-037-NP	16/18	0.35 - 0.39	0.7	0.28 (J)	3.9 C	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.078 J	15	mg/kg	SO-037-NP	21/21	N/A	15	14	3.9 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.13 J	14 J	mg/kg	SO-037-NP	21/21	N/A	14	19 (J)	170 N	N/A	N/A	N	BSL
	92-52-4	1,1'-Biphenyl	0.04 J	0.067 J	mg/kg	SO-037-NP	3/21	0.14 - 0.54	0.067	0.13 (J)	390 N	N/A	N/A	N	BSL
	106-47-8	4-Chloroaniline	0.34 J	2.4 J	mg/kg	SO-057-NP	4/21	0.14 - 0.54	2.4	0.48 (U)	9 C	N/A	N/A	N	BSL
	100-52-7	Benzaldehyde	0.04 J	0.1 J	mg/kg	SO-009-NP	10/21	0.14 - 0.54	0.1	0.2 (J)	780 N	N/A	N/A	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.081 JEB	6.3	mg/kg	SO-033-NP	19/21	0.15 - 0.35	6.3	12	35 C	N/A	N/A	N	BSL
	85-68-7	Butylbenzylphthalate	0.064 J	0.43 J	mg/kg	SO-051-NP	16/21	0.14 - 0.4	0.43	3.5 (U)	260 C	N/A	N/A	N	BSL
	86-74-8	Carbazole	0.046 J	1.6 J	mg/kg	SO-037-NP	17/21	0.14 - 0.35	1.6	0.55	N/A	N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.045 J	0.76	mg/kg	SO-037-NP	15/21	0.14 - 0.41	0.76	0.44	N/A	N/A	N/A	Y	NSL
	84-74-2	Di-n-butylphthalate	0.047 J	0.11 J	mg/kg	SO-036-NP	14/21	0.14 - 0.46	0.11	0.48 (U)	610 N	N/A	N/A	N	BSL
	117-84-0	Di-n-octylphthalate	0.056 J	0.056 J	mg/kg	SO-033-NP	1/21	0.14 - 0.54	0.056	0.51 (J)	610 N	N/A	N/A	N	BSL
	78-59-1	Isophorone	0.1 J	0.1 J	mg/kg	SO-051-NP	1/21	0.14 - 0.46	0.1	0.37 (U)	510 C	N/A	N/A	N	BSL
	78-93-3	2-Butanone	0.006 J	0.033 J	mg/kg	SO-058-WT	2/21	0.0013 - 1.3	0.033	0.011 (J)	2800 N	N/A	N/A	N	BSL
	591-78-6	2-Hexanone	0.005 J	0.005 J	mg/kg	SO-033-NP	1/21	0.0013 - 1.3	0.005	0.27 (J)	530 N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.034 J	0.41 J	mg/kg	SO-058-WT	3/21	0.0032 - 1.3	0.41	0.009 (U)	6100 N	N/A	N/A	N	BSL
	79-20-9	Methyl acetate	0.005 J	1.1 J	mg/kg	SO-052-NP	5/21	0.0013 - 0.015	1.1	0.014 (U)	7800 N	N/A	N/A	N	BSL
	75-09-2	Methylene chloride	0.36 JTB	0.36 JTB	mg/kg	SO-052-NP	1/21	0.0032 - 0.025	0.36	0.009 (U)	11 C	N/A	N/A	N	BSL
	127-18-4	Tetrachloroethene	0.015 J	0.015	mg/kg	SO-009-NP	1/21	0.0013 - 1.3	0.015	0.014 (U)	0.57 C	N/A	N/A	N	BSL
	108-88-3	Toluene	0.002 J	0.003 J	mg/kg	SO-050-NP	5/21	0.0013 - 1.3	0.003	0.0009 (J)	500 N	N/A	N/A	N	BSL
	75-69-4	Trichlorofluoromethane	0.002 J	0.005 J	mg/kg	SO-008-NP	3/21	0.0013 - 1.3	0.005	0.009 (U)	80 N	N/A	N/A	N	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	1330-20-7	Xylene (Total)	0.002 J	0.002 J	mg/kg	SO-051-NP	1/21	0.0038 - 1.3	0.002	0.014 (U)	60 N	N/A	N/A	N	BSL
	11097-69-1	Aroclor-1254	0.065	0.1 J	mg/kg	SO-035-NP, SO-037-NP	3/18	0.037 - 0.054	0.1	0.2 (U)	0.11 N	N/A	N/A	N	BSL
	11096-82-5	Aroclor-1260	0.14 J	0.55 J	mg/kg	SO-055-NP	13/21	0.014 - 0.039	0.55	0.2 (U)	0.22 C	N/A	N/A	Y	ASL
	72-54-8	4,4'-DDD	0.0047	0.02 J	mg/kg	SO-033-NP	13/16	0.0035 - 0.0041	0.02	0.0081 (J)	2 C	N/A	N/A	N	BSL
	72-55-9	4,4'-DDE	0.0031 J	0.023 J	mg/kg	SO-033-NP	16/17	0.0035	0.023	0.012	1.4 C	N/A	N/A	N	BSL
	50-29-3	4,4'-DDT	0.023	0.087	mg/kg	SO-033-NP	2/8	0.0035 - 0.02	0.087	0.052	1.7 C	N/A	N/A	N	BSL
	5103-71-9	Alpha-chlordane	0.0018 J	0.018 J	mg/kg	SO-052-NP	13/14	0.0018	0.018	0.56 (J)	1.6 C	N/A	N/A	N	BSL
	60-57-1	Dieldrin	0.0031 J	0.31	mg/kg	SO-052-NP	17/18	0.0035	0.31	0.033	0.03 C	N/A	N/A	Y	ASL
	33213-65-9	Endosulfan II	0.0025 J	0.0068	mg/kg	SO-051-NP	2/18	0.0035 - 0.0046	0.0068	0.020 (U)	37 N	N/A	N/A	N	BSL
	1031-07-8	Endosulfan sulfate	0.008	0.008	mg/kg	SO-017-NP	1/5	0.0035 - 0.019	0.008	0.0075 (J)	37 N	N/A	N/A	N	BSL
	53494-70-5	Endrin ketone	0.01 J	0.01 J	mg/kg	SO-033-NP	1/8	0.0035 - 0.0046	0.01	0.0063 (J)	1.8 N	N/A	N/A	N	BSL
	5103-74-2	Gamma-Chlordane	0.006 J	0.016 J	mg/kg	SO-052-NP	10/12	0.0018 - 0.0099	0.016	0.6	1.6 C	N/A	N/A	N	BSL
	1746-01-6	Dioxin TEQ	0.000026	0.000045	mg/kg	LNP-007	2/2	N/A	0.000045	NA	4.5E-06 C	N/A	N/A	Y	ASL
	7429-90-5	Aluminum	3380	16300	mg/kg	SO-058-WT	21/21	N/A	16300	6350	7700 N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	0.19 J	1.6 J	mg/kg	SO-107-NP	4/21	0.00064 - 0.016	1.6	12 (U)	3.1 N	N/A	N/A	N	BSL
	7440-38-2	Arsenic	3.3	27.7	mg/kg	SO-058-WT	21/21	N/A	27.7	9.5	0.39 C	N/A	N/A	Y	ASL
	7440-39-3	Barium	21	546	mg/kg	SO-033-NP	20/21	0.043	546	49.6	1500 N	N/A	N/A	N	BSL
	7440-41-7	Beryllium	0.18	2.2	mg/kg	SO-050-NP	21/21	N/A	2.2	0.5	16 N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.13 J	18.7	mg/kg	SO-058-WT	21/21	N/A	18.7	1.9	7 N	N/A	N/A	Y	ASL
	7440-70-2	Calcium	650	12800	mg/kg	SO-035-NP	20/21	1.1	12800	1180	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	11	349	mg/kg	SO-050-NP	21/21	N/A	349	89.6	23 N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	2.7	19.3	mg/kg	SO-058-WT	10/21	0.011 - 0.014	19.3	4.7 (J)	2.3 N	N/A	N/A	Y	ASL
	7440-50-8	Copper	22 J	831	mg/kg	SO-033-NP	21/21	N/A	831	75.1	310 N	N/A	N/A	Y	ASL
	57-12-5	Cyanide	0.34 J	5.1	mg/kg	SO-053-NP	14/21	0.000089 - 0.00023	5.1	0.63 (U)	160 N	N/A	N/A	N	BSL
	7439-89-6	Iron	7600	38800	mg/kg	SO-058-WT	21/21	N/A	38800	11800	5500 N	N/A	N/A	Y	ASL
	7439-92-1	Lead	28	2380	mg/kg	SO-033-NP	21/21	N/A	2380	161	40 N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	1280	5110	mg/kg	SO-058-WT	21/21	N/A	5110	2070	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	80	1940	mg/kg	SO-058-WT	21/21	N/A	1940	175	180 N	N/A	N/A	Y	ASL
	7439-97-6	Mercury	0.03	1 J	mg/kg	SO-052-NP	21/21	N/A	1	0.7	0.78 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	7.1	56.4 J	mg/kg	SO-058-WT	18/21	0.009	56.4	9	160 N	N/A	N/A	N	BSL
	7440-09-7	Potassium	550	1660	mg/kg	SO-058-WT	12/21	1.065 - 1.362	1660	1,200 (U)	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.81 J	1.2	mg/kg	SO-033-NP	5/11	0.00035 - 0.00082	1.2	0.62 (U)	39 N	N/A	N/A	N	BSL
	7440-22-4	Silver	0.071 J	4.4	mg/kg	SO-009-NP	17/21	0.000163 - 0.002	4.4	7.3	39 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	32 J	77 J	mg/kg	SO-107-NP	3/21	1 - 1.4	77	1,200 (U)	N/A	N/A	N/A	N	NUT

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-28-0	Thallium	1.1 J	3.3 J	mg/kg	SO-050-NP	15/21	0.000086 - 0.0011	3.3	0.83 (U)	0.51 N	N/A	N/A	Y	ASL
	7440-62-2	Vanadium	9.8	43.4	mg/kg	SO-050-NP	19/21	0.011	43.4	21.3	55 N	N/A	N/A	N	BSL
	7440-66-6	Zinc	37	970 J	mg/kg	SO-033-NP	21/21	N/A	970	74.5	2300 N	N/A	N/A	N	BSL

Notes:

Only includes surface soils data collected from Nunes Parcel.

N/A = Not Applicable or Not Available

[1]

Organic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

E = The compound was quantitated above the calibration range.

T = The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

Inorganic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).

[2]

Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment.

[3]

U = Non-detect. Value is associated detection limit.

[4]

Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Soil.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The PRG values for noted analytes are as follows:

PRG for cadmium associated with water intake.

PRG for chlordane has been used for alpha-chlordane and gamma-chlordane.

PRG for chromium VI (particulates) used for chromium.

PRG for dibutyl phthalate has been used for di-n-octylphthalate.

PRG for endosulfan has been used for endosulfan II and endosulfan sulfate.

PRG for endrin has been used for endrin ketone.

PRG for methyl isobutyl ketone has been used for 2-hexanone.

PRG for methyl mercury has been used for mercury.

PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.

[5]

Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.4
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Nunes Parcel	91-57-6	2-Methylnaphthalene	0.071 J	0.9 J	mg/kg	SO-034-NP	6/16	0.14 - 0.39	0.9	0.27 (J)	31 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.26 J	2.4	mg/kg	SO-105-NP	5/16	0.14 - 4.2	2.4	0.88	340 N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.087 J	1.8	mg/kg	SO-105-NP	4/16	0.14 - 4.2	1.8	0.73	3.9 C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.084 J	6.4	mg/kg	SO-105-NP	9/16	0.14 - 4.2	6.4	4	1700 N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.089 J	21	mg/kg	SO-105-NP	12/16	0.14 - 0.17	21	7.5	0.015 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.12 J	24	mg/kg	SO-105-NP	13/16	0.14 - 0.15	24	7.8	0.15 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.083 J	13	mg/kg	SO-105-NP	11/16	0.14 - 4.2	13	4.4	3.9 C	N/A	N/A	Y	ASL
	207-08-9	Benzo(k)fluoranthene	0.093 J	4.9	mg/kg	SO-105-NP	9/16	0.14 - 0.17	4.9	3.4 (J)	1.5 C	N/A	N/A	Y	ASL
	56-55-3	Benzo(a)anthracene	0.083 J	22	mg/kg	SO-105-NP	12/16	0.14 - 0.17	22	9.3	0.15 C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.092 J	18	mg/kg	SO-105-NP	12/16	0.14 - 0.17	18	8.9	15 C	N/A	N/A	Y	ASL
	53-70-3	Dibenz(a,h)anthracene	0.051 J	4.4	mg/kg	SO-105-NP	8/16	0.14 - 0.17	4.4	0.94 (J)	0.015 C	N/A	N/A	Y	ASL
	206-44-0	Fluoranthene	0.12 J	39	mg/kg	SO-105-NP	13/16	0.14 - 0.15	39	15	230 N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.048 J	2.1	mg/kg	SO-105-NP	7/16	0.14 - 0.17	2.1	1.2	230 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.088 J	12	mg/kg	SO-105-NP	10/16	0.14 - 0.17	12	2.6 (J)	0.15 C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.049 J	0.9 J	mg/kg	SO-108-NP	7/16	0.14 - 0.17	0.9	0.28 (J)	3.9 C	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.092 J	21	mg/kg	SO-105-NP	12/16	0.14 - 0.17	21	14	3.9 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.11 J	32	mg/kg	SO-105-NP	13/16	0.14 - 0.15	32	19 (J)	170 N	N/A	N/A	N	BSL
	92-52-4	1,1'-Biphenyl	0.11 J	0.12 J	mg/kg	SO-035-NP,SO-105-NP	3/16	0.14 - 4.2	0.12	0.13 (J)	390 N	N/A	N/A	N	BSL
	105-67-9	2,4-Dimethylphenol	0.08 J	0.08 J	mg/kg	SO-035-NP	1/16	0.14 - 4.2	0.08	0.48 (U)	120 N	N/A	N/A	N	BSL
	106-44-5	4-Methylphenol	0.081 J	0.12 J	mg/kg	SO-105-NP	3/16	0.14 - 4.2	0.12	0.48 (U)	31 N	N/A	N/A	N	BSL
	98-86-2	Acetophenone	0.08 JEB	0.08 JEB	mg/kg	SO-105-NP	1/16	0.14 - 4.2	0.08	0.48 (U)	780 N	N/A	N/A	N	BSL
	100-52-7	Benzaldehyde	0.15 J	0.54 J	mg/kg	SO-105-NP	2/16	0.14 - 4.2	0.54	0.2 (J)	780 N	N/A	N/A	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.085 J	1300	mg/kg	SO-034-NP	11/16	0.14 - 0.17	1300	12	35 C	N/A	N/A	Y	ASL
	85-68-7	Butylbenzylphthalate	9.2	9.2	mg/kg	SO-034-NP	1/16	0.14 - 0.39	9.2	3.5 (U)	260 C	N/A	N/A	N	BSL
	86-74-8	Carbazole	0.15 J	2	mg/kg	SO-105-NP	6/16	0.14 - 4.2	2	0.55	N/A	N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.056 J	0.92	mg/kg	SO-105-NP	6/16	0.14 - 4.2	0.92	0.44	N/A	N/A	N/A	Y	NSL
	84-74-2	Di-n-butylphthalate	0.048 J	11	mg/kg	SO-034-NP	2/16	0.14 - 0.39	11	0.48 (U)	610 N	N/A	N/A	N	BSL
	117-84-0	Di-n-octylphthalate	0.098 J	270 J	mg/kg	SO-034-NP	3/16	0.14 - 0.39	270	0.51 (J)	610 N	N/A	N/A	N	BSL
	86-30-6	N-Nitrosodiphenylamine	4.1 J	4.1 J	mg/kg	SO-034-NP	1/16	0.14 - 0.39	4.1	0.48 (U)	99 C	N/A	N/A	N	BSL
	75-35-4	1,1-Dichloroethene	0.003 J	0.003 J	mg/kg	SO-034-NP	1/16	0.0011 - 0.11	0.003	0.004 (J)	25 N	N/A	N/A	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.008 J	0.008 J	mg/kg	SO-034-NP	1/16	0.0011 - 0.11	0.008	0.014 (U)	2.6 C	N/A	N/A	N	BSL
	78-93-3	2-Butanone	0.003 J	0.096 J	mg/kg	SO-034-NP	6/16	0.0011 - 0.11	0.096	0.011 (J)	2800 N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.053	0.15	mg/kg	SO-034-NP	4/16	0.0028 - 1.6	0.15	0.27 (J)	6100 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.001 J	0.31 J	mg/kg	SO-034-NP	3/16	0.0011 - 0.11	0.31	0.014 (U)	1.1 C	N/A	N/A	N	BSL

TABLE 2.4
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	75-15-0	Carbon disulfide	0.001 J	0.027	mg/kg	SO-035-NP	4/16	0.0011 - 0.11	0.027	0.014 (U)	67 N	N/A	N/A	N	BSL
	108-90-7	Chlorobenzene	0.018 J	0.018 J	mg/kg	SO-034-NP	1/16	0.0011 - 0.11	0.018	0.014 (U)	31 N	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.001 J	0.001 J	mg/kg	SO-036-NP	1/16	0.0011 - 0.11	0.001	0.014 (U)	78 N	N/A	N/A	N	BSL
	110-82-7	Cyclohexane	0.003 J	0.35 J	mg/kg	SO-034-NP	2/16	0.0011 - 0.11	0.35	0.014 (U)	720 N	N/A	N/A	N	BSL
	108-87-2	Methylcyclohexane	0.002 J	0.08 J	mg/kg	SO-034-NP	2/16	0.0028 - 0.28	0.08	0.014 (U)	720 N	N/A	N/A	N	BSL
	75-71-8	Dichlorodifluoromethane	0.003 J	0.003 J	mg/kg	SO-033-NP	1/16	0.0011 - 0.11	0.003	0.014 (U)	19 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.02 J	0.02 J	mg/kg	SO-034-NP	1/16	0.0011 - 0.11	0.02	0.014 (U)	5.7 C	N/A	N/A	N	BSL
	98-82-8	Isopropylbenzene	0.029	0.029	mg/kg	SO-034-NP	1/16	0.0028 - 0.28	0.029	0.014 (U)	220 N	N/A	N/A	N	BSL
	79-20-9	Methyl acetate	0.008 J	0.008 J	mg/kg	SO-033-NP	1/16	0.0011 - 1.2	0.008	0.014 (U)	7800 N	N/A	N/A	N	BSL
	127-18-4	Tetrachloroethene	0.0023	0.0023	mg/kg	SO-103-NP	1/16	0.0011 - 0.11	0.0023	0.014 (U)	0.57 C	N/A	N/A	N	BSL
	108-88-3	Toluene	0.001 J	13	mg/kg	SO-102-NP	4/16	0.001 - 0.11	13	0.0009 (J)	500 N	N/A	N/A	N	BSL
	1330-20-7	Xylene (Total)	0.18 J	0.44	mg/kg	SO-102-NP	2/16	0.0034 - 0.34	0.44	0.014 (U)	60 N	N/A	N/A	N	BSL
	12672-29-6	Aroclor-1248	0.36	0.36	mg/kg	SO-102-NP	1/10	0.014 - 0.016	0.36	0.2 (U)	0.22 C	N/A	N/A	Y	ASL
	11097-69-1	Aroclor-1254	0.06	1 J	mg/kg	SO-034-NP	11/16	0.014 - 0.039	1	0.2 (U)	0.11 N	N/A	N/A	Y	ASL
	11096-82-5	Aroclor-1260	0.036	0.29	mg/kg	SO-105-NP	8/10	0.014 - 0.015	0.29	0.2 (U)	0.22 C	N/A	N/A	Y	ASL
	72-54-8	4,4'-DDD	0.0013	0.059 J	mg/kg	SO-035-NP	11/13	0.00072 - 0.0035	0.059	0.0081 (J)	2 C	N/A	N/A	N	BSL
	72-55-9	4,4'-DDE	0.0008 J	0.021 J	mg/kg	SO-034-NP	9/12	0.00071 - 0.0035	0.021	0.012	1.4 C	N/A	N/A	N	BSL
	50-29-3	4,4'-DDT	0.0012 J	0.014 J	mg/kg	SO-035-NP	7/13	0.00072 - 0.0042	0.014	0.052	1.7 C	N/A	N/A	N	BSL
	5103-71-9	Alpha-chlordane	0.0008 J	0.01 J	mg/kg	SO-035-NP	7/13	0.00072 - 0.0022	0.01	0.56 (J)	1.6 C	N/A	N/A	N	BSL
	60-57-1	Dieldrin	0.0051	0.25	mg/kg	SO-100-NP	8/13	0.00072 - 0.0042	0.25	0.033	0.03 C	N/A	N/A	Y	ASL
	959-98-8	Endosulfan I	0.0015	0.002 J	mg/kg	SO-105-NP	2/13	0.00071 - 0.0022	0.002	0.013 (J)	37 N	N/A	N/A	N	BSL
	1031-07-8	Endosulfan sulfate	0.029 J	0.029 J	mg/kg	SO-035-NP	1/13	0.00071 - 0.0042	0.029	0.0075 (J)	37 N	N/A	N/A	N	BSL
	72-20-8	Endrin	0.0044	0.0071 J	mg/kg	SO-034-NP	2/13	0.00071 - 0.0039	0.0071	0.02 (U)	1.8 N	N/A	N/A	N	BSL
	7421-36-3	Endrin aldehyde	0.013	0.013	mg/kg	SO-034-NP	1/13	0.00071 - 0.0039	0.013	0.0071 (J)	1.8 N	N/A	N/A	N	BSL
	53494-70-5	Endrin ketone	0.0048 J	0.016 J	mg/kg	SO-108-NP	4/12	0.00072 - 0.0042	0.016	0.0063 (J)	1.8 N	N/A	N/A	N	BSL
	5103-74-2	Gamma-Chlordane	0.00085 J	0.0028	mg/kg	SO-100-NP	4/10	0.00072 - 0.002	0.0028	0.6	1.6 C	N/A	N/A	N	BSL
	72-43-5	Methoxychlor	0.026 J	0.035 J	mg/kg	SO-105-NP	2/12	0.0024 - 0.022	0.035	0.034	31 N	N/A	N/A	N	BSL
	7429-90-5	Aluminum	3900	9800	mg/kg	SO-105-NP	16/16	N/A	9800	6350	7700 N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	0.13 J	0.74 J	mg/kg	SO-108-NP	9/16	0.091 - 15	0.74	12 (U)	3.1 N	N/A	N/A	N	BSL
	7440-38-2	Arsenic	2.8	16 J	mg/kg	SO-108-NP	16/16	N/A	16	9.5	0.39 C	N/A	N/A	Y	ASL
	7440-39-3	Barium	12	1050	mg/kg	SO-033-NP	13/16	43 - 47	1050	49.6	1500 N	N/A	N/A	N	BSL
	7440-41-7	Beryllium	0.15 J	0.98 J	mg/kg	SO-105-NP	16/16	N/A	0.98	0.5	16 N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.057 J	6	mg/kg	SO-034-NP	15/16	0.036	6	1.9	7 N	N/A	N/A	N	BSL
	7440-70-2	Calcium	330	38700	mg/kg	SO-033-NP	16/16	N/A	38700	1180	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	5.3	209 J	mg/kg	SO-034-NP	16/16	N/A	209	89.6	23 N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	2.2	5	mg/kg	SO-105-NP	10/16	11 - 13	5	4.7 (J)	2.3 N	N/A	N/A	Y	ASL

TABLE 2.4
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-50-8	Copper	5.7 J	644	mg/kg	SO-034-NP	16/16	N/A	644	75.1	310 N	N/A	N/A	Y	ASL
	57-12-5	Cyanide	0.15	1.6	mg/kg	SO-035-NP	10/16	0.087 - 0.19	1.6	0.63 (U)	160 N	N/A	N/A	N	BSL
	7439-89-6	Iron	6200	54500	mg/kg	SO-034-NP	16/16	N/A	54500	11800	5500 N	N/A	N/A	Y	ASL
	7439-92-1	Lead	10	5460	mg/kg	SO-033-NP	16/16	N/A	5460	161	40 N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	1300	4270	mg/kg	SO-033-NP	16/16	N/A	4270	2070	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	89	666 J	mg/kg	SO-034-NP	16/16	N/A	666	175	180 N	N/A	N/A	Y	ASL
	7439-97-6	Mercury	0.011	1.7	mg/kg	SO-105-NP	15/16	N/A	1.7	0.7	0.78 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	4.6	122	mg/kg	SO-034-NP	13/16	9	122	9	160 N	N/A	N/A	N	BSL
	7440-09-7	Potassium	430	800	mg/kg	SO-105-NP	10/16	1076 - 1269	800	1200 (U)	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.48	1.2 J	mg/kg	SO-033-NP, SO-036-NP	8/16	0.35 - 0.69	1.2	0.62 (U)	39 N	N/A	N/A	N	BSL
	7440-22-4	Silver	0.039 J	15.2	mg/kg	SO-034-NP	12/16	0.036 - 2	15.2	7.3	39 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	27 J	310 J	mg/kg	SO-105-NP	10/16	1076 - 1269	310	1200 (U)	N/A	N/A	N/A	N	NUT
	7440-28-0	Thallium	1.1 J	7 J	mg/kg	SO-035-NP	6/16	0.087 - 0.1	7	0.83 (U)	0.51 N	N/A	N/A	Y	ASL
	7440-62-2	Vanadium	6.5	101	mg/kg	SO-035-NP	15/16	11	101	21.3	55 N	N/A	N/A	Y	ASL
	7440-66-6	Zinc	20	2470 J	mg/kg	SO-034-NP	16/16	N/A	2470	74.5	2300 N	N/A	N/A	Y	ASL

Notes:

Only includes subsurface soils data collected from Nunes Parcel.

N/A = Not Applicable or Not Available

[1]

Organic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

E = The compound was quantitated above the calibration range.

Inorganic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).

[3] Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment.

U = Non-detect. Value is associated detection limit.

[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Soil.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The PRG values for noted analytes are as follows:

PRG for cadmium associated with water intake.

PRG for chlordane has been used for alpha-chlordane and gamma-chlordane.

PRG for chromium VI (particulates) used for chromium.

PRG for cyclohexane has been used for methylcyclohexane.

PRG for dibutyl phthalate has been used for di-n-octylphthalate.

PRG for endosulfan has been used for endosulfan II and endosulfan sulfate.

PRG for endrin has been used for endrin aldehyde and endrin ketone.

PRG for methyl mercury has been used for mercury.

PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.

[5] Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Site-Wide (Excluding Wetlands)	91-57-6	2-Methylnaphthalene	0.0036	0.47	mg/kg	T05BR-005	56/94	0.0023 - 0.63	0.47	0.43	31 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.003	0.85	mg/kg	SE-047-BR	63/94	0.0021 - 0.63	0.85	0.18	340 N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.007	0.56	mg/kg	T05BR-005	82/94	0.0023 - 0.52	0.56	0.47	3.9 C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.0048	2.9	mg/kg	BD062105	88/94	0.0023 - 0.52	2.9	0.96	1700 N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.0063	6.7	mg/kg	BD062105	92/94	0.0023 - 0.0037	6.7	2.7	0.015 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.011	4.3	mg/kg	SE-027-BR	87/89	0.0023 - 0.0037	4.3	2.6	0.15 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.0064	2.9	mg/kg	SE-053-WT	91/94	0.0023 - 0.52	2.9	1.9	3.9 C	N/A	N/A	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.004	3.6	mg/kg	BD062105	91/94	0.0023 - 0.004	3.6	2.4	1.5 C	N/A	N/A	Y	ASL
	56-55-3	Benzo(a)anthracene	0.0045	7.1	mg/kg	BD062105	92/94	0.0023 - 0.0037	7.1	2.8	0.15 C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.0076	6.9	mg/kg	BD062105	93/94	0.0037	6.9	2.8	15 C	N/A	N/A	N	BSL
	53-70-3	Dibenz(a,h)anthracene	0.0058	0.92	mg/kg	BD062105	74/94	0.0023 - 1.1	0.92	0.7	0.015 C	N/A	N/A	Y	ASL
	206-44-0	Fluoranthene	0.008	10	mg/kg	BD062105	92/94	0.0023 - 0.0037	10	4.9	230 N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.0024	0.7	mg/kg	SE-047-BR	75/94	0.0023 - 0.63	0.7	0.32	230 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.0052	2.5	mg/kg	SE-053-WT, T05BR-005	91/94	0.0023 - 0.52	2.5	1.8	0.15 C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.0041	0.7	mg/kg	SE-047-BR	60/94	0.0023 - 0.63	0.7	0.35	3.9 C	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.0091	5.3	mg/kg	SE-047-BR	91/94	0.0023 - 0.004	5.3	2.4	3.9 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.0038	13	mg/kg	BD062105	93/94	0.0037	13	4.2	170 N	N/A	N/A	N	BSL
	92-52-4	1,1'-Biphenyl	0.042 J	0.088 J	mg/kg	BD062105	6/94	0.08 - 0.16	0.088	0.065	390 N	N/A	N/A	N	BSL
	95-48-7	2-Methylphenol	0.0075	0.016	mg/kg	T05PD-002	5/94	0.0016 - 0.66	0.016	0.016	310 N	N/A	N/A	N	BSL
	106-44-5	4-Methylphenol	0.054 J	0.068 J	mg/kg	SE-FD-13	4/94	0.08 - 0.66	0.068	0.074	31 N	N/A	N/A	N	BSL
	100-02-7	4-Nitrophenol	0.26	0.26	mg/kg	T05BR-003	1/94	0.08 - 1.7	0.26	ND	24 N	N/A	N/A	N	BSL
	98-86-2	Acetophenone	0.044 J	0.088 J	mg/kg	SE-FD-13	4/94	0.08 - 0.66	0.088	ND	780 N	N/A	N/A	N	BSL
	100-52-7	Benzaldehyde	0.04 J	1.7	mg/kg	SE-FD-13	37/94	0.08 - 0.63	1.7	0.48	780 N	N/A	N/A	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.043 J	58 J	mg/kg	SE-074-LF	60/94	0.1 - 0.75	58	5.9	35 C	N/A	N/A	Y	ASL
	85-68-7	Butylbenzylphthalate	0.064 J	0.2 J	mg/kg	SE-032-BR	9/94	0.08 - 0.66	0.2	0.18	260 C	N/A	N/A	N	BSL
	86-74-8	Carbazole	0.034 J	0.88 J	mg/kg	SE-025-BR	51/94	0.08 - 0.61	0.88	0.33	N/A	N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.044 J	0.5	mg/kg	SE-047-BR	27/94	0.08 - 0.63	0.5	0.086	N/A	N/A	N/A	Y	NSL
	131-11-3	Dimethylphthalate	0.062 J	0.062 J	mg/kg	SE-013-WT	1/94	0.08 - 0.66	0.062	ND	4900 N	N/A	N/A	N	BSL
	84-74-2	Di-n-butylphthalate	0.043 J	2.8	mg/kg	SE-083-BR	9/94	0.08 - 0.63	2.8	ND	610 N	N/A	N/A	N	BSL
	117-84-0	Di-n-octylphthalate	0.075 J	11 J	mg/kg	SE-029-BR	12/94	0.08 - 0.66	11	0.15	610 N	N/A	N/A	N	BSL
	86-30-6	N-Nitrosodiphenylamine	0.05 J	1.4	mg/kg	SE-078-UI	4/94	0.08 - 0.66	1.4	ND	99 C	N/A	N/A	N	BSL
	87-86-5	Pentachlorophenol	0.18	0.18	mg/kg	T05BR-003	1/90	0.08 - 3	0.18	ND	3 C	N/A	N/A	N	BSL
	108-95-2	Phenol	0.041 J	1.6 J	mg/kg	T05WB-002	11/94	0.08 - 0.66	1.6	0.18	1800 N	N/A	N/A	N	BSL
	75-35-4	1,1-Dichloroethene	0.002 J	0.002 J	mg/kg	SE-019-LF	1/94	0.0013 - 0.046	0.002	0.002	25 N	N/A	N/A	N	BSL
	95-50-1	1,2-Dichlorobenzene	0.001 J	0.009 J	mg/kg	SE-020-LF	4/94	0.0013 - 0.046	0.009	ND	200 N	N/A	N/A	N	BSL

TABLE 2.5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	106-46-7	1,4-Dichlorobenzene	0.00051 J	0.02	mg/kg	SE-020-LF	7/94	0.0017 - 0.046	0.02	0.00046	2.6 C	N/A	N/A	N	BSL
	78-93-3	2-Butanone	0.003 J	0.75 J	mg/kg	SE-078-UI	58/94	0.0017 - 0.033	0.75	0.056	2800 N	N/A	N/A	N	BSL
	108-10-1	4-Methyl-2-pentanone	0.13 J	0.13 J	mg/kg	SE-078-UI	1/94	0.0013 - 0.046	0.13	ND	530 N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.003 J	2.3 J	mg/kg	SE-078-UI	47/94	0.0049 - 0.04	2.3	0.15	6100 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.00056 J	0.006 J	mg/kg	SE-078-UI	2/94	0.0013 - 0.046	0.006	ND	1.1 C	N/A	N/A	N	BSL
	75-15-0	Carbon disulfide	0.00088 J	0.044 J	mg/kg	SE-078-UI	29/94	0.0017 - 0.038	0.044	0.013	67 N	N/A	N/A	N	BSL
	108-90-7	Chlorobenzene	0.00081 J	0.053 J	mg/kg	SE-069-NP	12/94	0.0017 - 0.046	0.053	ND	31 N	N/A	N/A	N	BSL
	75-00-3	Chloroethane	0.014 J	0.014 J	mg/kg	SE-FD-12	1/94	0.0013 - 0.046	0.014	ND	1500 N	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.004 J	0.006 J	mg/kg	SE-032-BR	2/94	0.0013 - 0.046	0.006	ND	78 N	N/A	N/A	N	BSL
	110-82-7	Cyclohexane	0.001 J	0.036 J	mg/kg	SE-FD-12	7/94	0.0013 - 0.046	0.036	ND	720 N	N/A	N/A	N	BSL
	108-87-2	Methylcyclohexane	0.00038 J	0.012 J	mg/kg	SE-020-LF	2/94	0.0017 - 0.046	0.012	ND	720 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.00054	0.0034	mg/kg	T05WB-002	8/94	0.0013 - 0.046	0.0034	0.0053	5.7 C	N/A	N/A	N	BSL
	98-82-8	Isopropylbenzene	0.002 J	0.003 J	mg/kg	SE-020-LF	2/94	0.0013 - 0.046	0.003	ND	220 N	N/A	N/A	N	BSL
	79-20-9	Methyl acetate	0.001 J	0.038 J	mg/kg	SE-079-UI	7/94	0.0013 - 0.046	0.038	0.001	7800 N	N/A	N/A	N	BSL
	75-09-2	Methylene chloride	0.004 JEB	0.061 J	mg/kg	SE-079-UI	8/94	0.0037 - 0.087	0.061	ND	11 C	N/A	N/A	N	BSL
	100-42-5	Styrene	0.00061	0.0013	mg/kg	T05WB-002	2/94	0.0013 - 0.046	0.0013	0.002	650 N	N/A	N/A	N	BSL
	127-18-4	Tetrachloroethene	0.008 J	0.011	mg/kg	SE-032-BR	2/94	0.0013 - 0.046	0.011	ND	0.57 C	N/A	N/A	N	BSL
	108-88-3	Toluene	0.0005 J	0.038 J	mg/kg	SE-079-UI	23/94	0.0013 - 0.034	0.038	0.00051	500 N	N/A	N/A	N	BSL
	79-01-6	Trichloroethene	0.002 J	0.003 J	mg/kg	SE-032-BR	2/94	0.0013 - 0.046	0.003	0.0024	2.8 C	N/A	N/A	N	BSL
	75-69-4	Trichlorofluoromethane	0.001 J	0.002 J	mg/kg	SE-005-UI, SE-067-BR	3/94	0.0013 - 0.046	0.002	ND	80 N	N/A	N/A	N	BSL
	1330-20-7	Xylene (Total)	0.001 J	0.004 J	mg/kg	SE-078-UI	7/94	0.004 - 0.046	0.004	0.001	60 N	N/A	N/A	N	BSL
	53469-21-9	Aroclor-1242	0.25 J	0.25 J	mg/kg	SE-030-BR	1/92	0.0065 - 0.036	0.25	ND	0.22 C	N/A	N/A	Y	ASL
	12672-29-6	Aroclor-1248	0.066	0.13	mg/kg	T05BR-002	2/92	0.0066 - 0.036	0.13	ND	0.22 C	N/A	N/A	N	BSL
	11097-69-1	Aroclor-1254	0.0094 J	2.8	mg/kg	SE-026-BR	19/92	0.0065 - 0.03	2.8	1.4	0.11 N	N/A	N/A	Y	ASL
	11096-82-5	Aroclor-1260	0.0057 J	0.76	mg/kg	T05BR-005	60/93	0.0071 - 0.012	0.76	0.65	0.22 C	N/A	N/A	Y	ASL
	72-54-8	4,4'-DDD	0.00041 J	0.035 J	mg/kg	SE-051-DF	59/86	0.00073 - 0.0081	0.035	0.018	2 C	N/A	N/A	N	BSL
	72-55-9	4,4'-DDE	0.00045 J	0.037 J	mg/kg	SE-081-BR	55/79	0.00065 - 0.0012	0.037	0.016	1.4 C	N/A	N/A	N	BSL
	50-29-3	4,4'-DDT	0.00072 J	0.005 J	mg/kg	SE-010-WT	13/64	0.00059 - 0.0093	0.005	0.0027	1.7 C	N/A	N/A	N	BSL
	309-00-2	Aldrin	0.0014 J	0.0014 J	mg/kg	SE-008-BR	1/91	0.00034 - 0.0009	0.0014	ND	0.029 C	N/A	N/A	N	BSL
	5103-71-9	Alpha-chlordane	0.00029 J	0.039 J	mg/kg	SE-079-UI	40/86	0.00034 - 0.00082	0.039	0.0063	1.6 C	N/A	N/A	N	BSL
	319-85-7	Beta-BHC	0.00051 J	0.0029	mg/kg	SE-016-WT	2/89	0.00034 - 0.0009	0.0029	ND	0.27 C	N/A	N/A	N	BSL
	319-86-8	Delta-BHC	0.00097	0.0016	mg/kg	T05BR-005	2/92	0.00034 - 0.0009	0.0016	0.0017	0.27 C	N/A	N/A	N	BSL
	60-57-1	Dieldrin	0.0004 J	0.074 J	mg/kg	SE-051-DF	37/84	0.00066 - 0.0081	0.074	0.017	0.03 C	N/A	N/A	Y	ASL
	33213-65-9	Endosulfan II	0.0014	0.0014	mg/kg	SE-064-BR	1/91	0.00059 - 0.0013	0.0014	ND	37 N	N/A	N/A	N	BSL
	1031-07-8	Endosulfan sulfate	0.001 J	0.01 J	mg/kg	SE-080-UI	16/80	0.00059 - 0.0093	0.01	0.013	37 N	N/A	N/A	N	BSL
	72-20-8	Endrin	0.0086 J	0.0086 J	mg/kg	SE-087-UI	1/91	0.00059 - 0.0013	0.0086	ND	1.8 N	N/A	N/A	N	BSL
	7421-36-3	Endrin aldehyde	0.0012 J	0.0095	mg/kg	SE-081-BR	13/77	0.00059 - 0.0045	0.0095	0.0027	1.8 N	N/A	N/A	N	BSL
	53494-70-5	Endrin ketone	0.00075 J	0.0021 J	mg/kg	T05BR-006	9/69	0.00059 - 0.0093	0.0021	0.02	1.8 N	N/A	N/A	N	BSL
	5103-74-2	Gamma-Chlordane	0.00034 J	0.035 J	mg/kg	SE-FD-13	31/67	0.00034 - 0.0042	0.035	0.0065	1.6 C	N/A	N/A	N	BSL

TABLE 2.5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	1024-57-3	Heptachlor epoxide	0.027 J	0.027 J	mg/kg	SE-080-UI	1/92	0.00034 - 0.0009	0.027	ND	0.053 C	N/A	N/A	N	BSL
	72-43-5	Methoxychlor	0.0045 J	0.016 J	mg/kg	SE-051-DF	8/88	0.00059 - 0.0066	0.016	ND	31 N	N/A	N/A	N	BSL
	7429-90-5	Aluminum	1800	36500	mg/kg	SE-055-WT	94/94	N/A	36500	12	7700 N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	0.2	18.9	mg/kg	SE-001-UI	44/94	0.1 - 58	18.9	0.00076	3.1 N	N/A	N/A	Y	ASL
	7440-38-2	Arsenic	1.1	92.3	mg/kg	SE-041-BR	93/94	0.44	92.3	0.012	0.39 C	N/A	N/A	Y	ASL
	7440-39-3	Barium	8.7	617	mg/kg	SE-001-UI	62/94	0.15 - 76	617	0.14	1500 N	N/A	N/A	N	BSL
	7440-41-7	Beryllium	0.081	1.7	mg/kg	SE-079-UI	53/94	0.063 - 1.9	1.7	0.00088	16 N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.09	30.2	mg/kg	SE-069-NP	85/94	0.043 - 0.071	30.2	0.012	7 N	N/A	N/A	Y	ASL
	7440-70-2	Calcium	240	8310	mg/kg	SE-055-WT	71/94	990 - 1900	8310	3.3	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	3.7	354	mg/kg	SE-078-UI	94/94	N/A	354	0.12	23 N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	1.1	32.5	mg/kg	SE-055-WT	48/94	9 - 19	32.5	0.012	2.3 N	N/A	N/A	Y	ASL
	7440-50-8	Copper	5.7	653	mg/kg	SE-001-UI	92/94	5.5 - 5.8	653	0.18	310 N	N/A	N/A	Y	ASL
	57-12-5	Cyanide	0.17	5.7	mg/kg	SE-085-UI	18/78	0.16 - 0.84	5.7	ND	160 N	N/A	N/A	N	BSL
	7439-89-6	Iron	3600	57000	mg/kg	T05WD-003	94/94	N/A	57000	25	5500 N	N/A	N/A	Y	ASL
	7439-92-1	Lead	3	1760	mg/kg	SE-078-UI	94/94	N/A	1760	0.45	40 N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	680	27400	mg/kg	SE-055-WT	81/94	996 - 1900	27400	4.1	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	30	1900	mg/kg	SE-055-WT	94/94	N/A	1900	0.3	180 N	N/A	N/A	Y	ASL
	7439-97-6	Mercury	0.016	1.1	mg/kg	SE-087-UI	62/94	0.045 - 0.088	1.1	0.00054	0.78 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	3	82.7	mg/kg	SE-055-WT	66/94	7.3 - 15	82.7	0.052	160 N	N/A	N/A	N	BSL
	7440-09-7	Potassium	310	13500	mg/kg	SE-055-WT	34/94	920 - 1904	13500	1.5	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.22	31.2	mg/kg	SE-026-BR	69/94	0.6 - 1.9	31.2	0.0025	39 N	N/A	N/A	N	BSL
	7440-22-4	Silver	0.08	23.3	mg/kg	SE-079-UI	91/94	2.3 - 3.7	23.3	0.0052	39 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	28	290	mg/kg	T05WB-002	16/94	860 - 1904	290	2.5	N/A	N/A	N/A	N	NUT
	7440-28-0	Thallium	0.023	1.3	mg/kg	SE-041-BR	25/94	0.35 - 1.1	1.3	0.0004	0.51 N	N/A	N/A	Y	ASL
	7440-62-2	Vanadium	3.4	86.6	mg/kg	SE-055-WT	71/94	9.9 - 19	86.6	0.031	55 N	N/A	N/A	Y	ASL
	7440-66-6	Zinc	20	1470	mg/kg	SE-004-UI	94/94	N/A	1470	0.68	2300 N	N/A	N/A	N	BSL

TABLE 2.5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)

Notes:

N/A = Not Applicable or Not Available

- [1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
E = The compound was quantitated above the calibration range.
Inorganic Data Qualifiers
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- [2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).
- [3] Values represent maximum background concentrations. Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment. ND = Non-detect.
- [4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Soil.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for beta-hexachlorocyclohexane has been used for delta-BHC.
PRG for cadmium associated with water intake.
PRG for chlordane has been used for alpha-chlordane and gamma-chlordane.
PRG for chromium VI (particulates) used for chromium.
PRG for cyclohexane has been used for methylcyclohexane.
PRG for dibutyl phthalate has been used for di-n-octylphthalate.
PRG for diethylphthalate has been used for dimethylphthalate.
PRG for endosulfan has been used for endosulfan II and endosulfan sulfate.
PRG for endrin has been used for endrin aldehyde and endrin ketone.
PRG for methyl mercury has been used for mercury.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.
PRG for p-nitrotoluene has been used for 4-nitrophenol.
- [5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value (N/C)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
			(1)	(1)					(2)	(3)	(4)				(5)
Site-Wide (Excluding Wetlands)	83-32-9	Acenaphthene	0.0062 J	0.0062 J	ug/L	SW-3 Pratt, SW-4 Pratt	2/2	N/A	0.0062	0.0058	220 N	670	AWQC	N	BSL
	208-96-8	Acenaphthylene	0.01 J	0.013 J	ug/L	SW-4 Pratt	2/2	N/A	0.013	0.01	0.14 C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.013 J	0.19 J	ug/L	SW-052-WT	4/66	0.1	0.19	0.014	1100 N	8300	AWQC	N	BSL
	50-32-8	Benzo(a)pyrene	0.11 J	0.34 J	ug/L	SW-020-LF	6/64	0.1	0.34	0.067	0.0029 C	0.0038	AWQC	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.1 J	0.36 J	ug/L	SW-020-LF	8/64	0.1	0.36	0.086	0.029 C	0.0038	AWQC	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.1 J	0.23 J	ug/L	SW-020-LF	4/64	0.1	0.23	0.13	0.14 C	N/A	N/A	Y	ASL
	207-08-9	Benzo(k)fluoranthene	0.1 J	0.26 J	ug/L	SW-020-LF	2/64	0.1	0.26	0.069	0.29 C	0.0038	AWQC	Y	ASL
	56-55-3	Benzo(a)anthracene	0.1 J	0.2 J	ug/L	SW-020-LF	5/64	0.1	0.2	0.044	0.029 C	0.0038	AWQC	Y	ASL
	218-01-9	Chrysene	0.072 J	0.3 J	ug/L	SW-020-LF	8/66	0.05	0.3	0.074	2.9 C	0.0038	AWQC	Y	ASL
	206-44-0	Fluoranthene	0.059 J	0.39 J	ug/L	SW-020-LF	12/66	0.1	0.39	0.083	150 N	130	AWQC	N	BSL
	86-73-7	Fluorene	0.0068 J	0.0076 J	ug/L	SW-3 Pratt	2/2	N/A	0.0076	0.0064	150 N	1100	AWQC	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.1 J	0.19 J	ug/L	SW-020-LF	3/64	0.1	0.19	0.13	0.029 C	0.0038	AWQC	Y	ASL
	91-20-3	Naphthalene	0.0067 J	0.19 J	ug/L	SW-007-UI	4/66	0.1 - 0.13	0.19	0.0084	0.14 C	N/A	N/A	Y	ASL
	85-01-8	Phenanthrene	0.041 J	0.21 J	ug/L	SW-075-UI	16/66	0.1	0.21	0.045	0.14 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.071 J	0.42 J	ug/L	SW-020-LF	14/66	0.1	0.42	0.087	110 N	830	AWQC	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	1.3 J	10 J	ug/L	SW-051-DF	4/63	5	10	ND	4.8 C	1.2	AWQC	Y	ASL
	84-74-2	Di-n-butylphthalate	1.1 J	1.8 J	ug/L	SW-047-BR	2/63	5	1.8	ND	370 N	2000	AWQC	N	BSL
	86-30-6	N-Nitrosodiphenylamine	1.6 J	1.6 J	ug/L	SW-001-UI	1/63	5	1.6	ND	14 C	3.3	AWQC	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.54 J	0.54 J	ug/L	SW-020-LF	1/64	0.5	0.54	ND	0.43 C	63	AWQC	Y	ASL
	67-64-1	Acetone	12 J	12 J	ug/L	SW-024-BR	1/64	5 - 11	12	ND	2200 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.34 J	2.4 J	ug/L	SW-021-NP	3/64	0.5	2.4	ND	0.41 C	2.2	AWQC	Y	ASL
	75-27-4	Bromodichloromethane	0.31 J	0.31 J	ug/L	SW-029-BR	1/64	0.5	0.31	ND	1.1 C	0.55	AWQC	N	BSL
	75-25-2	Bromoform	0.5 J	0.5 J	ug/L	SW-027-BR	1/64	0.5	0.5	ND	8.5 C	4.3	AWQC	N	BSL
	108-90-7	Chlorobenzene	1.5 J	3.5 J	ug/L	SW-021-NP	2/64	0.5	3.5	ND	9.1 N	130	AWQC	N	BSL
	74-87-3	Chloromethane	0.33 J	0.67 J	ug/L	SW-016-WT	12/64	0.32 - 0.57	0.67	0.37	1.8 C	N/A	N/A	N	BSL
	1634-04-4	Methyl tert-butyl ether	0.73 J	0.73 J	ug/L	SW-026-BR	1/64	0.5	0.73	ND	12 C	N/A	N/A	N	BSL
	108-88-3	Toluene	0.6 J	2.6 J	ug/L	SW-078-UI	2/64	0.5	2.6	ND	230 N	1300	AWQC	N	BSL
	11096-82-5	Aroclor-1260	0.12 J	0.3 J	ug/L	SW-020-LF	2/66	0.023 - 0.056	0.3	ND	0.034 C	0.000064	AWQC	Y	ASL
	72-54-8	4,4'-DDD	0.0047 J	0.025 J	ug/L	SW-020-LF	5/66	0.0011 - 0.0056	0.025	ND	0.28 C	0.00031	AWQC	Y	ASL
	72-55-9	4,4'-DDE	0.0014 J	0.015 J	ug/L	SW-020-LF	2/66	0.0012 - 0.0056	0.015	0.0014	0.2 C	0.00022	AWQC	Y	ASL
	50-29-3	4,4'-DDT	0.0017 J	0.0092 J	ug/L	SW-077-UI	2/66	0.0012 - 0.0056	0.0092	ND	0.2 C	0.00022	AWQC	Y	ASL
	319-84-6	alpha-BHC	0.0021 J	0.0026 J	ug/L	SW-4 Pratt	2/66	0.0012 - 0.0028	0.0026	0.0029	0.011 C	0.0026	AWQC	N	BSL
	5103-71-9	alpha-Chlordane	0.0033 J	0.0044 J	ug/L	SW-051-DF	2/66	0.0011 - 0.0028	0.0044	ND	0.19 C	0.0008	AWQC	Y	ASL
	319-85-7	beta-BHC	0.0036 J	0.01 J	ug/L	SW-017-WT	3/64	0.0011 - 0.0028	0.01	ND	0.037 C	0.0091	AWQC	Y	ASL

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value (3)	Screening Toxicity Value (N/C)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	60-57-1	Dieldrin	0.0013	0.014 J	ug/L	SW-020-LF	6/66	0.005 - 0.0056	0.014	0.0014	0.0042 C	0.000052	AWQC	Y	ASL
	1031-07-8	Endosulfan Sulfate	0.011 J	0.013	ug/L	SW-011-WT	2/63	0.0011 - 0.0056	0.013	ND	22 N	62	AWQC	N	BSL
	53494-70-5	Endrin Ketone	0.006 J	0.006 J	ug/L	SW-021-NP	1/66	0.0011 - 0.0056	0.006	ND	1.1 N	N/A	N/A	N	BSL
	58-89-9	Gamma-BHC (Lindane)	0.0043 J	0.0043 J	ug/L	SW-077-UI	1/66	0.0011 - 0.0028	0.0043	ND	0.061 C	0.98	AWQC	N	BSL
	5103-74-2	Gamma-Chlordane	0.0027 J	0.0094	ug/L	SW-077-UI	3/65	0.0011 - 0.0028	0.0094	ND	0.19 C	0.0008	AWQC	Y	ASL
	1024-57-3	Heptachlor Epoxide	0.0029 J	0.0051 J	ug/L	SW-077-UI	3/65	0.0011 - 0.0028	0.0051	ND	0.0074 C	0.000039	AWQC	Y	ASL
		Metals (Total)													
	7429-90-5	Aluminum	23.9 J	20800	ug/L	SW-020-LF	51/66	200	20800	360	3700 N	N/A	N/A	Y	ASL
	7440-38-2	Arsenic	0.29	17.5	ug/L	SW-020-LF	66/66	N/A	17.5	2.29	0.045 C	0.018	AWQC	Y	ASL
	7440-39-3	Barium	23	598 J	ug/L	SW-020-LF	15/66	27.7 - 200	598	25	730 N	1000	AWQC	N	BSL
	7440-41-7	Beryllium	0.37 J	1.6 J	ug/L	SW-020-LF	2/66	0.14 - 0.3	1.6	ND	7.3 N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.23 J	19.9	ug/L	SW-020-LF	26/66	0.2 - 1.2	19.9	0.82	1.8 N	N/A	N/A	Y	ASL
	7440-70-2	Calcium	6800	60600	ug/L	SW-052-WT	66/66	N/A	60600	18100	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	0.43 J	260	ug/L	SW-020-LF	37/66	0.4 - 2.1	260	2.8	11 N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	0.51	9.2 J	ug/L	SW-020-LF	17/66	0.37 - 50	9.2	0.54	1.1 N	N/A	N/A	Y	ASL
	7440-50-8	Copper	7.7	428	ug/L	SW-020-LF	4/66	0.8 - 25	428	10	150 N	1300	AWQC	Y	ASL
	57-12-5	Cyanide	3.2 J	179 J	ug/L	SW-017-WT	7/64	3 - 10	179	ND	73 N	140	AWQC	Y	ASL
	7439-89-6	Iron	407 J	54700 J	ug/L	SW-020-LF	55/66	368 - 1940	54700	840	2600 N	300	AWQC	Y	ASL
	7439-92-1	Lead	1.1 J	330	ug/L	SW-020-LF	38/66	0.8 - 2	330	11	15 N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	1400	16900 J	ug/L	SW-020-LF	28/66	5000	16900	3280	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	15.4 J	1200 J	ug/L	SW-020-LF	66/66	N/A	1200	126	88 N	50	AWQC	Y	ASL
	7439-97-6	Mercury	0.014	0.46 J	ug/L	SW-043-BR	4/66	0.12 - 0.17	0.46	0.019	0.37 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	1.8 J,J	44.1	ug/L	SW-020-LF	16/66	0.5 - 40	44.1	4.1	73 N	610	AWQC	N	BSL
	7440-09-7	Potassium	1800	26200	ug/L	SW-020-LF	33/66	5000	26200	5640	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.65	0.65	ug/L	SW-3 Pratt Cumberland	1/30	0.5 - 3	0.65	3.7	18 N	170	AWQC	N	BSL
	7440-22-4	Silver	2.1 J	15.2 J	ug/L	SW-020-LF	4/66	0.13 - 10	15.2	ND	18 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	8110	84200 J	ug/L	SW-020-LF	66/66	N/A	84200	59700	N/A	N/A	N/A	N	NUT
	7440-62-2	Vanadium	0.41 J	60.4	ug/L	SW-020-LF	49/66	0.4 - 50	60.4	2.1	26 N	N/A	N/A	Y	ASL
	7440-66-6	Zinc	17.7 J	751	ug/L	SW-020-LF	20/66	3 - 20	751	20.799999	1100 N	7400	AWQC	N	BSL
		Metals (Dissolved)													
	7429-90-5	Aluminum	56	58	ug/L	SW-3 Pratt Cumberland	2/6	6	58	64	3700 N	N/A	N/A	N	BSL
	7440-36-0	Antimony	0.53	0.53	ug/L	SW-3 Pratt Cumberland	1/6	0.5 - 3	0.53	ND	1.5 N	5.6	AWQC	N	BSL
	7440-38-2	Arsenic	0.655	1.87	ug/L	SW-026-BR	6/6	N/A	1.87	1.69	0.045 C	0.018	AWQC	Y	ASL
	7440-39-3	Barium	18	18	ug/L	SW-3 Pratt Cumberland, SW-4 Pratt Lincoln	2/6	200	18	19	730 N	1000	AWQC	N	BSL

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-43-9	Cadmium	0.33	0.34	ug/L	SW-3 Pratt Cumberland	2/6	0.2	0.34	0.37	1.8 N	N/A	N/A	N	BSL
	7440-70-2	Calcium	7000	14200	ug/L	SW-030-BR	6/6	N/A	14200	13800	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	0.42 J	0.52 J	ug/L	SW-026-BR	2/6	0.4 - 2	0.52	ND	11 N	N/A	N/A	N	BSL
	7440-48-4	Cobalt	0.73 J	0.73 J	ug/L	SW-030-BR	1/6	0.5	0.73	ND	1.1 N	N/A	N/A	N	BSL
	7440-50-8	Copper	3.8	3.9	ug/L	SW-4 Pratt Lincoln	2/6	25	3.9	3.9	150 N	1300	AWQC	N	BSL
	7439-89-6	Iron	210	395	ug/L	SW-030-BR	6/6	N/A	395	291	2600 N	300	AWQC	Y	ASL
	7439-92-1	Lead	0.61	2.9 J	ug/L	SW-011-WT	6/6	N/A	2.9	4.5	15 N	N/A	N/A	N	BSL
	7439-95-4	Magnesium	1200	2900 J	ug/L	SW-030-BR	3/6	5000	2900	1300	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	62	242	ug/L	SW-002-UI	5/6	15	242	63	88 N	50	AWQC	Y	ASL
	7440-02-0	Nickel	2.2	3.9 J	ug/L	SW-030-BR	4/6	40	3.9	3.5	73 N	610	AWQC	N	BSL
	7440-09-7	Potassium	1700	1700	ug/L	SW-3 Pratt Cumberland, SW-4 Pratt Lincoln	2/6	5000	1700	1800	N/A	N/A	N/A	N	NUT
	7440-23-5	Sodium	22900	49600 J	ug/L	SW-026-BR	6/6	N/A	49600	48900	N/A	N/A	N/A	N	NUT
	7440-62-2	Vanadium	0.55 J	1.4	ug/L	SW-4 Pratt Lincoln	3/6	0.4	1.4	1.4	26 N	N/A	N/A	N	BSL
	7440-66-6	Zinc	14.4 J	22	ug/L	SW-4 Pratt Lincoln	4/6	20	22	24	1100 N	7400	AWQC	N	BSL

Notes:

N/A = Not Applicable or Not Available

[1]

Organic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

Inorganic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).

[3] Values represent maximum background concentrations. Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment. ND = Non-detect.

[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Tapwater.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The PRG values for noted analytes are as follows:

PRG for cadmium associated with water intake.

PRG for chlordane has been used for alpha-chlordane and gamma-chlordane.

PRG for chromium VI (chromic acid mists) used for chromium.

PRG for endosulfan has been used for endosulfan sulfate.

PRG for endrin has been used for endrin ketone.

PRG for methyl mercury has been used for mercury.

PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.

The screening toxicity value for lead is the drinking water criterion protective of blood lead levels in children (USEPA, 2002d).

AWQCs - National Recommended Water Quality Criteria for human health consumption of water and organism - 2006

[5]

Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Site-Wide	91-57-6	2-Methylnaphthalene	0.014	2	ug/L	GNP-705	10/98	0.01 - 0.1	2	N/A	15 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.012	2.9	ug/L	GW-004-WT	29/98	0.01 - 0.13	2.9	N/A	220 N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.015	0.035	ug/L	GNP-705	5/98	0.01 - 0.1	0.035	N/A	0.14 C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.012	1	ug/L	GW-004-WT, GW-005-WT	18/98	0.01 - 0.1	1	N/A	1100 N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.11	0.26	ug/L	GW-003-LF	2/98	0.01 - 0.1	0.26	N/A	0.0029 C	0.2	MCL	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.014	0.38	ug/L	GW-003-LF	4/98	0.01 - 0.1	0.38	N/A	0.029 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.15	0.15	ug/L	GW-003-LF	1/98	0.01 - 0.1	0.15	N/A	0.14 C	N/A	N/A	Y	ASL
	207-08-9	Benzo(k)fluoranthene	0.16	0.16	ug/L	GW-003-LF	1/98	0.01 - 0.1	0.16	N/A	0.29 C	N/A	N/A	N	BSL
	56-55-3	Benzo(a)anthracene	0.013	0.36	ug/L	GW-004-WT	10/98	0.01 - 0.1	0.36	N/A	0.029 C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.019	0.34	ug/L	GW-004-WT	4/98	0.01 - 0.1	0.34	N/A	2.9 C	N/A	N/A	N	BSL
	206-44-0	Fluoranthene	0.01	2.3	ug/L	GW-004-WT	17/98	0.01 - 0.1	2.3	N/A	150 N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.011	2.8	ug/L	GW-004-WT	19/98	0.01 - 0.1	2.8	N/A	150 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.14	0.14	ug/L	GW-003-LF	1/98	0.01 - 0.1	0.14	N/A	0.029 C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.012	14	ug/L	GNP-705	16/98	0.01 - 0.1	14	N/A	0.14 C	N/A	N/A	Y	ASL
	85-01-8	Phenanthrene	0.01	5.9	ug/L	GW-004-WT	11/98	0.01 - 0.1	5.9	N/A	0.14 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.075	1.5	ug/L	GW-004-WT	6/98	0.01 - 0.1	1.5	N/A	110 N	N/A	N/A	N	BSL
	123-91-1	1,4-Dioxane	0.81	55	ug/L	GLF-704	7/30	0.5 - 0.67	55	N/A	6.1 C	N/A	N/A	Y	ASL
	105-67-9	2,4-Dimethylphenol	0.26 J	8 J	ug/L	GNP-705	2/83	0.5 - 5	8	N/A	73 N	N/A	N/A	Y	ASL
	91-58-7	2-Chloronaphthalene	2.3	2.3	ug/L	GNP-705	1/96	0.5 - 5	2.3	N/A	290 N	N/A	N/A	N	BSL
	95-57-8	2-Chlorophenol	0.34 J	0.34 J	ug/L	GLF-706	1/95	0.5 - 5	0.34	N/A	18 N	N/A	N/A	Y	ASL
	106-47-8	4-Chloroaniline	1.4 J	1.4 J	ug/L	GNP-705	1/95	0.5 - 5	1.4	N/A	1.2 C	N/A	N/A	Y	ASL
	106-44-5	4-Methylphenol	1	4.5	ug/L	GNP-705	3/95	0.5 - 5	4.5	N/A	18 N	N/A	N/A	N	BSL
	1912-24-9	Atrazine	2.9 J	3.4 J	ug/L	GW-026-UI	1/96	0.5 - 5	3.4	N/A	0.29 C	3	MCL	Y	ASL
	100-52-7	Benzaldehyde	1.9 J	1.9 J	ug/L	GLF-704	1/96	0.5 - 5	1.9	N/A	370 N	N/A	N/A	Y	ASL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.29 J	50	ug/L	MW-112C	15/96	0.5 - 5	50	N/A	4.8 C	6	MCL	Y	ASL
	105-60-2	Caprolactam	3 J	160	ug/L	GW-010-LF	12/96	0.5 - 5	160	N/A	1800 N	N/A	N/A	N	BSL
	86-74-8	Carbazole	0.48 J	0.48 J	ug/L	GNP-705	1/30	0.5 - 0.6	0.48	N/A	N/A	N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.32 J	2.8 J	ug/L	GW-004-WT	3/96	0.5 - 5	2.8	N/A	N/A	N/A	N/A	Y	NSL
	84-66-2	Diethylphthalate	0.3 J	5.7	ug/L	SEA-603	8/96	0.5 - 5	5.7	N/A	2900 N	N/A	N/A	N	BSL
	84-74-2	Di-n-butylphthalate	0.3 J	1.1	ug/L	GNP-705	8/96	0.5 - 5	1.1	N/A	370 N	N/A	N/A	N	BSL
	86-30-6	N-Nitrosodiphenylamine	0.35 J	9.5	ug/L	GNP-705	18/96	0.5 - 5	9.5	N/A	14 C	N/A	N/A	N	BSL
	108-95-2	Phenol	1.8	34	ug/L	GW-021-LF	3/95	0.5 - 5	34	N/A	1100 N	N/A	N/A	N	BSL
	75-34-3	1,1-Dichloroethane	0.33 J	0.83	ug/L	GW-026-UI	5/98	0.5 - 5	0.83	N/A	2.4 C	N/A	N/A	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.24 J	0.24 J	ug/L	GLF-706	1/98	0.5 - 5	0.24	N/A	0.82 N	70	MCL	Y	ASL
	95-50-1	1,2-Dichlorobenzene	0.2 J	4.4 J	ug/L	GNP-705	19/98	0.5	4.4	N/A	37 N	600	MCL	Y	ASL
	541-73-1	1,3-Dichlorobenzene	0.69	0.69	ug/L	GLF-706	1/98	0.5 - 5	0.69	N/A	0.43 C	N/A	N/A	Y	ASL
	106-46-7	1,4-Dichlorobenzene	0.25 J	8.4	ug/L	GNP-705	28/98	0.5	8.4	N/A	0.43 C	75	MCL	Y	ASL
	78-93-3	2-Butanone	1.3 J	1.3 J	ug/L	SEA-605	1/98	0.5 - 5	1.3	N/A	710 N	N/A	N/A	Y	ASL
	108-10-1	4-Methyl-2-pentanone	1.1	2.1	ug/L	SEA-605	2/98	0.5 - 5	2.1	N/A	200 N	N/A	N/A	N	BSL

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	71-43-2	Benzene	0.39 J	1100	ug/L	GW-021-LF	20/98	0.5	1100	N/A	0.41 C	5	MCL	Y	ASL
	75-27-4	Bromodichloromethane	0.32 J	0.32 J	ug/L	MW-EAI	1/98	0.5 - 5	0.32	N/A	1.1 C	N/A	N/A	Y	ASL
	108-90-7	Chlorobenzene	0.33 J	93	ug/L	GLF-706	23/98	0.5 - 39	93	N/A	9.1 N	100	MCL	Y	ASL
	75-00-3	Chloroethane	2.1 J	2.1 J	ug/L	SEA-608	1/98	0.5 - 10	2.1	N/A	2100 N	N/A	N/A	Y	ASL
	67-66-3	Chloroform	0.24 J	3.9	ug/L	GW-044-WT	9/98	0.5 - 5	3.9	N/A	0.19 C	N/A	N/A	Y	ASL
	74-87-3	Chloromethane	0.43 J	0.62	ug/L	GW-052-WT	5/98	0.5 - 5	0.62	N/A	1.8 C	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.23 J	22	ug/L	GW-077-DF	11/98	0.5 - 5	22	N/A	37 N	70	MCL	N	BSL
	110-82-7	Cyclohexane	0.25 J,J	1.1	ug/L	SEA-603	10/98	0.5 - 5	1.1	N/A	1300 N	N/A	N/A	N	BSL
	108-87-2	Methylcyclohexane	0.35 J	1.5	ug/L	SEA-603	7/98	0.5 - 5	1.5	N/A	1300 N	N/A	N/A	N	BSL
	75-71-8	Dichlorodifluoromethane	0.27 J	11	ug/L	MW-C2	7/98	0.5 - 5	11	N/A	39 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.22 J	17	ug/L	GNP-705	5/98	0.5	17	N/A	1.5 C	700	MCL	Y	ASL
	98-82-8	Isopropylbenzene	0.24 J	160	ug/L	GNP-705	12/98	0.5	160	N/A	68 N	N/A	N/A	Y	ASL
	1634-04-4	Methyl tert-butyl ether	0.23 J	21	ug/L	GNP-705	14/98	0.5 - 1.4	21	N/A	12 C	N/A	N/A	Y	ASL
	127-18-4	Tetrachloroethene	0.29 J	2.5	ug/L	GW-077-DF	4/98	0.5 - 5	2.5	N/A	0.11 C	5	MCL	Y	ASL
	108-88-3	Toluene	0.22 J	4.9 J	ug/L	GNP-705	8/98	0.5	4.9	N/A	230 N	1000	MCL	Y	ASL
	79-01-6	Trichloroethene	0.55	4.1	ug/L	GW-058-LF	4/98	0.5 - 5	4.1	N/A	1.7 C	5	MCL	Y	ASL
	75-01-4	Vinyl Chloride	0.59	1.2	ug/L	MW-C2	3/98	0.5 - 5	1.2	N/A	0.016 C	2	MCL	Y	ASL
	1330-20-7	Xylene (Total)	0.2 J	51	ug/L	GNP-705	9/98	0.5 - 1.5	51	N/A	20 N	10000	MCL	Y	ASL
	53469-21-9	Aroclor-1242	0.33 J	0.33 J	ug/L	SEA-603	1/98	0.05 - 0.27	0.33	N/A	0.034 C	0.5	MCL	Y	ASL
	12672-29-6	Aroclor-1248	0.18 J	0.18 J	ug/L	GW-027-LF	1/98	0.05 - 0.27	0.18	N/A	0.034 C	0.5	MCL	Y	ASL
	11097-69-1	Aroclor-1254	0.58	0.58	ug/L	GNP-705	1/98	0.05 - 0.27	0.58	N/A	0.034 C	0.5	MCL	Y	ASL
	72-54-8	4,4'-DDD	0.0038 J	0.0067 J	ug/L	GW-007-LF	4/95	0.005 - 0.01	0.0067	N/A	0.28 C	N/A	N/A	Y	ASL
	72-55-9	4,4'-DDE	0.0051 J	0.0056 J	ug/L	SEA-603	2/98	0.005 - 0.01	0.0056	N/A	0.2 C	N/A	N/A	Y	ASL
	50-29-3	4,4'-DDT	0.0038 J	0.0038 J	ug/L	GW-068-LF	1/98	0.005 - 0.01	0.0038	N/A	0.2 C	N/A	N/A	Y	ASL
	309-00-2	Aldrin	0.0038 J	0.006 J	ug/L	SEA-603	2/98	0.0025 - 0.01	0.006	N/A	0.004 C	N/A	N/A	Y	ASL
	319-84-6	alpha-BHC	0.0035 J	0.0035 J	ug/L	GW-021-LF	1/98	0.0025 - 0.01	0.0035	N/A	0.011 C	N/A	N/A	Y	ASL
	319-85-7	beta-BHC	0.0026	0.0026	ug/L	GW-020-NP	1/95	0.0025 - 0.01	0.0026	N/A	0.037 C	N/A	N/A	N	BSL
	60-57-1	Dieldrin	0.0072	0.0083 J	ug/L	GW-009-DF	2/98	0.005 - 0.01	0.0083	N/A	0.0042 C	N/A	N/A	Y	ASL
	1031-07-8	Endosulfan Sulfate	0.0082 J	0.0082 J	ug/L	GW-058-LF	1/98	0.005 - 0.01	0.0082	N/A	22 N	N/A	N/A	Y	ASL
	58-89-9	Gamma-BHC (Lindane)	0.008 J	0.016 J	ug/L	SEA-603	2/98	0.0025 - 0.01	0.016	N/A	0.061 C	0.2	MCL	Y	ASL
	76-44-8	Heptachlor	0.0046 J	0.0046 J	ug/L	GW-027-LF	1/98	0.0025 - 0.01	0.0046	N/A	0.015 C	0.4	MCL	Y	ASL
	7429-90-5	Aluminum	8.4 J	13200	ug/L	GW-079-QW	53/98	6 - 200	13200	N/A	3700 N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	0.59	1.4	ug/L	GNP-705	5/98	0.5 - 2.1	1.4	N/A	1.5 N	6	MCL	N	BSL
	7440-38-2	Arsenic	0.042 J	120	ug/L	GLF-704	84/98	0.061 - 0.926	120	N/A	0.045 C	10	MCL	Y	ASL
	7440-39-3	Barium	21	700	ug/L	GNP-705	49/98	200	700	N/A	730 N	2000	MCL	N	BSL
	7440-41-7	Beryllium	0.18	0.24	ug/L	MW-112AA	2/98	0.1 - 5	0.24	N/A	7.3 N	4	MCL	N	BSL
	7440-43-9	Cadmium	0.1	27	ug/L	GUI-702	29/98	0.1 - 5	27	N/A	1.8 N	5	MCL	Y	ASL
	7440-70-2	Calcium	10000	136000	ug/L	GW-076-WT	98/98	N/A	136000	N/A	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	0.46 J	13.4	ug/L	GW-079-QW	32/98	0.4 - 10	13.4	N/A	11 N	100	MCL	Y	ASL
	7440-48-4	Cobalt	0.12	33	ug/L	GUI-703	31/98	0.1 - 50	33	N/A	1.1 N	N/A	N/A	Y	ASL

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-50-8	Copper	1	44	ug/L	MW-112AA	14/98	0.7 - 25	44	N/A	150 N	1300	MCL	N	BSL
	57-12-5	Cyanide	2.2 J	15.5	ug/L	GW-009-DF	11/97	2 - 10	15.5	N/A	73 N	200	MCL	N	BSL
	7439-89-6	Iron	116	77000	ug/L	GNP-705	73/98	4 - 6130	77000	N/A	2600 N	N/A	N/A	Y	ASL
	7439-92-1	Lead	0.16 J	79.3	ug/L	GW-079-QW	41/98	0.1 - 15	79.3	N/A	15 N	15	MCL	Y	ASL
	7439-95-4	Magnesium	1700 J	24200	ug/L	GW-054-NP	74/98	5000	24200	N/A	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	7.1	5840	ug/L	GW-027-LF	82/98	2 - 15	5840	N/A	88 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	2.1	78	ug/L	GUI-703	15/98	0.51 - 40	78	N/A	73 N	N/A	N/A	Y	ASL
	7440-09-7	Potassium	1700	33500	ug/L	GW-002-LF	54/98	5000	33500	N/A	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.54	18	ug/L	GLF-704	18/98	0.5 - 5	18	N/A	18 N	50	MCL	N	BSL
	7440-22-4	Silver	0.12	13.7 J	ug/L	GW-021-LF	10/98	0.1 - 10	13.7	N/A	18 N	N/A	N/A	Y	ASL
	7440-23-5	Sodium	6060	240000 J	ug/L	MW-112A	98/98	N/A	240000	N/A	N/A	N/A	N/A	N	NUT
	7440-28-0	Thallium	0.13	8.9 J	ug/L	GW-064-LF	23/98	0.1 - 10	8.9	N/A	0.24 N	2	MCL	Y	ASL
	7440-62-2	Vanadium	0.54 J	20.1	ug/L	GW-079-QW	35/98	0.4 - 50	20.1	N/A	26 N	N/A	N/A	N	BSL
	7440-66-6	Zinc	18	4100	ug/L	GUI-703	16/98	2 - 20	4100	N/A	1100 N	N/A	N/A	Y	ASL

Notes:

Multiple results from each monitoring well were treated as discrete samples in the selection of COPCs.

N/A = Not Applicable or Not Available

- [1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- Inorganic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- [2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).
- [3] At this time, background (upgradient) groundwater samples have not been identified. To be conservative, all available groundwater data were used for COPC screening. However, if background (upgradient) wells are identified in the future, these background concentrations may be considered in the risk characterization portion of the risk assessment.
- U = Non-detect. Value is associated detection limit.
- [4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Tapwater.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for 1,4-Dichlorobenzene has been used for 1,3-Dichlorobenzene.
PRG for cadmium associated with water intake.
PRG for chromium VI (chromic acid mists) used for chromium.
PRG for cyclohexane has been used for methylcyclohexane.
PRG for endosulfan has been used for endosulfan sulfate.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.
The screening toxicity value for lead is the drinking water criterion protective of blood lead levels in children (USEPA, 2002d).
- MCLs - USEPA National Primary Drinking Water Standards - July 1, 2002
- [5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.8
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Quinnville Wellfield	91-20-3	Naphthalene	0.11	0.11	ug/L	GZ-4-1	1/6	0.011 - 0.1	0.11	N/A	15 N	N/A	N/A	N	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate	0.2	0.2	ug/L	MW-A2	1/6	0.56 - 5	0.2	N/A	N/A	6	MCL	N	BSL

Notes:

This table includes groundwater data (detected constituents only) collected from Quinnville Wellfield. Naphthalene was the only detected chemical identified as sufficiently toxic and volatile according to Table 1 of USEPA (2002) *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* were compared to the generic groundwater screening criteria in this guidance (see note #4 below).

Multiple results from each monitoring well were treated as discrete samples in the selection of COPCs.

N/A = Not Applicable or Not Available

[1] **Organic Data Qualifiers**

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

Inorganic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).

[3] To be conservative, all available groundwater data were used for COPC screening. However, background (upgradient) wells will not be used in the evaluation of potential site-related risks/hazards. Rather, background/upgradient groundwater concentrations will be used, as appropriate, to put site groundwater concentrations into perspective.

[4] Screening toxicity values are the USEPA (2002) target groundwater concentrations for a risk level of 1×10^{-6} from USEPA (2002) *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils, Table 2c*.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

MCLs - USEPA National Primary Drinking Water Standards - July 1, 2002

[5] Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.9
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Fish Tissue

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Site-Wide	59-50-7	4-Chloro-3-methylphenol	0.23 J	0.23 J	mg/kg	P1-FI-25-FILL	1/64	0.29 - 0.31	0.23	ND	0.676 N	N/A	N/A	Y	ASL
	100-02-7	4-Nitrophenol	1 J	1.0 J	mg/kg	P1-FI-25-FILL	1/64	0.29 - 3	1.0	ND	0.197 C	N/A	N/A	Y	ASL
	100-52-7	Benzaldehyde	0.26 J	0.49 J	mg/kg	P2-FI-58-FILL	5/64	0.29 - 3	0.49	0.2	13.5 N	N/A	N/A	Y	ASL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.15 J	0.47 J	mg/kg	BR2-FI-84-FILL	6/64	0.29 - 0.66	0.47	0.23	0.225 C	N/A	N/A	Y	ASL
	118-74-1	Hexachlorobenzene	0.0079	0.0079	mg/kg	BR2-FI-74-FILL	1/64	0.0072 - 0.0078	0.0079	0.0074	0.00197 C	N/A	N/A	Y	ASL
	78-59-1	Isophorone	0.18 J	0.71 J	mg/kg	P1-FI-32-FILL	18/64	0.29 - 0.31	0.71	0.22	3.32 C	N/A	N/A	Y	ASL
	91-57-6	2-Methylnaphthalene	0.0077	0.038	mg/kg	BR2-FI-84-FILL	11/64	0.0072 - 0.0078	0.038	0.005	0.541 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.0074	0.048	mg/kg	BR2-FI-85-FILL	9/64	0.0072 - 0.0078	0.048	0.0098	8.11 N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.0093	0.015	mg/kg	BR2-FI-84-FILL	2/64	0.0072 - 0.0077	0.015	0.0073	2.7 N	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.0082	0.014	mg/kg	BR2-FI-84-FILL	4/64	0.0072 - 0.0078	0.014	0.0078	40.6 N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.0086	0.028	mg/kg	BR2-FI-84-FILL	4/64	0.0072 - 0.0078	0.028	0.0093	0.000432 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.008	0.014	mg/kg	BR2-FI-84-FILL	4/64	0.0072 - 0.0078	0.014	0.011	0.00432 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.0089	0.016	mg/kg	P1-FI-25-FILL	4/64	0.0072 - 0.016	0.016	0.011	2.7 N	N/A	N/A	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.0075	0.021	mg/kg	BR2-FI-84-FILL	6/64	0.0072 - 0.0078	0.021	0.011	0.0432 C	N/A	N/A	N	BSL
	56-55-3	Benzo(a)anthracene	0.0082	0.029	mg/kg	BR2-FI-84-FILL	4/64	0.0072 - 0.0078	0.029	0.010	0.00432 C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.0075	0.032	mg/kg	BR2-FI-84-FILL	6/64	0.0072 - 0.0078	0.032	0.010	0.432 C	N/A	N/A	N	BSL
	53-70-3	Dibenz(a,h)anthracene	0.0076	0.018	mg/kg	P1-FI-25-FILL	7/64	0.0072 - 0.0078	0.018	0.011	0.000432 C	N/A	N/A	Y	ASL
	206-44-0	Fluoranthene	0.0092	0.012	mg/kg	BR3-FI-1-FILL	5/64	0.0072 - 0.0078	0.012	0.015	5.41 N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.0076	0.015	mg/kg	BR2-FI-84-FILL	7/64	0.0072 - 0.0078	0.015	0.0076	5.41 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.0097	0.016	mg/kg	BR3-FI-1-FILL, P1-FI-25-FILL	5/64	0.0072 - 0.0078	0.016	0.011	0.00432 C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.0074	0.039	mg/kg	BR2-FI-84-FILL	11/64	0.0072 - 0.0078	0.039	0.0095	2.7 N	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.0077	0.038	mg/kg	BR2-FI-84-FILL	24/64	0.0072 - 0.0078	0.038	0.013	2.7 N	N/A	N/A	N	BSL
	129-00-0	Pyrene	0.0077 J	0.054	mg/kg	BR2-FI-84-FILL	4/64	0.0072 - 0.0078	0.054	0.0079	4.06 N	N/A	N/A	N	BSL
	1336-36-3	Total PCB Homologs	0.09	2	mg/kg	BR2-FI-82-FILL, P1-FI-39-FILL	64/64	N/A	2	1.3	2.43E-08 C	N/A	N/A	Y	ASL
	72-54-8	4,4'-DDD	0.0012	0.027	mg/kg	P1-FI-39-FILL	63/64	0.00032 - 0.00032	0.027	0.013	0.0131 C	N/A	N/A	Y	ASL
	72-55-9	4,4'-DDE	0.0029	0.085 J	mg/kg	BR2-FI-82-FILL	64/64	N/A	0.085	0.056	0.00928 C	N/A	N/A	Y	ASL
	50-29-3	4,4'-DDT	0.00081 J	0.0098 J	mg/kg	BR3-FI-16-FILL	19/64	0.00031 - 0.00032	0.0098	0.015	0.00928 C	N/A	N/A	Y	ASL
	309-00-2	Aldrin	0.00093 J	0.00093 J	mg/kg	P2-FI-63-FILL	1/64	0.00031 - 0.00032	0.00093	ND	0.000186 C	N/A	N/A	Y	ASL
	5103-71-9	alpha-Chlordane	0.00047 J	0.018	mg/kg	P2-FI-61-FILL	63/64	0.00032 - 0.00032	0.018	0.0094	0.00901 C	N/A	N/A	Y	ASL
	60-57-1	Dieldrin	0.002 J	0.043 J	mg/kg	P2-FI-61-FILL	64/64	N/A	0.043	0.016	0.000197 C	N/A	N/A	Y	ASL
	959-98-8	Endosulfan I	0.00034 J	0.0044 J	mg/kg	BR3-FI-1-FILL	8/64	0.00031 - 0.00032	0.0044	0.0048	0.811 N	N/A	N/A	Y	ASL
	33213-65-9	Endosulfan II	0.00033 J	0.0004 J	mg/kg	BR3-FI-7-FILL	4/64	0.00031 - 0.00032	0.0004	0.00051	0.811 N	N/A	N/A	Y	ASL
	1031-07-8	Endosulfan Sulfate	0.00044 J	0.018 J	mg/kg	BR2-FI-85-FILL	64/64	N/A	0.018	0.0048	0.811 N	N/A	N/A	Y	ASL
	58-89-9	Gamma-BHC (Lindane)	0.00043	0.00063	mg/kg	BR3-FI-13-FILL	2/64	0.00031 - 0.00032	0.00063	ND	0.00287 C	N/A	N/A	N	BSL

TABLE 2.9
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Fish Tissue

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	5103-74-2	Gamma-Chlordane	0.00053	0.011	mg/kg	P1-FI-39-FILL	55/64	0.00031 - 0.00032	0.011	0.0056	0.00901 C	N/A	N/A	Y	ASL
	76-44-8	Heptachlor	0.001 J	0.0024	mg/kg	P1-FI-39-FILL	2/64	0.00031 - 0.00032	0.0024	ND	0.000701 C	N/A	N/A	Y	ASL
	1024-57-3	Heptachlor Epoxide	0.00033 J	0.00081 J	mg/kg	BR3-FI-9-FILL	18/64	0.00031 - 0.00032	0.00081	0.0029	0.000347 C	N/A	N/A	Y	ASL
	7429-90-5	Aluminum	1.4	5.6	mg/kg	BR3-FI-2-FILL	10/64	0.96 - 2	5.6	ND	135 N	N/A	N/A	N	BSL
	7440-38-2	Arsenic	0.017	0.1	mg/kg	BR2-FI-76-FILL, P2-FI-59-FILL	57/64	0.017 - 0.02	0.1	0.13	0.0021 C	N/A	N/A	Y	ASL
	7440-39-3	Barium	0.1	1.9	mg/kg	P1-FI-39-FILL	17/64	0.1 - 0.2	1.9	ND	27 N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.0067	0.21	mg/kg	P1-FI-39-FILL	32/64	0.0051 - 0.0099	0.21	0.041	0.135 N	N/A	N/A	Y	ASL
	7440-70-2	Calcium	100 J	14000 J	mg/kg	P1-FI-39-FILL	64/64	N/A	14000	1200	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	0.39	10	mg/kg	P2-FI-50-FILL, P2-FI-51-FILL	64/64	N/A	10	5.4	0.406 N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	0.008	0.084	mg/kg	P1-FI-39-FILL	62/64	0.0087 - 0.0099	0.084	0.025	0.0406 N	N/A	N/A	Y	ASL
	7440-50-8	Copper	0.16	0.82	mg/kg	P1-FI-39-FILL	64/64	N/A	0.82	0.65	5.41 N	N/A	N/A	N	BSL
	7439-89-6	Iron	3.9	210	mg/kg	P1-FI-39-FILL	64/64	N/A	210	30	94.6 N	N/A	N/A	Y	ASL
	7439-92-1	Lead	0.01	0.2	mg/kg	P1-FI-39-FILL	4/64	0.01 - 0.02	0.2	0.029	N/A	N/A	N/A	Y	NSL
	7439-95-4	Magnesium	230	380	mg/kg	P1-FI-39-FILL	64/64	N/A	380	530	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	0.21	17	mg/kg	P1-FI-39-FILL	62/64	0.17 - 0.2	17	2.4	18.9 N	N/A	N/A	N	BSL
	7439-97-6	Mercury	0.027	0.19	mg/kg	BR3-FI-7-FILL, P1-FI-32-FILL	64/64	N/A	0.19	0.74	0.0135 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	0.095	5.4	mg/kg	P2-FI-50-FILL	64/64	N/A	5.4	2.8	2.7 N	N/A	N/A	Y	ASL
	7440-09-7	Potassium	2600	4200	mg/kg	BR2-FI-83-FILL, BR2-FI-84-FILL, BR2-FI-85-FILL, BR2-FI-87-FILL, BR3-FI-2-FILL, BR3-FI-8-FILL	64/64	N/A	4200	7300	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.29	0.73 J	mg/kg	BR2-FI-76-FILL	64/64	N/A	0.73	1.1	0.676 N	N/A	N/A	Y	ASL
	7440-23-5	Sodium	420 J	1200	mg/kg	P1-FI-39-FILL	64/64	N/A	1200	900	N/A	N/A	N/A	N	NUT
	7440-62-2	Vanadium	0.039	0.27	mg/kg	P1-FI-29-FILL	21/64	0.024 - 0.049	0.27	0.076	0.946 N	N/A	N/A	N	BSL
	7440-66-6	Zinc	4.7	23	mg/kg	P1-FI-39-FILL	64/64	N/A	23	16	40.6 N	N/A	N/A	N	BSL

TABLE 2.9
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Fish Tissue

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)

Notes:

N/A = Not Applicable or Not Available

[1]

Organic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

Inorganic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used.

[3] Values represent maximum background concentrations. Background concentrations were not used in the COPC screening process, but may be considered in the risk characterization portion of the risk assessment. ND = Non-detect.

[4] Screening toxicity values are the USEPA (May 2008) Region 3 Risk-Based Concentrations for Fish.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The RBC values for noted analytes are as follows:

RBC for 2,3,7,8-TCDD had been used for Total PCB Homologs.

RBC for cadmium associated with dietary intake.

RBC for chlordane has been used for alpha-chlordane and gamma-chlordane.

RBC for chromium VI (particulates) used for chromium.

RBC for endosulfan has been used for endosulfan I, endosulfan II, and endosulfan sulfate.

RBC for methyl mercury has been used for mercury.

RBC for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.

RBC for p-cresol has been used for 4-chloro-3-methylphenol.

RBC for p-nitrotoluene has been used for 4-nitrophenol.

[5] Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.10
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Leachate
Exposure Medium: Leachate

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Landfill	91-57-6	2-Methylnaphthalene	1.6 J	2.8 J	ug/L	GW-LE3-LF,GW-LE01-UI	3/7	0.1 - 0.45	2.8	N/A	15 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	10 J	19 J	ug/L	GW-LE3-LF	3/7	0.1 - 0.9	19	N/A	220 N	670	AWQC	N	BSL
	208-96-8	Acenaphthylene	0.11	15 J	ug/L	GW-LE02-UI	6/7	0.1	15	N/A	0.14 C	N/A	N/A	Y	ASL
	120-12-7	Anthracene	0.12	2.1 J	ug/L	GW-LE01-UI	7/7	N/A	2.1	N/A	1100 N	8300	AWQC	N	BSL
	50-32-8	Benzo(a)pyrene	0.79 J	5.6 J	ug/L	GW-LE02-UI	4/7	0.35 - 0.5	5.6	N/A	0.0029 C	0.0038	AWQC	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.36	5 J	ug/L	GW-LE02-UI	7/7	N/A	5	N/A	0.029 C	0.0038	AWQC	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.24	2.9 J	ug/L	GW-LE02-UI	7/7	N/A	2.9	N/A	0.14 C	N/A	N/A	Y	ASL
	207-08-9	Benzo(k)fluoranthene	0.15	3.6 J	ug/L	GW-LE02-UI	7/7	N/A	3.6	N/A	0.29 C	0.0038	AWQC	Y	ASL
	56-55-3	Benzo(a)anthracene	0.31	6.8 J	ug/L	GW-LE02-UI	7/7	N/A	6.8	N/A	0.029 C	0.0038	AWQC	Y	ASL
	218-01-9	Chrysene	0.3	7.6 J	ug/L	GW-LE02-UI	7/7	N/A	7.6	N/A	2.9 C	0.0038	AWQC	Y	ASL
	53-70-3	Dibenz(a,h)anthracene	0.098 J	0.75 J	ug/L	GW-LE02-UI	6/7	0.1	0.75	N/A	0.0029 C	0.0038	AWQC	Y	ASL
	206-44-0	Fluoranthene	0.31	7.4	ug/L	GW-LE3-LF	7/7	N/A	7.4	N/A	150 N	130	AWQC	N	BSL
	86-73-7	Fluorene	2 J	7.3 J	ug/L	GW-LE3-LF	3/7	0.12 - 0.32	7.3	N/A	150 N	1100	AWQC	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.19	2.3 J	ug/L	GW-LE02-UI	7/7	N/A	2.3	N/A	0.029 C	0.0038	AWQC	Y	ASL
	91-20-3	Naphthalene	3.3	27 J	ug/L	GW-LE01-UI	4/7	0.11 - 1.7	27	N/A	0.14 C	N/A	N/A	Y	ASL
	85-01-8	Phenanthrene	2.3 J	11 J	ug/L	GW-LE3-LF	4/7	0.19 - 0.88	11	N/A	0.14 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.41	9.3 J	ug/L	GW-LE02-UI	7/7	N/A	9.3	N/A	110 N	830	AWQC	N	BSL
	92-52-4	1,1'-Biphenyl	63	63	ug/L	GW-LE6-LF	1/7	5	63	N/A	180 N	N/A	N/A	N	BSL
	95-95-4	2,4,5-Trichlorophenol	1.4 J	1.7 J	ug/L	GW-LE01-UI	2/7	20	1.7	N/A	370 N	1800	AWQC	N	BSL
	106-44-5	4-Methylphenol	1.8 J	110	ug/L	GW-LE6-LF	5/7	5	110	N/A	18 N	N/A	N/A	Y	ASL
	1912-24-9	Atrazine	8.3 J	8.3 J	ug/L	GW-LE02-UI	1/7	5	8.3	N/A	0.29 C	N/A	N/A	Y	ASL
	117-81-7	bis(2-Ethylhexyl)phthalate	6.7	130	ug/L	GW-LE3-LF	5/7	5	130	N/A	4.8 C	1.2	AWQC	Y	ASL
	132-64-9	Dibenzofuran	2.2 J	2.7 J	ug/L	GW-LE01-UI	3/7	5	2.7	N/A	N/A	N/A	N/A	Y	NSL
	84-66-2	Diethylphthalate	1 J	9.5	ug/L	GW-LE5-LF	5/7	5	9.5	N/A	2900 N	17000	AWQC	N	BSL
	84-74-2	Di-n-butylphthalate	1.1 J	2.7 J	ug/L	GW-LE3-LF	2/7	5	2.7	N/A	370 N	2000	AWQC	N	BSL
	86-30-6	N-Nitrosodiphenylamine	5.9	7.6	ug/L	GW-LE3-LF	3/7	5	7.6	N/A	14 C	3.3	AWQC	Y	ASL
	87-86-5	Pentachlorophenol	2.3 J	2.3 J	ug/L	GW-LE6-LF	1/7	5	2.3	N/A	0.56 C	0.27	AWQC	Y	ASL
	108-95-2	Phenol	1.5 J	8.6	ug/L	GW-LE6-LF	5/7	5	8.6	N/A	1100 N	21000	AWQC	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.3 J	0.3 J	ug/L	GW-LE01-UI	1/7	0.5	0.3	N/A	0.82 N	35	AWQC	N	BSL
	95-50-1	1,2-Dichlorobenzene	0.3 J	1.1	ug/L	GW-LE3-LF	2/7	0.5	1.1	N/A	37 N	420	AWQC	N	BSL
	106-46-7	1,4-Dichlorobenzene	1.1	7.3	ug/L	GW-LE3-LF	6/7	0.5	7.3	N/A	0.43 C	63	AWQC	Y	ASL
	78-93-3	2-Butanone	18 J	19 J	ug/L	GW-LE01-UI	2/7	5	19	N/A	710 N	N/A	N/A	N	BSL
	67-64-1	Acetone	20 J	25 J	ug/L	GW-LE02-UI	2/7	5	25	N/A	2200 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.34 J	15	ug/L	GW-LE3-LF	7/7	N/A	15	N/A	0.41 C	2.2	AWQC	Y	ASL
	75-15-0	Carbon disulfide	0.37 J	1.2	ug/L	GW-LE01-UI	4/7	0.5	1.2	N/A	100 N	N/A	N/A	N	BSL

TABLE 2.10
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Leachate
Exposure Medium: Leachate

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value (N/C)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
			(1)	(1)					(2)	(3)	(4)				(5)
	108-90-7	Chlorobenzene	1.2	26	ug/L	GW-LE3-LF	7/7	N/A	26	N/A	9.1 N	130	AWQC	Y	ASL
	156-59-2	cis-1,2-Dichloroethene	0.79	0.8 J	ug/L	GW-FD01	2/7	0.5	0.8	N/A	37 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.38 J	9.1	ug/L	GW-LE6-LF	2/7	0.5	9.1	N/A	1.5 C	530	AWQC	Y	ASL
	98-82-8	Isopropylbenzene	1.2	6.5	ug/L	GW-LE3-LF	4/7	0.5	6.5	N/A	68 N	N/A	N/A	N	BSL
	108-88-3	Toluene	0.36 J	13	ug/L	GW-LE6-LF	5/7	0.5	13	N/A	230 N	1300	AWQC	N	BSL
	1330-20-7	Xylene (total)	0.42 J	21	ug/L	GW-LE6-LF	5/7	0.5	21	N/A	20 N	N/A	N/A	Y	ASL
	1336-36-3	Total PCBs	0.45 J	14	ug/L	GW-LE02-UI	3/7	N/A	14	N/A	0.034 C	N/A	N/A	Y	ASL
	72-54-8	4,4'-DDD	0.015 J	0.08 J	ug/L	GW-LE3-LF	3/6	0.05 - 0.5	0.08	N/A	0.28 C	0.00031	AWQC	Y	ASL
	72-55-9	4,4'-DDE	0.02 J	0.12 J	ug/L	GW-LE02-UI	2/7	0.05 - 0.5	0.12	N/A	0.2 C	0.00022	AWQC	Y	ASL
	50-29-3	4,4'-DDT	0.056 J	0.056 J	ug/L	GW-LE01-UI, GW-FD01	2/7	0.005 - 0.05	0.056	N/A	0.2 C	0.00022	AWQC	Y	ASL
	319-84-6	alpha-BHC	0.014 J	0.014 J	ug/L	GW-LE01-UI	1/7	0.0025 - 0.025	0.014	N/A	0.011 C	0.0026	AWQC	Y	ASL
	5103-71-9	alpha-Chlordane	0.0092 J	0.0092 J	ug/L	GW-LE4-LF	1/7	0.025	0.0092	N/A	0.19 C	0.0008	AWQC	Y	ASL
	60-57-1	Dieldrin	0.01 J	0.068 J	ug/L	GW-LE4-LF	2/6	0.05 - 0.5	0.068	N/A	0.0042 C	0.000052	AWQC	Y	ASL
	1031-07-8	Endosulfan Sulfate	0.011 J	0.11 J	ug/L	GW-LE02-UI	2/7	0.05	0.11	N/A	22 N	62	AWQC	N	BSL
	7421-36-3	Endrin aldehyde	0.08 J	0.08 J	ug/L	GW-LE02-UI	1/7	0.005 - 0.05	0.08	N/A	1.1 N	0.29	AWQC	N	BSL
	53494-70-5	Endrin ketone	0.088	0.088	ug/L	GW-LE02-UI	1/7	0.005 - 0.05	0.088	N/A	1.1 N	N/A	N/A	N	BSL
	5103-74-2	Gamma-Chlordane	0.13 J	0.13 J	ug/L	GW-LE02-UI	1/7	0.025 - 0.25	0.13	N/A	0.19 C	0.0008	AWQC	Y	ASL
	72-43-5	Methoxychlor	0.33	0.33	ug/L	GW-LE02-UI	1/7	0.025 - 0.25	0.33	N/A	18 N	100	AWQC	N	BSL
	7429-90-5	Aluminum	11100	156000	ug/L	GW-LE02-UI	7/7	N/A	156000	N/A	3700 N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	4.9 J	38	ug/L	GW-LE5-LF	4/7	60	38	N/A	1.5 N	5.6	AWQC	Y	ASL
	7440-38-2	Arsenic	27	144	ug/L	GW-LE6-LF	7/7	N/A	144	N/A	0.045 C	0.018	AWQC	Y	ASL
	7440-39-3	Barium	569	3700	ug/L	GW-LE02-UI	7/7	N/A	3700	N/A	730 N	1000	AWQC	Y	ASL
	7440-41-7	Beryllium	0.78 J	31.6	ug/L	GW-LE02-UI	7/7	N/A	31.6	N/A	7.3 N	N/A	N/A	Y	ASL
	7440-43-9	Cadmium	13.9	311	ug/L	GW-LE02-UI	7/7	N/A	311	N/A	1.8 N	N/A	N/A	Y	ASL
	7440-70-2	Calcium	27700	259000	ug/L	GW-LE02-UI	7/7	N/A	259000	N/A	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	58	517	ug/L	GW-LE02-UI	7/7	N/A	517	N/A	11 N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	20.1 J	235	ug/L	GW-LE02-UI	7/7	N/A	235	N/A	1.1 N	N/A	N/A	Y	ASL
	7440-50-8	Copper	66	4230	ug/L	GW-LE02-UI	6/7	25	4230	N/A	150 N	1300	AWQC	Y	ASL
	57-12-5	Cyanide	12.8	103	ug/L	GW-FD01, GW-LE02-UI	7/7	N/A	103	N/A	73 N	140	AWQC	Y	ASL
	7439-89-6	Iron	22200	286000	ug/L	GW-LE02-UI	7/7	N/A	286000	N/A	2600 N	300	AWQC	Y	ASL
	7439-92-1	Lead	723	4540	ug/L	GW-FD01	7/7	N/A	4540	N/A	15 N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	5730	15500	ug/L	GW-LE02-UI	7/7	N/A	15500	N/A	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	952	8540	ug/L	GW-LE4-LF	7/7	N/A	8540	N/A	88 N	50	AWQC	Y	ASL
	7439-97-6	Mercury	1.8	53.7 J	ug/L	GW-LE01-UI	7/7	N/A	53.7	N/A	0.37 N	N/A	N/A	Y	ASL
	7440-02-0	Nickel	94	2020	ug/L	GW-LE02-UI	7/7	N/A	2020	N/A	73 N	610	AWQC	Y	ASL

TABLE 2.10
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Leachate
Exposure Medium: Leachate

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-09-7	Potassium	5460 J	17900 J	ug/L	GW-LE3-LF	5/7	5000	17900	N/A	N/A	N/A	N/A	N	NUT
	7440-22-4	Silver	22	22	ug/L	GW-LE02-UI	1/7	0.6 - 10	22	N/A	18 N	N/A	N/A	Y	ASL
	7440-23-5	Sodium	19100 J	72500 J	ug/L	GW-LE4-LF	7/7	N/A	72500	N/A	N/A	N/A	N/A	N	NUT
	7440-28-0	Thallium	7.5 J	18.1 J	ug/L	GW-LE02-UI	2/7	4	18.1	N/A	0.24 N	0.24	AWQC	Y	ASL
	7440-62-2	Vanadium	47.4 J	310	ug/L	GW-LE02-UI	7/7	N/A	310	N/A	26 N	N/A	N/A	Y	ASL
	7440-66-6	Zinc	854	50900	ug/L	GW-LE02-UI	7/7	N/A	50900	N/A	1100 N	7400	AWQC	Y	ASL

Notes:

Data represent "leachate" data collected from excavation trenches in Landfill and Unnamed Island and are used for COPC screening purposes only.

N/A = Not Applicable or Not Available

[1]

Organic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

Inorganic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).

[3] Values represent maximum background concentrations. Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment. ND = Non-detect.

[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Tapwater.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The PRG values for noted analytes are as follows:

PRG for cadmium associated with water intake.

PRG for chlordane has been used for alpha-chlordane and gamma-chlordane.

PRG for chromium VI (chromic acid mists) used for chromium.

PRG for endosulfan has been used for endosulfan sulfate.

PRG for endrin has been used for endrin aldehyde and endrin ketone.

PRG for methyl mercury has been used for mercury.

PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.

The screening toxicity value for lead is the drinking water criterion protective of blood lead levels in children (USEPA, 2002d).

AWQCs - National Recommended Water Quality Criteria for human health consumption of water and organism - 2006

[5]

Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.11
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Wetlands	50-32-8	Benzo(a)pyrene	0.042 J	0.14 J	mg/kg	SO-062-WT	4/5	0.34	0.14	7.5	0.015 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.039 J	0.18 J	mg/kg	SO-062-WT	5/5	N/A	0.18	7.8	0.15 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.051 J	0.094 J	mg/kg	SO-061-WT	4/5	0.34	0.094	4.4	3.9 C	N/A	N/A	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.059 J	0.082 J	mg/kg	SO-062-WT	3/5	0.34 - 0.38	0.082	3.4 (J)	1.5 C	N/A	N/A	N	BSL
	56-55-3	Benzo(a)anthracene	0.039 J	0.12 J	mg/kg	SO-062-WT	4/5	0.34	0.12	9.3	0.15 C	N/A	N/A	N	BSL
	218-01-9	Chrysene	0.039 J	0.16 J	mg/kg	SO-062-WT	5/5	N/A	0.16	8.9	15 C	N/A	N/A	N	BSL
	206-44-0	Fluoranthene	0.066 J	0.23 J	mg/kg	SO-062-WT	5/5	N/A	0.23	15	230 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.056 J	0.082 J	mg/kg	SO-062-WT	3/5	0.34 - 0.38	0.082	2.6 (J)	0.15 C	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.058 J	0.1 J	mg/kg	SO-062-WT	3/5	0.34 - 0.38	0.1	14	3.9 C	N/A	N/A	N	BSL
	129-00-0	Pyrene	0.069 J	0.19 J	mg/kg	SO-062-WT, SO-063-WT	5/5	N/A	0.19	19 (J)	170 N	N/A	N/A	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.07 J	0.95 J	mg/kg	SO-061-WT	5/5	N/A	0.95	12	35 C	N/A	N/A	N	BSL
	84-74-2	Di-n-butylphthalate	0.057 J	0.064 J	mg/kg	SO-063-WT	2/5	0.34 - 0.4	0.064	0.48 (U)	610 N	N/A	N/A	N	BSL
	108-88-3	Toluene	0.001 J	0.001 J	mg/kg	SO-059-WT, SO-062-WT, SO-063-WT	3/5	0.01 - 0.014	0.001	0.0009 (J)	500 N	N/A	N/A	N	BSL
	7429-90-5	Aluminum	3050	7570	mg/kg	SO-061-WT	5/5	N/A	7570	6350	7700 N	N/A	N/A	N	BSL
	7440-38-2	Arsenic	2.1	7.2	mg/kg	SO-062-WT	5/5	N/A	7.2	9.5	0.39 C	N/A	N/A	Y	ASL
	7440-39-3	Barium	34.6	34.6	mg/kg	SO-061-WT	1/5	36 - 43	34.6	49.6	1500 N	N/A	N/A	N	BSL
	7440-41-7	Beryllium	0.32	0.84	mg/kg	SO-061-WT	5/5	N/A	0.84	0.5	16 N	N/A	N/A	N	BSL
	7440-70-2	Calcium	905	905	mg/kg	SO-061-WT	1/5	890 - 1100	905	1180	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	5.6	18.9	mg/kg	SO-061-WT	5/5	N/A	18.9	89.6	23 N	N/A	N/A	N	BSL
	7440-50-8	Copper	6.9	17.4	mg/kg	SO-062-WT	5/5	N/A	17.4	75.1	310 N	N/A	N/A	N	BSL
	7439-89-6	Iron	6220	9470	mg/kg	SO-062-WT	5/5	N/A	9470	11800	5500 N	N/A	N/A	Y	ASL
	7439-92-1	Lead	7.2	23.9	mg/kg	SO-061-WT	5/5	N/A	23.9	161	40 N	N/A	N/A	N	BSL
	7439-95-4	Magnesium	1200	2210	mg/kg	SO-061-WT	5/5	N/A	2210	2070	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	83.7	117 EB	mg/kg	SO-059-WT	5/5	N/A	117	175	180 N	N/A	N/A	N	BSL
	7439-97-6	Mercury	0.025 J	0.081	mg/kg	SO-061-WT, SO-062-WT	5/5	N/A	0.081	0.7	0.78 N	N/A	N/A	N	BSL
	7440-02-0	Nickel	8.2	8.2	mg/kg	SO-061-WT	1/5	7.1 - 8.6	8.2	9	160 N	N/A	N/A	N	BSL
	7440-22-4	Silver	0.37 J	0.37 J	mg/kg	SO-060-WT	1/5	0.34 - 0.43	0.37	7.3	39 N	N/A	N/A	N	BSL
	7440-28-0	Thallium	0.81 J	0.98 J	mg/kg	SO-061-WT	3/5	0.55 - 0.64	0.98	0.83 (U)	0.51 N	N/A	N/A	Y	ASL
	7440-62-2	Vanadium	6.8	16.3	mg/kg	SO-061-WT	5/5	N/A	16.3	21.3	55 N	N/A	N/A	N	BSL
	7440-66-6	Zinc	24	40.9	mg/kg	SO-061-WT	5/5	N/A	40.9	74.5	2300 N	N/A	N/A	N	BSL

TABLE 2.11
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)

Notes:

N/A = Not Applicable or Not Available

[1]

Organic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

Inorganic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

E = The reported value is estimated due to the presence of interference.

B = The reported value was obtained from a reading less than the contract required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).

[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).

[3] Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment.

U = Non-detect. Value is associated detection limit.

[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Soil.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The PRG values for noted analytes are as follows:

PRG for chromium VI (particulates) used for chromium.

PRG for methyl mercury has been used for mercury.

PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for benzo(g,h,i)perylene and phenanthrene.

[5] Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.12
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Wetlands	91-57-6	2-Methylnaphthalene	0.0036 J	0.43	mg/kg	T05WB-002	10/23	0.0037 - 0.62	0.43	0.43	31 N	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.003	0.071	mg/kg	T05WB-002	8/23	0.0021 - 0.62	0.071	0.18	340 N	N/A	N/A	N	BSL
	208-96-8	Acenaphthylene	0.0085	0.36	mg/kg	T05WB-002	21/23	0.0037 - 0.52	0.36	0.47	3.9 C	N/A	N/A	N	BSL
	120-12-7	Anthracene	0.0048	0.39	mg/kg	SE-062-WT	21/23	0.0037 - 0.52	0.39	0.96	1700 N	N/A	N/A	N	BSL
	50-32-8	Benzo(a)pyrene	0.012	3.1	mg/kg	SE-053-WT	23/23	N/A	3.1	2.7	0.015 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.02	2.8 J	mg/kg	SE-060-WT	21/21	N/A	2.8	2.6	0.15 C	N/A	N/A	Y	ASL
	191-24-2	Benzo(g,h,i)perylene	0.0091	2.9	mg/kg	SE-053-WT	22/23	0.52	2.9	1.9	3.9 C	N/A	N/A	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.004	1.9	mg/kg	SE-053-WT	23/23	N/A	1.9	2.4	1.5 C	N/A	N/A	Y	ASL
	56-55-3	Benzo(a)anthracene	0.0094	1.8	mg/kg	SE-053-WT	23/23	N/A	1.8	2.8	0.15 C	N/A	N/A	Y	ASL
	218-01-9	Chrysene	0.014	3.6	mg/kg	SE-053-WT	23/23	N/A	3.6	2.8	15 C	N/A	N/A	N	BSL
	53-70-3	Dibenz(a,h)anthracene	0.0058	0.63	mg/kg	SE-053-WT	17/23	0.0037 - 0.62	0.63	0.7	0.015 C	N/A	N/A	Y	ASL
	206-44-0	Fluoranthene	0.019	5.6	mg/kg	SE-053-WT	23/23	N/A	5.6	4.9	230 N	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.0024	0.14	mg/kg	T05WB-002	16/23	0.0037 - 0.54	0.14	0.32	230 N	N/A	N/A	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.0067	2.5	mg/kg	SE-053-WT	22/23	0.52	2.5	1.8	0.15 C	N/A	N/A	Y	ASL
	91-20-3	Naphthalene	0.0041 J	0.49	mg/kg	T05WB-002	9/23	0.0037 - 0.62	0.49	0.35	3.9 C	N/A	N/A	N	BSL
	85-01-8	Phenanthrene	0.0091	2.3	mg/kg	SE-053-WT	23/23	N/A	2.3	2.4	3.9 C	N/A	N/A	N	BSL
	129-00-0	Pyrene	0.017	4.2	mg/kg	SE-053-WT	23/23	N/A	4.2	4.2	170 N	N/A	N/A	N	BSL
	95-48-7	2-Methylphenol	0.0075 EB	0.0075 EB	mg/kg	T05WB-001	1/23	0.0021 - 0.62	0.0075	0.016	310 N	N/A	N/A	N	BSL
	100-52-7	Benzaldehyde	0.04 J	0.26 J	mg/kg	T05WB-002	6/23	0.11 - 0.6	0.26	0.48	780 N	N/A	N/A	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.062 J	2.1	mg/kg	SE-010-WT	5/23	0.1 - 0.75	2.1	5.9	35 C	N/A	N/A	N	BSL
	85-68-7	Butylbenzylphthalate	0.07 J	0.07 J	mg/kg	SE-010-WT	1/23	0.1 - 0.62	0.07	0.18	260 C	N/A	N/A	N	BSL
	86-74-8	Carbazole	0.034 J	0.46 J	mg/kg	SE-053-WT	6/23	0.1 - 0.6	0.46	0.33	N/A	N/A	N/A	Y	NSL
	131-11-3	Dimethylphthalate	0.062 J	0.062 J	mg/kg	SE-013-WT	1/23	0.1 - 0.62	0.062	ND	4900 N	N/A	N/A	N	BSL
	108-95-2	Phenol	1.6 J	1.6 J	mg/kg	T05WB-002	1/23	0.1 - 0.62	1.6	0.18	1800 N	N/A	N/A	N	BSL
										0					
	78-93-3	2-Butanone	0.004 J	0.13	mg/kg	SE-062-WT	12/23	0.002 - 0.033	0.13	0.056	2800 N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.015 J	0.36 J	mg/kg	SE-062-WT	8/23	0.0049 - 0.037	0.36	0.15	6100 N	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.004 J	0.004 J	mg/kg	SE-014-WT	1/23	0.0017 - 0.038	0.004	ND	78 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.001 J	0.0034 J	mg/kg	T05WB-002	2/23	0.002 - 0.038	0.0034	0.0053	5.7 C	N/A	N/A	N	BSL
	75-09-2	Methylene chloride	0.009 J	0.009 J	mg/kg	SE-063-WT	1/23	0.0043 - 0.084	0.009	ND	11 C	N/A	N/A	N	BSL
	100-42-5	Styrene	0.0013 J	0.0013 J	mg/kg	T05WB-002	1/23	0.0017 - 0.038	0.0013	0.002	650 N	N/A	N/A	N	BSL
	127-18-4	Tetrachloroethene	0.008 J	0.008 J	mg/kg	SE-010-WT	1/23	0.0017 - 0.038	0.008	ND	0.57 C	N/A	N/A	N	BSL
	108-88-3	Toluene	0.0005 J	0.0057	mg/kg	T05WB-001	4/23	0.0041 - 0.033	0.0057	0.00051	500 N	N/A	N/A	N	BSL
	79-01-6	Trichloroethene	0.002 J	0.002 J	mg/kg	SE-014-WT	1/23	0.0017 - 0.038	0.002	0.0024	2.8 C	N/A	N/A	N	BSL
	1330-20-7	Xylene (Total)	0.0013 J	0.0013 J	mg/kg	T05WB-001	1/23	0.0059 - 0.038	0.0013	0.001	60 N	N/A	N/A	N	BSL
	11096-82-5	Aroclor-1260	0.012 J	0.36 J	mg/kg	T05WB-002	14/23	0.0074 - 0.012	0.36	0.65	0.22 C	N/A	N/A	Y	ASL

TABLE 2.12
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	72-54-8	4,4'-DDD	0.00059 J	0.016 J	mg/kg	SE-062-WT	14/22	0.00074 - 0.0012	0.016	0.018	2 C	N/A	N/A	N	BSL
	72-55-9	4,4'-DDE	0.00069 J	0.014 J	mg/kg	T05WB-002	17/22	0.00082 - 0.0012	0.014	0.016	1.4 C	N/A	N/A	N	BSL
	50-29-3	4,4'-DDT	0.00072 J	0.005 J	mg/kg	SE-010-WT	8/15	0.00061 - 0.0012	0.005	0.0027	1.7 C	N/A	N/A	N	BSL
	5103-71-9	Alpha-chlordane	0.00064 J	0.012 J	mg/kg	SE-010-WT	13/22	0.00038 - 0.00082	0.012	0.0063	1.6 C	N/A	N/A	N	BSL
	319-85-7	Beta-BHC	0.0029	0.0029	mg/kg	SE-016-WT	1/23	0.00034 - 0.00082	0.0029	ND	0.27 C	N/A	N/A	N	BSL
	60-57-1	Dieldrin	0.0011	0.0011	mg/kg	T05WB-002	1/23	0.00066 - 0.0013	0.0011	0.017	0.03 C	N/A	N/A	N	BSL
	1031-07-8	Endosulfan sulfate	0.0012 J	0.002 J	mg/kg	SE-011-WT	2/21	0.00061 - 0.0054	0.002	0.013	37 N	N/A	N/A	N	BSL
	7421-36-3	Endrin aldehyde	0.0012 J	0.0013 J	mg/kg	SE-057-WT	2/22	0.00061 - 0.0041	0.0013	0.0027	1.8 N	N/A	N/A	N	BSL
	53494-70-5	Endrin ketone	0.0088 J	0.0088 J	mg/kg	T05WB-002	1/19	0.00066 - 0.0054	0.0088	0.02	1.8 N	N/A	N/A	N	BSL
	5103-74-2	Gamma-Chlordane	0.00059 J	0.011	mg/kg	SE-010-WT	6/20	0.00034 - 0.00082	0.011	0.0065	1.6 C	N/A	N/A	N	BSL
	7429-90-5	Aluminum	2390	36500	mg/kg	SE-055-WT	23/23	N/A	36500	12	7700 N	N/A	N/A	Y	ASL
	7440-36-0	Antimony	0.34 J	4.2	mg/kg	SE-055-WT	5/23	0.12 - 58	4.2	0.00076	3.1 N	N/A	N/A	Y	ASL
	7440-38-2	Arsenic	1.2 J	19.2	mg/kg	SE-016-WT	23/23	N/A	19.2	0.012	0.39 C	N/A	N/A	Y	ASL
	7440-39-3	Barium	26	289 J	mg/kg	SE-055-WT	13/23	0.15 - 76	289	0.14	1500 N	N/A	N/A	N	BSL
	7440-41-7	Beryllium	0.18 J	1.4	mg/kg	SE-062-WT, T05WB-002	12/23	0.063 - 1.7	1.4	0.00088	16 N	N/A	N/A	N	BSL
	7440-43-9	Cadmium	0.09 J	2.5	mg/kg	SE-063-WT	16/23	0.047 - 0.071	2.5	0.012	7 N	N/A	N/A	N	BSL
	7440-70-2	Calcium	771 J	8310 J	mg/kg	SE-055-WT	20/23	1100 - 1500	8310	3.3	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	3.7 J	125 J	mg/kg	SE-055-WT	23/23	N/A	125	0.12	23 N	N/A	N/A	Y	ASL
	7440-48-4	Cobalt	2.1 J	32.5	mg/kg	SE-055-WT	15/23	9.7 - 15	32.5	0.012	2.3 N	N/A	N/A	Y	ASL
	7440-50-8	Copper	8.9	86.2	mg/kg	SE-055-WT	22/23	5.8	86.2	0.18	310 N	N/A	N/A	N	BSL
	57-12-5	Cyanide	0.4 J	0.4 J	mg/kg	SE-013-WT	1/20	0.17 - 0.76	0.4	ND	160 N	N/A	N/A	N	BSL
	7439-89-6	Iron	6380	57000	mg/kg	T05WD-003	23/23	N/A	57000	25	5500 N	N/A	N/A	Y	ASL
	7439-92-1	Lead	6.7 J	362 J	mg/kg	SE-010-WT	23/23	N/A	362	0.45	40 N	N/A	N/A	Y	ASL
	7439-95-4	Magnesium	1510	27400	mg/kg	SE-055-WT	22/23	1165	27400	4.1	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	107	1900	mg/kg	SE-055-WT	23/23	N/A	1900	0.3	180 N	N/A	N/A	Y	ASL
	7439-97-6	Mercury	0.016 J	0.39	mg/kg	T05WB-002	11/23	0.051 - 0.077	0.39	0.00054	0.78 N	N/A	N/A	N	BSL
	7440-02-0	Nickel	3 J	82.7 J	mg/kg	SE-055-WT	20/23	10 - 12	82.7	0.052	160 N	N/A	N/A	N	BSL
	7440-09-7	Potassium	390	13500	mg/kg	SE-055-WT	12/23	970 - 1904	13500	1.5	N/A	N/A	N/A	N	NUT
	7782-49-2	Selenium	0.83 J	3.3	mg/kg	SE-016-WT	17/23	0.15 - 1.5	3.3	0.0025	39 N	N/A	N/A	N	BSL
	7440-22-4	Silver	0.082	19.1 J	mg/kg	SE-055-WT	23/23	N/A	19.1	0.0052	39 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	100	290	mg/kg	T05WB-002	3/23	890 - 1904	290	2.5	N/A	N/A	N/A	N	NUT
	7440-28-0	Thallium	0.071	0.52	mg/kg	T05WB-002	4/23	0.36 - 0.76	0.52	0.0004	0.51 N	N/A	N/A	Y	ASL
	7440-62-2	Vanadium	6.2 J	86.6	mg/kg	SE-055-WT	22/23	13	86.6	0.031	55 N	N/A	N/A	Y	ASL
	7440-66-6	Zinc	32.8 J	262 J	mg/kg	SE-010-WT	23/23	N/A	262	0.68	2300 N	N/A	N/A	N	BSL

TABLE 2.12
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)

Notes:

N/A = Not Applicable or Not Available

- [1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
E = The compound was quantitated above the calibration range.
- Inorganic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- [2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).
- [3] Values represent maximum background concentrations. Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment. ND = Non-detect.
- [4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Soil.
C = Carcinogen
N = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The PRG values for noted analytes are as follows:
PRG for cadmium associated with water intake.
PRG for chlordane has been used for alpha-chlordane and gamma-chlordane.
PRG for chromium VI (particulates) used for chromium.
PRG for diethylphthalate has been used for dimethylphthalate.
PRG for endosulfan has been used for endosulfan sulfate.
PRG for endrin has been used for endrin aldehyde and endrin ketone.
PRG for methyl mercury has been used for mercury.
PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.
- [5] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2.13
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Wetlands	120-12-7	Anthracene	0.19 J	0.19 J	ug/L	SE-052-WT SW-052-WT	1/17	0.1	0.19	0.014	1100 N	8300	AWQC	N	BSL
	205-99-2	Benzo(b)fluoranthene	0.1	0.1	ug/L	SE-053B-WT SW-053-WT	1/17	0.1	0.1	0.086	0.029 C	0.0038	AWQC	Y	ASL
	218-01-9	Chrysene	0.11	0.11	ug/L	SE-014-WT SW-014-WT	1/17	0.1	0.11	0.074	2.9 C	0.0038	AWQC	Y	ASL
	206-44-0	Fluoranthene	0.1	0.2	ug/L	SE-014-WT SW-014-WT	2/17	0.1	0.2	0.083	150 N	130	AWQC	N	BSL
	85-01-8	Phenanthrene	0.11	0.12	ug/L	SE-014-WT SW-014-WT	2/17	0.1	0.12	0.045	0.14 C	N/A	N/A	N	BSL
	129-00-0	Pyrene	0.14	0.21	ug/L	SE-014-WT SW-014-WT	2/17	0.1	0.21	0.087	110 N	830	AWQC	N	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	1.9 J	1.9 J	ug/L	SE-060-WT SW-060-WT	1/16	5	1.9	ND	4.8 C	1.2	AWQC	Y	ASL
	74-87-3	Chloromethane	0.37 J	0.67	ug/L	SE-016-WT SW-016-WT	7/17	0.38 - 0.5	0.67	0.37	1.8 C	N/A	N/A	N	BSL
	319-85-7	beta-BHC	0.0036 J	0.01 J	ug/L	SE-017-WT SW-017-WT	3/17	0.0025	0.01	ND	0.037 C	0.0091	AWQC	Y	ASL
	1031-07-8	Endosulfan Sulfate	0.013	0.013	ug/L	SE-011-WT SW-011-WT	1/16	0.005	0.013	ND	22 N	62	AWQC	N	BSL
		Metals (Total)													
	7429-90-5	Aluminum	30.9	2100	ug/L	SE-017-WT SW-017-WT	12/17	200	2100	360	3700 N	N/A	N/A	N	BSL
	7440-38-2	Arsenic	0.29	3.42	ug/L	SE-052-WT SW-052-WT	17/17	N/A	3.42	2.29	0.045 C	0.018	AWQC	Y	ASL
	7440-39-3	Barium	61.1	61.1	ug/L	SE-057-WT SW-057-WT	1/17	27.7 - 200	61.1	25	730 N	1000	AWQC	N	BSL
	7440-43-9	Cadmium	0.24 J	1.2 J	ug/L	SE-017-WT SW-017-WT	2/17	0.2 - 0.21	1.2	0.82	1.8 N	N/A	N/A	N	BSL
	7440-70-2	Calcium	6940	60600	ug/L	SE-052-WT SW-052-WT	17/17	N/A	60600	18100	N/A	N/A	N/A	N	NUT
	7440-47-3	Chromium	0.44 J	5.7 J	ug/L	SE-017-WT SW-017-WT	9/17	0.4 - 2.1	5.7	2.8	11 N	N/A	N/A	N	BSL
	7440-48-4	Cobalt	0.66 J	6.7 J	ug/L	SE-017-WT SW-017-WT	6/17	0.4 - 50	6.7	0.54	1.1 N	N/A	N/A	Y	ASL
	57-12-5	Cyanide	6 J	179 J	ug/L	SE-017-WT SW-017-WT	3/17	3 - 8.4	179	ND	73 N	140	AWQC	Y	ASL
	7439-89-6	Iron	422 J	3740 J	ug/L	SE-017-WT SW-017-WT	12/17	381 - 1320	3740	840	2600 N	300	AWQC	Y	ASL
	7439-92-1	Lead	1.6 J	5.1	ug/L	SE-014-WT SW-014-WT	11/17	0.8 - 2	5.1	11	15 N	N/A	N/A	N	BSL
	7439-95-4	Magnesium	2930	8870	ug/L	SE-052-WT SW-052-WT	8/17	5000	8870	3280	N/A	N/A	N/A	N	NUT
	7439-96-5	Manganese	15.4 J	704 J	ug/L	SE-017-WT SW-017-WT	17/17	N/A	704	126	88 N	50	AWQC	Y	ASL

TABLE 2.13
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Background Value (3)	Screening Toxicity Value (N/C) (4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	7440-09-7	Potassium	2300	9800	ug/L	SE-052-WT SW-052-WT	11/17	5000	9800	5640	N/A	N/A	N/A	N	NUT
	7440-22-4	Silver	2.8 J	2.8 J	ug/L	SE-052-WT SW-052-WT	1/17	0.4 - 2	2.8	ND	18 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	8110	44300	ug/L	SE-052-WT SW-052-WT	17/17	N/A	44300	59700	N/A	N/A	N/A	N	NUT
	7440-62-2	Vanadium	0.62 J	5.1 J	ug/L	SE-017-WT SW-017-WT	15/17	0.4 - 0.7	5.1	2.1	26 N	N/A	N/A	N	BSL
	7440-66-6	Zinc	20.9	98	ug/L	SE-017-WT SW-017-WT	3/17	3 - 20	98	21	1100 N	7400	AWQC	N	BSL
		Metals (Dissolved)													
	7440-38-2	Arsenic	0.655	0.655	ug/L	SE-011-WT SW-011-WT	1/1	N/A	0.655	1.69	0.045 C	0.018	AWQC	Y	ASL
	7440-70-2	Calcium	11400	11400	ug/L	SE-011-WT SW-011-WT	1/1	N/A	11400	13800	N/A	N/A	N/A	N	NUT
	7439-89-6	Iron	333	333	ug/L	SE-011-WT SW-011-WT	1/1	N/A	333	291	2600 N	300	AWQC	Y	ASL
	7439-92-1	Lead	2.9 J	2.9 J	ug/L	SE-011-WT SW-011-WT	1/1	N/A	2.9	4.5	15 N	N/A	N/A	N	BSL
	7440-23-5	Sodium	22900	22900	ug/L	SE-011-WT SW-011-WT	1/1	N/A	22900	48900	N/A	N/A	N/A	N	NUT

Notes:

N/A = Not Applicable or Not Available

[1] **Organic Data Qualifiers**

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

Inorganic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used. Duplicate samples were treated as discrete samples in the identification of maxima. However, duplicate samples will be averaged prior to statistical evaluation (i.e., development of UCLs).

[3] Values represent maximum background concentrations. Background values were not used for COPC screening purposes, although they may be considered in the risk characterization portion of the risk assessment. ND = Non-detect.

[4] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Tapwater.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The PRG values for noted analytes are as follows:

PRG for cadmium associated with water intake.

PRG for chromium VI (chromic acid mists) used for chromium.

PRG for endosulfan has been used for endosulfan sulfate.

PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for phenanthrene.

The screening toxicity value for lead is the drinking water criterion protective of blood lead levels in children (USEPA, 2002d).

AWQCs - National Recommended Water Quality Criteria for human health consumption of water and organism - 2006

[5] Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.14
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Nunes Parcel	91-57-6	2-Methylnaphthalene	0.071 J	0.9 J	mg/kg	SO-034-NP	21/36	0.14 - 0.39	1.3	ug/m3	0.072 C	N/A	N/A	Y	ASL
	83-32-9	Acenaphthene	0.26 J	2.4	mg/kg	SO-105-NP	19/36	0.14 - 4.2	0.37	ug/m3	0.072 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.12 J	24	mg/kg	SO-105-NP	33/36	0.14 - 0.15	NV						
	218-01-9	Chrysene	0.092 J	18	mg/kg	SO-105-NP	32/36	0.14 - 0.17	NV						
	86-73-7	Fluorene	0.048 J	2.1	mg/kg	SO-105-NP	22/36	0.14 - 0.17	0.062	ug/m3	0.072 C	N/A	N/A	N	BSL
	91-20-3	Naphthalene	0.049 J	0.9 J	mg/kg	SO-108-NP	22/36	0.14 - 0.17	2.4	ug/m3	0.072 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.11 J	32	mg/kg	SO-105-NP	33/36	0.14 - 0.15	0.012	ug/m3	0.072 C	N/A	N/A	N	BSL
	92-52-4	1,1'-Biphenyl	0.11 J	0.12 J	mg/kg	SO-035-NP, SO-105-NP	6/36	0.14 - 4.2	0.068	ug/m3	N/A	N/A	N/A	Y	NSL
	98-86-2	Acetophenone	0.08 JEB	0.08 JEB	mg/kg	SO-105-NP	1/36	0.14 - 4.2	0.11	ug/m3	0.0031 N	N/A	N/A	Y	ASL
	100-52-7	Benzaldehyde	0.15 J	0.54 J	mg/kg	SO-105-NP	11/36	0.14 - 4.2	2.3	ug/m3	N/A	N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.056 J	0.92	mg/kg	SO-105-NP	20/36	0.14 - 4.2	NV						
	75-35-4	1,1-Dichloroethene	0.003 J	0.003 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	13.9	ug/m3	21 N	N/A	N/A	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.008 J	0.008 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	0.42	ug/m3	0.22 C	N/A	N/A	Y	ASL
	78-93-3	2-Butanone	0.003 J	0.096 J	mg/kg	SO-034-NP	7/36	0.0011 - 0.11	5.6	ug/m3	520 N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.053	0.15	mg/kg	SO-034-NP	6/36	0.0028 - 1.6	8.4	ug/m3	3200 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.001 J	0.31 J	mg/kg	SO-034-NP	3/36	0.0011 - 0.11	411	ug/m3	0.31 C	N/A	N/A	Y	ASL
	75-15-0	Carbon disulfide	0.001 J	0.027	mg/kg	SO-035-NP	4/36	0.0011 - 0.11	156	ug/m3	73 N	N/A	N/A	Y	ASL
	108-90-7	Chlorobenzene	0.018 J	0.018 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	4.5	ug/m3	5.2 N	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.001 J	0.001 J	mg/kg	SO-036-NP	1/36	0.0011 - 0.11	1.3	ug/m3	6.3 N	N/A	N/A	N	BSL
	108-87-2	Methylcyclohexane	0.002 J	0.08 J	mg/kg	SO-034-NP	2/36	0.0028 - 0.28	516	ug/m3	630 N	N/A	N/A	N	BSL
	75-71-8	Dichlorodifluoromethane	0.003 J	0.003 J	mg/kg	SO-033-NP	1/36	0.0011 - 0.11	16	ug/m3	21 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.02 J	0.02 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	6.5	ug/m3	0.97 C	N/A	N/A	Y	ASL
	98-82-8	Isopropylbenzene	0.029	0.029	mg/kg	SO-034-NP	1/36	0.0028 - 0.28	9.8	ug/m3	42 N	N/A	N/A	N	BSL
	79-20-9	Methyl acetate	0.008 J	1.1 J	mg/kg	SO-052-NP	5/36	0.0011 - 1.2	147	ug/m3	21 N	N/A	N/A	Y	ASL
	127-18-4	Tetrachloroethene	0.0023	0.015	mg/kg	SO-009-NP	2/36	0.0011 - 0.11	22.6	ug/m3	0.41 C	N/A	N/A	Y	ASL
	108-88-3	Toluene	0.001 J	13	mg/kg	SO-102-NP	8/36	0.001 - 0.11	7680	ug/m3	520 N	N/A	N/A	Y	ASL
	1330-20-7	Xylene (Total)	0.18 J	0.44	mg/kg	SO-102-NP	3/36	0.0034 - 0.34	130	ug/m3	10 N	N/A	N/A	Y	ASL
	11097-69-1	Aroclor-1254	0.06	1 J	mg/kg	SO-034-NP	14/36	0.014 - 0.039	NV						
	11096-82-5	Aroclor-1260	0.036	0.55	mg/kg	SO-055-NP	21/30	0.014 - 0.015	NV						
	72-55-9	4,4'-DDE	0.0008 J	0.023 J	mg/kg	SO-033-NP	24/28	0.00071 - 0.0035	NV						
	5103-71-9	alpha-Chlordane	0.0008 J	0.018 J	mg/kg	SO-052-NP	20/27	0.00072 - 0.0022	NV						
	60-57-1	Dieldrin	0.0051	0.31	mg/kg	SO-052-NP	24/30	0.00072 - 0.0042	NV						
	959-98-8	Endosulfan I	0.0015	0.002 J	mg/kg	SO-105-NP	2/30	0.00071 - 0.0022	NV						

TABLE 2.14
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
	1031-07-8	Endosulfan Sulfate	0.029 J	0.029 J	mg/kg	SO-035-NP	2/18	0.00071 - 0.0042	NV						
	5103-74-2	Gamma-Chlordane	0.00085 J	0.016	mg/kg	SO-052-NP	13/21	0.00072 - 0.002	NV						
	72-43-5	Methoxychlor	0.026 J	0.035 J	mg/kg	SO-105-NP	2/27	0.0024 - 0.022	NV						

Notes:

Only includes subsurface soils data collected from Nunes Parcel.

N/A = Not available/Not applicable

[1]

Organic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

E = The compound was quantitated above the calibration range.

[2]

The maximum concentration was used to estimate possible indoor air concentrations (Cbuilding) using the Johnson-Ettinger (basement) model (see Appendix T).

NV = Not Volatile (molecular weight > 200 g/mol or Henry's law constant < 1E-05 atm-m³/mol)

[3]

Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The PRG values for noted analytes are as follows:

PRG for 2-chloroacetophenone has been used for acetophenone.

PRG for cyclohexane has been used for methylcyclohexane.

PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for 2-methylnaphthalene, acenaphthene, fluorene, and pyrene.

PRG for trans-1,2-dichloroethene has been used for cis-1,2-dichloroethene.

PRG for vinyl acetate has been used for methyl acetate.

[4]

Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.15
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Outdoor (Trench) Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Nunes Parcel	91-57-6	2-Methylnaphthalene	0.071 J	0.9 J	mg/kg	SO-034-NP	21/36	0.14 - 0.39	0.9	ug/m3	0.072 C	N/A	N/A	Y	ASL
	83-32-9	Acenaphthene	0.26 J	2.4	mg/kg	SO-105-NP	19/36	0.14 - 4.2	0.23	ug/m3	0.072 C	N/A	N/A	Y	ASL
	205-99-2	Benzo(b)fluoranthene	0.12 J	24	mg/kg	SO-105-NP	33/36	0.14 - 0.15	NV						
	218-01-9	Chrysene	0.092 J	18	mg/kg	SO-105-NP	32/36	0.14 - 0.17	NV						
	86-73-7	Fluorene	0.048 J	2.1	mg/kg	SO-105-NP	22/36	0.14 - 0.17	0.035	ug/m3	0.072 C	N/A	N/A	N	BSL
	91-20-3	Naphthalene	0.049 J	0.9 J	mg/kg	SO-108-NP	22/36	0.14 - 0.17	1.8	ug/m3	0.072 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.11 J	32	mg/kg	SO-105-NP	33/36	0.14 - 0.15	0.0057	ug/m3	0.072 C	N/A	N/A	N	BSL
	92-52-4	1,1'-Biphenyl	0.11 J	0.12 J	mg/kg	SO-035-NP, SO-105-NP	6/36	0.14 - 4.2	0.04	ug/m3	N/A	N/A	N/A	Y	NSL
	98-86-2	Acetophenone	0.08 JEB	0.08 JEB	mg/kg	SO-105-NP	1/36	0.14 - 4.2	0.084	ug/m3	0.0031 N	N/A	N/A	Y	ASL
	100-52-7	Benzaldehyde	0.15 J	0.54 J	mg/kg	SO-105-NP	11/36	0.14 - 4.2	1.9	ug/m3	N/A	N/A	N/A	Y	NSL
	132-64-9	Dibenzofuran	0.056 J	0.92	mg/kg	SO-105-NP	20/36	0.14 - 4.2	NV						
	75-35-4	1,1-Dichloroethene	0.003 J	0.003 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	13.5	ug/m3	21 N	N/A	N/A	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.008 J	0.008 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	0.35	ug/m3	0.22 C	N/A	N/A	Y	ASL
	78-93-3	2-Butanone	0.003 J	0.096 J	mg/kg	SO-034-NP	7/36	0.0011 - 0.11	5	ug/m3	520 N	N/A	N/A	N	BSL
	67-64-1	Acetone	0.053	0.15	mg/kg	SO-034-NP	6/36	0.0028 - 1.6	10	ug/m3	3200 N	N/A	N/A	N	BSL
	71-43-2	Benzene	0.001 J	0.31 J	mg/kg	SO-034-NP	3/36	0.0011 - 0.11	391	ug/m3	0.31 C	N/A	N/A	Y	ASL
	75-15-0	Carbon disulfide	0.001 J	0.027	mg/kg	SO-035-NP	4/36	0.0011 - 0.11	165	ug/m3	73 N	N/A	N/A	Y	ASL
	108-90-7	Chlorobenzene	0.018 J	0.018 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	3.8	ug/m3	5.2 N	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.001 J	0.001 J	mg/kg	SO-036-NP	1/36	0.0011 - 0.11	1.1	ug/m3	6.3 N	N/A	N/A	N	BSL
	108-87-2	Methylcyclohexane	0.002 J	0.08 J	mg/kg	SO-034-NP	2/36	0.0028 - 0.28	438	ug/m3	630 N	N/A	N/A	N	BSL
	75-71-8	Dichlorodifluoromethane	0.003 J	0.003 J	mg/kg	SO-033-NP	1/36	0.0011 - 0.11	12.8	ug/m3	21 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	0.02 J	0.02 J	mg/kg	SO-034-NP	1/36	0.0011 - 0.11	5.6	ug/m3	0.97 C	N/A	N/A	Y	ASL
	98-82-8	Isopropylbenzene	0.029	0.029	mg/kg	SO-034-NP	1/36	0.0028 - 0.28	7.7	ug/m3	42 N	N/A	N/A	N	BSL
	79-20-9	Methyl acetate	0.008 J	1.1 J	mg/kg	SO-052-NP	5/36	0.0011 - 1.2	156	ug/m3	21 N	N/A	N/A	Y	ASL
	127-18-4	Tetrachloroethene	0.0023	0.015	mg/kg	SO-009-NP	2/36	0.0011 - 0.11	19	ug/m3	0.41 C	N/A	N/A	Y	ASL
	108-88-3	Toluene	0.001 J	13	mg/kg	SO-102-NP	8/36	0.001 - 0.11	7250	ug/m3	520 N	N/A	N/A	Y	ASL
	1330-20-7	Xylene (Total)	0.18 J	0.44	mg/kg	SO-102-NP	3/36	0.0034 - 0.34	114	ug/m3	10 N	N/A	N/A	Y	ASL
	11097-69-1	Aroclor-1254	0.06	1 J	mg/kg	SO-034-NP	14/36	0.014 - 0.039	NV						
	11096-82-5	Aroclor-1260	0.036	0.55	mg/kg	SO-055-NP	21/30	0.014 - 0.015	NV						
	72-55-9	4,4'-DDE	0.0008 J	0.023 J	mg/kg	SO-033-NP	24/28	0.00071 - 0.0035	NV						
	5103-71-9	alpha-Chlordane	0.0008 J	0.018 J	mg/kg	SO-052-NP	20/27	0.00072 - 0.0022	NV						
	60-57-1	Dieldrin	0.0051	0.31	mg/kg	SO-052-NP	24/30	0.00072 - 0.0042	NV						
	959-98-8	Endosulfan I	0.0015	0.002 J	mg/kg	SO-105-NP	2/30	0.00071 - 0.0022	NV						

TABLE 2.15
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Outdoor (Trench) Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
	1031-07-8	Endosulfan Sulfate	0.029 J	0.029 J	mg/kg	SO-035-NP	2/18	0.00071 - 0.0042	NV						
	5103-74-2	Gamma-Chlordane	0.00085 J	0.016	mg/kg	SO-052-NP	13/21	0.00072 - 0.002	NV						
	72-43-5	Methoxychlor	0.026 J	0.035 J	mg/kg	SO-105-NP	2/27	0.0024 - 0.022	NV						

Notes:

Only includes subsurface soils data collected from Nunes Parcel.

N/A = Not available/Not applicable

[1]

Organic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

E = The compound was quantitated above the calibration range.

[2]

The maximum concentration was used to estimate possible indoor air concentrations (Cbuilding) using the Johnson-Ettinger (slab-on-grade) model (see Appendix T).

NV = Not Volatile (molecular weight > 200 g/mol or Henry's law constant < 1E-05 atm-m³/mol)

[3]

Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The PRG values for noted analytes are as follows:

PRG for 2-chloroacetophenone has been used for acetophenone.

PRG for cyclohexane has been used for methylcyclohexane.

PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for 2-methylnaphthalene, acenaphthene, fluorene, and pyrene.

PRG for trans-1,2-dichloroethene has been used for cis-1,2-dichloroethene.

PRG for vinyl acetate has been used for methyl acetate.

[4]

Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.16
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Nunes Parcel	91-57-6	2-Methylnaphthalene	0.014	2	ug/L	GNP-705	2/18	0.01 - 0.1	0.009	ug/m3	0.072 C	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.033	0.63	ug/L	SEA-606 GW-069-NP	5/18	0.01 - 0.1	0.0009	ug/m3	0.072 C	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.15	0.34	ug/L	GNP-705	4/18	0.01 - 0.1	0.0002	ug/m3	0.072 C	N/A	N/A	N	BSL
	91-20-3	Naphthalene	0.12	14	ug/L	GNP-705	2/18	0.01 - 0.1	0.083	ug/m3	0.072 C	N/A	N/A	Y	ASL
	129-00-0	Pyrene	0.075	0.075	ug/L	GNP-705	1/18	0.01 - 0.1	0.0000061	ug/m3	0.072 C	N/A	N/A	N	BSL
	95-50-1	1,2-Dichlorobenzene	0.2	4.4	ug/L	GNP-705	3/18	0.5	0.12	ug/m3	21 N	N/A	N/A	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.25	8.4	ug/L	GNP-705	5/18	0.5	0.3	ug/m3	0.22 C	N/A	N/A	Y	ASL
	71-43-2	Benzene	0.42	19	ug/L	GNP-705	3/18	0.5	2.4	ug/m3	0.31 C	N/A	N/A	Y	ASL
	108-90-7	Chlorobenzene	2.2	2.7	ug/L	SEA-606 GW-069-NP	2/18	0.5 - 39	0.17	ug/m3	5.2 N	N/A	N/A	N	BSL
	67-66-3	Chloroform	2.4	2.4	ug/L	GNP-705B	1/18	0.5 - 5	0.24	ug/m3	0.11 C	N/A	N/A	Y	ASL
	74-87-3	Chloromethane	0.43	0.43	ug/L	GNP-708	1/18	0.5 - 5	0.15	ug/m3	1.4 C	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.23	0.89	ug/L	GNP-708	2/18	0.5 - 5	0.076	ug/m3	6.3 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	17	17	ug/L	GNP-705	1/18	0.5	2.3	ug/m3	0.97 C	N/A	N/A	Y	ASL
	98-82-8	Isopropylbenzene	0.73	160	ug/L	GNP-705	2/18	0.5	28.8	ug/m3	42 N	N/A	N/A	N	BSL
	1634-04-4	Methyl tert-butyl ether	0.3	21	ug/L	GNP-705	5/18	0.5 - 1.4	0.37	ug/m3	9.4 C	N/A	N/A	N	BSL
	108-88-3	Toluene	4.9	4.9	ug/L	GNP-705	1/18	0.5	0.67	ug/m3	520 N	N/A	N/A	N	BSL
	75-01-4	Vinyl chloride	0.59	0.85	ug/L	SEA-606	2/18	0.5 - 5	0.78	ug/m3	0.16 C	N/A	N/A	Y	ASL
	1330-20-7	Xylene (Total)	0.2	51	ug/L	GNP-705	2/18	0.5 - 1.5	6.7	ug/m3	10 N	N/A	N/A	N	BSL
	11097-69-1	Aroclor-1254	0.58	0.58	ug/L	GNP-705	1/18	0.05 - 0.25	NV						

Notes:

Only includes groundwater data collected from Nunes Parcel.

N/A = Not available/Not applicable

[1] **Organic Data Qualifiers**

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used to estimate possible indoor air concentrations (Cbuilding) using the Johnson-Ettinger (basement) model (see Appendix T).

NV = Not Volatile (molecular weight > 200 g/mol or Henry's law constant < 1E-05 atm-m3/mol)

[3] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The PRG values for noted analytes are as follows:

PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for 2-methylnaphthalene, acenaphthene, fluorene, and pyrene.

PRG for trans-1,2-dichloroethene has been used for cis-1,2-dichloroethene.

[4] Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.17
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Outdoor (Trench) Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Nunes Parcel	91-57-6	2-Methylnaphthalene	0.014	2	ug/L	GNP-705	2/18	0.01 - 0.1	0.0014	ug/m3	0.072 C	N/A	N/A	N	BSL
	83-32-9	Acenaphthene	0.033	0.63	ug/L	SEA-606 GW-069-NP	5/18	0.01 - 0.1	0.00016	ug/m3	0.072 C	N/A	N/A	N	BSL
	86-73-7	Fluorene	0.15	0.34	ug/L	GNP-705	4/18	0.01 - 0.1	0.000042	ug/m3	0.072 C	N/A	N/A	N	BSL
	91-20-3	Naphthalene	0.12	14	ug/L	GNP-705	2/18	0.01 - 0.1	0.013	ug/m3	0.072 C	N/A	N/A	N	BSL
	129-00-0	Pyrene	0.075	0.075	ug/L	GNP-705	1/18	0.01 - 0.1	0.0000012	ug/m3	0.072 C	N/A	N/A	N	BSL
	95-50-1	1,2-Dichlorobenzene	0.2	4.4	ug/L	GNP-705	3/18	0.5	0.019	ug/m3	21 N	N/A	N/A	N	BSL
	106-46-7	1,4-Dichlorobenzene	0.25	8.4	ug/L	GNP-705	5/18	0.5	0.048	ug/m3	0.22 C	N/A	N/A	N	BSL
	71-43-2	Benzene	0.42	19	ug/L	GNP-705	3/18	0.5	0.41	ug/m3	0.31 C	N/A	N/A	Y	ASL
	108-90-7	Chlorobenzene	2.2	2.7	ug/L	SEA-606 GW-069-NP	2/18	0.5 - 39	0.028	ug/m3	5.2 N	N/A	N/A	N	BSL
	67-66-3	Chloroform	2.4	2.4	ug/L	GNP-705B	1/18	0.5 - 5	0.043	ug/m3	0.11 C	N/A	N/A	N	BSL
	74-87-3	Chloromethane	0.43	0.43	ug/L	GNP-708	1/18	0.5 - 5	0.029	ug/m3	1.4 C	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	0.23	0.89	ug/L	GNP-708	2/18	0.5 - 5	0.012	ug/m3	6.3 N	N/A	N/A	N	BSL
	100-41-4	Ethylbenzene	17	17	ug/L	GNP-705	1/18	0.5	0.37	ug/m3	0.97 C	N/A	N/A	N	BSL
	98-82-8	Isopropylbenzene	0.73	160	ug/L	GNP-705	2/18	0.5	4.5	ug/m3	42 N	N/A	N/A	N	BSL
	1634-04-4	Methyl tert-butyl ether	0.3	21	ug/L	GNP-705	5/18	0.5 - 1.4	0.068	ug/m3	9.4 C	N/A	N/A	N	BSL
	108-88-3	Toluene	4.9	4.9	ug/L	GNP-705	1/18	0.5	0.12	ug/m3	520 N	N/A	N/A	N	BSL
	75-01-4	Vinyl chloride	0.59	0.85	ug/L	SEA-606	2/18	0.5 - 5	0.14	ug/m3	0.16 C	N/A	N/A	N	BSL
	1330-20-7	Xylene (Total)	0.2	51	ug/L	GNP-705	2/18	0.5 - 1.5	1.1	ug/m3	10 N	N/A	N/A	N	BSL
	11097-69-1	Aroclor-1254	0.58	0.58	ug/L	GNP-705	1/18	0.05 - 0.25	NV						

Notes:

Only includes groundwater data collected from Nunes Parcel.

N/A = Not available/Not applicable

[1] **Organic Data Qualifiers**

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used to estimate possible indoor air concentrations (Cbuilding) using the Johnson-Ettinger (slab-on-grade) model (see Appendix T).

NV = Not Volatile (molecular weight > 200 g/mol or Henry's law constant < 1E-05 atm-m3/mol)

[3] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The PRG values for noted analytes are as follows:

PRG for naphthalene (most conservative of all noncarcinogenic PAHs) has been used for 2-methylnaphthalene, acenaphthene, fluorene, and pyrene.

PRG for trans-1,2-dichloroethene has been used for cis-1,2-dichloroethene.

[4] Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.18
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Outdoor (Trench) Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Quinnville Wellfield	91-20-3	Naphthalene	0.11	0.11	ug/L	GZ-4-1	1/6	0.011 - 0.1	0.00011	ug/m3	0.072 C	N/A	N/A	N	BSL

Notes:

Only includes groundwater data collected from Quinnville Wellfield.

N/A = Not available/Not applicable

[1] **Organic Data Qualifiers**

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used to estimate possible indoor air concentrations (Cbuilding) using the Johnson-Ettinger (slab-on-grade) model (see Appendix T).

NV = Not Volatile (molecular weight > 200 g/mol or Henry's law constant < 1E-05 atm-m3/mol)

[3] Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

[4] Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 2.19
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Outdoor (Trench) Air

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Southern Bank	79-20-9	Methyl acetate	0.002 J	0.007 J	mg/kg	SO-069-BR	3/8	0.009 - 0.012	1	ug/m3	21 N	N/A	N/A	N	BSL
	108-88-3	Toluene	0.001 J	0.001 J	mg/kg	SO-064-BR	1/8	0.008 - 0.018	0.56	ug/m3	520 N	N/A	N/A	N	BSL

Notes:

Only includes groundwater data collected from Nunes Parcel.

N/A = Not available/Not applicable

[1]

Organic Data Qualifiers

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2]

The maximum concentration was used to estimate possible indoor air concentrations (Cbuilding) using the Johnson-Ettinger (slab-on-grade) model (see Appendix T).

[3]

NV = Not Volatile (molecular weight > 200 g/mol or Henry's law constant < 1E-05 atm-m3/mol)

Screening toxicity values are the USEPA (September 12, 2008) ORNL screening levels for Residential Air.

C = Carcinogen

N = Noncarcinogen (adjusted to a hazard quotient of 0.1)

The PRG values for noted analytes are as follows:

PRG for vinyl acetate has been used for methyl acetate.

[4]

Codes used for rationale are as follows:

Selection Reason: Above Screening Levels (ASL)

No Screening Level (NSL)

Deletion Reason: Essential Nutrient (NUT)

Below Screening Level (BSL)

TABLE 3.1.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Quinnville Wellfield	Benzo(a)anthracene	mg/kg	9.3E-01	1.2E+00 (N)	2.5E+00	1.2E+00	mg/kg	95% Student's-t UCL	(a)
	Benzo(a)pyrene	mg/kg	9.2E-01	1.2E+00 (N)	2.4E+00	1.2E+00	mg/kg	95% Student's-t UCL	
	Benzo(b)fluoranthene	mg/kg	1.3E+00	1.8E+00 (N)	3.5E+00	1.8E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	5.0E-01	6.7E-01 (N)	1.4E+00	6.7E-01	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.3E+00	8.5E-01 (G)	4.1E+00 (J)	8.5E-01	mg/kg	95% KM (t) UCL	(a)
	Carbazole	mg/kg	1.4E-01	1.5E-01 (NP)	2.1E-01	1.5E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	1.4E-01	1.8E-01 (N)	3.4E-01	1.8E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	1.2E-01	1.6E-01 (NP)	1.7E-01 (J)	1.6E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	6.6E-01	1.0E+00 (G)	2.0E+00	1.0E+00	mg/kg	95% Approx. Gamma UCL	(a)
	Phenanthrene	mg/kg	8.9E-01	1.2E+00 (N)	2.2E+00	1.2E+00	mg/kg	95% Student's-t UCL	
	Aroclor-1248	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1260	mg/kg	3.3E-01	5.2E-01 (G)	1.6E+00	5.2E-01	mg/kg	95% KM (BCA) UCL	(a)
	Dieldrin	mg/kg	2.2E-01	4.5E-01 (G)	7.0E-01	4.5E-01	mg/kg	95% KM (Chebyshev) UCL	
	Dioxin TEQ	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aluminum	mg/kg	6.8E+03	7.7E+03 (G)	1.2E+04	7.7E+03	mg/kg	95% Approx. Gamma UCL	
	Antimony	mg/kg	2.5E+00	1.1E+00 (N)	2.2E+00 (J)	1.1E+00	mg/kg	95% KM (t) UCL	(a)
	Arsenic	mg/kg	8.9E+00	1.2E+01 (G)	2.6E+01	1.2E+01	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	2.6E+00	3.8E+00 (G)	1.1E+01	3.8E+00	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	1.2E+02	2.2E+02 (LN)	5.6E+02	2.2E+02	mg/kg	95% H-UCL	
	Cobalt	mg/kg	3.7E+00	4.2E+00 (NP)	6.3E+00	4.2E+00	mg/kg	95% KM (t) UCL	(a)
	Copper	mg/kg	9.8E+01	1.3E+02 (G)	2.8E+02	1.3E+02	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	1.3E+04	1.6E+04 (G)	2.8E+04	1.6E+04	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	1.4E+02	2.1E+02 (G)	4.6E+02			See Appendix Z	
	Manganese	mg/kg	2.6E+02	4.7E+02 (NP)	9.9E+02	4.7E+02	mg/kg	95% Chebyshev (Mean, Sd) UCL	(a)
	Mercury	mg/kg	5.0E-01	7.9E-01 (G)	2.4E+00	7.9E-01	mg/kg	95% Approx. Gamma UCL	
	Thallium	mg/kg	2.4E-01	1.8E-01 (N)	2.6E-01	1.8E-01	mg/kg	95% KM (t) UCL	
	Vanadium	mg/kg	2.1E+01	2.5E+01 (G)	4.8E+01	2.5E+01	mg/kg	95% Approx. Gamma UCL	
	Zinc	mg/kg	8.8E+01	1.2E+02 (LN)	2.9E+02	1.2E+02	mg/kg	95% H-UCL	

TABLE 3.1.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.1.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Quinnville Wellfield	Benzo(a)anthracene	mg/kg	9.3E-01	1.2E+00 (N)	2.5E+00	1.2E+00	mg/kg	95% Student's-t UCL	(a)
	Benzo(a)pyrene	mg/kg	9.2E-01	1.2E+00 (N)	2.4E+00	1.2E+00	mg/kg	95% Student's-t UCL	
	Benzo(b)fluoranthene	mg/kg	1.3E+00	1.8E+00 (N)	3.5E+00	1.8E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	5.0E-01	6.7E-01 (N)	1.4E+00	6.7E-01	mg/kg	95% Student's-t UCL	(a)
	bis(2-Ethylhexyl)phthalate	mg/kg	1.3E+00	8.5E-01 (G)	4.1E+00 (J)	8.5E-01	mg/kg	95% KM (t) UCL	
	Carbazole	mg/kg	1.4E-01	1.5E-01 (NP)	2.1E-01	1.5E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	1.4E-01	1.8E-01 (N)	3.4E-01	1.8E-01	mg/kg	95% KM (t) UCL	(a)
	Dibenzofuran	mg/kg	1.2E-01	1.6E-01 (NP)	1.7E-01 (J)	1.6E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	6.6E-01	1.0E+00 (G)	2.0E+00	1.0E+00	mg/kg	95% Approx. Gamma UCL	
	Phenanthrene	mg/kg	8.9E-01	1.2E+00 (N)	2.2E+00	1.2E+00	mg/kg	95% Student's-t UCL	(a)
	Aroclor-1248	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1260	mg/kg	3.3E-01	5.2E-01 (G)	1.6E+00	5.2E-01	mg/kg	95% KM (BCA) UCL	(a)
	Dieldrin	mg/kg	2.2E-01	4.5E-01 (G)	7.0E-01	4.5E-01	mg/kg	95% KM (Chebyshev) UCL	
	Dioxin TEQ	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aluminum	mg/kg	6.8E+03	7.7E+03 (G)	1.2E+04	7.7E+03	mg/kg	95% Approx. Gamma UCL	(a)
	Antimony	mg/kg	2.5E+00	1.1E+00 (N)	2.2E+00 (J)	1.1E+00	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	8.9E+00	1.2E+01 (G)	2.6E+01	1.2E+01	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	2.6E+00	3.8E+00 (G)	1.1E+01	3.8E+00	mg/kg	95% Approx. Gamma UCL	(a)
	Chromium	mg/kg	1.2E+02	2.2E+02 (LN)	5.6E+02	2.2E+02	mg/kg	95% H-UCL	
	Cobalt	mg/kg	3.7E+00	4.2E+00 (NP)	6.3E+00	4.2E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	9.8E+01	1.3E+02 (G)	2.8E+02	1.3E+02	mg/kg	95% Approx. Gamma UCL	(a)
	Iron	mg/kg	1.3E+04	1.6E+04 (G)	2.8E+04	1.6E+04	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	1.4E+02	2.1E+02 (G)	4.6E+02			See Appendix Z	
	Manganese	mg/kg	2.6E+02	4.7E+02 (NP)	9.9E+02	4.7E+02	mg/kg	95% Chebyshev (Mean, Sd) UCL	(a)
	Mercury	mg/kg	5.0E-01	7.9E-01 (G)	2.4E+00	7.9E-01	mg/kg	95% Approx. Gamma UCL	
	Thallium	mg/kg	2.4E-01	1.8E-01 (N)	2.6E-01	1.8E-01	mg/kg	95% KM (t) UCL	
	Vanadium	mg/kg	2.1E+01	2.5E+01 (G)	4.8E+01	2.5E+01	mg/kg	95% Approx. Gamma UCL	(a)
	Zinc	mg/kg	8.8E+01	1.2E+02 (LN)	2.9E+02	1.2E+02	mg/kg	95% H-UCL	

TABLE 3.1.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.2.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Landfill	Benzo(a)anthracene	mg/kg	1.3E+00	1.9E+00 (G)	5.4E+00	1.9E+00	mg/kg	95% Approx. Gamma UCL	
	Benzo(a)pyrene	mg/kg	1.2E+00	3.4E+00 (NP)	4.5E+00	3.4E+00	mg/kg	99% Chebyshev (Mean, Sd) UCL	
	Benzo(b)fluoranthene	mg/kg	1.9E+00	2.3E+00 (N)	5.3E+00	2.3E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	6.4E-01	7.8E-01 (N)	1.4E+00	7.8E-01	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.6E+00	2.3E+00 (N)	5.6E+00	2.3E+00	mg/kg	95% KM (t) UCL	
	Carbazole	mg/kg	1.9E-01	2.2E-01 (NP)	4.4E-01	2.2E-01	mg/kg	95% KM (BCA) UCL	
	Dibenz(a,h)anthracene	mg/kg	2.8E-01	3.3E-01 (G)	6.8E-01 (J)	3.3E-01	mg/kg	95% KM (BCA) UCL	
	Dibenzofuran	mg/kg	1.0E-01	1.3E-01 (NP)	3.9E-01 (J)	1.3E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	8.1E-01	1.0E+00 (N)	2.3E+00	1.0E+00	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	1.7E+00	6.8E+00 (NP)	1.1E+01	6.8E+00	mg/kg	99% Chebyshev (Mean, Sd) UCL	
	Aroclor-1248	mg/kg	NC	NC	6.2E+00 (J)	6.2E+00	mg/kg	Maximum Concentration	(b)
	Aroclor-1254	mg/kg	8.6E-01	5.4E-01 (N)	2.5E+00	5.4E-01	mg/kg	95% KM (t) UCL	(a)
	Aroclor-1260	mg/kg	1.9E-01	1.8E-01 (N)	3.0E-01	1.8E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	1.7E-02	2.0E-02 (G)	3.8E-02	2.0E-02	mg/kg	95% KM (BCA) UCL	
	Dioxin TEQ	mg/kg	3.2E-05	NC	5.9E-05	5.9E-05	mg/kg	Maximum Concentration	(c)
	Aluminum	mg/kg	7.8E+03	8.9E+03 (N)	1.5E+04	8.9E+03	mg/kg	95% Student's-t UCL	
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	1.3E+01	1.6E+01 (N)	2.5E+01 (J)	1.6E+01	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	8.3E+00	1.1E+01 (G)	2.4E+01	1.1E+01	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	1.0E+02	1.2E+02 (N)	2.4E+02	1.2E+02	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	5.7E+00	NC	3.6E+00 (J)	3.6E+00	mg/kg	Maximum Concentration	(b)
	Copper	mg/kg	1.7E+02	2.0E+02 (N)	3.8E+02	2.0E+02	mg/kg	95% Student's-t UCL	
	Iron	mg/kg	2.2E+04	2.7E+04 (G)	8.0E+04 (J)	2.7E+04	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	2.0E+02	2.6E+02 (G)	7.1E+02 (J)			See Appendix Z	
	Manganese	mg/kg	5.7E+02	6.9E+02 (N)	1.1E+03	6.9E+02	mg/kg	95% Student's-t UCL	
	Mercury	mg/kg	4.1E-01	5.0E-01 (N)	9.0E-01	5.0E-01	mg/kg	95% Student's-t UCL	
Thallium	mg/kg	1.4E+00	1.1E+00 (N)	1.8E+00 (J)	1.1E+00	mg/kg	95% KM (t) UCL	(a)	
Vanadium	mg/kg	2.3E+01	2.9E+01 (NP)	8.3E+01 (J)	2.9E+01	mg/kg	95% Student's-t UCL		
Zinc	mg/kg	3.7E+02	9.1E+02 (NP)	2.6E+03 (J)	9.1E+02	mg/kg	95% Chebyshev (Mean, Sd) UCL		

TABLE 3.2.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. Note that Dioxin TEQ had all detections. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.2.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Landfill	Benzo(a)anthracene	mg/kg	1.3E+00	1.9E+00 (G)	5.4E+00	1.9E+00	mg/kg	95% Approx. Gamma UCL	
	Benzo(a)pyrene	mg/kg	1.2E+00	3.4E+00 (NP)	4.5E+00	3.4E+00	mg/kg	99% Chebyshev (Mean, Sd) UCL	
	Benzo(b)fluoranthene	mg/kg	1.9E+00	2.3E+00 (N)	5.3E+00	2.3E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	6.4E-01	7.8E-01 (N)	1.4E+00	7.8E-01	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.6E+00	2.3E+00 (N)	5.6E+00	2.3E+00	mg/kg	95% KM (t) UCL	
	Carbazole	mg/kg	1.9E-01	2.2E-01 (NP)	4.4E-01	2.2E-01	mg/kg	95% KM (BCA) UCL	
	Dibenz(a,h)anthracene	mg/kg	2.8E-01	3.3E-01 (G)	6.8E-01 (J)	3.3E-01	mg/kg	95% KM (BCA) UCL	
	Dibenzofuran	mg/kg	1.0E-01	1.3E-01 (NP)	3.9E-01 (J)	1.3E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	8.1E-01	1.0E+00 (N)	2.3E+00	1.0E+00	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	1.7E+00	6.8E+00 (NP)	1.1E+01	6.8E+00	mg/kg	99% Chebyshev (Mean, Sd) UCL	
	Aroclor-1248	mg/kg	NC	NC	6.2E+00 (J)	6.2E+00	mg/kg	Maximum Concentration	(b)
	Aroclor-1254	mg/kg	8.6E-01	5.4E-01 (N)	2.5E+00	5.4E-01	mg/kg	95% KM (t) UCL	(a)
	Aroclor-1260	mg/kg	1.9E-01	1.8E-01 (N)	3.0E-01	1.8E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	1.7E-02	2.0E-02 (G)	3.8E-02	2.0E-02	mg/kg	95% KM (BCA) UCL	
	Dioxin TEQ	mg/kg	3.2E-05	NC	5.9E-05	3.2E-05	mg/kg	Arithmetic Mean	(e)
	Aluminum	mg/kg	7.8E+03	8.9E+03 (N)	1.5E+04	8.9E+03	mg/kg	95% Student's-t UCL	
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	1.3E+01	1.6E+01 (N)	2.5E+01 (J)	1.6E+01	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	8.3E+00	1.1E+01 (G)	2.4E+01	1.1E+01	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	1.0E+02	1.2E+02 (N)	2.4E+02	1.2E+02	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	5.7E+00	NC	3.6E+00 (J)	3.6E+00	mg/kg	Maximum Concentration	(f)
	Copper	mg/kg	1.7E+02	2.0E+02 (N)	3.8E+02	2.0E+02	mg/kg	95% Student's-t UCL	
	Iron	mg/kg	2.2E+04	2.7E+04 (G)	8.0E+04 (J)	2.7E+04	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	2.0E+02	2.6E+02 (G)	7.1E+02 (J)			See Appendix Z	
	Manganese	mg/kg	5.7E+02	6.9E+02 (N)	1.1E+03	6.9E+02	mg/kg	95% Student's-t UCL	
	Mercury	mg/kg	4.1E-01	5.0E-01 (N)	9.0E-01	5.0E-01	mg/kg	95% Student's-t UCL	
	Thallium	mg/kg	1.4E+00	1.1E+00 (N)	1.8E+00 (J)	1.1E+00	mg/kg	95% KM (t) UCL	(a)
	Vanadium	mg/kg	2.3E+01	2.9E+01 (NP)	8.3E+01 (J)	2.9E+01	mg/kg	95% Student's-t UCL	
	Zinc	mg/kg	3.7E+02	9.1E+02 (NP)	2.6E+03 (J)	9.1E+02	mg/kg	95% Chebyshev (Mean, Sd) UCL	

TABLE 3.2.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. Note that Dioxin TEQ had all detections. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.3.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Southern Bank	Benzo(a)anthracene	mg/kg	1.8E+00	NC	2.3E+00 (J)	2.3E+00	mg/kg	Maximum concentration	(c)
	Benzo(a)pyrene	mg/kg	1.8E+00	NC	2.4E+00 (J)	2.4E+00	mg/kg	Maximum concentration	(c)
	Benzo(b)fluoranthene	mg/kg	2.3E+00	NC	3.3E+00	3.3E+00	mg/kg	Maximum concentration	(c)
	Benzo(k)fluoranthene	mg/kg	8.7E-01	1.0E+00 (N)	1.2E+00 (J)	1.0E+00	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.9E+00	NC	9.0E+00	9.0E+00	mg/kg	Maximum concentration	(c)
	Carbazole	mg/kg	2.3E-01	2.8E-01 (N)	3.3E-01 (J)	2.8E-01	mg/kg	95% Student's-t UCL	
	Dibenz(a,h)anthracene	mg/kg	3.6E-01	NC	4.9E-01 (J)	4.9E-01	mg/kg	Maximum concentration	(c)
	Dibenzofuran	mg/kg	8.3E-02	8.8E-02 (N)	9.5E-02 (J)	8.8E-02	mg/kg	95% Student's-t UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.1E+00	NC	1.5E+00	1.5E+00	mg/kg	Maximum concentration	(c)
	Phenanthrene	mg/kg	1.9E+00	NC	2.4E+00	2.4E+00	mg/kg	Maximum concentration	(c)
	Aroclor-1248	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1260	mg/kg	3.1E-01	NC	5.5E-01 (J)	5.5E-01	mg/kg	Maximum concentration	(c)
	Dieldrin	mg/kg	1.5E-01	NC	5.0E-01	5.0E-01	mg/kg	Maximum concentration	(c)
	Dioxin TEQ	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aluminum	mg/kg	7.5E+03	NC	9.1E+03	9.1E+03	mg/kg	Maximum concentration	(c)
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	9.9E+00	NC	1.3E+01	1.3E+01	mg/kg	Maximum concentration	(c)
	Cadmium	mg/kg	4.9E+00	NC	9.2E+00	9.2E+00	mg/kg	Maximum concentration	(c)
	Chromium	mg/kg	1.1E+02	NC	1.6E+02	1.6E+02	mg/kg	Maximum concentration	(c)
	Cobalt	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Copper	mg/kg	1.5E+02	NC	2.0E+02	2.0E+02	mg/kg	Maximum concentration	(c)
	Iron	mg/kg	1.7E+04	NC	2.1E+04	2.1E+04	mg/kg	Maximum concentration	(c)
	Lead	mg/kg	1.7E+02	NC	2.2E+02			See Appendix Z	
	Manganese	mg/kg	5.0E+02	NC	9.9E+02	9.9E+02	mg/kg	Maximum concentration	(c)
	Mercury	mg/kg	3.7E-01	NC	5.0E-01	5.0E-01	mg/kg	Maximum concentration	(c)
	Thallium	mg/kg	1.2E+00	NC	1.5E+00 (J)	1.5E+00	mg/kg	Maximum concentration	(c)
	Vanadium	mg/kg	2.0E+01	NC	2.4E+01	2.4E+01	mg/kg	Maximum concentration	(c)
	Zinc	mg/kg	1.7E+02	NC	2.8E+02	2.8E+02	mg/kg	Maximum concentration	(c)

TABLE 3.3.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were not performed for most analytes due to the small sample size.
Any UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) Due to the small sample size, maximum concentrations were used as EPCs for most analytes.
95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.3.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Southern Bank	Benzo(a)anthracene	mg/kg	1.8E+00	NC	2.3E+00 (J)	1.8E+00	mg/kg	Arithmetic Mean	(e)
	Benzo(a)pyrene	mg/kg	1.8E+00	NC	2.4E+00 (J)	1.8E+00	mg/kg	Arithmetic Mean	(e)
	Benzo(b)fluoranthene	mg/kg	2.3E+00	NC	3.3E+00	2.3E+00	mg/kg	Arithmetic Mean	(e)
	Benzo(k)fluoranthene	mg/kg	8.7E-01	1.0E+00 (N)	1.2E+00 (J)	1.0E+00	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.9E+00	NC	9.0E+00	1.9E+00	mg/kg	Arithmetic Mean	(e)
	Carbazole	mg/kg	2.3E-01	2.8E-01 (N)	3.3E-01 (J)	2.8E-01	mg/kg	95% Student's-t UCL	
	Dibenz(a,h)anthracene	mg/kg	3.6E-01	NC	4.9E-01 (J)	3.6E-01	mg/kg	Arithmetic Mean	(e)
	Dibenzofuran	mg/kg	8.3E-02	8.8E-02 (N)	9.5E-02 (J)	8.8E-02	mg/kg	95% Student's-t UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.1E+00	NC	1.5E+00	1.1E+00	mg/kg	Arithmetic Mean	(e)
	Phenanthrene	mg/kg	1.9E+00	NC	2.4E+00	1.9E+00	mg/kg	Arithmetic Mean	(e)
	Aroclor-1248	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1260	mg/kg	3.1E-01	NC	5.5E-01 (J)	3.1E-01	mg/kg	Arithmetic Mean	(e)
	Dieldrin	mg/kg	1.5E-01	NC	5.0E-01	1.5E-01	mg/kg	Arithmetic Mean	(e)
	Dioxin TEQ	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aluminum	mg/kg	7.5E+03	NC	9.1E+03	7.5E+03	mg/kg	Arithmetic Mean	(e)
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	9.9E+00	NC	1.3E+01	9.9E+00	mg/kg	Arithmetic Mean	(e)
	Cadmium	mg/kg	4.9E+00	NC	9.2E+00	4.9E+00	mg/kg	Arithmetic Mean	(e)
	Chromium	mg/kg	1.1E+02	NC	1.6E+02	1.1E+02	mg/kg	Arithmetic Mean	(e)
	Cobalt	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Copper	mg/kg	1.5E+02	NC	2.0E+02	1.5E+02	mg/kg	Arithmetic Mean	(e)
	Iron	mg/kg	1.7E+04	NC	2.1E+04	1.7E+04	mg/kg	Arithmetic Mean	(e)
	Lead	mg/kg	1.7E+02	NC	2.2E+02			See Appendix Z	
	Manganese	mg/kg	5.0E+02	NC	9.9E+02	5.0E+02	mg/kg	Arithmetic Mean	(e)
	Mercury	mg/kg	3.7E-01	NC	5.0E-01	3.7E-01	mg/kg	Arithmetic Mean	(e)
	Thallium	mg/kg	1.2E+00	NC	1.5E+00 (J)	1.2E+00	mg/kg	Arithmetic Mean	(e)
	Vanadium	mg/kg	2.0E+01	NC	2.4E+01	2.0E+01	mg/kg	Arithmetic Mean	(e)
	Zinc	mg/kg	1.7E+02	NC	2.8E+02	1.7E+02	mg/kg	Arithmetic Mean	(e)

TABLE 3.3.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were not performed for most analytes due to the small sample size.
Any UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) Due to the small sample size, maximum concentrations were used as EPCs for most analytes.
95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.4.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Upstream of Landfill (Debris Fields)	Benzo(a)anthracene	mg/kg	1.3E+00	NC	2.4E+00 (J)	2.4E+00	mg/kg	Maximum concentration	(c)
	Benzo(a)pyrene	mg/kg	1.1E+00	NC	2.0E+00 (J)	2.0E+00	mg/kg	Maximum concentration	(c)
	Benzo(b)fluoranthene	mg/kg	2.0E+00	NC	3.5E+00	3.5E+00	mg/kg	Maximum concentration	(c)
	Benzo(k)fluoranthene	mg/kg	7.9E-01	1.2E+00 (N)	1.8E+00 (J)	1.2E+00	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.5E+00	NC	4.8E+00 (J)	4.8E+00	mg/kg	Maximum concentration	(c)
	Carbazole	mg/kg	1.6E-01	2.1E-01 (NP)	2.3E-01 (J)	2.1E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	2.6E-01	NC	5.1E-01 (J)	5.1E-01	mg/kg	Maximum concentration	(c)
	Dibenzofuran	mg/kg	1.2E-01	9.5E-02 (NP)	9.8E-02 (J)	9.5E-02	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	7.1E-01	NC	1.4E+00 (J)	1.4E+00	mg/kg	Maximum concentration	(c)
	Phenanthrene	mg/kg	1.4E+00	NC	2.3E+00	2.3E+00	mg/kg	Maximum concentration	(c)
	Aroclor-1248	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	7.8E-02	NC	2.4E-01 (J)	2.4E-01	mg/kg	Maximum concentration	(c)
	Aroclor-1260	mg/kg	1.2E-01	NC	3.5E-01 (J)	3.5E-01	mg/kg	Maximum concentration	(c)
	Dieldrin	mg/kg	5.2E-02	NC	1.2E-01 (J)	1.2E-01	mg/kg	Maximum concentration	(c)
	Dioxin TEQ	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aluminum	mg/kg	7.1E+03	NC	1.1E+04	1.1E+04	mg/kg	Maximum concentration	(c)
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	9.0E+00	NC	1.6E+01	1.6E+01	mg/kg	Maximum concentration	(c)
	Cadmium	mg/kg	3.5E+00	NC	8.9E+00	8.9E+00	mg/kg	Maximum concentration	(c)
	Chromium	mg/kg	9.4E+01	NC	1.7E+02	1.7E+02	mg/kg	Maximum concentration	(c)
	Cobalt	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Copper	mg/kg	1.2E+02	NC	2.3E+02	2.3E+02	mg/kg	Maximum concentration	(c)
	Iron	mg/kg	1.5E+04	NC	2.6E+04	2.6E+04	mg/kg	Maximum concentration	(c)
	Lead	mg/kg	1.5E+02	NC	2.5E+02			See Appendix Z	
	Manganese	mg/kg	3.6E+02	NC	9.6E+02	9.6E+02	mg/kg	Maximum concentration	(c)
	Mercury	mg/kg	3.3E-01	NC	6.0E-01	6.0E-01	mg/kg	Maximum concentration	(c)
	Thallium	mg/kg	9.8E-01	NC	1.8E+00 (J)	1.8E+00	mg/kg	Maximum concentration	(c)
	Vanadium	mg/kg	2.1E+01	NC	3.1E+01	3.1E+01	mg/kg	Maximum concentration	(c)
	Zinc	mg/kg	1.5E+02	NC	2.7E+02	2.7E+02	mg/kg	Maximum concentration	(c)

TABLE 3.4.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were not performed for most analytes due to the small sample size.
Any UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) Due to the small sample size, maximum concentrations were used as EPCs for most analytes.
95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.4.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Upstream of Landfill (Debris Fields)	Benzo(a)anthracene	mg/kg	1.3E+00	NC	2.4E+00 (J)	1.3E+00	mg/kg	Arithmetic Mean	(e)
	Benzo(a)pyrene	mg/kg	1.1E+00	NC	2.0E+00 (J)	1.1E+00	mg/kg	Arithmetic Mean	(e)
	Benzo(b)fluoranthene	mg/kg	2.0E+00	NC	3.5E+00	2.0E+00	mg/kg	Arithmetic Mean	(e)
	Benzo(k)fluoranthene	mg/kg	7.9E-01	1.2E+00 (N)	1.8E+00 (J)	1.2E+00	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.5E+00	NC	4.8E+00 (J)	1.5E+00	mg/kg	Arithmetic Mean	(e)
	Carbazole	mg/kg	1.6E-01	2.1E-01 (NP)	2.3E-01 (J)	2.1E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	2.6E-01	NC	5.1E-01 (J)	2.6E-01	mg/kg	Arithmetic Mean	(e)
	Dibenzofuran	mg/kg	1.2E-01	9.5E-02 (NP)	9.8E-02 (J)	9.5E-02	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	7.1E-01	NC	1.4E+00 (J)	7.1E-01	mg/kg	Arithmetic Mean	(e)
	Phenanthrene	mg/kg	1.4E+00	NC	2.3E+00	1.4E+00	mg/kg	Arithmetic Mean	(e)
	Aroclor-1248	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	7.8E-02	NC	2.4E-01 (J)	7.8E-02	mg/kg	Arithmetic Mean	(e)
	Aroclor-1260	mg/kg	1.2E-01	NC	3.5E-01 (J)	1.2E-01	mg/kg	Arithmetic Mean	(e)
	Dieldrin	mg/kg	5.2E-02	NC	1.2E-01 (J)	5.2E-02	mg/kg	Arithmetic Mean	(e)
	Dioxin TEQ	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aluminum	mg/kg	7.1E+03	NC	1.1E+04	7.1E+03	mg/kg	Arithmetic Mean	(e)
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	9.0E+00	NC	1.6E+01	9.0E+00	mg/kg	Arithmetic Mean	(e)
	Cadmium	mg/kg	3.5E+00	NC	8.9E+00	3.5E+00	mg/kg	Arithmetic Mean	(e)
	Chromium	mg/kg	9.4E+01	NC	1.7E+02	9.4E+01	mg/kg	Arithmetic Mean	(e)
	Cobalt	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Copper	mg/kg	1.2E+02	NC	2.3E+02	1.2E+02	mg/kg	Arithmetic Mean	(e)
	Iron	mg/kg	1.5E+04	NC	2.6E+04	1.5E+04	mg/kg	Arithmetic Mean	(e)
	Lead	mg/kg	1.5E+02	NC	2.5E+02			See Appendix Z	
	Manganese	mg/kg	3.6E+02	NC	9.6E+02	3.6E+02	mg/kg	Arithmetic Mean	(e)
	Mercury	mg/kg	3.3E-01	NC	6.0E-01	3.3E-01	mg/kg	Arithmetic Mean	(e)
	Thallium	mg/kg	9.8E-01	NC	1.8E+00 (J)	9.8E-01	mg/kg	Arithmetic Mean	(e)
	Vanadium	mg/kg	2.1E+01	NC	3.1E+01	2.1E+01	mg/kg	Arithmetic Mean	(e)
	Zinc	mg/kg	1.5E+02	NC	2.7E+02	1.5E+02	mg/kg	Arithmetic Mean	(e)

TABLE 3.4.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were not performed for most analytes due to the small sample size.
Any UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) Due to the small sample size, arithmetic means were used as EPCs for most analytes.
95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.5.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Nunes Parcel	Benzo(a)anthracene	mg/kg	2.0E+00	2.7E+00 (G)	5.8E+00	2.7E+00	mg/kg	95% Approx. Gamma UCL	(c)
	Benzo(a)pyrene	mg/kg	2.1E+00	3.4E+00 (NP)	5.4E+00	3.4E+00	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Benzo(b)fluoranthene	mg/kg	2.8E+00	3.5E+00 (N)	6.9E+00	3.5E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	8.8E-01	1.6E+00 (NP)	3.0E+00	1.6E+00	mg/kg	95% KM (Chebyshev) UCL	
	Carbazole	mg/kg	3.6E-01	4.4E-01 (NP)	1.6E+00	4.4E-01	mg/kg	95% KM (BCA) UCL	
	Dibenz(a,h)anthracene	mg/kg	4.4E-01	5.3E-01 (N)	8.1E-01	5.3E-01	mg/kg	95% Student's-t UCL	
	Dibenzofuran	mg/kg	1.7E-01	2.2E-01 (NP)	7.6E-01	2.2E-01	mg/kg	95% KM (BCA) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.3E+00	1.6E+00 (N)	2.8E+00 (J)	1.6E+00	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	3.0E+00	6.8E+00 (LN)	1.5E+01	6.8E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Aroclor-1260	mg/kg	3.7E-01	3.7E-01 (N)	5.5E-01 (J)	3.7E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	5.5E-02	1.3E-01 (G)	3.1E-01	1.3E-01	mg/kg	95% KM (Chebyshev) UCL	
	Dioxin TEQ	mg/kg	3.7E-05	NC	4.5E-05	4.5E-05	mg/kg	Maximum Concentration	
	Aluminum	mg/kg	9.0E+03	1.1E+04 (N)	1.6E+04	1.1E+04	mg/kg	95% Student's-t UCL	
	Arsenic	mg/kg	1.4E+01	1.7E+01 (N)	2.8E+01	1.7E+01	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	7.0E+00	1.1E+01 (G)	1.9E+01	1.1E+01	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	1.4E+02	2.2E+02 (G)	3.5E+02	2.2E+02	mg/kg	95% Approx. Gamma UCL	
	Cobalt	mg/kg	1.1E+01	1.2E+01 (NP)	1.9E+01	1.2E+01	mg/kg	95% KM (% Bootstrap) UCL	
	Copper	mg/kg	2.3E+02	3.4E+02 (G)	8.3E+02	3.4E+02	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	2.1E+04	2.5E+04 (N)	3.9E+04	2.5E+04	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	3.9E+02	8.3E+02 (LN)	2.4E+03			See Appendix Z	
	Manganese	mg/kg	6.5E+02	9.5E+02 (G)	1.9E+03	9.5E+02	mg/kg	95% Approx. Gamma UCL	
	Mercury	mg/kg	4.9E-01	6.2E-01 (N)	1.0E+00 (J)	6.2E-01	mg/kg	95% Student's-t UCL	
	Thallium	mg/kg	1.9E+00	1.9E+00 (N)	3.3E+00 (J)	1.9E+00	mg/kg	95% KM (t) UCL	

TABLE 3.5.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. Note that Dioxin TEQ had all detections. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.5.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Nunes Parcel	Benzo(a)anthracene	mg/kg	2.0E+00	2.7E+00 (G)	5.8E+00	2.7E+00	mg/kg	95% Approx. Gamma UCL	(e)
	Benzo(a)pyrene	mg/kg	2.1E+00	3.4E+00 (NP)	5.4E+00	3.4E+00	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Benzo(b)fluoranthene	mg/kg	2.8E+00	3.5E+00 (N)	6.9E+00	3.5E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	8.8E-01	1.6E+00 (NP)	3.0E+00	1.6E+00	mg/kg	95% KM (Chebyshev) UCL	
	Carbazole	mg/kg	3.6E-01	4.4E-01 (NP)	1.6E+00	4.4E-01	mg/kg	95% KM (BCA) UCL	
	Dibenz(a,h)anthracene	mg/kg	4.4E-01	5.3E-01 (N)	8.1E-01	5.3E-01	mg/kg	95% Student's-t UCL	
	Dibenzofuran	mg/kg	1.7E-01	2.2E-01 (NP)	7.6E-01	2.2E-01	mg/kg	95% KM (BCA) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.3E+00	1.6E+00 (N)	2.8E+00 (J)	1.6E+00	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	3.0E+00	6.8E+00 (LN)	1.5E+01	6.8E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Aroclor-1260	mg/kg	3.7E-01	3.7E-01 (N)	5.5E-01 (J)	3.7E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	5.5E-02	1.3E-01 (G)	3.1E-01	1.3E-01	mg/kg	95% KM (Chebyshev) UCL	
	Dioxin TEQ	mg/kg	3.7E-05	NC	4.5E-05	3.7E-05	mg/kg	Arithmetic Mean	
	Aluminum	mg/kg	9.0E+03	1.1E+04 (N)	1.6E+04	1.1E+04	mg/kg	95% Student's-t UCL	
	Arsenic	mg/kg	1.4E+01	1.7E+01 (N)	2.8E+01	1.7E+01	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	7.0E+00	1.1E+01 (G)	1.9E+01	1.1E+01	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	1.4E+02	2.2E+02 (G)	3.5E+02	2.2E+02	mg/kg	95% Approx. Gamma UCL	
	Cobalt	mg/kg	1.1E+01	1.2E+01 (NP)	1.9E+01	1.2E+01	mg/kg	95% KM (% Bootstrap) UCL	
	Copper	mg/kg	2.3E+02	3.4E+02 (G)	8.3E+02	3.4E+02	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	2.1E+04	2.5E+04 (N)	3.9E+04	2.5E+04	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	3.9E+02	8.3E+02 (LN)	2.4E+03			See Appendix Z	
	Manganese	mg/kg	6.5E+02	9.5E+02 (G)	1.9E+03	9.5E+02	mg/kg	95% Approx. Gamma UCL	
	Mercury	mg/kg	4.9E-01	6.2E-01 (N)	1.0E+00 (J)	6.2E-01	mg/kg	95% Student's-t UCL	
	Thallium	mg/kg	1.9E+00	1.9E+00 (N)	3.3E+00 (J)	1.9E+00	mg/kg	95% KM (t) UCL	

TABLE 3.5.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. Note that Dioxin TEQ had all detections. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.6.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface + Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Nunes Parcel	Benzo(a)anthracene	mg/kg	2.5E+00	5.3E+00 (NP)	2.2E+01	5.3E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(a)pyrene	mg/kg	2.6E+00	5.2E+00 (NP)	2.1E+01	5.2E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(b)fluoranthene	mg/kg	3.1E+00	6.3E+00 (NP)	2.4E+01	6.3E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(g,h,i)perylene	mg/kg	1.6E+00	3.1E+00 (NP)	1.3E+01	3.1E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(k)fluoranthene	mg/kg	1.0E+00	1.1E+00 (NP)	4.9E+00	1.1E+00	mg/kg	95% KM (BCA) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	4.9E+01	4.2E+02 (NP)	1.3E+03	4.2E+02	mg/kg	99% KM (Chebyshev) UCL	
	Carbazole	mg/kg	4.9E-01	4.7E-01 (NP)	2.0E+00	4.7E-01	mg/kg	95% KM (t) UCL	
	Chrysene	mg/kg	2.3E+00	4.4E+00 (NP)	1.8E+01	4.4E+00	mg/kg	95% KM (Chebyshev) UCL	
	Dibenz(a,h)anthracene	mg/kg	6.1E-01	7.4E-01 (NP)	4.4E+00	7.4E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dibenzofuran	mg/kg	2.5E-01	2.4E-01 (NP)	9.2E-01	2.4E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.7E+00	3.1E+00 (NP)	1.2E+01	3.1E+00	mg/kg	95% KM (Chebyshev) UCL	
	Phenanthrene	mg/kg	3.5E+00	8.5E+00 (NP)	2.1E+01	8.5E+00	mg/kg	97.5% KM (Chebyshev) UCL	
	Aroclor-1248	mg/kg	NC	NC	3.6E-01	3.6E-01	mg/kg	Maximum concentration	(b)
	Aroclor-1254	mg/kg	2.1E-01	1.7E-01 (NP)	1.0E+00 (J)	1.7E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Aroclor-1260	mg/kg	2.8E-01	2.5E-01 (NP)	5.5E-01 (J)	2.5E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dieldrin	mg/kg	5.1E-02	1.7E-01 (NP)	3.1E-01	1.7E-01	mg/kg	99% KM (Chebyshev) UCL	
	Dioxin TEQ	mg/kg	3.7E-05	NC	4.5E-05	4.5E-05	mg/kg	Maximum Concentration	(c)
	Aluminum	mg/kg	7.6E+03	8.7E+03 (N)	1.6E+04	8.7E+03	mg/kg	95% Modified-t UCL	
	Arsenic	mg/kg	1.1E+01	1.3E+01 (G)	2.8E+01	1.3E+01	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	5.0E+00	8.9E+00 (NP)	1.9E+01	8.9E+00	mg/kg	95% KM (Chebyshev) UCL	
	Chromium	mg/kg	1.0E+02	2.9E+02 (NP)	3.5E+02	2.9E+02	mg/kg	99% Chebyshev (Mean, Sd) UCL	
	Cobalt	mg/kg	7.1E+00	7.5E+00 (NP)	1.9E+01	7.5E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	1.8E+02	2.6E+02 (G)	8.3E+02	2.6E+02	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	1.9E+04	2.9E+04 (NP)	5.5E+04	2.9E+04	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Lead	mg/kg	5.3E+02	1.4E+03 (LN)	5.5E+03			See Appendix Z	
	Manganese	mg/kg	4.7E+02	8.4E+02 (NP)	1.9E+03	8.4E+02	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Mercury	mg/kg	4.0E-01	6.8E-01 (NP)	1.7E+00	6.8E-01	mg/kg	95% KM (Chebyshev) UCL	
	Thallium	mg/kg	2.5E+00	2.3E+00 (NP)	7.0E+00 (J)	2.3E+00	mg/kg	95% KM (% Bootstrap) UCL	
	Vanadium	mg/kg	2.3E+01	2.8E+01 (NP)	1.0E+02	2.8E+01	mg/kg	95% KM (BCA) UCL	
	Zinc	mg/kg	3.9E+02	5.4E+02 (G)	2.5E+03 (J)	5.4E+02	mg/kg	95% Approx. Gamma UCL	

TABLE 3.6.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface + Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. Note that Dioxin TEQ had all detections. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.6.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface + Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Nunes Parcel	Benzo(a)anthracene	mg/kg	2.5E+00	5.3E+00 (NP)	2.2E+01	5.3E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(a)pyrene	mg/kg	2.6E+00	5.2E+00 (NP)	2.1E+01	5.2E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(b)fluoranthene	mg/kg	3.1E+00	6.3E+00 (NP)	2.4E+01	6.3E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(g,h,i)perylene	mg/kg	1.6E+00	3.1E+00 (NP)	1.3E+01	3.1E+00	mg/kg	95% KM (Chebyshev) UCL	
	Benzo(k)fluoranthene	mg/kg	1.0E+00	1.1E+00 (NP)	4.9E+00	1.1E+00	mg/kg	95% KM (BCA) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	4.9E+01	4.2E+02 (NP)	1.3E+03	4.2E+02	mg/kg	99% KM (Chebyshev) UCL	
	Carbazole	mg/kg	4.9E-01	4.7E-01 (NP)	2.0E+00	4.7E-01	mg/kg	95% KM (t) UCL	
	Chrysene	mg/kg	2.3E+00	4.4E+00 (NP)	1.8E+01	4.4E+00	mg/kg	95% KM (Chebyshev) UCL	
	Dibenz(a,h)anthracene	mg/kg	6.1E-01	7.4E-01 (NP)	4.4E+00	7.4E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dibenzofuran	mg/kg	2.5E-01	2.4E-01 (NP)	9.2E-01	2.4E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.7E+00	3.1E+00 (NP)	1.2E+01	3.1E+00	mg/kg	95% KM (Chebyshev) UCL	
	Phenanthrene	mg/kg	3.5E+00	8.5E+00 (NP)	2.1E+01	8.5E+00	mg/kg	97.5% KM (Chebyshev) UCL	
	Aroclor-1248	mg/kg	NC	NC	3.6E-01	3.6E-01	mg/kg	Maximum concentration	(b)
	Aroclor-1254	mg/kg	2.1E-01	1.7E-01 (NP)	1.0E+00 (J)	1.7E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Aroclor-1260	mg/kg	2.8E-01	2.5E-01 (NP)	5.5E-01 (J)	2.5E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dieldrin	mg/kg	5.1E-02	1.7E-01 (NP)	3.1E-01	1.7E-01	mg/kg	99% KM (Chebyshev) UCL	
	Dioxin TEQ	mg/kg	3.7E-05	NC	4.5E-05	3.7E-05	mg/kg	Arithmetic Mean	(e)
	Aluminum	mg/kg	7.6E+03	8.7E+03 (N)	1.6E+04	8.7E+03	mg/kg	95% Modified-t UCL	
	Arsenic	mg/kg	1.1E+01	1.3E+01 (G)	2.8E+01	1.3E+01	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	5.0E+00	8.9E+00 (NP)	1.9E+01	8.9E+00	mg/kg	95% KM (Chebyshev) UCL	
	Chromium	mg/kg	1.0E+02	2.9E+02 (NP)	3.5E+02	2.9E+02	mg/kg	99% Chebyshev (Mean, Sd) UCL	
	Cobalt	mg/kg	7.1E+00	7.5E+00 (NP)	1.9E+01	7.5E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	1.8E+02	2.6E+02 (G)	8.3E+02	2.6E+02	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	1.9E+04	2.9E+04 (NP)	5.5E+04	2.9E+04	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Lead	mg/kg	5.3E+02	1.4E+03 (LN)	5.5E+03			See Appendix Z	
	Manganese	mg/kg	4.7E+02	8.4E+02 (NP)	1.9E+03	8.4E+02	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Mercury	mg/kg	4.0E-01	6.8E-01 (NP)	1.7E+00	6.8E-01	mg/kg	95% KM (Chebyshev) UCL	
	Thallium	mg/kg	2.5E+00	2.3E+00 (NP)	7.0E+00 (J)	2.3E+00	mg/kg	95% KM (% Bootstrap) UCL	
	Vanadium	mg/kg	2.3E+01	2.8E+01 (NP)	1.0E+02	2.8E+01	mg/kg	95% KM (BCA) UCL	
	Zinc	mg/kg	3.9E+02	5.4E+02 (G)	2.5E+03 (J)	5.4E+02	mg/kg	95% Approx. Gamma UCL	

TABLE 3.6.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface + Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. Note that Dioxin TEQ had all detections. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.7.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Leachate

Exposure Medium: Leachate

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Landfill	4-Methylphenol	ug/L	NC	NC	1.1E+00	1.1E+00	ug/L	Maximum concentration	(b)
	Acenaphthylene	ug/L	1.7E-02	1.7E-02 (NP)	1.9E-02	1.7E-02	ug/L	95% KM (t) UCL	(a)
	Atrazine	ug/L	NC	NC	3.2E+00 (J)	3.2E+00	ug/L	Maximum concentration	(b)
	Benzo(a)anthracene	ug/L	5.0E-02	3.1E-02 (N)	1.1E-01	3.1E-02	ug/L	95% KM (t) UCL	(a)
	Benzo(a)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(b)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(g,h,i)perylene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	6.5E-01	7.7E-01 (N)	1.0E+00	7.7E-01	ug/L	95% KM (t) UCL	(a)
	Chrysene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dibenz(a,h)anthracene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dibenzofuran	ug/L	NC	NC	4.2E-01 (J)	4.2E-01	ug/L	Maximum concentration	(b)
	Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Naphthalene	ug/L	2.9E-01	2.3E-01 (G)	9.8E-01	2.3E-01	ug/L	95% KM (t) UCL	
	N-Nitrosodiphenylamine	ug/L	2.3E+00	2.4E+00 (NP)	4.7E+00 (J)	2.4E+00	ug/L	95% KM (t) UCL	
	Pentachlorophenol	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	3.3E-01	1.6E-01 (N)	9.5E-01	1.6E-01	ug/L	95% KM (t) UCL	(a)
	1,4-Dichlorobenzene	ug/L	1.7E+00	1.8E+00 (G)	3.6E+00	1.8E+00	ug/L	95% KM (BCA) UCL	
	Benzene	ug/L	1.2E+02	6.4E+02 (NP)	1.1E+03	6.4E+02	ug/L	99% KM (Chebyshev) UCL	
	Chlorobenzene	ug/L	1.5E+01	1.4E+01 (N)	2.8E+01	1.4E+01	ug/L	95% KM (t) UCL	
	Ethylbenzene	ug/L	1.2E+00	1.1E+00 (NP)	1.4E+00	1.1E+00	ug/L	95% KM (t) UCL	
	Xylene (total)	ug/L	5.3E+00	3.0E+00 (NP)	1.7E+01	3.0E+00	ug/L	95% KM (t) UCL	
	Total PCBs	ug/L	2.6E-01	2.0E-01 (NP)	3.3E-01 (J)	2.0E-01	ug/L	95% KM (t) UCL	(a)
	4,4'-DDD	ug/L	2.8E-03	NC	5.0E-03 (J)	5.0E-03	ug/L	Maximum concentration	(c)
	4,4'-DDE	ug/L	4.7E-03	4.1E-03 (NP)	5.6E-03 (J)	4.1E-03	ug/L	95% KM (t) UCL	
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-BHC	ug/L	NC	NC	3.5E-03 (J)	3.5E-03	ug/L	Maximum concentration	(b)
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	ND	ND	ND	ND	ug/L	NA	
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aluminum	ug/L	9.9E+01	9.9E+01 (N)	2.6E+02 (J)	9.9E+01	ug/L	95% KM (t) UCL	
	Antimony	ug/L	6.6E-01	6.6E-01 (NP)	7.3E-01	6.6E-01	ug/L	95% KM (t) UCL	(a)

TABLE 3.7.RME
 EXPOSURE POINT CONCENTRATION SUMMARY
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Leachate

Exposure Medium: Leachate

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
	Arsenic	ug/L	4.3E+01	6.9E+01 (G)	1.2E+02	6.9E+01	ug/L	95% Approx. Gamma UCL	
	Barium	ug/L	2.6E+02	2.8E+02 (N)	6.5E+02	2.8E+02	ug/L	95% KM (t) UCL	
	Beryllium	ug/L	ND	ND	ND	ND	ug/L	NA	
	Cadmium	ug/L	6.5E-01	3.8E-01 (N)	1.4E+00 (J)	3.8E-01	ug/L	95% KM (t) UCL	(a)
	Chromium	ug/L	2.2E+00	2.1E+00 (G)	5.6E+00	2.1E+00	ug/L	95% KM (t) UCL	
	Cobalt	ug/L	1.5E+00	2.3E+00 (G)	3.4E+00	2.3E+00	ug/L	95% KM (t) UCL	
	Copper	ug/L	1.3E+00	1.2E+00 (N)	1.5E+00	1.2E+00	ug/L	95% KM (t) UCL	(a)
	Cyanide	ug/L	2.6E+00	3.1E+00 (N)	2.8E+00 (J)	2.8E+00	ug/L	Maximum concentration	(d)
	Iron	ug/L	3.2E+04	3.8E+04 (N)	6.4E+04 (J)	3.8E+04	ug/L	99% KM (Chebyshev) UCL	
	Lead	ug/L	8.0E-01	8.3E-01 (N)	1.5E+00 (J)	8.3E-01	ug/L	95% KM (t) UCL	
	Manganese	ug/L	1.1E+03	1.8E+03 (LN)	5.8E+03	1.8E+03	ug/L	95% Student's-t UCL	
	Mercury	ug/L	ND	ND	ND	ND	ug/L	NA	
	Nickel	ug/L	1.1E+01	9.6E+00 (N)	1.6E+01	9.6E+00	ug/L	95% KM (t) UCL	(a)
	Silver	ug/L	9.1E+00	7.3E+00 (N)	1.4E+01 (J)	7.3E+00	ug/L	95% KM (t) UCL	(a)
	Thallium	ug/L	4.8E+00	3.5E+00 (N)	8.5E+00 (J)	3.5E+00	ug/L	95% KM (t) UCL	(a)
	Vanadium	ug/L	2.4E+00	2.4E+00 (G)	5.7E+00	2.4E+00	ug/L	95% KM (t) UCL	
	Zinc	ug/L	2.9E+01	2.9E+01 (NP)	2.9E+01	2.9E+01	ug/L	99% KM (Chebyshev) UCL	(a)

TABLE 3.7.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Leachate
Exposure Medium: Leachate

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

Because there are no "true" leachate data for the site, groundwater data are used as a surrogate to evaluate potential leachate exposures. COPCs selected on Table 2.10 were used to evaluate data from a subset of groundwater data (see Appendix W for list of samples).

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only, except for 4,4'-DDD (calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.7.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Leachate

Exposure Medium: Leachate

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Landfill	4-Methylphenol	ug/L	NC	NC	1.1E+00	1.1E+00	ug/L	Maximum concentration	(b)
	Acenaphthylene	ug/L	1.7E-02	1.7E-02 (NP)	1.9E-02	1.7E-02	ug/L	95% KM (t) UCL	(a)
	Atrazine	ug/L	NC	NC	3.2E+00 (J)	3.2E+00	ug/L	Maximum concentration	(b)
	Benzo(a)anthracene	ug/L	5.0E-02	3.1E-02 (N)	1.1E-01	3.1E-02	ug/L	95% KM (t) UCL	(a)
	Benzo(a)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(b)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(g,h,i)perylene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	6.5E-01	7.7E-01 (N)	1.0E+00	7.7E-01	ug/L	95% KM (t) UCL	(a)
	Chrysene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dibenz(a,h)anthracene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dibenzofuran	ug/L	NC	NC	4.2E-01 (J)	4.2E-01	ug/L	Maximum concentration	(b)
	Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Naphthalene	ug/L	2.9E-01	2.3E-01 (G)	9.8E-01	2.3E-01	ug/L	95% KM (t) UCL	
	N-Nitrosodiphenylamine	ug/L	2.3E+00	2.4E+00 (NP)	4.7E+00 (J)	2.4E+00	ug/L	95% KM (t) UCL	
	Pentachlorophenol	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	3.3E-01	1.6E-01 (N)	9.5E-01	1.6E-01	ug/L	95% KM (t) UCL	(a)
	1,4-Dichlorobenzene	ug/L	1.7E+00	1.8E+00 (G)	3.6E+00	1.8E+00	ug/L	95% KM (BCA) UCL	
	Benzene	ug/L	1.2E+02	6.4E+02 (NP)	1.1E+03	6.4E+02	ug/L	99% KM (Chebyshev) UCL	
	Chlorobenzene	ug/L	1.5E+01	1.4E+01 (N)	2.8E+01	1.4E+01	ug/L	95% KM (t) UCL	
	Ethylbenzene	ug/L	1.2E+00	1.1E+00 (NP)	1.4E+00	1.1E+00	ug/L	95% KM (t) UCL	
	Xylene (total)	ug/L	5.3E+00	3.0E+00 (NP)	1.7E+01	3.0E+00	ug/L	95% KM (t) UCL	
	Total PCBs	ug/L	2.6E-01	2.0E-01 (NP)	3.3E-01 (J)	2.0E-01	ug/L	95% KM (t) UCL	(a)
	4,4'-DDD	ug/L	2.8E-03	NC	5.0E-03 (J)	2.8E-03	ug/L	Arithmetic Mean	(e)
	4,4'-DDE	ug/L	4.7E-03	4.1E-03 (NP)	5.6E-03 (J)	4.1E-03	ug/L	95% KM (t) UCL	
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-BHC	ug/L	NC	NC	3.5E-03 (J)	3.5E-03	ug/L	Maximum concentration	(b)
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	ND	ND	ND	ND	ug/L	NA	
	Gamma-Chlordane	ug/L	NA	NA	ND	ND	ug/L	NA	
	Aluminum	ug/L	9.9E+01	9.9E+01 (N)	2.6E+02 (J)	9.9E+01	ug/L	95% KM (t) UCL	
	Antimony	ug/L	6.6E-01	6.6E-01 (NP)	7.3E-01	6.6E-01	ug/L	95% KM (t) UCL	(a)

TABLE 3.7.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Leachate

Exposure Medium: Leachate

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
	Arsenic	ug/L	4.3E+01	6.9E+01 (G)	1.2E+02	6.9E+01	ug/L	95% Approx. Gamma UCL	
	Barium	ug/L	2.6E+02	2.8E+02 (N)	6.5E+02	2.8E+02	ug/L	95% KM (t) UCL	
	Beryllium	ug/L	ND	ND	ND	ND	ug/L	NA	
	Cadmium	ug/L	6.5E-01	3.8E-01 (N)	1.4E+00 (J)	3.8E-01	ug/L	95% KM (t) UCL	(a)
	Chromium	ug/L	2.2E+00	2.1E+00 (G)	5.6E+00	2.1E+00	ug/L	95% KM (t) UCL	
	Cobalt	ug/L	1.5E+00	2.3E+00 (G)	3.4E+00	2.3E+00	ug/L	95% KM (t) UCL	
	Copper	ug/L	1.3E+00	1.2E+00 (N)	1.5E+00	1.2E+00	ug/L	95% KM (t) UCL	(a)
	Cyanide	ug/L	2.6E+00	3.1E+00 (N)	2.8E+00 (J)	2.6E+00	ug/L	Arithmetic Mean	(e)
	Iron	ug/L	3.2E+04	3.8E+04 (N)	6.4E+04 (J)	3.8E+04	ug/L	99% KM (Chebyshev) UCL	
	Lead	ug/L	8.0E-01	8.3E-01 (N)	1.5E+00 (J)	8.3E-01	ug/L	95% KM (t) UCL	
	Manganese	ug/L	1.1E+03	1.8E+03 (LN)	5.8E+03	1.8E+03	ug/L	95% Student's-t UCL	
	Mercury	ug/L	ND	ND	ND	ND	ug/L	NA	
	Nickel	ug/L	1.1E+01	9.6E+00 (N)	1.6E+01	9.6E+00	ug/L	95% KM (t) UCL	(a)
	Silver	ug/L	9.1E+00	7.3E+00 (N)	1.4E+01 (J)	7.3E+00	ug/L	95% KM (t) UCL	(a)
	Thallium	ug/L	4.8E+00	3.5E+00 (N)	8.5E+00 (J)	3.5E+00	ug/L	95% KM (t) UCL	(a)
	Vanadium	ug/L	2.4E+00	2.4E+00 (G)	5.7E+00	2.4E+00	ug/L	95% KM (t) UCL	
	Zinc	ug/L	2.9E+01	2.9E+01 (NP)	2.9E+01	2.9E+01	ug/L	99% KM (Chebyshev) UCL	(a)

TABLE 3.7.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Leachate
Exposure Medium: Leachate

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

Because there are no "true" leachate data for the site, groundwater data are used as a surrogate to evaluate potential leachate exposures. COPCs selected on Table 2.10 were used to evaluate data from a subset of groundwater data (see Appendix W for list of samples).

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only, except for 4,4'-DDD (calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.8.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Southern Bank (Backwater and Pond F)	Benzo(a)anthracene	mg/kg	6.9E-01	1.3E+00 (G)	2.4E+00 (J)	1.3E+00	mg/kg	95% KM (Chebyshev) UCL	(a)
	Benzo(a)pyrene	mg/kg	6.5E-01	8.5E-01 (N)	1.9E+00 (J)	8.5E-01	mg/kg	95% KM (t) UCL	
	Benzo(b)fluoranthene	mg/kg	8.7E-01	1.1E+00 (N)	2.5E+00 (J)	1.1E+00	mg/kg	95% KM (t) UCL	
	Benzo(k)fluoranthene	mg/kg	3.8E-01	4.9E-01 (NP)	8.4E-01	4.9E-01	mg/kg	95% KM (% Bootstrap) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.0E+00	2.6E+00 (G)	9.7E+00	2.6E+00	mg/kg	95% KM (BCA) UCL	
	Carbazole	mg/kg	2.4E-01	3.0E-01 (NP)	8.8E-01 (J)	3.0E-01	mg/kg	95% KM (BCA) UCL	
	Dibenz(a,h)anthracene	mg/kg	1.0E-01	1.3E-01 (N)	2.1E-01	1.3E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	1.3E-01	1.6E-01 (NP)	2.2E-01 (J)	1.6E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	3.5E-01	4.6E-01 (N)	1.1E+00 (J)	4.6E-01	mg/kg	95% KM (t) UCL	
	Phenanthrene	mg/kg	1.0E+00	2.4E+00 (NP)	4.6E+00	2.4E+00	mg/kg	95% KM (Chebyshev) UCL	
	Aroclor-1242	mg/kg	ND	ND	ND	ND	mg/kg	NA	(a)
	Aroclor-1254	mg/kg	1.1E-01	7.7E-02 (N)	2.6E-01	7.7E-02	mg/kg	95% KM (t) UCL	
	Aroclor-1260	mg/kg	7.6E-02	1.6E-01 (G)	3.4E-01	1.6E-01	mg/kg	95% KM (Chebyshev) UCL	
	Dieldrin	mg/kg	9.4E-03	1.3E-02 (G)	3.6E-02 (J)	1.3E-02	mg/kg	95% KM (BCA) UCL	
	Aluminum	mg/kg	4.0E+03	4.6E+03 (N)	7.4E+03	4.6E+03	mg/kg	95% Student's-t UCL	(a)
	Antimony	mg/kg	5.3E-01	4.9E-01 (N)	8.5E-01 (J)	4.9E-01	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	3.9E+00	5.1E+00 (G)	1.2E+01	5.1E+00	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	2.1E+00	3.4E+00 (G)	8.9E+00	3.4E+00	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	2.9E+01	4.3E+01 (G)	9.6E+01	4.3E+01	mg/kg	95% Approx. Gamma UCL	
	Cobalt	mg/kg	3.5E+00	5.4E+00 (NP)	7.7E+00	5.4E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	3.7E+01	5.5E+01 (G)	1.5E+02	5.5E+01	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	7.3E+03	8.6E+03 (G)	1.5E+04	8.6E+03	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	4.1E+01	6.4E+01 (G)	1.8E+02	See Appendix Z			
	Manganese	mg/kg	1.4E+02	1.8E+02 (G)	3.6E+02 (J)	1.8E+02	mg/kg	95% Approx. Gamma UCL	
	Mercury	mg/kg	1.5E-01	1.5E-01 (G)	3.5E-01	1.5E-01	mg/kg	95% KM (t) UCL	
	Thallium	mg/kg	2.0E-01	2.9E-01 (N)	4.0E-01	2.9E-01	mg/kg	95% KM (t) UCL	
	Vanadium	mg/kg	1.0E+01	1.1E+01 (N)	1.8E+01	1.1E+01	mg/kg	95% KM (t) UCL	

TABLE 3.8.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.8.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Sediment

Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Southern Bank (Backwater and Pond F)	Benzo(a)anthracene	mg/kg	6.9E-01	1.3E+00 (G)	2.4E+00 (J)	1.3E+00	mg/kg	95% KM (Chebyshev) UCL	(a)
	Benzo(a)pyrene	mg/kg	6.5E-01	8.5E-01 (N)	1.9E+00 (J)	8.5E-01	mg/kg	95% KM (t) UCL	
	Benzo(b)fluoranthene	mg/kg	8.7E-01	1.1E+00 (N)	2.5E+00 (J)	1.1E+00	mg/kg	95% KM (t) UCL	
	Benzo(k)fluoranthene	mg/kg	3.8E-01	4.9E-01 (NP)	8.4E-01	4.9E-01	mg/kg	95% KM (% Bootstrap) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.0E+00	2.6E+00 (G)	9.7E+00	2.6E+00	mg/kg	95% KM (BCA) UCL	
	Carbazole	mg/kg	2.4E-01	3.0E-01 (NP)	8.8E-01 (J)	3.0E-01	mg/kg	95% KM (BCA) UCL	
	Dibenz(a,h)anthracene	mg/kg	1.0E-01	1.3E-01 (N)	2.1E-01	1.3E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	1.3E-01	1.6E-01 (NP)	2.2E-01 (J)	1.6E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	3.5E-01	4.6E-01 (N)	1.1E+00 (J)	4.6E-01	mg/kg	95% KM (t) UCL	
	Phenanthrene	mg/kg	1.0E+00	2.4E+00 (NP)	4.6E+00	2.4E+00	mg/kg	95% KM (Chebyshev) UCL	
	Aroclor-1242	mg/kg	ND	ND	ND	ND	mg/kg	NA	(a)
	Aroclor-1254	mg/kg	1.1E-01	7.7E-02 (N)	2.6E-01	7.7E-02	mg/kg	95% KM (t) UCL	
	Aroclor-1260	mg/kg	7.6E-02	1.6E-01 (G)	3.4E-01	1.6E-01	mg/kg	95% KM (Chebyshev) UCL	
	Dieldrin	mg/kg	9.4E-03	1.3E-02 (G)	3.6E-02 (J)	1.3E-02	mg/kg	95% KM (BCA) UCL	
	Aluminum	mg/kg	4.0E+03	4.6E+03 (N)	7.4E+03	4.6E+03	mg/kg	95% Student's-t UCL	(a)
	Antimony	mg/kg	5.3E-01	4.9E-01 (N)	8.5E-01 (J)	4.9E-01	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	3.9E+00	5.1E+00 (G)	1.2E+01	5.1E+00	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	2.1E+00	3.4E+00 (G)	8.9E+00	3.4E+00	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	2.9E+01	4.3E+01 (G)	9.6E+01	4.3E+01	mg/kg	95% Approx. Gamma UCL	
	Cobalt	mg/kg	3.5E+00	5.4E+00 (NP)	7.7E+00	5.4E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	3.7E+01	5.5E+01 (G)	1.5E+02	5.5E+01	mg/kg	95% Approx. Gamma UCL	
	Iron	mg/kg	7.3E+03	8.6E+03 (G)	1.5E+04	8.6E+03	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	4.1E+01	6.4E+01 (G)	1.8E+02	See Appendix Z			
	Manganese	mg/kg	1.4E+02	1.8E+02 (G)	3.6E+02 (J)	1.8E+02	mg/kg	95% Approx. Gamma UCL	
	Mercury	mg/kg	1.5E-01	1.5E-01 (G)	3.5E-01	1.5E-01	mg/kg	95% KM (t) UCL	
	Thallium	mg/kg	2.0E-01	2.9E-01 (N)	4.0E-01	2.9E-01	mg/kg	95% KM (t) UCL	
	Vanadium	mg/kg	1.0E+01	1.1E+01 (N)	1.8E+01	1.1E+01	mg/kg	95% KM (t) UCL	

TABLE 3.8.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.9.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Upstream of Landfill	Benzo(a)anthracene	mg/kg	6.8E-01	NC	1.1E+00	1.1E+00	mg/kg	Maximum concentration	(c)
	Benzo(a)pyrene	mg/kg	6.2E-01	NC	9.8E-01	9.8E-01	mg/kg	Maximum concentration	(c)
	Benzo(b)fluoranthene	mg/kg	7.6E-01	NC	1.2E+00	1.2E+00	mg/kg	Maximum concentration	(c)
	Benzo(k)fluoranthene	mg/kg	3.1E-01	NC	5.8E-01	5.8E-01	mg/kg	Maximum concentration	(c)
	bis(2-Ethylhexyl)phthalate	mg/kg	5.7E+00	NC	1.3E+01	1.3E+01	mg/kg	Maximum concentration	(c)
	Carbazole	mg/kg	1.3E-01	NC	1.3E-01 (J)	1.3E-01	mg/kg	Maximum concentration	(c)
	Dibenz(a,h)anthracene	mg/kg	7.4E-02	NC	1.1E-01 (J)	1.1E-01	mg/kg	Maximum concentration	(c)
	Dibenzofuran	mg/kg	1.5E-01	NC	7.2E-02 (J)	7.2E-02	mg/kg	Maximum concentration	(c)
	Indeno(1,2,3-cd)pyrene	mg/kg	2.9E-01	NC	4.1E-01	4.1E-01	mg/kg	Maximum concentration	(c)
	Phenanthrene	mg/kg	6.2E-01	NC	1.1E+00	1.1E+00	mg/kg	Maximum concentration	(c)
	Aroclor-1242	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	2.2E-02	NC	5.9E-02 (J)	5.9E-02	mg/kg	Maximum concentration	(c)
	Aroclor-1260	mg/kg	1.9E-01	NC	5.5E-01 (J)	5.5E-01	mg/kg	Maximum concentration	(c)
	Dieldrin	mg/kg	2.6E-02	NC	7.4E-02 (J)	7.4E-02	mg/kg	Maximum concentration	(c)
	Aluminum	mg/kg	6.0E+03	NC	9.1E+03	9.1E+03	mg/kg	Maximum concentration	(c)
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	5.6E+00	NC	9.0E+00 (J)	9.0E+00	mg/kg	Maximum concentration	(c)
	Cadmium	mg/kg	5.5E+00	NC	1.4E+01	1.4E+01	mg/kg	Maximum concentration	(c)
	Chromium	mg/kg	6.9E+01	NC	1.6E+02 (J)	1.6E+02	mg/kg	Maximum concentration	(c)
	Cobalt	mg/kg	6.0E+00	NC	1.1E+01	1.1E+01	mg/kg	Maximum concentration	(c)
	Copper	mg/kg	8.5E+01	NC	2.1E+02	2.1E+02	mg/kg	Maximum concentration	(c)
	Iron	mg/kg	1.0E+04	NC	1.2E+04	1.2E+04	mg/kg	Maximum concentration	(c)
	Lead	mg/kg	7.6E+01	NC	1.9E+02 (J)	See Appendix Z			
	Manganese	mg/kg	3.9E+02	NC	8.3E+02	8.3E+02	mg/kg	Maximum concentration	(c)
	Mercury	mg/kg	2.2E-01	NC	4.3E-01	4.3E-01	mg/kg	Maximum concentration	(c)
	Thallium	mg/kg	4.1E-01	NC	6.0E-01 (J)	6.0E-01	mg/kg	Maximum concentration	(c)
	Vanadium	mg/kg	1.4E+01	NC	2.4E+01	2.4E+01	mg/kg	Maximum concentration	(c)

TABLE 3.9.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were not performed due to the small sample size.
NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) Due to the small sample size, maximum concentrations were used as EPCs.
- (5)
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.9.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Sediment

Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Upstream of Landfill	Benzo(a)anthracene	mg/kg	6.8E-01	NC	1.1E+00	6.8E-01	mg/kg	Arithmetic mean	(e)
	Benzo(a)pyrene	mg/kg	6.2E-01	NC	9.8E-01	6.2E-01	mg/kg	Arithmetic mean	(e)
	Benzo(b)fluoranthene	mg/kg	7.6E-01	NC	1.2E+00	7.6E-01	mg/kg	Arithmetic mean	(e)
	Benzo(k)fluoranthene	mg/kg	3.1E-01	NC	5.8E-01	3.1E-01	mg/kg	Arithmetic mean	(e)
	bis(2-Ethylhexyl)phthalate	mg/kg	5.7E+00	NC	1.3E+01	5.7E+00	mg/kg	Arithmetic mean	(e)
	Carbazole	mg/kg	1.3E-01	NC	1.3E-01 (J)	1.3E-01	mg/kg	Arithmetic mean	(e)
	Dibenz(a,h)anthracene	mg/kg	7.4E-02	NC	1.1E-01 (J)	7.4E-02	mg/kg	Arithmetic mean	(e)
	Dibenzofuran	mg/kg	1.5E-01	NC	7.2E-02 (J)	7.2E-02	mg/kg	Maximum concentration	(f)
	Indeno(1,2,3-cd)pyrene	mg/kg	2.9E-01	NC	4.1E-01	2.9E-01	mg/kg	Arithmetic mean	(e)
	Phenanthrene	mg/kg	6.2E-01	NC	1.1E+00	6.2E-01	mg/kg	Arithmetic mean	(e)
	Aroclor-1242	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	2.2E-02	NC	5.9E-02 (J)	2.2E-02	mg/kg	Arithmetic mean	(e)
	Aroclor-1260	mg/kg	1.9E-01	NC	5.5E-01 (J)	1.9E-01	mg/kg	Arithmetic mean	(e)
	Dieldrin	mg/kg	2.6E-02	NC	7.4E-02 (J)	2.6E-02	mg/kg	Arithmetic mean	(e)
	Aluminum	mg/kg	6.0E+03	NC	9.1E+03	6.0E+03	mg/kg	Arithmetic mean	(e)
	Antimony	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	5.6E+00	NC	9.0E+00 (J)	5.6E+00	mg/kg	Arithmetic mean	(e)
	Cadmium	mg/kg	5.5E+00	NC	1.4E+01	5.5E+00	mg/kg	Arithmetic mean	(e)
	Chromium	mg/kg	6.9E+01	NC	1.6E+02 (J)	6.9E+01	mg/kg	Arithmetic mean	(e)
	Cobalt	mg/kg	6.0E+00	NC	1.1E+01	6.0E+00	mg/kg	Arithmetic mean	(e)
	Copper	mg/kg	8.5E+01	NC	2.1E+02	8.5E+01	mg/kg	Arithmetic mean	(e)
	Iron	mg/kg	1.0E+04	NC	1.2E+04	1.0E+04	mg/kg	Arithmetic mean	(e)
	Lead	mg/kg	7.6E+01	NC	1.9E+02 (J)	See Appendix Z			
	Manganese	mg/kg	3.9E+02	NC	8.3E+02	3.9E+02	mg/kg	Arithmetic mean	(e)
	Mercury	mg/kg	2.2E-01	NC	4.3E-01	2.2E-01	mg/kg	Arithmetic mean	(e)
	Thallium	mg/kg	4.1E-01	NC	6.0E-01 (J)	4.1E-01	mg/kg	Arithmetic mean	(e)
	Vanadium	mg/kg	1.4E+01	NC	2.4E+01	1.4E+01	mg/kg	Arithmetic mean	(e)

TABLE 3.9.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were not performed due to the small sample size.
NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) Due to the small sample size, arithmetic means were used as EPCs.
- (5)
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.10.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Adjacent to Landfill	Benzo(a)anthracene	mg/kg	9.7E-01	1.3E+00 (N)	2.1E+00	1.3E+00	mg/kg	95% Student's-t UCL	(a)
	Benzo(a)pyrene	mg/kg	9.5E-01	1.6E+00 (G)	1.9E+00 (J)	1.6E+00	mg/kg	95% Approx. Gamma UCL	
	Benzo(b)fluoranthene	mg/kg	1.1E+00	1.5E+00 (N)	2.4E+00	1.5E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	5.5E-01	7.6E-01 (N)	1.6E+00 (J)	7.6E-01	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	7.3E+00	2.2E+01 (G)	5.8E+01 (J)	2.2E+01	mg/kg	95% KM (Chebyshev) UCL	
	Carbazole	mg/kg	2.0E-01	2.4E-01 (NP)	6.3E-01	2.4E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dibenz(a,h)anthracene	mg/kg	1.4E-01	2.0E-01 (N)	3.4E-01 (J)	2.0E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	1.6E-01	1.7E-01 (NP)	5.0E-01	1.7E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	4.8E-01	6.4E-01 (N)	1.0E+00 (J)	6.4E-01	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	1.2E+00	2.1E+00 (G)	5.3E+00	2.1E+00	mg/kg	95% Approx. Gamma UCL	
	Aroclor-1242	mg/kg	1.3E-01	2.4E-01 (NP)	2.5E-01 (J)	2.4E-01	mg/kg	99% KM (Chebyshev) UCL	
	Aroclor-1254	mg/kg	1.4E-01	3.1E-01 (LN)	5.5E-01	3.1E-01	mg/kg	97.5% KM (Chebyshev) UCL	
	Aroclor-1260	mg/kg	1.3E-01	1.2E-01 (N)	3.1E-01	1.2E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	7.8E-03	1.7E-02 (G)	3.3E-02 (J)	1.7E-02	mg/kg	95% KM (Chebyshev) UCL	
	Aluminum	mg/kg	6.0E+03	8.7E+03 (G)	2.3E+04	8.7E+03	mg/kg	95% Approx. Gamma UCL	(a)
	Antimony	mg/kg	2.0E+00	1.9E+00 (N)	3.6E+00	1.9E+00	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	2.4E+01	3.9E+01 (G)	9.2E+01 (J)	3.9E+01	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	4.4E+00	9.9E+00 (G)	1.5E+01	9.9E+00	mg/kg	95% KM (Chebyshev) UCL	
	Chromium	mg/kg	5.1E+01	1.4E+02 (NP)	1.5E+02	1.4E+02	mg/kg	97.5% Chebyshev (Mean, Sd) UCL	
	Cobalt	mg/kg	3.8E+00	5.0E+00 (NP)	1.6E+01 (J)	5.0E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	7.2E+01	2.1E+02 (NP)	2.2E+02	2.1E+02	mg/kg	97.5% Chebyshev (Mean, Sd) UCL	
	Iron	mg/kg	1.6E+04	2.2E+04 (G)	4.6E+04	2.2E+04	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	7.1E+01	2.0E+02 (NP)	2.1E+02	See Appendix Z			
	Manganese	mg/kg	1.8E+02	2.7E+02 (G)	4.8E+02 (J)	2.7E+02	mg/kg	95% Approx. Gamma UCL	
	Mercury	mg/kg	3.4E-01	2.9E-01 (N)	5.8E-01	2.9E-01	mg/kg	95% KM (t) UCL	
	Thallium	mg/kg	3.6E-01	7.1E-01 (LN)	1.3E+00 (J)	7.1E-01	mg/kg	97.5% KM (Chebyshev) UCL	(a)
	Vanadium	mg/kg	1.9E+01	2.1E+01 (N)	4.9E+01 (J)	2.1E+01	mg/kg	95% KM (t) UCL	

TABLE 3.10.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.10.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Adjacent to Landfill	Benzo(a)anthracene	mg/kg	9.7E-01	1.3E+00 (N)	2.1E+00	1.3E+00	mg/kg	95% Student's-t UCL	(a)
	Benzo(a)pyrene	mg/kg	9.5E-01	1.6E+00 (G)	1.9E+00 (J)	1.6E+00	mg/kg	95% Approx. Gamma UCL	
	Benzo(b)fluoranthene	mg/kg	1.1E+00	1.5E+00 (N)	2.4E+00	1.5E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	5.5E-01	7.6E-01 (N)	1.6E+00 (J)	7.6E-01	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	7.3E+00	2.2E+01 (G)	5.8E+01 (J)	2.2E+01	mg/kg	95% KM (Chebyshev) UCL	
	Carbazole	mg/kg	2.0E-01	2.4E-01 (NP)	6.3E-01	2.4E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dibenz(a,h)anthracene	mg/kg	1.4E-01	2.0E-01 (N)	3.4E-01 (J)	2.0E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	1.6E-01	1.7E-01 (NP)	5.0E-01	1.7E-01	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	4.8E-01	6.4E-01 (N)	1.0E+00 (J)	6.4E-01	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	1.2E+00	2.1E+00 (G)	5.3E+00	2.1E+00	mg/kg	95% Approx. Gamma UCL	
	Aroclor-1242	mg/kg	1.3E-01	2.4E-01 (NP)	2.5E-01 (J)	2.4E-01	mg/kg	99% KM (Chebyshev) UCL	
	Aroclor-1254	mg/kg	1.4E-01	3.1E-01 (LN)	5.5E-01	3.1E-01	mg/kg	97.5% KM (Chebyshev) UCL	
	Aroclor-1260	mg/kg	1.3E-01	1.2E-01 (N)	3.1E-01	1.2E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	7.8E-03	1.7E-02 (G)	3.3E-02 (J)	1.7E-02	mg/kg	95% KM (Chebyshev) UCL	
	Aluminum	mg/kg	6.0E+03	8.7E+03 (G)	2.3E+04	8.7E+03	mg/kg	95% Approx. Gamma UCL	(a)
	Antimony	mg/kg	2.0E+00	1.9E+00 (N)	3.6E+00	1.9E+00	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	2.4E+01	3.9E+01 (G)	9.2E+01 (J)	3.9E+01	mg/kg	95% Approx. Gamma UCL	
	Cadmium	mg/kg	4.4E+00	9.9E+00 (G)	1.5E+01	9.9E+00	mg/kg	95% KM (Chebyshev) UCL	
	Chromium	mg/kg	5.1E+01	1.4E+02 (NP)	1.5E+02	1.4E+02	mg/kg	97.5% Chebyshev (Mean, Sd) UCL	
	Cobalt	mg/kg	3.8E+00	5.0E+00 (NP)	1.6E+01 (J)	5.0E+00	mg/kg	95% KM (t) UCL	
	Copper	mg/kg	7.2E+01	2.1E+02 (NP)	2.2E+02	2.1E+02	mg/kg	97.5% Chebyshev (Mean, Sd) UCL	
	Iron	mg/kg	1.6E+04	2.2E+04 (G)	4.6E+04	2.2E+04	mg/kg	95% Approx. Gamma UCL	
	Lead	mg/kg	7.1E+01	2.0E+02 (NP)	2.1E+02	See Appendix Z			
	Manganese	mg/kg	1.8E+02	2.7E+02 (G)	4.8E+02 (J)	2.7E+02	mg/kg	95% Approx. Gamma UCL	
	Mercury	mg/kg	3.4E-01	2.9E-01 (N)	5.8E-01	2.9E-01	mg/kg	95% KM (t) UCL	
	Thallium	mg/kg	3.6E-01	7.1E-01 (LN)	1.3E+00 (J)	7.1E-01	mg/kg	97.5% KM (Chebyshev) UCL	
	Vanadium	mg/kg	1.9E+01	2.1E+01 (N)	4.9E+01 (J)	2.1E+01	mg/kg	95% KM (t) UCL	

TABLE 3.10.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.11.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Downstream of Landfill	Benzo(a)anthracene	mg/kg	1.8E+00	2.6E+00 (N)	4.4E+00	2.6E+00	mg/kg	95% Student's-t UCL	
	Benzo(a)pyrene	mg/kg	1.9E+00	2.8E+00 (N)	4.5E+00	2.8E+00	mg/kg	95% Student's-t UCL	
	Benzo(b)fluoranthene	mg/kg	2.1E+00	2.9E+00 (N)	4.3E+00	2.9E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	1.3E+00	1.9E+00 (N)	3.2E+00	1.9E+00	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.5E+00	2.9E+00 (N)	4.7E+00	2.9E+00	mg/kg	95% KM (t) UCL	
	Carbazole	mg/kg	2.4E-01	3.0E-01 (NP)	4.6E-01	3.0E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dibenz(a,h)anthracene	mg/kg	3.3E-01	5.1E-01 (N)	8.7E-01	5.1E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	7.8E-02	9.2E-02 (NP)	1.0E-01 (J)	9.2E-02	mg/kg	95% KM (% Bootstrap) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	9.9E-01	1.5E+00 (N)	2.5E+00	1.5E+00	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	1.8E+00	2.5E+00 (N)	3.4E+00	2.5E+00	mg/kg	95% Student's-t UCL	
	Aroclor-1242	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	8.7E-01	1.1E+00 (G)	2.8E+00	1.1E+00	mg/kg	95% KM (t) UCL	
	Aroclor-1260	mg/kg	3.0E-01	3.8E-01 (N)	7.6E-01	3.8E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	5.1E-03	6.9E-03 (N)	9.4E-03	6.9E-03	mg/kg	95% KM (t) UCL	
	Aluminum	mg/kg	5.8E+03	8.0E+03 (N)	1.2E+04	8.0E+03	mg/kg	95% Student's-t UCL	
	Antimony	mg/kg	1.2E+00	1.6E+00 (G)	3.4E+00	1.6E+00	mg/kg	95% KM (BCA) UCL	
	Arsenic	mg/kg	7.4E+00	9.5E+00 (N)	1.3E+01	9.5E+00	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	6.0E+00	1.8E+01 (G)	2.3E+01 (J)	1.8E+01	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	8.0E+01	1.3E+02 (N)	1.9E+02 (J)	1.3E+02	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	5.1E+00	6.4E+00 (NP)	8.6E+00	6.4E+00	mg/kg	95% KM (% Bootstrap) UCL	
	Copper	mg/kg	1.0E+02	1.6E+02 (N)	2.7E+02 (J)	1.6E+02	mg/kg	95% Student's-t UCL	
	Iron	mg/kg	1.4E+04	1.9E+04 (N)	3.1E+04	1.9E+04	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	1.1E+02	1.6E+02 (N)	2.3E+02 (J)			See Appendix Z	
	Manganese	mg/kg	2.1E+02	2.7E+02 (N)	3.8E+02 (J)	2.7E+02	mg/kg	95% Student's-t UCL	
	Mercury	mg/kg	3.8E-01	4.9E-01 (N)	8.6E-01	4.9E-01	mg/kg	95% KM (t) UCL	
	Thallium	mg/kg	2.7E-01	4.1E-01 (N)	6.6E-01 (JEB)	4.1E-01	mg/kg	95% KM (t) UCL	
	Vanadium	mg/kg	1.5E+01	1.9E+01 (N)	2.8E+01	1.9E+01	mg/kg	95% KM (t) UCL	

TABLE 3.11.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.11.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Downstream of Landfill	Benzo(a)anthracene	mg/kg	1.8E+00	2.6E+00 (N)	4.4E+00	2.6E+00	mg/kg	95% Student's-t UCL	
	Benzo(a)pyrene	mg/kg	1.9E+00	2.8E+00 (N)	4.5E+00	2.8E+00	mg/kg	95% Student's-t UCL	
	Benzo(b)fluoranthene	mg/kg	2.1E+00	2.9E+00 (N)	4.3E+00	2.9E+00	mg/kg	95% Student's-t UCL	
	Benzo(k)fluoranthene	mg/kg	1.3E+00	1.9E+00 (N)	3.2E+00	1.9E+00	mg/kg	95% Student's-t UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.5E+00	2.9E+00 (N)	4.7E+00	2.9E+00	mg/kg	95% KM (t) UCL	
	Carbazole	mg/kg	2.4E-01	3.0E-01 (NP)	4.6E-01	3.0E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Dibenz(a,h)anthracene	mg/kg	3.3E-01	5.1E-01 (N)	8.7E-01	5.1E-01	mg/kg	95% KM (t) UCL	
	Dibenzofuran	mg/kg	7.8E-02	9.2E-02 (NP)	1.0E-01 (J)	9.2E-02	mg/kg	95% KM (% Bootstrap) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	9.9E-01	1.5E+00 (N)	2.5E+00	1.5E+00	mg/kg	95% Student's-t UCL	
	Phenanthrene	mg/kg	1.8E+00	2.5E+00 (N)	3.4E+00	2.5E+00	mg/kg	95% Student's-t UCL	
	Aroclor-1242	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aroclor-1254	mg/kg	8.7E-01	1.1E+00 (G)	2.8E+00	1.1E+00	mg/kg	95% KM (t) UCL	
	Aroclor-1260	mg/kg	3.0E-01	3.8E-01 (N)	7.6E-01	3.8E-01	mg/kg	95% KM (t) UCL	
	Dieldrin	mg/kg	5.1E-03	6.9E-03 (N)	9.4E-03	6.9E-03	mg/kg	95% KM (t) UCL	
	Aluminum	mg/kg	5.8E+03	8.0E+03 (N)	1.2E+04	8.0E+03	mg/kg	95% Student's-t UCL	
	Antimony	mg/kg	1.2E+00	1.6E+00 (G)	3.4E+00	1.6E+00	mg/kg	95% KM (BCA) UCL	
	Arsenic	mg/kg	7.4E+00	9.5E+00 (N)	1.3E+01	9.5E+00	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	6.0E+00	1.8E+01 (G)	2.3E+01 (J)	1.8E+01	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	8.0E+01	1.3E+02 (N)	1.9E+02 (J)	1.3E+02	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	5.1E+00	6.4E+00 (NP)	8.6E+00	6.4E+00	mg/kg	95% KM (% Bootstrap) UCL	
	Copper	mg/kg	1.0E+02	1.6E+02 (N)	2.7E+02 (J)	1.6E+02	mg/kg	95% Student's-t UCL	
	Iron	mg/kg	1.4E+04	1.9E+04 (N)	3.1E+04	1.9E+04	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	1.1E+02	1.6E+02 (N)	2.3E+02 (J)			See Appendix Z	
	Manganese	mg/kg	2.1E+02	2.7E+02 (N)	3.8E+02 (J)	2.7E+02	mg/kg	95% Student's-t UCL	
	Mercury	mg/kg	3.8E-01	4.9E-01 (N)	8.6E-01	4.9E-01	mg/kg	95% KM (t) UCL	
	Thallium	mg/kg	2.7E-01	4.1E-01 (N)	6.6E-01 (JEB)	4.1E-01	mg/kg	95% KM (t) UCL	
	Vanadium	mg/kg	1.5E+01	1.9E+01 (N)	2.8E+01	1.9E+01	mg/kg	95% KM (t) UCL	

TABLE 3.11.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.12.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Surface Water

Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Southern Bank (Backwater and Pond F)	Benzo(a)anthracene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(a)pyrene	ug/L	NC	NC	1.7E-01	1.7E-01	ug/L	Maximum concentration	(b)
	Benzo(b)fluoranthene	ug/L	1.5E-01	1.5E-01 (NP)	1.6E-01	1.5E-01	ug/L	95% KM (t) UCL	(a)
	Benzo(g,h,i)perylene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chrysene	ug/L	NC	NC	1.4E-01	1.4E-01	ug/L	Maximum concentration	(b)
	Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Naphthalene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	1.3E-01	1.2E-01 (NP)	1.7E-01	1.2E-01	ug/L	95% KM (t) UCL	
	1,4-Dichlorobenzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aroclor-1260	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDD	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDE	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	NC	NC	2.4E-03 (J)	2.4E-03	ug/L	Maximum concentration	(b)
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aluminum	ug/L	2.2E+02	6.5E+02 (LN)	1.0E+03	6.5E+02	ug/L	97.5% KM (Chebyshev) UCL	
	Arsenic	ug/L	1.6E+00	1.7E+00 (G)	2.4E+00	1.7E+00	ug/L	95% Approx. Gamma UCL	
	Cadmium	ug/L	NC	NC	6.7E-01 (J)	6.7E-01	ug/L	Maximum concentration	(b)
	Chromium	ug/L	2.8E+00	3.4E+00 (G)	1.0E+01	3.4E+00	ug/L	95% KM (BCA) UCL	
	Cobalt	ug/L	1.0E+00	8.3E-01 (NP)	1.5E+00 (J)	8.3E-01	ug/L	95% KM (t) UCL	
	Copper	ug/L	ND	ND	ND	ND	ug/L	NA	
	Cyanide	ug/L	NC	NC	4.7E+00 (J)	4.7E+00	ug/L	Maximum concentration	(b)
	Iron	ug/L	1.4E+03	2.0E+03 (G)	4.9E+03	2.0E+03	ug/L	95% Approx. Gamma UCL	
	Lead	ug/L	8.7E+00	6.7E+00 (N)	2.0E+01	6.7E+00	ug/L	95% KM (t) UCL	
	Manganese	ug/L	3.1E+02	4.7E+02 (LN)	1.0E+03	4.7E+02	ug/L	95% H-UCL	
	Mercury	ug/L	ND	ND	ND	ND	ug/L	NA	
	Vanadium	ug/L	1.3E+00	1.4E+00 (G)	3.2E+00	1.4E+00	ug/L	95% KM (t) UCL	

TABLE 3.12.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.12.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Surface Water

Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Southern Bank (Backwater and Pond F)	Benzo(a)anthracene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(a)pyrene	ug/L	NC	NC	1.7E-01	1.7E-01	ug/L	Maximum concentration	(b)
	Benzo(b)fluoranthene	ug/L	1.5E-01	1.5E-01 (NP)	1.6E-01	1.5E-01	ug/L	95% KM (t) UCL	(a)
	Benzo(g,h,i)perylene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chrysene	ug/L	NC	NC	1.4E-01	1.4E-01	ug/L	Maximum concentration	(b)
	Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Naphthalene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	1.3E-01	1.2E-01 (NP)	1.7E-01	1.2E-01	ug/L	95% KM (t) UCL	
	1,4-Dichlorobenzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aroclor-1260	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDD	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDE	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	NC	NC	2.4E-03 (J)	2.4E-03	ug/L	Maximum concentration	(b)
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aluminum	ug/L	2.2E+02	6.5E+02 (LN)	1.0E+03	6.5E+02	ug/L	97.5% KM (Chebyshev) UCL	
	Arsenic	ug/L	1.6E+00	1.7E+00 (G)	2.4E+00	1.7E+00	ug/L	95% Approx. Gamma UCL	
	Cadmium	ug/L	NC	NC	6.7E-01 (J)	6.7E-01	ug/L	Maximum concentration	(b)
	Chromium	ug/L	2.8E+00	3.4E+00 (G)	1.0E+01	3.4E+00	ug/L	95% KM (BCA) UCL	
	Cobalt	ug/L	1.0E+00	8.3E-01 (NP)	1.5E+00 (J)	8.3E-01	ug/L	95% KM (t) UCL	
	Copper	ug/L	ND	ND	ND	ND	ug/L	NA	
	Cyanide	ug/L	NC	NC	4.7E+00 (J)	4.7E+00	ug/L	Maximum concentration	(b)
	Iron	ug/L	1.4E+03	2.0E+03 (G)	4.9E+03	2.0E+03	ug/L	95% Approx. Gamma UCL	
	Lead	ug/L	8.7E+00	6.7E+00 (N)	2.0E+01	6.7E+00	ug/L	95% KM (t) UCL	
	Manganese	ug/L	3.1E+02	4.7E+02 (LN)	1.0E+03	4.7E+02	ug/L	95% H-UCL	
	Mercury	ug/L	ND	ND	ND	ND	ug/L	NA	
	Vanadium	ug/L	1.3E+00	1.4E+00 (G)	3.2E+00	1.4E+00	ug/L	95% KM (t) UCL	

TABLE 3.12.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.13.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Surface Water

Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Upstream of Landfill	Benzo(a)anthracene	ug/L	7.0E-02	NC	1.0E-01	1.0E-01	ug/L	Maximum concentration	(c)
	Benzo(a)pyrene	ug/L	8.0E-02	NC	1.4E-01	1.4E-01	ug/L	Maximum concentration	(c)
	Benzo(b)fluoranthene	ug/L	1.0E-01	NC	2.0E-01	2.0E-01	ug/L	Maximum concentration	(c)
	Benzo(g,h,i)perylene	ug/L	6.7E-02	NC	1.0E-01	1.0E-01	ug/L	Maximum concentration	(c)
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	5.0E+00	NC	1.0E+01	1.0E+01	ug/L	Maximum concentration	(c)
	Chrysene	ug/L	8.0E-02	NC	1.5E-01	1.5E-01	ug/L	Maximum concentration	(c)
	Indeno(1,2,3-cd)pyrene	ug/L	7.0E-02	NC	1.0E-01	1.0E-01	ug/L	Maximum concentration	(c)
	Naphthalene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	9.0E-02	NC	1.7E-01	1.7E-01	ug/L	Maximum concentration	(c)
	1,4-Dichlorobenzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aroclor-1260	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDD	ug/L	4.0E-03	NC	5.8E-03 (J)	5.8E-03	ug/L	Maximum concentration	(c)
	4,4'-DDE	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-Chlordane	ug/L	2.0E-03	NC	4.4E-03 (J)	4.4E-03	ug/L	Maximum concentration	(c)
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	ND	ND	ND	ND	ug/L	NA	
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	1.8E-03	NC	2.9E-03 (J)	2.9E-03	ug/L	Maximum concentration	(c)
	Aluminum	ug/L	7.3E+02	NC	2.1E+03	2.1E+03	ug/L	Maximum concentration	(c)
	Arsenic	ug/L	3.4E+00	NC	4.6E+00	4.6E+00	ug/L	Maximum concentration	(c)
	Cadmium	ug/L	3.6E-01	NC	4.7E-01 (J)	4.7E-01	ug/L	Maximum concentration	(c)
	Chromium	ug/L	3.3E+00	NC	8.5E+00	8.5E+00	ug/L	Maximum concentration	(c)
	Cobalt	ug/L	6.7E-01	NC	6.6E-01 (J)	6.6E-01	ug/L	Maximum concentration	(c)
	Copper	ug/L	ND	ND	ND	ND	ug/L	NA	
	Cyanide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Iron	ug/L	1.5E+03	NC	3.7E+03 (J)	3.7E+03	ug/L	Maximum concentration	(c)
	Lead	ug/L	4.2E+00	NC	8.6E+00	8.6E+00	ug/L	Maximum concentration	(c)
	Manganese	ug/L	1.7E+02	NC	3.0E+02 (J)	3.0E+02	ug/L	Maximum concentration	(c)
	Mercury	ug/L	ND	ND	ND	ND	ug/L	NA	
	Vanadium	ug/L	1.9E+00	NC	4.2E+00	4.2E+00	ug/L	Maximum concentration	(c)

TABLE 3.13.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were not performed due to the small sample size.
NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) Due to the small sample size, maximum concentrations were used as EPCs.
- (5)
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

NC = Not calculated

TABLE 3.13.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Upstream of Landfill	Benzo(a)anthracene	ug/L	7.0E-02	NC	1.0E-01	7.0E-02	ug/L	Arithmetic mean	(e)
	Benzo(a)pyrene	ug/L	8.0E-02	NC	1.4E-01	8.0E-02	ug/L	Arithmetic mean	(e)
	Benzo(b)fluoranthene	ug/L	1.0E-01	NC	2.0E-01	1.0E-01	ug/L	Arithmetic mean	(e)
	Benzo(g,h,i)perylene	ug/L	6.7E-02	NC	1.0E-01	6.7E-02	ug/L	Arithmetic mean	(e)
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	5.0E+00	NC	1.0E+01	5.0E+00	ug/L	Arithmetic mean	(e)
	Chrysene	ug/L	8.0E-02	NC	1.5E-01	8.0E-02	ug/L	Arithmetic mean	(e)
	Indeno(1,2,3-cd)pyrene	ug/L	7.0E-02	NC	1.0E-01	7.0E-02	ug/L	Arithmetic mean	(e)
	Naphthalene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	9.0E-02	NC	1.7E-01	9.0E-02	ug/L	Arithmetic mean	(e)
	1,4-Dichlorobenzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aroclor-1260	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDD	ug/L	4.0E-03	NC	5.8E-03 (J)	4.0E-03	ug/L	Arithmetic mean	(e)
	4,4'-DDE	ug/L	ND	ND	ND	ND	ug/L	NA	
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-Chlordane	ug/L	2.0E-03	NC	4.4E-03 (J)	2.0E-03	ug/L	Arithmetic mean	(e)
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	ND	ND	ND	ND	ug/L	NA	
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	1.8E-03	NC	2.9E-03 (J)	1.8E-03	ug/L	Arithmetic mean	(e)
	Aluminum	ug/L	7.3E+02	NC	2.1E+03	7.3E+02	ug/L	Arithmetic mean	(e)
	Arsenic	ug/L	3.4E+00	NC	4.6E+00	3.4E+00	ug/L	Arithmetic mean	(e)
	Cadmium	ug/L	3.6E-01	NC	4.7E-01 (J)	3.6E-01	ug/L	Arithmetic mean	(e)
	Chromium	ug/L	3.3E+00	NC	8.5E+00	3.3E+00	ug/L	Arithmetic mean	(e)
	Cobalt	ug/L	6.7E-01	NC	6.6E-01 (J)	6.6E-01	ug/L	Maximum Concentration	(f)
	Copper	ug/L	ND	ND	ND	ND	ug/L	NA	
	Cyanide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Iron	ug/L	1.5E+03	NC	3.7E+03 (J)	1.5E+03	ug/L	Arithmetic mean	(e)
	Lead	ug/L	4.2E+00	NC	8.6E+00	4.2E+00	ug/L	Arithmetic mean	(e)
	Manganese	ug/L	1.7E+02	NC	3.0E+02 (J)	1.7E+02	ug/L	Arithmetic mean	(e)
	Mercury	ug/L	ND	ND	ND	ND	ug/L	NA	
	Vanadium	ug/L	1.9E+00	NC	4.2E+00	1.9E+00	ug/L	Arithmetic mean	(e)

TABLE 3.13.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were not performed due to the small sample size.
NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) Due to the small sample size, arithmetic means were used as EPCs.
- (5)
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

NC = Not calculated

TABLE 3.14.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Surface Water

Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Adjacent to Landfill	Benzo(a)anthracene	ug/L	NC	NC	2.0E-01	2.0E-01	ug/L	Maximum concentration	(b)
	Benzo(a)pyrene	ug/L	NC	NC	3.4E-01 (J)	3.4E-01	ug/L	Maximum concentration	(b)
	Benzo(b)fluoranthene	ug/L	NC	NC	3.6E-01	3.6E-01	ug/L	Maximum concentration	(b)
	Benzo(g,h,i)perylene	ug/L	7.0E-02	NC	2.3E-01	2.3E-01	ug/L	Maximum concentration	(c)
	Benzo(k)fluoranthene	ug/L	NC	NC	2.6E-01	2.6E-01	ug/L	Maximum concentration	(b)
	bis(2-Ethylhexyl)phthalate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chrysene	ug/L	NC	NC	3.0E-01	3.0E-01	ug/L	Maximum concentration	(b)
	Indeno(1,2,3-cd)pyrene	ug/L	NC	NC	1.9E-01	1.9E-01	ug/L	Maximum concentration	(b)
	Naphthalene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	6.7E-02	NC	2.0E-01	2.0E-01	ug/L	Maximum concentration	(c)
	1,4-Dichlorobenzene	ug/L	2.8E-01	NC	5.4E-01	5.4E-01	ug/L	Maximum concentration	(c)
	Benzene	ug/L	5.7E-01	NC	8.0E-01	8.0E-01	ug/L	Maximum concentration	(c)
	Aroclor-1260	ug/L	NC	NC	3.0E-01 (J)	3.0E-01	ug/L	Maximum concentration	(b)
	4,4'-DDD	ug/L	1.5E-02	NC	2.5E-02 (J)	2.5E-02	ug/L	Maximum concentration	(c)
	4,4'-DDE	ug/L	NC	NC	1.5E-02 (J)	1.5E-02	ug/L	Maximum concentration	(b)
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	NC	NC	1.4E-02 (J)	1.4E-02	ug/L	Maximum concentration	(b)
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	NC	NC	3.7E-03 (J)	3.7E-03	ug/L	Maximum concentration	(b)
	Aluminum	ug/L	2.7E+03	1.7E+04 (NP)	2.1E+04	1.7E+04	ug/L	97.5% KM (Chebyshev) UCL	
	Arsenic	ug/L	3.6E+00	1.1E+01 (NP)	1.8E+01	1.1E+01	ug/L	95% Chebyshev (Mean, Sd) UCL	
	Cadmium	ug/L	2.7E+00	1.6E+01 (NP)	2.0E+01	1.6E+01	ug/L	97.5% KM (Chebyshev) UCL	(b)
	Chromium	ug/L	4.4E+01	2.2E+02 (NP)	2.6E+02	2.2E+02	ug/L	97.5% KM (Chebyshev) UCL	
	Cobalt	ug/L	2.8E+00	9.2E+00 (NP)	9.2E+00 (J)	9.2E+00	ug/L	95% KM (BCA) UCL	
	Copper	ug/L	NC	NC	4.3E+02	4.3E+02	ug/L	Maximum concentration	(b)
	Cyanide	ug/L	NC	NC	1.1E+01 (J)	1.1E+01	ug/L	Maximum concentration	(b)
	Iron	ug/L	9.7E+03	4.5E+04 (NP)	5.5E+04 (J)	4.5E+04	ug/L	97.5% KM (Chebyshev) UCL	
	Lead	ug/L	5.7E+01	2.7E+02 (NP)	3.3E+02	2.7E+02	ug/L	97.5% KM (Chebyshev) UCL	
	Manganese	ug/L	2.2E+02	7.5E+02 (NP)	1.2E+03 (J)	7.5E+02	ug/L	95% Chebyshev (Mean, Sd) UCL	
	Mercury	ug/L	3.9E-01	3.7E-01 (NP)	4.6E-01 (J)	3.7E-01	ug/L	95% KM (t) UCL	
	Vanadium	ug/L	8.3E+00	4.9E+01 (NP)	6.0E+01	4.9E+01	ug/L	97.5% KM (Chebyshev) UCL	

TABLE 3.14.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: 1,4-dichlorobenzene, benzo(g,h,i)perylene, and phenanthrene, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.14.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Adjacent to Landfill	Benzo(a)anthracene	ug/L	NC	NC	2.0E-01	2.0E-01	ug/L	Maximum concentration	(b)
	Benzo(a)pyrene	ug/L	NC	NC	3.4E-01 (J)	3.4E-01	ug/L	Maximum concentration	(b)
	Benzo(b)fluoranthene	ug/L	NC	NC	3.6E-01	3.6E-01	ug/L	Maximum concentration	(b)
	Benzo(g,h,i)perylene	ug/L	7.0E-02	NC	2.3E-01	7.0E-02	ug/L	Arithmetic Mean	(e)
	Benzo(k)fluoranthene	ug/L	NC	NC	2.6E-01	2.6E-01	ug/L	Maximum concentration	(b)
	bis(2-Ethylhexyl)phthalate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chrysene	ug/L	NC	NC	3.0E-01	3.0E-01	ug/L	Maximum concentration	(b)
	Indeno(1,2,3-cd)pyrene	ug/L	NC	NC	1.9E-01	1.9E-01	ug/L	Maximum concentration	(b)
	Naphthalene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Phenanthrene	ug/L	6.7E-02	NC	2.0E-01	6.7E-02	ug/L	Arithmetic Mean	(e)
	1,4-Dichlorobenzene	ug/L	2.8E-01	NC	5.4E-01	2.8E-01	ug/L	Arithmetic Mean	(e)
	Benzene	ug/L	5.7E-01	NC	8.0E-01	5.7E-01	ug/L	Arithmetic Mean	(e)
	Aroclor-1260	ug/L	NC	NC	3.0E-01 (J)	3.0E-01	ug/L	Maximum concentration	(b)
	4,4'-DDD	ug/L	1.5E-02	NC	2.5E-02 (J)	1.5E-02	ug/L	Arithmetic Mean	(e)
	4,4'-DDE	ug/L	NC	NC	1.5E-02 (J)	1.5E-02	ug/L	Maximum concentration	(b)
	4,4'-DDT	ug/L	ND	ND	ND	ND	ug/L	NA	
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	NC	NC	1.4E-02 (J)	1.4E-02	ug/L	Maximum concentration	(b)
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	NC	NC	3.7E-03 (J)	3.7E-03	ug/L	Maximum concentration	(b)
	Aluminum	ug/L	2.7E+03	1.7E+04 (NP)	2.1E+04	1.7E+04	ug/L	97.5% KM (Chebyshev) UCL	
	Arsenic	ug/L	3.6E+00	1.1E+01 (NP)	1.8E+01	1.1E+01	ug/L	95% Chebyshev (Mean, Sd) UCL	
	Cadmium	ug/L	2.7E+00	1.6E+01 (NP)	2.0E+01	1.6E+01	ug/L	97.5% KM (Chebyshev) UCL	(b)
	Chromium	ug/L	4.4E+01	2.2E+02 (NP)	2.6E+02	2.2E+02	ug/L	97.5% KM (Chebyshev) UCL	
	Cobalt	ug/L	2.8E+00	9.2E+00 (NP)	9.2E+00 (J)	9.2E+00	ug/L	95% KM (BCA) UCL	
	Copper	ug/L	NC	NC	4.3E+02	4.3E+02	ug/L	Maximum concentration	(b)
	Cyanide	ug/L	NC	NC	1.1E+01 (J)	1.1E+01	ug/L	Maximum concentration	(b)
	Iron	ug/L	9.7E+03	4.5E+04 (NP)	5.5E+04 (J)	4.5E+04	ug/L	97.5% KM (Chebyshev) UCL	
	Lead	ug/L	5.7E+01	2.7E+02 (NP)	3.3E+02	2.7E+02	ug/L	97.5% KM (Chebyshev) UCL	
	Manganese	ug/L	2.2E+02	7.5E+02 (NP)	1.2E+03 (J)	7.5E+02	ug/L	95% Chebyshev (Mean, Sd) UCL	
	Mercury	ug/L	3.9E-01	3.7E-01 (NP)	4.6E-01 (J)	3.7E-01	ug/L	95% KM (t) UCL	
	Vanadium	ug/L	8.3E+00	4.9E+01 (NP)	6.0E+01	4.9E+01	ug/L	97.5% KM (Chebyshev) UCL	

TABLE 3.14.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: 1,4-dichlorobenzene, benzo(g,h,i)perylene, and phenanthrene, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.15.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Surface Water

Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Downstream of Landfill	Benzo(a)anthracene	ug/L	NC	NC	1.2E-01	1.2E-01	ug/L	Maximum concentration	(b)
	Benzo(a)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(b)fluoranthene	ug/L	1.5E-01	1.5E-01 (NP)	1.8E-01	1.5E-01	ug/L	95% KM (t) UCL	
	Benzo(g,h,i)perylene	ug/L	5.0E-02	NC	1.0E-01	1.0E-01	ug/L	Maximum concentration	(c)
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chrysene	ug/L	1.1E-01	1.1E-01 (NP)	1.5E-01	1.1E-01	ug/L	95% KM (t) UCL	(d)
	Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Naphthalene	ug/L	5.0E-02	1.4E-01 (NP)	1.4E-01	1.4E-01	ug/L	Maximum concentration	
	Phenanthrene	ug/L	9.0E-02	9.8E-02 (NP)	1.4E-01	9.8E-02	ug/L	95% KM (t) UCL	(b)
	1,4-Dichlorobenzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzene	ug/L	NC	NC	2.4E+00	2.4E+00	ug/L	Maximum concentration	
	Aroclor-1260	ug/L	NC	NC	1.2E-01 (J)	1.2E-01	ug/L	Maximum concentration	(b)
	4,4'-DDD	ug/L	NC	NC	5.2E-03 (J)	5.2E-03	ug/L	Maximum concentration	(b)
	4,4'-DDE	ug/L	NC	NC	1.4E-03	1.4E-03	ug/L	Maximum concentration	(b)
	4,4'-DDT	ug/L	NC	NC	1.7E-03	1.7E-03	ug/L	Maximum concentration	(b)
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	(b)
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	4.9E-03	4.0E-03 (NP)	1.2E-02 (J)	4.0E-03	ug/L	95% KM (BCA) UCL	
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	(b)
	Heptachlor Epoxide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aluminum	ug/L	2.2E+02	2.8E+02 (N)	3.5E+02	2.8E+02	ug/L	95% KM (t) UCL	
	Arsenic	ug/L	2.4E+00	3.0E+00 (NP)	4.1E+00	3.0E+00	ug/L	95% Student's-t UCL	(b)
	Cadmium	ug/L	4.6E-01	5.6E-01 (G)	7.4E-01	5.6E-01	ug/L	95% KM (BCA) UCL	
	Chromium	ug/L	2.7E+00	3.3E+00 (N)	5.0E+00	3.3E+00	ug/L	95% KM (t) UCL	
	Cobalt	ug/L	7.7E-01	8.1E-01 (NP)	1.4E+00 (J)	8.1E-01	ug/L	95% KM (t) UCL	(b)
	Copper	ug/L	8.7E+00	9.3E+00 (NP)	9.6E+00	9.3E+00	ug/L	95% KM (t) UCL	
	Cyanide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Iron	ug/L	3.0E+03	7.5E+03 (NP)	8.6E+03 (J)	7.5E+03	ug/L	95% KM (Chebyshev) UCL	(b)
	Lead	ug/L	5.6E+00	6.8E+00 (N)	8.5E+00 (J)	6.8E+00	ug/L	95% KM (t) UCL	
	Manganese	ug/L	1.5E+02	3.2E+02 (NP)	4.2E+02 (J)	3.2E+02	ug/L	95% Chebyshev (Mean, Sd) UCL	
	Mercury	ug/L	1.5E-02	1.7E-02 (NP)	1.6E-02	1.6E-02	ug/L	95% KM (t) UCL	(b)
	Vanadium	ug/L	1.3E+00	1.9E+00 (N)	2.7E+00 (J)	1.9E+00	ug/L	95% KM (t) UCL	

TABLE 3.15.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: benzo(g,h,i)perylene and naphthalene, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.15.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Downstream of Landfill	Benzo(a)anthracene	ug/L	NC	NC	1.2E-01	1.2E-01	ug/L	Maximum concentration	(b)
	Benzo(a)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzo(b)fluoranthene	ug/L	1.5E-01	1.5E-01 (NP)	1.8E-01	1.5E-01	ug/L	95% KM (t) UCL	
	Benzo(g,h,i)perylene	ug/L	5.0E-02	NC	1.0E-01	5.0E-02	ug/L	Arithmetic Mean	(e)
	Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ug/L	NA	
	bis(2-Ethylhexyl)phthalate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chrysene	ug/L	1.1E-01	1.1E-01 (NP)	1.5E-01	1.1E-01	ug/L	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Naphthalene	ug/L	5.0E-02	1.4E-01 (NP)	1.4E-01	5.0E-02	ug/L	Arithmetic Mean	(e)
	Phenanthrene	ug/L	9.0E-02	9.8E-02 (NP)	1.4E-01	9.8E-02	ug/L	95% KM (t) UCL	
	1,4-Dichlorobenzene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Benzene	ug/L	NC	NC	2.4E+00	2.4E+00	ug/L	Maximum concentration	(b)
	Aroclor-1260	ug/L	NC	NC	1.2E-01 (J)	1.2E-01	ug/L	Maximum concentration	(b)
	4,4'-DDD	ug/L	NC	NC	5.2E-03 (J)	5.2E-03	ug/L	Maximum concentration	(b)
	4,4'-DDE	ug/L	NC	NC	1.4E-03	1.4E-03	ug/L	Maximum concentration	(b)
	4,4'-DDT	ug/L	NC	NC	1.7E-03	1.7E-03	ug/L	Maximum concentration	(b)
	alpha-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	beta-BHC	ug/L	ND	ND	ND	ND	ug/L	NA	
	Dieldrin	ug/L	4.9E-03	4.0E-03 (NP)	1.2E-02 (J)	4.0E-03	ug/L	95% KM (BCA) UCL	
	Gamma-Chlordane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Heptachlor Epoxide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Aluminum	ug/L	2.2E+02	2.8E+02 (N)	3.5E+02	2.8E+02	ug/L	95% KM (t) UCL	
	Arsenic	ug/L	2.4E+00	3.0E+00 (NP)	4.1E+00	3.0E+00	ug/L	95% Student's-t UCL	
	Cadmium	ug/L	4.6E-01	5.6E-01 (G)	7.4E-01	5.6E-01	ug/L	95% KM (BCA) UCL	
	Chromium	ug/L	2.7E+00	3.3E+00 (N)	5.0E+00	3.3E+00	ug/L	95% KM (t) UCL	
	Cobalt	ug/L	7.7E-01	8.1E-01 (NP)	1.4E+00 (J)	8.1E-01	ug/L	95% KM (t) UCL	
	Copper	ug/L	8.7E+00	9.3E+00 (NP)	9.6E+00	9.3E+00	ug/L	95% KM (t) UCL	
	Cyanide	ug/L	ND	ND	ND	ND	ug/L	NA	
	Iron	ug/L	3.0E+03	7.5E+03 (NP)	8.6E+03 (J)	7.5E+03	ug/L	95% KM (Chebyshev) UCL	
	Lead	ug/L	5.6E+00	6.8E+00 (N)	8.5E+00 (J)	6.8E+00	ug/L	95% KM (t) UCL	
	Manganese	ug/L	1.5E+02	3.2E+02 (NP)	4.2E+02 (J)	3.2E+02	ug/L	95% Chebyshev (Mean, Sd) UCL	
	Mercury	ug/L	1.5E-02	1.7E-02 (NP)	1.6E-02	1.6E-02	ug/L	95% KM (t) UCL	
	Vanadium	ug/L	1.3E+00	1.9E+00 (N)	2.7E+00 (J)	1.9E+00	ug/L	95% KM (t) UCL	

TABLE 3.15.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: benzo(g,h,i)perylene and naphthalene, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.16.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Wetlands	Benzo(a)pyrene	mg/kg	1.1E-01	NC	1.4E-01 (J)	1.4E-01	mg/kg	Maximum concentration	(c)
	Benzo(b)fluoranthene	mg/kg	1.1E-01	1.6E-01 (N)	1.8E-01 (J)	1.6E-01	mg/kg	95% Student's-t UCL	
	Arsenic	mg/kg	4.0E+00	NC	7.2E+00	7.2E+00	mg/kg	Maximum concentration	(c)
	Iron	mg/kg	8.0E+03	NC	9.5E+03	9.5E+03	mg/kg	Maximum concentration	(c)
	Thallium	mg/kg	6.5E-01	NC	9.8E-01 (J)	9.8E-01	mg/kg	Maximum concentration	(c)

Notes:

- (1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect
NC = Not calculated

TABLE 3.16.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Wetlands	Benzo(a)pyrene	mg/kg	1.1E-01	NC	1.4E-01 (J)	1.1E-01	mg/kg	Arithmetic mean	(e)
	Benzo(b)fluoranthene	mg/kg	1.1E-01	1.6E-01 (N)	1.8E-01 (J)	1.6E-01	mg/kg	95% Student's-t UCL	
	Arsenic	mg/kg	4.0E+00	NC	7.2E+00	4.0E+00	mg/kg	Arithmetic mean	(e)
	Iron	mg/kg	8.0E+03	NC	9.5E+03	8.0E+03	mg/kg	Arithmetic mean	(e)
	Thallium	mg/kg	6.5E-01	NC	9.8E-01 (J)	6.5E-01	mg/kg	Arithmetic mean	(e)

Notes:

- (1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect
NC = Not calculated

TABLE 3.17.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Wetlands	Benzo(a)anthracene	mg/kg	3.9E-01	1.1E+00 (LN)	1.8E+00	1.1E+00	mg/kg	95% Chebyshev (MVUE) UCL	(a)
	Benzo(a)pyrene	mg/kg	5.4E-01	1.5E+00 (LN)	3.1E+00	1.5E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Benzo(b)fluoranthene	mg/kg	6.3E-01	1.7E+00 (LN)	2.8E+00 (J)	1.7E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Benzo(k)fluoranthene	mg/kg	3.9E-01	1.2E+00 (LN)	1.9E+00	1.2E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Carbazole	mg/kg	1.7E-01	1.7E-01 (NP)	4.6E-01 (J)	1.7E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	7.7E-02	2.5E-01 (NP)	6.3E-01	2.5E-01	mg/kg	97.5% KM (Chebyshev) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	3.0E-01	1.0E+00 (LN)	2.5E+00	1.0E+00	mg/kg	97.5% KM (Chebyshev) UCL	
	Aroclor-1260	mg/kg	5.9E-02	7.5E-02 (LN)	3.6E-01 (J)	7.5E-02	mg/kg	95% KM (BCA) UCL	
	Aluminum	mg/kg	1.3E+04	1.7E+04 (G)	3.7E+04	1.7E+04	mg/kg	95% Approx. Gamma UCL	
	Antimony	mg/kg	1.8E+00	1.1E+00 (N)	4.2E+00	1.1E+00	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	5.7E+00	7.6E+00 (G)	1.9E+01	7.6E+00	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	4.0E+01	5.5E+01 (G)	1.3E+02 (J)	5.5E+01	mg/kg	95% Approx. Gamma UCL	
	Cobalt	mg/kg	1.3E+01	1.3E+01 (NP)	3.3E+01	1.3E+01	mg/kg	95% KM (% Bootstrap) UCL	
	Iron	mg/kg	2.0E+04	2.7E+04 (LN)	5.7E+04	2.7E+04	mg/kg	95% H-UCL	
	Lead	mg/kg	6.9E+01	9.6E+01 (G)	3.6E+02 (J)	See Appendix Z			
Manganese	mg/kg	4.5E+02	6.3E+02 (G)	1.9E+03	6.3E+02	mg/kg	95% Approx. Gamma UCL		
Thallium	mg/kg	3.2E-01	3.7E-01 (NP)	5.2E-01	3.7E-01	mg/kg	95% KM (t) UCL		
Vanadium	mg/kg	3.3E+01	4.0E+01 (G)	8.7E+01	4.0E+01	mg/kg	95% KM (BCA) UCL		

TABLE 3.17.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.17.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Wetlands	Benzo(a)anthracene	mg/kg	3.9E-01	1.1E+00 (LN)	1.8E+00	1.1E+00	mg/kg	95% Chebyshev (MVUE) UCL	(a)
	Benzo(a)pyrene	mg/kg	5.4E-01	1.5E+00 (LN)	3.1E+00	1.5E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Benzo(b)fluoranthene	mg/kg	6.3E-01	1.7E+00 (LN)	2.8E+00 (J)	1.7E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Benzo(k)fluoranthene	mg/kg	3.9E-01	1.2E+00 (LN)	1.9E+00	1.2E+00	mg/kg	95% Chebyshev (MVUE) UCL	
	Carbazole	mg/kg	1.7E-01	1.7E-01 (NP)	4.6E-01 (J)	1.7E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	7.7E-02	2.5E-01 (NP)	6.3E-01	2.5E-01	mg/kg	97.5% KM (Chebyshev) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	3.0E-01	1.0E+00 (LN)	2.5E+00	1.0E+00	mg/kg	97.5% KM (Chebyshev) UCL	
	Aroclor-1260	mg/kg	5.9E-02	7.5E-02 (LN)	3.6E-01 (J)	7.5E-02	mg/kg	95% KM (BCA) UCL	
	Aluminum	mg/kg	1.3E+04	1.7E+04 (G)	3.7E+04	1.7E+04	mg/kg	95% Approx. Gamma UCL	
	Antimony	mg/kg	1.8E+00	1.1E+00 (N)	4.2E+00	1.1E+00	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	5.7E+00	7.6E+00 (G)	1.9E+01	7.6E+00	mg/kg	95% Approx. Gamma UCL	
	Chromium	mg/kg	4.0E+01	5.5E+01 (G)	1.3E+02 (J)	5.5E+01	mg/kg	95% Approx. Gamma UCL	
	Cobalt	mg/kg	1.3E+01	1.3E+01 (NP)	3.3E+01	1.3E+01	mg/kg	95% KM (% Bootstrap) UCL	
	Iron	mg/kg	2.0E+04	2.7E+04 (LN)	5.7E+04	2.7E+04	mg/kg	95% H-UCL	
	Lead	mg/kg	6.9E+01	9.6E+01 (G)	3.6E+02 (J)	See Appendix Z			
Manganese	mg/kg	4.5E+02	6.3E+02 (G)	1.9E+03	6.3E+02	mg/kg	95% Approx. Gamma UCL		
Thallium	mg/kg	3.2E-01	3.7E-01 (NP)	5.2E-01	3.7E-01	mg/kg	95% KM (t) UCL		
Vanadium	mg/kg	3.3E+01	4.0E+01 (G)	8.7E+01	4.0E+01	mg/kg	95% KM (BCA) UCL		

TABLE 3.17.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.18.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Wetlands	Benzo(b)fluoranthene	ug/L	NC	NC	1.0E-01	1.0E-01	ug/L	Maximum concentration	(b)
	bis(2-Ethylhexyl)phthalate	ug/L	2.5E+00	NC	1.9E+00 (J)	1.9E+00	ug/L	Maximum concentration	(c)
	Chrysene	ug/L	5.4E-02	NC	1.1E-01	1.1E-01	ug/L	Maximum concentration	(c)
	beta-BHC	ug/L	6.0E-03	4.9E-03 (NP)	1.0E-02 (J)	4.9E-03	ug/L	95% KM (t) UCL	
	Arsenic	ug/L	1.2E+00	1.6E+00 (G)	3.4E+00	1.6E+00	ug/L	95% Approx. Gamma UCL	
	Cobalt	ug/L	2.4E+00	2.0E+00 (NP)	6.7E+00 (J)	2.0E+00	ug/L	95% KM (t) UCL	
	Cyanide	ug/L	6.4E+01	9.2E+01 (LN)	1.8E+02	9.2E+01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Iron	ug/L	1.5E+03	1.6E+03 (N)	3.7E+03 (J)	1.6E+03	ug/L	95% KM (t) UCL	
	Manganese	ug/L	1.5E+02	3.2E+02 (LN)	7.0E+02 (J)	3.2E+02	ug/L	95% Chebyshev (MVUE) UCL	

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: bis(2-ethylhexyl)phthalate and chrysene, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.18.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Wetlands	Benzo(b)fluoranthene	ug/L	NC	NC	1.0E-01	1.0E-01	ug/L	Maximum concentration	(b)
	bis(2-Ethylhexyl)phthalate	ug/L	2.5E+00	NC	1.9E+00 (J)	1.9E+00	ug/L	Maximum concentration	(f)
	Chrysene	ug/L	5.4E-02	NC	1.1E-01	5.4E-02	ug/L	Arithmetic Mean	(e)
	beta-BHC	ug/L	6.0E-03	4.9E-03 (NP)	1.0E-02 (J)	4.9E-03	ug/L	95% KM (t) UCL	
	Arsenic	ug/L	1.2E+00	1.6E+00 (G)	3.4E+00	1.6E+00	ug/L	95% Approx. Gamma UCL	
	Cobalt	ug/L	2.4E+00	2.0E+00 (NP)	6.7E+00 (J)	2.0E+00	ug/L	95% KM (t) UCL	
	Cyanide	ug/L	6.4E+01	9.2E+01 (LN)	1.8E+02	9.2E+01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Iron	ug/L	1.5E+03	1.6E+03 (N)	3.7E+03 (J)	1.6E+03	ug/L	95% KM (t) UCL	
	Manganese	ug/L	1.5E+02	3.2E+02 (LN)	7.0E+02 (J)	3.2E+02	ug/L	95% Chebyshev (MVUE) UCL	

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: bis(2-ethylhexyl)phthalate and chrysene, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.19.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
OU2	4-Chloro-3-methylphenol	mg/kg	1.5E-01	NC	2.3E-01 (J)	2.3E-01	mg/kg	Maximum Concentration	(c)
	4-Nitrophenol	mg/kg	6.1E-01	NC	1.0E+00 (J)	1.0E+00	mg/kg	Maximum Concentration	(c)
	Benzaldehyde	mg/kg	3.3E-01	2.9E-01 (NP)	4.9E-01 (J)	2.9E-01	mg/kg	95% KM (t) UCL	
	Benzo(a)anthracene	mg/kg	1.0E-02	8.6E-03 (N)	1.3E-02	8.6E-03	mg/kg	95% KM (t) UCL	
	Benzo(a)pyrene	mg/kg	1.1E-02	9.0E-03 (N)	1.3E-02	9.0E-03	mg/kg	95% KM (t) UCL	
	Benzo(b)fluoranthene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	bis(2-Ethylhexyl)phthalate	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Dibenz(a,h)anthracene	mg/kg	1.3E-02	9.4E-03 (N)	1.8E-02	9.4E-03	mg/kg	95% KM (t) UCL	
	Hexachlorobenzene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.3E-02	1.0E-02 (N)	1.6E-02	1.0E-02	mg/kg	95% KM (t) UCL	
	Isophorone	mg/kg	3.7E-01	2.9E-01 (NP)	7.1E-01 (J)	2.9E-01	mg/kg	95% KM (t) UCL	
	Total PCB Homologs	mg/kg	5.1E-01	6.0E-01 (G)	2.0E+00	6.0E-01	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDD	mg/kg	7.0E-03	1.1E-02 (G)	2.7E-02	1.1E-02	mg/kg	95% KM (Chebyshev) UCL	
	4,4'-DDE	mg/kg	1.5E-02	1.8E-02 (G)	6.8E-02	1.8E-02	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDT	mg/kg	3.8E-03	1.9E-03 (N)	9.8E-03	1.9E-03	mg/kg	95% KM (t) UCL	
	Aldrin	mg/kg	1.7E-04	NC	9.3E-04 (J)	9.3E-04	mg/kg	Maximum Concentration	(c)
	alpha-Chlordane	mg/kg	4.4E-03	6.9E-03 (G)	1.8E-02	6.9E-03	mg/kg	95% KM (Chebyshev) UCL	
	Dieldrin	mg/kg	1.1E-02	1.4E-02 (LN)	4.3E-02	1.4E-02	mg/kg	95% H-UCL	
	Endosulfan I	mg/kg	1.8E-03	1.1E-03 (NP)	4.4E-03 (J)	1.1E-03	mg/kg	95% KM (BCA) UCL	
	Endosulfan II	mg/kg	3.7E-04	3.4E-04 (NP)	4.0E-04 (J)	3.4E-04	mg/kg	95% KM (t) UCL	
	Endosulfan Sulfate	mg/kg	3.8E-03	4.6E-03 (G)	1.2E-02 (J)	4.6E-03	mg/kg	95% Approximate Gamma UCL	
	Gamma-Chlordane	mg/kg	3.7E-03	3.8E-03 (G)	1.1E-02	3.8E-03	mg/kg	95% KM (BCA) UCL	
	Heptachlor	mg/kg	2.0E-04	NC	2.4E-03	2.4E-03	mg/kg	Maximum Concentration	(c)
	Heptachlor Epoxide	mg/kg	5.7E-04	4.0E-04 (N)	8.1E-04	4.0E-04	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	4.3E-02	4.0E-02 (G)	1.0E-01	4.0E-02	mg/kg	95% KM (BCA) UCL	
	Cadmium	mg/kg	2.4E-02	2.0E-02 (NP)	2.1E-01	2.0E-02	mg/kg	95% KM (t) UCL	
	Chromium	mg/kg	2.2E+00	2.8E+00 (G)	1.0E+01	2.8E+00	mg/kg	95% Approximate Gamma UCL	
	Cobalt	mg/kg	2.2E-02	3.0E-02 (NP)	8.4E-02	3.0E-02	mg/kg	95% KM (Chebyshev) UCL	
	Iron	mg/kg	2.3E+01	4.2E+01 (NP)	2.1E+02	4.2E+01	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Lead	mg/kg	8.4E-02	3.0E-02 (N)	2.0E-01	3.0E-02	mg/kg	95% KM (t) UCL	
	Mercury	mg/kg	9.3E-02	1.0E-01 (N)	1.9E-01	1.0E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	1.1E+00	1.4E+00 (G)	5.4E+00	1.4E+00	mg/kg	95% Approximate Gamma UCL	
	Selenium	mg/kg	4.4E-01	5.0E-01 (N)	6.7E-01	5.0E-01	mg/kg	95% Student's-t UCL	

TABLE 3.19.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: 4-chloro-3-methylphenol, 4-nitrophenol, aldrin, and heptachlor, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.19.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
OU2	4-Chloro-3-methylphenol	mg/kg	1.5E-01	NC	2.3E-01 (J)	1.5E-01	mg/kg	Arithmetic mean	(e)
	4-Nitrophenol	mg/kg	6.1E-01	NC	1.0E+00 (J)	6.1E-01	mg/kg	Arithmetic mean	(e)
	Benzaldehyde	mg/kg	3.3E-01	2.9E-01 (NP)	4.9E-01 (J)	2.9E-01	mg/kg	95% KM (t) UCL	
	Benzo(a)anthracene	mg/kg	1.0E-02	8.6E-03 (N)	1.3E-02	8.6E-03	mg/kg	95% KM (t) UCL	
	Benzo(a)pyrene	mg/kg	1.1E-02	9.0E-03 (N)	1.3E-02	9.0E-03	mg/kg	95% KM (t) UCL	
	Benzo(b)fluoranthene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	bis(2-Ethylhexyl)phthalate	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Dibenz(a,h)anthracene	mg/kg	1.3E-02	9.4E-03 (N)	1.8E-02	9.4E-03	mg/kg	95% KM (t) UCL	
	Hexachlorobenzene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.3E-02	1.0E-02 (N)	1.6E-02	1.0E-02	mg/kg	95% KM (t) UCL	
	Isophorone	mg/kg	3.7E-01	2.9E-01 (NP)	7.1E-01 (J)	2.9E-01	mg/kg	95% KM (t) UCL	
	Total PCB Homologs	mg/kg	5.1E-01	6.0E-01 (G)	2.0E+00	6.0E-01	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDD	mg/kg	7.0E-03	1.1E-02 (G)	2.7E-02	1.1E-02	mg/kg	95% KM (Chebyshev) UCL	
	4,4'-DDE	mg/kg	1.5E-02	1.8E-02 (G)	6.8E-02	1.8E-02	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDT	mg/kg	3.8E-03	1.9E-03 (N)	9.8E-03	1.9E-03	mg/kg	95% KM (t) UCL	
	Aldrin	mg/kg	1.7E-04	NC	9.3E-04 (J)	1.7E-04	mg/kg	Arithmetic mean	(e)
	alpha-Chlordane	mg/kg	4.4E-03	6.9E-03 (G)	1.8E-02	6.9E-03	mg/kg	95% KM (Chebyshev) UCL	
	Dieldrin	mg/kg	1.1E-02	1.4E-02 (LN)	4.3E-02	1.4E-02	mg/kg	95% H-UCL	
	Endosulfan I	mg/kg	1.8E-03	1.1E-03 (NP)	4.4E-03 (J)	1.1E-03	mg/kg	95% KM (BCA) UCL	
	Endosulfan II	mg/kg	3.7E-04	3.4E-04 (NP)	4.0E-04 (J)	3.4E-04	mg/kg	95% KM (t) UCL	
	Endosulfan Sulfate	mg/kg	3.8E-03	4.6E-03 (G)	1.2E-02 (J)	4.6E-03	mg/kg	95% Approximate Gamma UCL	
	Gamma-Chlordane	mg/kg	3.7E-03	3.8E-03 (G)	1.1E-02	3.8E-03	mg/kg	95% KM (BCA) UCL	
	Heptachlor	mg/kg	2.0E-04	NC	2.4E-03	2.0E-04	mg/kg	Arithmetic mean	(e)
	Heptachlor Epoxide	mg/kg	5.7E-04	4.0E-04 (N)	8.1E-04	4.0E-04	mg/kg	95% KM (t) UCL	
	Arsenic	mg/kg	4.3E-02	4.0E-02 (G)	1.0E-01	4.0E-02	mg/kg	95% KM (BCA) UCL	
	Cadmium	mg/kg	2.4E-02	2.0E-02 (NP)	2.1E-01	2.0E-02	mg/kg	95% KM (t) UCL	
	Chromium	mg/kg	2.2E+00	2.8E+00 (G)	1.0E+01	2.8E+00	mg/kg	95% Approximate Gamma UCL	
	Cobalt	mg/kg	2.2E-02	3.0E-02 (NP)	8.4E-02	3.0E-02	mg/kg	95% KM (Chebyshev) UCL	
	Iron	mg/kg	2.3E+01	4.2E+01 (NP)	2.1E+02	4.2E+01	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	Lead	mg/kg	8.4E-02	3.0E-02 (N)	2.0E-01	3.0E-02	mg/kg	95% KM (t) UCL	
	Mercury	mg/kg	9.3E-02	1.0E-01 (N)	1.9E-01	1.0E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	1.1E+00	1.4E+00 (G)	5.4E+00	1.4E+00	mg/kg	95% Approximate Gamma UCL	
	Selenium	mg/kg	4.4E-01	5.0E-01 (N)	6.7E-01	5.0E-01	mg/kg	95% Student's-t UCL	

TABLE 3.19.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: 4-chloro-3-methylphenol, 4-nitrophenol, aldrin, and heptachlor, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.20.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
BR-1	4-Chloro-3-methylphenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	(c)
	4-Nitrophenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzaldehyde	mg/kg	1.1E-01	1.1E-01 (NP)	1.7E-01 (J)	1.1E-01	mg/kg	95% KM (t) UCL	
	Benzo(a)anthracene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzo(a)pyrene	mg/kg	8.6E-03	8.6E-03 (NP)	8.6E-03	8.6E-03	mg/kg	99% KM (Chebyshev) UCL	
	Benzo(b)fluoranthene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.3E-01	1.5E-01 (N)	2.3E-01	1.5E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	9.8E-03	9.8E-03 (NP)	9.8E-03	9.8E-03	mg/kg	99% KM (Chebyshev) UCL	
	Hexachlorobenzene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Indeno(1,2,3-cd)pyrene	mg/kg	8.6E-03	8.6E-03 (NP)	8.6E-03	8.6E-03	mg/kg	99% KM (Chebyshev) UCL	
	Isophorone	mg/kg	1.4E-01	1.4E-01 (NP)	2.2E-01	1.4E-01	mg/kg	95% KM (t) UCL	
	Total PCB Homologs	mg/kg	2.9E-01	4.6E-01 (LN)	1.3E+00	4.6E-01	mg/kg	95% H-UCL	
	4,4'-DDD	mg/kg	4.2E-03	5.7E-03 (G)	1.3E-02	5.7E-03	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDE	mg/kg	1.2E-02	1.9E-02 (LN)	5.6E-02	1.9E-02	mg/kg	95% H-UCL	
	4,4'-DDT	mg/kg	2.9E-03	8.7E-03 (LN)	1.5E-02	8.7E-03	mg/kg	97.5% KM (Chebyshev) UCL	
	Aldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	alpha-Chlordane	mg/kg	3.2E-03	4.8E-03 (G)	9.4E-03	4.8E-03	mg/kg	95% Approximate Gamma UCL	
	Dieldrin	mg/kg	8.4E-03	9.7E-03 (N)	1.6E-02	9.7E-03	mg/kg	95% Student's-t UCL	
	Endosulfan I	mg/kg	3.3E-03	3.2E-03 (NP)	4.8E-03 (J)	3.2E-03	mg/kg	95% KM (t) UCL	
	Endosulfan II	mg/kg	1.8E-04	NC	5.1E-04 (J)	5.1E-04	mg/kg	Maximum Concentration	
	Endosulfan Sulfate	mg/kg	1.7E-03	3.0E-03 (NP)	4.8E-03 (J)	3.0E-03	mg/kg	95% KM (Chebyshev) UCL	
	Gamma-Chlordane	mg/kg	3.6E-03	3.5E-03 (N)	5.6E-03	3.5E-03	mg/kg	95% KM (t) UCL	
	Heptachlor	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Heptachlor Epoxide	mg/kg	9.9E-04	1.9E-03 (NP)	2.9E-03	1.9E-03	mg/kg	95% KM (Chebyshev) UCL	
	Arsenic	mg/kg	7.3E-02	8.5E-02 (N)	1.3E-01	8.5E-02	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	2.3E-02	2.4E-02 (N)	4.1E-02	2.4E-02	mg/kg	95% KM (t) UCL	
	Chromium	mg/kg	1.9E+00	2.4E+00 (G)	5.4E+00	2.4E+00	mg/kg	95% Approximate Gamma UCL	
	Cobalt	mg/kg	1.7E-02	1.5E-02 (N)	2.5E-02	1.5E-02	mg/kg	95% KM (t) UCL	
	Iron	mg/kg	1.7E+01	2.0E+01 (N)	3.0E+01	2.0E+01	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	2.7E-02	2.5E-02 (NP)	2.9E-02	2.5E-02	mg/kg	95% KM (t) UCL	
	Mercury	mg/kg	1.1E-01	1.3E-01 (N)	2.2E-01	1.3E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	8.9E-01	1.2E+00 (G)	2.8E+00	1.2E+00	mg/kg	95% Approximate Gamma UCL	
	Selenium	mg/kg	5.8E-01	6.5E-01 (G)	1.1E+00	6.5E-01	mg/kg	95% Approximate Gamma UCL	

TABLE 3.20.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for Endosulfan II where the mean was calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.20.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Fish Tissue (Fillet)

Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
BR-1	4-Chloro-3-methylphenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	(e)
	4-Nitrophenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzaldehyde	mg/kg	1.1E-01	1.1E-01 (NP)	1.7E-01 (J)	1.1E-01	mg/kg	95% KM (t) UCL	
	Benzo(a)anthracene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzo(a)pyrene	mg/kg	8.6E-03	8.6E-03 (NP)	8.6E-03	8.6E-03	mg/kg	99% KM (Chebyshev) UCL	
	Benzo(b)fluoranthene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	bis(2-Ethylhexyl)phthalate	mg/kg	1.3E-01	1.5E-01 (N)	2.3E-01	1.5E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	9.8E-03	9.8E-03 (NP)	9.8E-03	9.8E-03	mg/kg	99% KM (Chebyshev) UCL	
	Hexachlorobenzene	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Indeno(1,2,3-cd)pyrene	mg/kg	8.6E-03	8.6E-03 (NP)	8.6E-03	8.6E-03	mg/kg	99% KM (Chebyshev) UCL	
	Isophorone	mg/kg	1.4E-01	1.4E-01 (NP)	2.2E-01	1.4E-01	mg/kg	95% KM (t) UCL	
	Total PCB Homologs	mg/kg	2.9E-01	4.6E-01 (LN)	1.3E+00	4.6E-01	mg/kg	95% H-UCL	
	4,4'-DDD	mg/kg	4.2E-03	5.7E-03 (G)	1.3E-02	5.7E-03	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDE	mg/kg	1.2E-02	1.9E-02 (LN)	5.6E-02	1.9E-02	mg/kg	95% H-UCL	
	4,4'-DDT	mg/kg	2.9E-03	8.7E-03 (LN)	1.5E-02	8.7E-03	mg/kg	97.5% KM (Chebyshev) UCL	
	Aldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	alpha-Chlordane	mg/kg	3.2E-03	4.8E-03 (G)	9.4E-03	4.8E-03	mg/kg	95% Approximate Gamma UCL	
	Dieldrin	mg/kg	8.4E-03	9.7E-03 (N)	1.6E-02	9.7E-03	mg/kg	95% Student's-t UCL	
	Endosulfan I	mg/kg	3.3E-03	3.2E-03 (NP)	4.8E-03 (J)	3.2E-03	mg/kg	95% KM (t) UCL	
	Endosulfan II	mg/kg	1.8E-04	NC	5.1E-04 (J)	1.8E-04	mg/kg	Arithmetic mean	
	Endosulfan Sulfate	mg/kg	1.7E-03	3.0E-03 (NP)	4.8E-03 (J)	3.0E-03	mg/kg	95% KM (Chebyshev) UCL	
	Gamma-Chlordane	mg/kg	3.6E-03	3.5E-03 (N)	5.6E-03	3.5E-03	mg/kg	95% KM (t) UCL	
	Heptachlor	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Heptachlor Epoxide	mg/kg	9.9E-04	1.9E-03 (NP)	2.9E-03	1.9E-03	mg/kg	95% KM (Chebyshev) UCL	
	Arsenic	mg/kg	7.3E-02	8.5E-02 (N)	1.3E-01	8.5E-02	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	2.3E-02	2.4E-02 (N)	4.1E-02	2.4E-02	mg/kg	95% KM (t) UCL	
	Chromium	mg/kg	1.9E+00	2.4E+00 (G)	5.4E+00	2.4E+00	mg/kg	95% Approximate Gamma UCL	
	Cobalt	mg/kg	1.7E-02	1.5E-02 (N)	2.5E-02	1.5E-02	mg/kg	95% KM (t) UCL	
	Iron	mg/kg	1.7E+01	2.0E+01 (N)	3.0E+01	2.0E+01	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	2.7E-02	2.5E-02 (NP)	2.9E-02	2.5E-02	mg/kg	95% KM (t) UCL	
	Mercury	mg/kg	1.1E-01	1.3E-01 (N)	2.2E-01	1.3E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	8.9E-01	1.2E+00 (G)	2.8E+00	1.2E+00	mg/kg	95% Approximate Gamma UCL	
	Selenium	mg/kg	5.8E-01	6.5E-01 (G)	1.1E+00	6.5E-01	mg/kg	95% Approximate Gamma UCL	

TABLE 3.20.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for Endosulfan II where the mean was calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.21.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Fish Tissue (Fillet)

Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
BR-2	4-Chloro-3-methylphenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	(c)
	4-Nitrophenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzaldehyde	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzo(a)anthracene	mg/kg	2.9E-02	2.9E-02 (NP)	2.9E-02	2.9E-02	mg/kg	99% KM (Chebyshev) UCL	
	Benzo(a)pyrene	mg/kg	2.8E-02	2.8E-02 (NP)	2.8E-02	2.8E-02	mg/kg	99% KM (Chebyshev) UCL	
	Benzo(b)fluoranthene	mg/kg	1.1E-02	9.3E-03 (NP)	1.4E-02	9.3E-03	mg/kg	95% KM (t) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.4E-01	2.6E-01 (G)	4.7E-01	2.6E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	8.8E-03	8.1E-03 (NP)	1.0E-02	8.1E-03	mg/kg	95% KM (t) UCL	
	Hexachlorobenzene	mg/kg	4.0E-03	NC	7.9E-03	7.9E-03	mg/kg	Maximum Concentration	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.2E-02	1.2E-02 (NP)	1.2E-02	1.2E-02	mg/kg	99% KM (Chebyshev) UCL	
	Isophorone	mg/kg	3.4E-01	3.3E-01 (NP)	5.2E-01	3.3E-01	mg/kg	95% KM (t) UCL	
	Total PCB Homologs	mg/kg	7.6E-01	1.0E+00 (G)	2.0E+00	1.0E+00	mg/kg	95% Approximate Gamma UCL	(c)
	4,4'-DDD	mg/kg	8.9E-03	1.2E-02 (G)	2.2E-02	1.2E-02	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDE	mg/kg	3.2E-02	4.2E-02 (G)	8.5E-02	4.2E-02	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDT	mg/kg	3.1E-03	3.0E-03 (G)	8.6E-03	3.0E-03	mg/kg	95% KM (t) UCL	
	Aldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	alpha-Chlordane	mg/kg	5.4E-03	6.9E-03 (G)	1.2E-02	6.9E-03	mg/kg	95% Approximate Gamma UCL	
	Dieldrin	mg/kg	1.4E-02	1.6E-02 (G)	2.2E-02	1.6E-02	mg/kg	95% Approximate Gamma UCL	
	Endosulfan I	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan II	mg/kg	1.7E-04	NC	3.8E-04 (J)	3.8E-04	mg/kg	Maximum concentration	
	Endosulfan Sulfate	mg/kg	7.5E-03	1.0E-02 (G)	1.8E-02 (J)	1.0E-02	mg/kg	95% Approximate Gamma UCL	
	Gamma-Chlordane	mg/kg	4.8E-03	5.8E-03 (G)	9.2E-03	5.8E-03	mg/kg	95% Approximate Gamma UCL	(c)
	Heptachlor	mg/kg	2.1E-04	NC	1.0E-03 (J)	1.0E-03	mg/kg	Maximum concentration	
	Heptachlor Epoxide	mg/kg	4.5E-04	4.6E-04 (G)	7.0E-04	4.6E-04	mg/kg	95% KM (BCA) UCL	
	Arsenic	mg/kg	6.3E-02	6.9E-02 (N)	1.0E-01	6.9E-02	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	1.4E-02	1.3E-02 (N)	2.4E-02	1.3E-02	mg/kg	95% KM (t) UCL	
	Chromium	mg/kg	2.3E+00	2.7E+00 (N)	3.9E+00	2.7E+00	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	1.8E-02	1.9E-02 (N)	2.3E-02	1.9E-02	mg/kg	95% Student's-t UCL	
	Iron	mg/kg	1.7E+01	1.9E+01 (N)	2.2E+01	1.9E+01	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	1.0E-02	1.0E-02 (NP)	1.0E-02	1.0E-02	mg/kg	99% KM (Chebyshev) UCL	
	Mercury	mg/kg	9.5E-02	1.1E-01 (N)	1.5E-01	1.1E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	1.3E+00	1.5E+00 (N)	2.2E+00	1.5E+00	mg/kg	95% Student's-t UCL	
	Selenium	mg/kg	5.3E-01	5.8E-01 (N)	7.3E-01	5.8E-01	mg/kg	95% Student's-t UCL	

TABLE 3.21.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: hexachlorobenzene, endosulfan II, and heptachlor, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.21.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
BR-2	4-Chloro-3-methylphenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	(e)
	4-Nitrophenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzaldehyde	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzo(a)anthracene	mg/kg	2.9E-02	2.9E-02 (NP)	2.9E-02	2.9E-02	mg/kg	99% KM (Chebyshev) UCL	
	Benzo(a)pyrene	mg/kg	2.8E-02	2.8E-02 (NP)	2.8E-02	2.8E-02	mg/kg	99% KM (Chebyshev) UCL	
	Benzo(b)fluoranthene	mg/kg	1.1E-02	9.3E-03 (NP)	1.4E-02	9.3E-03	mg/kg	95% KM (t) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	2.4E-01	2.6E-01 (G)	4.7E-01	2.6E-01	mg/kg	95% KM (t) UCL	
	Dibenz(a,h)anthracene	mg/kg	8.8E-03	8.1E-03 (NP)	1.0E-02	8.1E-03	mg/kg	95% KM (t) UCL	
	Hexachlorobenzene	mg/kg	4.0E-03	NC	7.9E-03	4.0E-03	mg/kg	Arithmetic mean	
	Indeno(1,2,3-cd)pyrene	mg/kg	1.2E-02	1.2E-02 (NP)	1.2E-02	1.2E-02	mg/kg	99% KM (Chebyshev) UCL	
	Isophorone	mg/kg	3.4E-01	3.3E-01 (NP)	5.2E-01	3.3E-01	mg/kg	95% KM (t) UCL	
	Total PCB Homologs	mg/kg	7.6E-01	1.0E+00 (G)	2.0E+00	1.0E+00	mg/kg	95% Approximate Gamma UCL	(e)
	4,4'-DDD	mg/kg	8.9E-03	1.2E-02 (G)	2.2E-02	1.2E-02	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDE	mg/kg	3.2E-02	4.2E-02 (G)	8.5E-02	4.2E-02	mg/kg	95% Approximate Gamma UCL	
	4,4'-DDT	mg/kg	3.1E-03	3.0E-03 (G)	8.6E-03	3.0E-03	mg/kg	95% KM (t) UCL	
	Aldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	alpha-Chlordane	mg/kg	5.4E-03	6.9E-03 (G)	1.2E-02	6.9E-03	mg/kg	95% Approximate Gamma UCL	
	Dieldrin	mg/kg	1.4E-02	1.6E-02 (G)	2.2E-02	1.6E-02	mg/kg	95% Approximate Gamma UCL	
	Endosulfan I	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan II	mg/kg	1.7E-04	NC	3.8E-04 (J)	1.7E-04	mg/kg	Arithmetic mean	
	Endosulfan Sulfate	mg/kg	7.5E-03	1.0E-02 (G)	1.8E-02 (J)	1.0E-02	mg/kg	95% Approximate Gamma UCL	
	Gamma-Chlordane	mg/kg	4.8E-03	5.8E-03 (G)	9.2E-03	5.8E-03	mg/kg	95% Approximate Gamma UCL	(e)
	Heptachlor	mg/kg	2.1E-04	NC	1.0E-03 (J)	2.1E-04	mg/kg	Arithmetic mean	
	Heptachlor Epoxide	mg/kg	4.5E-04	4.6E-04 (G)	7.0E-04	4.6E-04	mg/kg	95% KM (BCA) UCL	
	Arsenic	mg/kg	6.3E-02	6.9E-02 (N)	1.0E-01	6.9E-02	mg/kg	95% Student's-t UCL	
	Cadmium	mg/kg	1.4E-02	1.3E-02 (N)	2.4E-02	1.3E-02	mg/kg	95% KM (t) UCL	
	Chromium	mg/kg	2.3E+00	2.7E+00 (N)	3.9E+00	2.7E+00	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	1.8E-02	1.9E-02 (N)	2.3E-02	1.9E-02	mg/kg	95% Student's-t UCL	
	Iron	mg/kg	1.7E+01	1.9E+01 (N)	2.2E+01	1.9E+01	mg/kg	95% Student's-t UCL	
	Lead	mg/kg	1.0E-02	1.0E-02 (NP)	1.0E-02	1.0E-02	mg/kg	99% KM (Chebyshev) UCL	
	Mercury	mg/kg	9.5E-02	1.1E-01 (N)	1.5E-01	1.1E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	1.3E+00	1.5E+00 (N)	2.2E+00	1.5E+00	mg/kg	95% Student's-t UCL	
	Selenium	mg/kg	5.3E-01	5.8E-01 (N)	7.3E-01	5.8E-01	mg/kg	95% Student's-t UCL	

TABLE 3.21.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: hexachlorobenzene, endosulfan II, and heptachlor, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.22.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Fish Tissue (Fillet)

Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
P-6	4-Chloro-3-methylphenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	4-Nitrophenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzaldehyde	mg/kg	1.5E-01	1.6E-01 (NP)	2.0E-01 (J)	1.6E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Benzo(a)anthracene	mg/kg	7.6E-03	7.3E-03 (NP)	1.0E-02	7.3E-03	mg/kg	95% KM (t) UCL	
	Benzo(a)pyrene	mg/kg	7.8E-03	7.6E-03 (NP)	9.3E-03	7.6E-03	mg/kg	95% KM (t) UCL	
	Benzo(b)fluoranthene	mg/kg	8.3E-03	7.9E-03 (NP)	1.1E-02	7.9E-03	mg/kg	95% KM (t) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Dibenz(a,h)anthracene	mg/kg	8.9E-03	8.6E-03 (NP)	1.1E-02	8.6E-03	mg/kg	95% KM (t) UCL	
	Hexachlorobenzene	mg/kg	6.4E-03	6.3E-03 (NP)	7.4E-03	6.3E-03	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	8.8E-03	8.5E-03 (NP)	1.1E-02	8.5E-03	mg/kg	95% KM (t) UCL	
	Isophorone	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Total PCB Homologs	mg/kg	3.6E-02	8.3E-02 (NP)	1.1E-01	8.3E-02	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	4,4'-DDD	mg/kg	5.7E-04	6.3E-04 (N)	8.2E-04	6.3E-04	mg/kg	95% KM (t) UCL	
	4,4'-DDE	mg/kg	2.8E-03	3.2E-03 (N)	3.6E-03	3.2E-03	mg/kg	95% Student's-t UCL	
	4,4'-DDT	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	alpha-Chlordane	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Dieldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan I	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan II	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan Sulfate	mg/kg	8.1E-04	1.1E-03 (NP)	1.1E-03 (J)	1.1E-03	mg/kg	95% KM (% Bootstrap) UCL	
	Gamma-Chlordane	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Heptachlor	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Heptachlor Epoxide	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Cadmium	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Chromium	mg/kg	4.8E-01	5.2E-01 (N)	5.6E-01	5.2E-01	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	6.6E-03	6.6E-03 (NP)	6.6E-03	6.6E-03	mg/kg	99% KM (Chebyshev) UCL	
	Iron	mg/kg	6.4E+00	8.5E+00 (G)	1.3E+01	8.5E+00	mg/kg	95% Approximate Gamma UCL	
	Lead	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Mercury	mg/kg	4.1E-01	5.1E-01 (N)	7.4E-01	5.1E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	2.1E-01	2.2E-01 (N)	2.4E-01	2.2E-01	mg/kg	95% Student's-t UCL	
	Selenium	mg/kg	2.0E-01	2.4E-01 (N)	3.0E-01	2.4E-01	mg/kg	95% Student's-t UCL	

TABLE 3.22.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.22.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future

Medium: Fish Tissue (Fillet)

Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
P-6	4-Chloro-3-methylphenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	4-Nitrophenol	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Benzaldehyde	mg/kg	1.5E-01	1.6E-01 (NP)	2.0E-01 (J)	1.6E-01	mg/kg	95% KM (% Bootstrap) UCL	
	Benzo(a)anthracene	mg/kg	7.6E-03	7.3E-03 (NP)	1.0E-02	7.3E-03	mg/kg	95% KM (t) UCL	
	Benzo(a)pyrene	mg/kg	7.8E-03	7.6E-03 (NP)	9.3E-03	7.6E-03	mg/kg	95% KM (t) UCL	
	Benzo(b)fluoranthene	mg/kg	8.3E-03	7.9E-03 (NP)	1.1E-02	7.9E-03	mg/kg	95% KM (t) UCL	
	bis(2-Ethylhexyl)phthalate	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Dibenz(a,h)anthracene	mg/kg	8.9E-03	8.6E-03 (NP)	1.1E-02	8.6E-03	mg/kg	95% KM (t) UCL	
	Hexachlorobenzene	mg/kg	6.4E-03	6.3E-03 (NP)	7.4E-03	6.3E-03	mg/kg	95% KM (t) UCL	
	Indeno(1,2,3-cd)pyrene	mg/kg	8.8E-03	8.5E-03 (NP)	1.1E-02	8.5E-03	mg/kg	95% KM (t) UCL	
	Isophorone	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Total PCB Homologs	mg/kg	3.6E-02	8.3E-02 (NP)	1.1E-01	8.3E-02	mg/kg	95% Chebyshev (Mean, Sd) UCL	
	4,4'-DDD	mg/kg	5.7E-04	6.3E-04 (N)	8.2E-04	6.3E-04	mg/kg	95% KM (t) UCL	
	4,4'-DDE	mg/kg	2.8E-03	3.2E-03 (N)	3.6E-03	3.2E-03	mg/kg	95% Student's-t UCL	
	4,4'-DDT	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Aldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	alpha-Chlordane	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Dieldrin	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan I	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan II	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Endosulfan Sulfate	mg/kg	8.1E-04	1.1E-03 (NP)	1.1E-03 (J)	1.1E-03	mg/kg	95% KM (% Bootstrap) UCL	
	Gamma-Chlordane	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Heptachlor	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Heptachlor Epoxide	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Arsenic	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Cadmium	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Chromium	mg/kg	4.8E-01	5.2E-01 (N)	5.6E-01	5.2E-01	mg/kg	95% Student's-t UCL	
	Cobalt	mg/kg	6.6E-03	6.6E-03 (NP)	6.6E-03	6.6E-03	mg/kg	99% KM (Chebyshev) UCL	
	Iron	mg/kg	6.4E+00	8.5E+00 (G)	1.3E+01	8.5E+00	mg/kg	95% Approximate Gamma UCL	
	Lead	mg/kg	ND	ND	ND	ND	mg/kg	NA	
	Mercury	mg/kg	4.1E-01	5.1E-01 (N)	7.4E-01	5.1E-01	mg/kg	95% Student's-t UCL	
	Nickel	mg/kg	2.1E-01	2.2E-01 (N)	2.4E-01	2.2E-01	mg/kg	95% Student's-t UCL	
	Selenium	mg/kg	2.0E-01	2.4E-01 (N)	3.0E-01	2.4E-01	mg/kg	95% Student's-t UCL	

TABLE 3.22.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.23.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Site-Wide	1,4-Dioxane	ug/L	4.8E+00	NC	5.5E+01	5.5E+01	ug/L	Maximum concentration	
	2,4-Dimethylphenol	ug/L	2.1E+00	NC	8.0E+00 (J)	8.0E+00	ug/L	Maximum concentration	
	2-Chlorophenol	ug/L	1.8E+00	NC	3.4E-01 (J)	3.4E-01	ug/L	Maximum concentration	
	4-Chloroaniline	ug/L	1.8E+00	NC	1.4E+00 (J)	1.4E+00	ug/L	Maximum concentration	
	Atrazine	ug/L	1.8E+00	NC	3.2E+00 (J)	3.2E+00	ug/L	Maximum concentration	
	Benzaldehyde	ug/L	1.8E+00	NC	1.1E+00 (J)	1.1E+00	ug/L	Maximum concentration	
	Benzo(a)anthracene	ug/L	4.3E-02	NC	3.6E-01	3.6E-01	ug/L	Maximum concentration	
	Benzo(a)pyrene	ug/L	3.9E-02	NC	2.6E-01	2.6E-01	ug/L	Maximum concentration	
	Benzo(b)fluoranthene	ug/L	4.2E-02	NC	3.8E-01	3.8E-01	ug/L	Maximum concentration	
	Benzo(g,h,i)perylene	ug/L	1.7E+00	NC	1.5E-01	1.5E-01	ug/L	Maximum concentration	
	bis(2-Ethylhexyl)phthalate	ug/L	2.4E+00	NC	5.0E+01	5.0E+01	ug/L	Maximum concentration	
	Carbazole	ug/L	2.8E-01	NC	4.8E-01 (J)	4.8E-01	ug/L	Maximum concentration	
	Dibenzofuran	ug/L	1.8E+00	NC	2.8E+00 (J)	2.8E+00	ug/L	Maximum concentration	
	Indeno(1,2,3-cd)pyrene	ug/L	3.8E-02	NC	1.4E-01	1.4E-01	ug/L	Maximum concentration	
	Naphthalene	ug/L	2.2E-01	NC	1.4E+01	1.4E+01	ug/L	Maximum concentration	
	Phenanthrene	ug/L	1.2E-01	NC	5.9E+00	5.9E+00	ug/L	Maximum concentration	
	1,2,4-Trichlorobenzene	ug/L	2.7E-01	NC	2.4E-01 (J)	2.4E-01	ug/L	Maximum concentration	
	1,2-Dichlorobenzene	ug/L	4.0E-01	NC	4.4E+00 (J)	4.4E+00	ug/L	Maximum concentration	
	1,3-Dichlorobenzene	ug/L	2.8E-01	NC	6.9E-01	6.9E-01	ug/L	Maximum concentration	
	1,4-Dichlorobenzene	ug/L	9.2E-01	NC	8.4E+00	8.4E+00	ug/L	Maximum concentration	
	2-Butanone	ug/L	1.8E+00	NC	1.3E+00 (J)	1.3E+00	ug/L	Maximum concentration	
	Benzene	ug/L	2.2E+01	NC	1.1E+03	1.1E+03	ug/L	Maximum concentration	
	Bromodichloromethane	ug/L	2.7E-01	NC	3.2E-01 (J)	3.2E-01	ug/L	Maximum concentration	
	Chlorobenzene	ug/L	5.6E+00	NC	9.3E+01	9.3E+01	ug/L	Maximum concentration	
	Chloroethane	ug/L	4.0E-01	NC	2.1E+00 (J)	2.1E+00	ug/L	Maximum concentration	
	Chloroform	ug/L	4.7E-01	NC	3.9E+00	3.9E+00	ug/L	Maximum concentration	
	Ethylbenzene	ug/L	4.4E-01	NC	1.7E+01	1.7E+01	ug/L	Maximum concentration	
	Isopropylbenzene	ug/L	3.6E+00	NC	1.6E+02	1.6E+02	ug/L	Maximum concentration	
	Methyl tert-butyl ether	ug/L	5.4E-01	NC	2.1E+01	2.1E+01	ug/L	Maximum concentration	
	Tetrachloroethene	ug/L	3.0E-01	NC	2.5E+00	2.5E+00	ug/L	Maximum concentration	
	Toluene	ug/L	3.4E-01	NC	4.9E+00 (J)	4.9E+00	ug/L	Maximum concentration	
	Trichloroethene	ug/L	3.3E-01	NC	4.1E+00	4.1E+00	ug/L	Maximum concentration	
	Vinyl Chloride	ug/L	2.9E-01	NC	1.2E+00	1.2E+00	ug/L	Maximum concentration	
	Xylene (Total)	ug/L	2.0E+00	NC	5.1E+01	5.1E+01	ug/L	Maximum concentration	

TABLE 3.23.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
	Aroclor-1242	ug/L	5.2E-02	NC	3.3E-01 (J)	3.3E-01	ug/L	Maximum concentration	
	Aroclor-1248	ug/L	5.1E-02	NC	1.8E-01 (J)	1.8E-01	ug/L	Maximum concentration	
	Aroclor-1254	ug/L	5.4E-02	NC	5.8E-01	5.8E-01	ug/L	Maximum concentration	
	4,4'-DDD	ug/L	2.7E-03	NC	6.7E-03 (J)	6.7E-03	ug/L	Maximum concentration	
	4,4'-DDE	ug/L	2.7E-03	NC	5.6E-03 (J)	5.6E-03	ug/L	Maximum concentration	
	4,4'-DDT	ug/L	2.6E-03	NC	3.8E-03 (J)	3.8E-03	ug/L	Maximum concentration	
	Aldrin	ug/L	1.8E-03	NC	6.0E-03 (J)	6.0E-03	ug/L	Maximum concentration	
	alpha-BHC	ug/L	1.8E-03	NC	3.5E-03 (J)	3.5E-03	ug/L	Maximum concentration	
	Dieldrin	ug/L	2.7E-03	NC	8.3E-03 (J)	8.3E-03	ug/L	Maximum concentration	
	Endosulfan Sulfate	ug/L	2.7E-03	NC	8.2E-03 (J)	8.2E-03	ug/L	Maximum concentration	
	Gamma-BHC (Lindane)	ug/L	1.9E-03	NC	1.6E-02 (J)	1.6E-02	ug/L	Maximum concentration	
	Heptachlor	ug/L	1.8E-03	NC	4.6E-03 (J)	4.6E-03	ug/L	Maximum concentration	
	Aluminum	ug/L	2.7E+02	NC	1.3E+04	1.3E+04	ug/L	Maximum concentration	
	Arsenic	ug/L	1.5E+01	NC	1.2E+02	1.2E+02	ug/L	Maximum concentration	
	Cadmium	ug/L	1.1E+00	NC	2.7E+01	2.7E+01	ug/L	Maximum concentration	
	Chromium	ug/L	1.4E+00	NC	1.3E+01	1.3E+01	ug/L	Maximum concentration	
	Cobalt	ug/L	1.7E+01	NC	3.3E+01	3.3E+01	ug/L	Maximum concentration	
	Iron	ug/L	1.5E+04	NC	7.7E+04	7.7E+04	ug/L	Maximum concentration	
	Lead	ug/L	2.2E+00	NC	7.9E+01	7.9E+01	ug/L	Maximum concentration	
	Manganese	ug/L	6.7E+02	NC	5.8E+03	5.8E+03	ug/L	Maximum concentration	
	Nickel	ug/L	1.5E+01	NC	7.8E+01	7.8E+01	ug/L	Maximum concentration	
	Silver	ug/L	3.0E+00	NC	1.4E+01 (J)	1.4E+01	ug/L	Maximum concentration	
	Thallium	ug/L	1.4E+00	NC	8.9E+00 (J)	8.9E+00	ug/L	Maximum concentration	
	Zinc	ug/L	8.9E+01	NC	4.1E+03	4.1E+03	ug/L	Maximum concentration	

Notes:

- (1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were not performed as the maximum or mean concentrations were used as EPCs.
NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) Maximum concentrations were used as EPCs as RME EPCs and arithmetic means were used as CT EPCs, unless otherwise noted.
- (5)
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

NC = Not calculated

TABLE 3.23.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Site-Wide	1,4-Dioxane	ug/L	4.8E+00	NC	5.5E+01	4.8E+00	ug/L	Arithmetic mean	(e)
	2,4-Dimethylphenol	ug/L	2.1E+00	NC	8.0E+00 (J)	2.1E+00	ug/L	Arithmetic mean	(e)
	2-Chlorophenol	ug/L	1.8E+00	NC	3.4E-01 (J)	3.4E-01	ug/L	Maximum concentration	(f)
	4-Chloroaniline	ug/L	1.8E+00	NC	1.4E+00 (J)	1.4E+00	ug/L	Maximum concentration	(f)
	Atrazine	ug/L	1.8E+00	NC	3.2E+00 (J)	1.8E+00	ug/L	Arithmetic mean	(e)
	Benzaldehyde	ug/L	1.8E+00	NC	1.1E+00 (J)	1.1E+00	ug/L	Maximum concentration	(f)
	Benzo(a)anthracene	ug/L	4.3E-02	NC	3.6E-01	4.3E-02	ug/L	Arithmetic mean	(e)
	Benzo(a)pyrene	ug/L	3.9E-02	NC	2.6E-01	3.9E-02	ug/L	Arithmetic mean	(e)
	Benzo(b)fluoranthene	ug/L	4.2E-02	NC	3.8E-01	4.2E-02	ug/L	Arithmetic mean	(e)
	Benzo(g,h,i)perylene	ug/L	1.7E+00	NC	1.5E-01	1.5E-01	ug/L	Maximum concentration	(f)
	bis(2-Ethylhexyl)phthalate	ug/L	2.4E+00	NC	5.0E+01	2.4E+00	ug/L	Arithmetic mean	(e)
	Carbazole	ug/L	2.8E-01	NC	4.8E-01 (J)	2.8E-01	ug/L	Arithmetic mean	(e)
	Dibenzofuran	ug/L	1.8E+00	NC	2.8E+00 (J)	1.8E+00	ug/L	Arithmetic mean	(e)
	Indeno(1,2,3-cd)pyrene	ug/L	3.8E-02	NC	1.4E-01	3.8E-02	ug/L	Arithmetic mean	(e)
	Naphthalene	ug/L	2.2E-01	NC	1.4E+01	2.2E-01	ug/L	Arithmetic mean	(e)
	Phenanthrene	ug/L	1.2E-01	NC	5.9E+00	1.2E-01	ug/L	Arithmetic mean	(e)
	1,2,4-Trichlorobenzene	ug/L	2.7E-01	NC	2.4E-01 (J)	2.4E-01	ug/L	Maximum concentration	(f)
	1,2-Dichlorobenzene	ug/L	4.0E-01	NC	4.4E+00 (J)	4.0E-01	ug/L	Arithmetic mean	(e)
	1,3-Dichlorobenzene	ug/L	2.8E-01	NC	6.9E-01	2.8E-01	ug/L	Arithmetic mean	(e)
	1,4-Dichlorobenzene	ug/L	9.2E-01	NC	8.4E+00	9.2E-01	ug/L	Arithmetic mean	(e)
	2-Butanone	ug/L	1.8E+00	NC	1.3E+00 (J)	1.3E+00	ug/L	Maximum concentration	(f)
	Benzene	ug/L	2.2E+01	NC	1.1E+03	2.2E+01	ug/L	Arithmetic mean	(e)
	Bromodichloromethane	ug/L	2.7E-01	NC	3.2E-01 (J)	2.7E-01	ug/L	Arithmetic mean	(e)
	Chlorobenzene	ug/L	5.6E+00	NC	9.3E+01	5.6E+00	ug/L	Arithmetic mean	(e)
	Chloroethane	ug/L	4.0E-01	NC	2.1E+00 (J)	4.0E-01	ug/L	Arithmetic mean	(e)
	Chloroform	ug/L	4.7E-01	NC	3.9E+00	4.7E-01	ug/L	Arithmetic mean	(e)
	Ethylbenzene	ug/L	4.4E-01	NC	1.7E+01	4.4E-01	ug/L	Arithmetic mean	(e)
	Isopropylbenzene	ug/L	3.6E+00	NC	1.6E+02	3.6E+00	ug/L	Arithmetic mean	(e)
	Methyl tert-butyl ether	ug/L	5.4E-01	NC	2.1E+01	5.4E-01	ug/L	Arithmetic mean	(e)
	Tetrachloroethene	ug/L	3.0E-01	NC	2.5E+00	3.0E-01	ug/L	Arithmetic mean	(e)
	Toluene	ug/L	3.4E-01	NC	4.9E+00 (J)	3.4E-01	ug/L	Arithmetic mean	(e)
	Trichloroethene	ug/L	3.3E-01	NC	4.1E+00	3.3E-01	ug/L	Arithmetic mean	(e)
	Vinyl Chloride	ug/L	2.9E-01	NC	1.2E+00	2.9E-01	ug/L	Arithmetic mean	(e)
	Xylene (Total)	ug/L	2.0E+00	NC	5.1E+01	2.0E+00	ug/L	Arithmetic mean	(e)

TABLE 3.23.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
	Aroclor-1242	ug/L	5.2E-02	NC	3.3E-01 (J)	5.2E-02	ug/L	Arithmetic mean	(e)
	Aroclor-1248	ug/L	5.1E-02	NC	1.8E-01 (J)	5.1E-02	ug/L	Arithmetic mean	(e)
	Aroclor-1254	ug/L	5.4E-02	NC	5.8E-01	5.4E-02	ug/L	Arithmetic mean	(e)
	4,4'-DDD	ug/L	2.7E-03	NC	6.7E-03 (J)	2.7E-03	ug/L	Arithmetic mean	(e)
	4,4'-DDE	ug/L	2.7E-03	NC	5.6E-03 (J)	2.7E-03	ug/L	Arithmetic mean	(e)
	4,4'-DDT	ug/L	2.6E-03	NC	3.8E-03 (J)	2.6E-03	ug/L	Arithmetic mean	(e)
	Aldrin	ug/L	1.8E-03	NC	6.0E-03 (J)	1.8E-03	ug/L	Arithmetic mean	(e)
	alpha-BHC	ug/L	1.8E-03	NC	3.5E-03 (J)	1.8E-03	ug/L	Arithmetic mean	(e)
	Dieldrin	ug/L	2.7E-03	NC	8.3E-03 (J)	2.7E-03	ug/L	Arithmetic mean	(e)
	Endosulfan Sulfate	ug/L	2.7E-03	NC	8.2E-03 (J)	2.7E-03	ug/L	Arithmetic mean	(e)
	Gamma-BHC (Lindane)	ug/L	1.9E-03	NC	1.6E-02 (J)	1.9E-03	ug/L	Arithmetic mean	(e)
	Heptachlor	ug/L	1.8E-03	NC	4.6E-03 (J)	1.8E-03	ug/L	Arithmetic mean	(e)
	Aluminum	ug/L	2.7E+02	NC	1.3E+04	2.7E+02	ug/L	Arithmetic mean	(e)
	Arsenic	ug/L	1.5E+01	NC	1.2E+02	1.5E+01	ug/L	Arithmetic mean	(e)
	Cadmium	ug/L	1.1E+00	NC	2.7E+01	1.1E+00	ug/L	Arithmetic mean	(e)
	Chromium	ug/L	1.4E+00	NC	1.3E+01	1.4E+00	ug/L	Arithmetic mean	(e)
	Cobalt	ug/L	1.7E+01	NC	3.3E+01	1.7E+01	ug/L	Arithmetic mean	(e)
	Iron	ug/L	1.5E+04	NC	7.7E+04	1.5E+04	ug/L	Arithmetic mean	(e)
	Lead	ug/L	2.2E+00	NC	7.9E+01	2.2E+00	ug/L	Arithmetic mean	(e)
	Manganese	ug/L	6.7E+02	NC	5.8E+03	6.7E+02	ug/L	Arithmetic mean	(e)
	Nickel	ug/L	1.5E+01	NC	7.8E+01	1.5E+01	ug/L	Arithmetic mean	(e)
	Silver	ug/L	3.0E+00	NC	1.4E+01 (J)	3.0E+00	ug/L	Arithmetic mean	(e)
	Thallium	ug/L	1.4E+00	NC	8.9E+00 (J)	1.4E+00	ug/L	Arithmetic mean	(e)
	Zinc	ug/L	8.9E+01	NC	4.1E+03	8.9E+01	ug/L	Arithmetic mean	(e)

Notes:

- (1) Arithmetic means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were not performed as the maximum or mean concentrations were used as EPCs.
NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) Maximum concentrations were used as EPCs as RME EPCs and arithmetic means were used as CT EPCs, unless otherwise noted.
- (5)
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

NC = Not calculated

TABLE 3.24.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Shallow Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Site-Wide	1,4-Dioxane	ug/L	1.3E+01	7.0E+00 (G)	5.3E+01	7.0E+00	ug/L	95% KM (t) UCL	(a)
	2,4-Dimethylphenol	ug/L	4.1E+00	3.0E+00 (NP)	8.0E+00 (J)	3.0E+00	ug/L	99% KM (Chebyshev) UCL	
	2-Chlorophenol	ug/L	1.8E+00	NC	3.4E-01 (J)	3.4E-01	ug/L	Maximum Concentration	(c)
	4-Chloroaniline	ug/L	1.8E+00	NC	1.4E+00 (J)	1.4E+00	ug/L	Maximum Concentration	(c)
	Atrazine	ug/L	1.8E+00	NC	3.2E+00 (J)	3.2E+00	ug/L	Maximum Concentration	(c)
	Benzaldehyde	ug/L	1.8E+00	NC	1.1E+00 (J)	1.1E+00	ug/L	Maximum Concentration	(c)
	Benzo(a)anthracene	ug/L	9.6E-02	3.1E-02 (G)	3.6E-01	3.1E-02	ug/L	95% KM (t) UCL	(a)
	Benzo(a)pyrene	ug/L	1.9E-01	1.2E-01 (NP)	2.6E-01	1.2E-01	ug/L	95% KM (t) UCL	(a)
	Benzo(b)fluoranthene	ug/L	1.7E-01	2.8E-02 (N)	3.8E-01	2.8E-02	ug/L	95% KM (t) UCL	(a)
	Benzo(g,h,i)perylene	ug/L	1.7E+00	NC	1.5E-01	1.5E-01	ug/L	Maximum Concentration	(c)
	bis(2-Ethylhexyl)phthalate	ug/L	4.1E+00	4.4E+00 (NP)	5.0E+01	4.4E+00	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Carbazole	ug/L	2.9E-01	NC	4.8E-01 (J)	4.8E-01	ug/L	Maximum Concentration	(c)
	Dibenzofuran	ug/L	3.7E-01	4.2E-01 (NP)	4.2E-01 (J)	4.2E-01	ug/L	95% KM (% Bootstrap) UCL	
	Indeno(1,2,3-cd)pyrene	ug/L	1.4E-01	1.4E-01 (NP)	1.4E-01	1.4E-01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Naphthalene	ug/L	1.2E+00	8.5E-01 (LN)	1.4E+01	8.5E-01	ug/L	95% KM (Chebyshev) UCL	(a)
	Phenanthrene	ug/L	7.5E-01	2.0E-01 (G)	5.9E+00	2.0E-01	ug/L	95% KM (t) UCL	(a)
	1,2,4-Trichlorobenzene	ug/L	2.9E-01	NC	2.4E-01 (J)	2.4E-01	ug/L	Maximum Concentration	(c)
	1,2-Dichlorobenzene	ug/L	1.0E+00	7.6E-01 (NP)	4.4E+00 (J)	7.6E-01	ug/L	95% KM (t) UCL	
	1,3-Dichlorobenzene	ug/L	3.0E-01	NC	6.9E-01 (J)	6.9E-01	ug/L	Maximum Concentration	(c)
	1,4-Dichlorobenzene	ug/L	1.9E+00	9.3E-01 (G)	8.4E+00	9.3E-01	ug/L	95% KM (BCA) UCL	(a)
	2-Butanone	ug/L	1.9E+00	NC	1.3E+00 (J)	1.3E+00	ug/L	Maximum Concentration	(c)
	Benzene	ug/L	9.8E+01	1.0E+02 (NP)	1.1E+03	1.0E+02	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Bromodichloromethane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chlorobenzene	ug/L	1.4E+01	5.5E+00 (G)	9.3E+01	5.5E+00	ug/L	95% KM (t) UCL	(a)
	Chloroethane	ug/L	4.7E-01	NC	2.1E+00 (J)	2.1E+00	ug/L	Maximum Concentration	(c)
	Chloroform	ug/L	1.5E+00	6.4E-01 (N)	3.9E+00	6.4E-01	ug/L	95% KM (t) UCL	(a)
	Ethylbenzene	ug/L	4.0E+00	1.3E+00 (NP)	1.7E+01	1.3E+00	ug/L	95% KM (t) UCL	
	Isopropylbenzene	ug/L	1.7E+01	9.6E+00 (LN)	1.6E+02	9.6E+00	ug/L	95% KM (Chebyshev) UCL	(a)
	Methyl tert-butyl ether	ug/L	2.7E+00	1.6E+00 (NP)	2.1E+01	1.6E+00	ug/L	95% KM (BCA) UCL	(a)
	Tetrachloroethene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Toluene	ug/L	1.5E+00	5.8E-01 (NP)	4.9E+00 (J)	5.8E-01	ug/L	95% KM (t) UCL	
	Trichloroethene	ug/L	8.8E-01	5.9E-01 (NP)	1.2E+00	5.9E-01	ug/L	95% KM (t) UCL	
	Vinyl Chloride	ug/L	8.8E-01	6.3E-01 (NP)	1.2E+00	6.3E-01	ug/L	95% KM (t) UCL	
	Xylene (Total)	ug/L	9.7E+00	2.0E+00 (G)	5.1E+01	2.0E+00	ug/L	95% KM (t) UCL	(a)

TABLE 3.24.RME
 EXPOSURE POINT CONCENTRATION SUMMARY
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Medium: Groundwater
 Exposure Medium: Shallow Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
	Aroclor-1242	ug/L	3.3E-01	3.3E-01 (NP)	3.3E-01 (J)	3.3E-01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Aroclor-1248	ug/L	5.3E-02	NC	1.8E-01 (J)	1.8E-01	ug/L	Maximum Concentration	(c)
	Aroclor-1254	ug/L	5.8E-01	5.8E-01 (NP)	5.8E-01	5.8E-01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	4,4'-DDD	ug/L	2.7E-03	NC	5.0E-03 (J)	5.0E-03	ug/L	Maximum Concentration	(c)
	4,4'-DDE	ug/L	4.7E-03	3.9E-03 (NP)	5.6E-03 (J)	3.9E-03	ug/L	95% KM (t) UCL	
	4,4'-DDT	ug/L	2.7E-03	NC	3.8E-03 (J)	3.8E-03	ug/L	Maximum Concentration	(c)
	Aldrin	ug/L	1.9E-03	NC	6.0E-03 (J)	6.0E-03	ug/L	Maximum Concentration	(c)
	alpha-BHC	ug/L	1.9E-03	NC	3.5E-03 (J)	3.5E-03	ug/L	Maximum Concentration	(c)
	Dieldrin	ug/L	ND	ND	ND	ND	ug/L	NA	
	Endosulfan Sulfate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Gamma-BHC (Lindane)	ug/L	1.2E-02	8.5E-03 (NP)	1.6E-02 (J)	8.5E-03	ug/L	95% KM (t) UCL	
	Heptachlor	ug/L	1.9E-03	NC	4.6E-03 (J)	4.6E-03	ug/L	Maximum Concentration	(c)
	Aluminum	ug/L	5.5E+02	1.3E+03 (LN)	1.3E+04	1.3E+03	ug/L	97.5% KM (Chebyshev) UCL	
	Arsenic	ug/L	1.5E+01	2.9E+01 (LN)	1.2E+02	2.9E+01	ug/L	97.5% KM (Chebyshev) UCL	
	Cadmium	ug/L	2.5E+00	2.2E+00 (NP)	2.7E+01	2.2E+00	ug/L	95% KM (Chebyshev) UCL	(a)
	Chromium	ug/L	3.0E+00	1.7E+00 (NP)	1.3E+01	1.7E+00	ug/L	95% KM (t) UCL	
	Cobalt	ug/L	4.6E+00	7.6E+00 (NP)	3.3E+01	7.6E+00	ug/L	95% KM (BCA) UCL	
	Iron	ug/L	1.7E+04	2.4E+04 (NP)	7.7E+04	2.4E+04	ug/L	97.5% KM (Chebyshev) UCL	
	Lead	ug/L	3.3E+00	3.3E+00 (NP)	7.9E+01	3.3E+00	ug/L	95% KM (BCA) UCL	
	Manganese	ug/L	7.4E+02	1.0E+03 (G)	5.8E+03	1.0E+03	ug/L	95% KM (Chebyshev) UCL	
	Nickel	ug/L	1.8E+01	8.8E+00 (G)	7.8E+01	8.8E+00	ug/L	95% KM (t) UCL	(a)
	Silver	ug/L	7.3E+00	2.0E+00 (NP)	1.4E+01 (J)	2.0E+00	ug/L	95% KM (t) UCL	
	Thallium	ug/L	3.4E+00	2.6E+00 (NP)	8.5E+00 (J)	2.6E+00	ug/L	95% KM (BCA) UCL	(a)
	Zinc	ug/L	4.1E+02	2.7E+02 (LN)	4.1E+03	2.7E+02	ug/L	95% KM (Chebyshev) UCL	(a)

TABLE 3.24.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Shallow Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: 2-chlorophenol, 4-chloroaniline, atrazine, benzaldehyde, benzo(g,h,i)perylene, carbazole, 1,2,4-trichlorobenzene, 1,3-dichlorobenzene, 2-butanone, chloroethane, aroclor-1248, 4,4'-DDD, 4,4'-DDT, aldrin, alpha-BHC, and heptachlor, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.24.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Shallow Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
Site-Wide	1,4-Dioxane	ug/L	1.3E+01	7.0E+00 (G)	5.3E+01	7.0E+00	ug/L	95% KM (t) UCL	(a)
	2,4-Dimethylphenol	ug/L	4.1E+00	3.0E+00 (NP)	8.0E+00 (J)	3.0E+00	ug/L	99% KM (Chebyshev) UCL	
	2-Chlorophenol	ug/L	1.8E+00	NC	3.4E-01 (J)	3.4E-01	ug/L	Maximum Concentration	(f)
	4-Chloroaniline	ug/L	1.8E+00	NC	1.4E+00 (J)	1.4E+00	ug/L	Maximum Concentration	(f)
	Atrazine	ug/L	1.8E+00	NC	3.2E+00 (J)	1.8E+00	ug/L	Arithmetic mean	(e)
	Benzaldehyde	ug/L	1.8E+00	NC	1.1E+00 (J)	1.1E+00	ug/L	Maximum Concentration	(f)
	Benzo(a)anthracene	ug/L	9.6E-02	3.1E-02 (G)	3.6E-01	3.1E-02	ug/L	95% KM (t) UCL	(a)
	Benzo(a)pyrene	ug/L	1.9E-01	1.2E-01 (NP)	2.6E-01	1.2E-01	ug/L	95% KM (t) UCL	(a)
	Benzo(b)fluoranthene	ug/L	1.7E-01	2.8E-02 (N)	3.8E-01	2.8E-02	ug/L	95% KM (t) UCL	(a)
	Benzo(g,h,i)perylene	ug/L	1.7E+00	NC	1.5E-01	1.5E-01	ug/L	Maximum Concentration	(f)
	bis(2-Ethylhexyl)phthalate	ug/L	4.1E+00	4.4E+00 (NP)	5.0E+01	4.4E+00	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Carbazole	ug/L	2.9E-01	NC	4.8E-01 (J)	2.9E-01	ug/L	Arithmetic mean	(e)
	Dibenzofuran	ug/L	3.7E-01	4.2E-01 (NP)	4.2E-01 (J)	4.2E-01	ug/L	95% KM (% Bootstrap) UCL	
	Indeno(1,2,3-cd)pyrene	ug/L	1.4E-01	1.4E-01 (NP)	1.4E-01	1.4E-01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Naphthalene	ug/L	1.2E+00	8.5E-01 (LN)	1.4E+01	8.5E-01	ug/L	95% KM (Chebyshev) UCL	(a)
	Phenanthrene	ug/L	7.5E-01	2.0E-01 (G)	5.9E+00	2.0E-01	ug/L	95% KM (t) UCL	(a)
	1,2,4-Trichlorobenzene	ug/L	2.9E-01	NC	2.4E-01 (J)	2.4E-01	ug/L	Maximum Concentration	(f)
	1,2-Dichlorobenzene	ug/L	1.0E+00	7.6E-01 (NP)	4.4E+00 (J)	7.6E-01	ug/L	95% KM (t) UCL	
	1,3-Dichlorobenzene	ug/L	3.0E-01	NC	6.9E-01 (J)	3.0E-01	ug/L	Arithmetic mean	(e)
	1,4-Dichlorobenzene	ug/L	1.9E+00	9.3E-01 (G)	8.4E+00	9.3E-01	ug/L	95% KM (BCA) UCL	(a)
	2-Butanone	ug/L	1.9E+00	NC	1.3E+00 (J)	1.3E+00	ug/L	Maximum Concentration	(f)
	Benzene	ug/L	9.8E+01	1.0E+02 (NP)	1.1E+03	1.0E+02	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Bromodichloromethane	ug/L	ND	ND	ND	ND	ug/L	NA	
	Chlorobenzene	ug/L	1.4E+01	5.5E+00 (G)	9.3E+01	5.5E+00	ug/L	95% KM (t) UCL	(a)
	Chloroethane	ug/L	4.7E-01	NC	2.1E+00 (J)	4.7E-01	ug/L	Arithmetic mean	(e)
	Chloroform	ug/L	1.5E+00	6.4E-01 (N)	3.9E+00	6.4E-01	ug/L	95% KM (t) UCL	(a)
	Ethylbenzene	ug/L	4.0E+00	1.3E+00 (NP)	1.7E+01	1.3E+00	ug/L	95% KM (t) UCL	
	Isopropylbenzene	ug/L	1.7E+01	9.6E+00 (LN)	1.6E+02	9.6E+00	ug/L	95% KM (Chebyshev) UCL	(a)
	Methyl tert-butyl ether	ug/L	2.7E+00	1.6E+00 (NP)	2.1E+01	1.6E+00	ug/L	95% KM (BCA) UCL	(a)
	Tetrachloroethene	ug/L	ND	ND	ND	ND	ug/L	NA	
	Toluene	ug/L	1.5E+00	5.8E-01 (NP)	4.9E+00 (J)	5.8E-01	ug/L	95% KM (t) UCL	
	Trichloroethene	ug/L	8.8E-01	5.9E-01 (NP)	1.2E+00	5.9E-01	ug/L	95% KM (t) UCL	
	Vinyl Chloride	ug/L	8.8E-01	6.3E-01 (NP)	1.2E+00	6.3E-01	ug/L	95% KM (t) UCL	
	Xylene (Total)	ug/L	9.7E+00	2.0E+00 (G)	5.1E+01	2.0E+00	ug/L	95% KM (t) UCL	(a)

TABLE 3.24.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Shallow Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)
	Aroclor-1242	ug/L	3.3E-01	3.3E-01 (NP)	3.3E-01 (J)	3.3E-01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	Aroclor-1248	ug/L	5.3E-02	NC	1.8E-01 (J)	5.3E-02	ug/L	Arithmetic mean	(e)
	Aroclor-1254	ug/L	5.8E-01	5.8E-01 (NP)	5.8E-01	5.8E-01	ug/L	97.5% KM (Chebyshev) UCL	(a)
	4,4'-DDD	ug/L	2.7E-03	NC	5.0E-03 (J)	2.7E-03	ug/L	Arithmetic mean	(e)
	4,4'-DDE	ug/L	4.7E-03	3.9E-03 (NP)	5.6E-03 (J)	3.9E-03	ug/L	95% KM (t) UCL	
	4,4'-DDT	ug/L	2.7E-03	NC	3.8E-03 (J)	2.7E-03	ug/L	Arithmetic mean	(e)
	Aldrin	ug/L	1.9E-03	NC	6.0E-03 (J)	1.9E-03	ug/L	Arithmetic mean	(e)
	alpha-BHC	ug/L	1.9E-03	NC	3.5E-03 (J)	1.9E-03	ug/L	Arithmetic mean	(e)
	Dieldrin	ug/L	ND	ND	ND	ND	ug/L	NA	
	Endosulfan Sulfate	ug/L	ND	ND	ND	ND	ug/L	NA	
	Gamma-BHC (Lindane)	ug/L	1.2E-02	8.5E-03 (NP)	1.6E-02 (J)	8.5E-03	ug/L	95% KM (t) UCL	
	Heptachlor	ug/L	1.9E-03	NC	4.6E-03 (J)	1.9E-03	ug/L	Arithmetic mean	(e)
	Aluminum	ug/L	5.5E+02	1.3E+03 (LN)	1.3E+04	1.3E+03	ug/L	97.5% KM (Chebyshev) UCL	
	Arsenic	ug/L	1.5E+01	2.9E+01 (LN)	1.2E+02	2.9E+01	ug/L	97.5% KM (Chebyshev) UCL	
	Cadmium	ug/L	2.5E+00	2.2E+00 (NP)	2.7E+01	2.2E+00	ug/L	95% KM (Chebyshev) UCL	(a)
	Chromium	ug/L	3.0E+00	1.7E+00 (NP)	1.3E+01	1.7E+00	ug/L	95% KM (t) UCL	
	Cobalt	ug/L	4.6E+00	7.6E+00 (NP)	3.3E+01	7.6E+00	ug/L	95% KM (BCA) UCL	
	Iron	ug/L	1.7E+04	2.4E+04 (NP)	7.7E+04	2.4E+04	ug/L	97.5% KM (Chebyshev) UCL	
	Lead	ug/L	3.3E+00	3.3E+00 (NP)	7.9E+01	3.3E+00	ug/L	95% KM (BCA) UCL	
	Manganese	ug/L	7.4E+02	1.0E+03 (G)	5.8E+03	1.0E+03	ug/L	95% KM (Chebyshev) UCL	
	Nickel	ug/L	1.8E+01	8.8E+00 (G)	7.8E+01	8.8E+00	ug/L	95% KM (t) UCL	(a)
	Silver	ug/L	7.3E+00	2.0E+00 (NP)	1.4E+01 (J)	2.0E+00	ug/L	95% KM (t) UCL	
	Thallium	ug/L	3.4E+00	2.6E+00 (NP)	8.5E+00 (J)	2.6E+00	ug/L	95% KM (BCA) UCL	(a)
	Zinc	ug/L	4.1E+02	2.7E+02 (LN)	4.1E+03	2.7E+02	ug/L	95% KM (Chebyshev) UCL	(a)

TABLE 3.24.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Shallow Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (2)	Maximum Concentration (Qualifier) (3)	Exposure Point Concentration			
						Value	Units	Statistic (4)	Rationale (5)

Notes:

- (1) Arithmetic means were calculated with ProUCL software version 4.0 and represent means of detected concentrations only except for the following analytes: 2-chlorophenol, 4-chloroaniline, atrazine, benzaldehyde, benzo(g,h,i)perylene, carbazole, 1,2,4-trichlorobenzene, 1,3-dichlorobenzene, 2-butanone, chloroethane, aroclor-1248, 4,4'-DDD, 4,4'-DDT, aldrin, alpha-BHC, and heptachlor, where means were calculated using one-half the laboratory detection limit for non-detects. NA = Not applicable.
- (2) UCL calculations were performed using ProUCL software version 4.0, developed by Lockheed-Martin for USEPA.
NP = Non-parametric; N = Normal; LN = Lognormal; G = Gamma; NA = Not applicable.
- (3) J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- (4) 95% Student's-t UCL = Calculated using a normal Student's t approximation procedure.
95% Approx. Gamma UCL = Calculated using an Approximate Gamma distribution procedure.
95% H-UCL = Calculated using Land's H-stat for lognormal distributions.
95% Chebyshev (Mean, Sd) UCL = Calculated using Chebyshev inequality non-parametric procedure.
95% KM (t) UCL = Calculated using 95% Kaplan Meier (Student's t approximation) non-parametric procedure.
95% KM (BCA) UCL = Calculated using 95% Kaplan Meier (Bias-corrected accelerated bootstrap) non-parametric procedure.
95% KM (Chebyshev) UCL = Calculated using 95% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
95% KM (% Bootstrap) UCL = Calculated using 95% Kaplan Meier (Percentile Bootstrap) non-parametric procedure.
97.5% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
99% KM (Chebyshev) UCL = Calculated using 97.5% Kaplan Meier (Chebyshev inequality) non-parametric procedure.
- (5) For data sets with multiple detection limits for non-detects, the use of the Kaplan Meier non-parametric test procedure is recommended and used to calculate an appropriate UCL. For the Kaplan Meier test procedure, the type of data distribution was determined using a series of tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling) for normal, lognormal, or gamma data distributions. The results of these distribution tests determined which UCL calculation was performed.
 - (a) UCL may not be reliable due to the high frequency of non-detects present.
 - (b) Maximum detected concentration used for EPC due to the low number of detections.
 - (c) Due to small sample size, the maximum detected concentration is used.
 - (d) 95% UCL exceeds maximum detected concentration. Therefore, maximum concentration used for EPC
 - (e) When the maximum detected concentration is selected as the RME EPC, the arithmetic mean concentration is selected as the CT EPC.
 - (f) If the arithmetic mean concentration equals or exceeds the maximum detected concentration, the maximum detected concentration is used as the CT EPC.

ND = Non-detect

NC = Not calculated

TABLE 3.25.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil/Groundwater
Exposure Medium: Ambient Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration (1)			
						Value	Units	Statistic	Rationale
Landfill	1,1-Dichloroethane	ug/m3	NA	NA	NA	4.2E-03	ug/m3	SCREEN3 model	
	1,2,4-Trimethylbenzene	ug/m3	NA	NA	NA	5.4E-02	ug/m3	SCREEN3 model	
	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ug/m3	NA	NA	NA	7.2E-02	ug/m3	SCREEN3 model	
	1,2-Dichlorobenzene	ug/m3	NA	NA	NA	5.2E-02	ug/m3	SCREEN3 model	
	1,3,5-Trimethylbenzene	ug/m3	NA	NA	NA	9.9E-03	ug/m3	SCREEN3 model	
	1,3-Dichlorobenzene	ug/m3	NA	NA	NA	1.0E-01	ug/m3	SCREEN3 model	
	1,4-Dichlorobenzene	ug/m3	NA	NA	NA	2.9E-01	ug/m3	SCREEN3 model	
	4-Ethyltoluene	ug/m3	NA	NA	NA	4.9E-02	ug/m3	SCREEN3 model	
	Benzene	ug/m3	NA	NA	NA	7.2E-01	ug/m3	SCREEN3 model	
	Carbon tetrachloride	ug/m3	NA	NA	NA	2.1E-03	ug/m3	SCREEN3 model	
	Chlorobenzene	ug/m3	NA	NA	NA	1.7E+00	ug/m3	SCREEN3 model	
	cis-1,2-Dichloroethene	ug/m3	NA	NA	NA	8.8E-03	ug/m3	SCREEN3 model	
	Dichlorodifluoromethane	ug/m3	NA	NA	NA	1.8E-02	ug/m3	SCREEN3 model	
	Ethylbenzene	ug/m3	NA	NA	NA	5.5E-01	ug/m3	SCREEN3 model	
	Methylene chloride	ug/m3	NA	NA	NA	4.1E-03	ug/m3	SCREEN3 model	
	trans-1,2-Dichloroethene	ug/m3	NA	NA	NA	9.9E-03	ug/m3	SCREEN3 model	
	Trichloroethene	ug/m3	NA	NA	NA	2.3E-02	ug/m3	SCREEN3 model	
	Vinyl Chloride	ug/m3	NA	NA	NA	8.8E-02	ug/m3	SCREEN3 model	
	Xylene (Total)	ug/m3	NA	NA	NA	3.1E-01	ug/m3	SCREEN3 model	

Notes:

(1) The exposure point concentrations were estimated using the USEPA SCREEN3 air dispersion model and the air vent data from the landfill (Appendix X).

NA = Not applicable.

TABLE 3.25.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Medium: Soil/Groundwater
Exposure Medium: Ambient Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration (1)			
						Value	Units	Statistic	Rationale
Landfill	1,1-Dichloroethane	ug/m3	NA	NA	NA	2.9E-03	ug/m3	SCREEN3 model	
	1,2,4-Trimethylbenzene	ug/m3	NA	NA	NA	3.8E-02	ug/m3	SCREEN3 model	
	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ug/m3	NA	NA	NA	5.0E-02	ug/m3	SCREEN3 model	
	1,2-Dichlorobenzene	ug/m3	NA	NA	NA	3.6E-02	ug/m3	SCREEN3 model	
	1,3,5-Trimethylbenzene	ug/m3	NA	NA	NA	7.0E-03	ug/m3	SCREEN3 model	
	1,3-Dichlorobenzene	ug/m3	NA	NA	NA	7.3E-02	ug/m3	SCREEN3 model	
	1,4-Dichlorobenzene	ug/m3	NA	NA	NA	2.0E-01	ug/m3	SCREEN3 model	
	4-Ethyltoluene	ug/m3	NA	NA	NA	3.4E-02	ug/m3	SCREEN3 model	
	Benzene	ug/m3	NA	NA	NA	5.0E-01	ug/m3	SCREEN3 model	
	Carbon tetrachloride	ug/m3	NA	NA	NA	1.5E-03	ug/m3	SCREEN3 model	
	Chlorobenzene	ug/m3	NA	NA	NA	1.2E+00	ug/m3	SCREEN3 model	
	cis-1,2-Dichloroethene	ug/m3	NA	NA	NA	6.2E-03	ug/m3	SCREEN3 model	
	Dichlorodifluoromethane	ug/m3	NA	NA	NA	1.2E-02	ug/m3	SCREEN3 model	
	Ethylbenzene	ug/m3	NA	NA	NA	3.9E-01	ug/m3	SCREEN3 model	
	Methylene chloride	ug/m3	NA	NA	NA	2.9E-03	ug/m3	SCREEN3 model	
	trans-1,2-Dichloroethene	ug/m3	NA	NA	NA	7.0E-03	ug/m3	SCREEN3 model	
	Trichloroethene	ug/m3	NA	NA	NA	1.6E-02	ug/m3	SCREEN3 model	
	Vinyl Chloride	ug/m3	NA	NA	NA	6.2E-02	ug/m3	SCREEN3 model	
	Xylene (Total)	ug/m3	NA	NA	NA	2.2E-01	ug/m3	SCREEN3 model	

Notes:

(1) The exposure point concentrations were estimated using the USEPA SCREEN3 air dispersion model and the air vent data from the landfill (Appendix X).

NA = Not applicable.

TABLE 3.26.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Outdoor (Trench) Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel	1,1'-Biphenyl	mg/kg	NA	1.1E-01	NA	3.8E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	2-Methylnaphthalene	mg/kg	NA	3.2E-01	NA	3.0E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Acenaphthene	mg/kg	NA	8.1E-01	NA	7.6E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	Acetophenone	mg/kg	NA	NA	8.0E-02 (a)	8.4E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzaldehyde	mg/kg	NA	1.1E-01	NA	3.9E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Naphthalene	mg/kg	NA	3.7E-01	NA	7.0E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	1,4-Dichlorobenzene	mg/kg	NA	NA	8.0E-03 (a)	3.0E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzene	mg/kg	NA	1.2E-01	NA	1.5E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Carbon disulfide	mg/kg	NA	NA	2.7E-02 (a)	1.7E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Ethylbenzene	mg/kg	NA	NA	2.0E-02 (a)	5.6E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Methyl acetate	mg/kg	NA	3.5E-01	NA	5.0E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Tetrachloroethene	mg/kg	NA	NA	1.5E-02 (a)	1.9E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Toluene	mg/kg	NA	4.0E+00	NA	2.2E+03	ug/m3	Johnson & Ettinger model	see Appendix T
	Xylene (Total)	mg/kg	NA	2.6E-01	NA	6.8E+01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.

NA = Not applicable.

(a) The EPC presented is the maximum detected concentration because the ProUCL-recommended UCL exceeded the maximum concentration due to the large number of non-detects in the dataset.

(2) The exposure point concentrations were estimated using the Johnson & Ettinger (slab-on-grade) model (see Appendix T).

TABLE 3.26.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Outdoor (Trench) Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel	1,1'-Biphenyl	mg/kg	NA	1.1E-01	NA	3.8E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	2-Methylnaphthalene	mg/kg	NA	3.2E-01	NA	3.0E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Acenaphthene	mg/kg	NA	8.1E-01	NA	7.6E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	Acetophenone	mg/kg	NA	NA	8.0E-02 (a)	8.4E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzaldehyde	mg/kg	NA	1.1E-01	NA	3.9E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Naphthalene	mg/kg	NA	3.7E-01	NA	7.0E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	1,4-Dichlorobenzene	mg/kg	NA	NA	8.0E-03 (a)	3.0E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzene	mg/kg	NA	1.2E-01	NA	1.5E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Carbon disulfide	mg/kg	NA	NA	2.7E-02 (a)	1.7E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Ethylbenzene	mg/kg	NA	NA	2.0E-02 (a)	5.6E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Methyl acetate	mg/kg	NA	3.5E-01	NA	5.0E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Tetrachloroethene	mg/kg	NA	NA	1.5E-02 (a)	1.9E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Toluene	mg/kg	NA	4.0E+00	NA	2.2E+03	ug/m3	Johnson & Ettinger model	see Appendix T
	Xylene (Total)	mg/kg	NA	2.6E-01	NA	6.8E+01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.

NA = Not applicable.

(a) The EPC presented is the maximum detected concentration because the ProUCL-recommended UCL exceeded the maximum concentration due to the large number of non-detects in the dataset.

(2) The exposure point concentrations were estimated using the Johnson & Ettinger (slab-on-grade) model (see Appendix T).

TABLE 3.27.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Outdoor (Trench) Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel	Benzene	ug/L	NA	1.2E+01	NA	2.5E-01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.
NA = Not applicable.

(2) The exposure point concentrations were estimated using the Johnson & Ettinger (slab-on-grade) model (see Appendix T).
NA = Not applicable

TABLE 3.27.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Outdoor (Trench) Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel	Benzene	ug/L	NA	1.2E+01	NA	2.5E-01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.
NA = Not applicable.

(2) The exposure point concentrations were estimated using the Johnson & Ettinger (slab-on-grade) model (see Appendix T).
NA = Not applicable

TABLE 3.28.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel	1,1'-Biphenyl	mg/kg	NA	1.1E-01	NA	6.2E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	2-Methylnaphthalene	mg/kg	NA	3.2E-01	NA	4.7E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Acenaphthene	mg/kg	NA	8.1E-01	NA	1.2E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Acetophenone	mg/kg	NA	NA	8.0E-02 (a)	1.1E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzaldehyde	mg/kg	NA	1.1E-01	NA	4.6E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Naphthalene	mg/kg	NA	3.7E-01	NA	1.0E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	1,4-Dichlorobenzene	mg/kg	NA	NA	8.0E-03 (a)	4.2E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzene	mg/kg	NA	1.2E-01	NA	1.5E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Carbon disulfide	mg/kg	NA	NA	2.7E-02 (a)	1.6E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Ethylbenzene	mg/kg	NA	NA	2.0E-02 (a)	6.5E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Methyl acetate	mg/kg	NA	3.5E-01	NA	4.7E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Tetrachloroethene	mg/kg	NA	NA	1.5E-02 (a)	2.3E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Toluene	mg/kg	NA	4.0E+00	NA	2.4E+03	ug/m3	Johnson & Ettinger model	see Appendix T
	Xylene (Total)	mg/kg	NA	2.6E-01	NA	7.8E+01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.

NA = Not applicable.

(a) The EPC presented is the maximum detected concentration because the ProUCL-recommended UCL exceeded the maximum concentration due to the large number of non-detects in the dataset.

(2) The exposure point concentrations were estimated using the Johnson & Ettinger (basement) model (see Appendix T).

TABLE 3.28.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel	1,1'-Biphenyl	mg/kg	NA	1.1E-01	NA	6.2E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	2-Methylnaphthalene	mg/kg	NA	3.2E-01	NA	4.7E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Acenaphthene	mg/kg	NA	8.1E-01	NA	1.2E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Acetophenone	mg/kg	NA	NA	8.0E-02 (a)	1.1E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzaldehyde	mg/kg	NA	1.1E-01	NA	4.6E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Naphthalene	mg/kg	NA	3.7E-01	NA	1.0E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	1,4-Dichlorobenzene	mg/kg	NA	NA	8.0E-03 (a)	4.2E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzene	mg/kg	NA	1.2E-01	NA	1.5E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Carbon disulfide	mg/kg	NA	NA	2.7E-02 (a)	1.6E+02	ug/m3	Johnson & Ettinger model	see Appendix T
	Ethylbenzene	mg/kg	NA	NA	2.0E-02 (a)	6.5E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Methyl acetate	mg/kg	NA	3.5E-01	NA	4.7E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Tetrachloroethene	mg/kg	NA	NA	1.5E-02 (a)	2.3E+01	ug/m3	Johnson & Ettinger model	see Appendix T
	Toluene	mg/kg	NA	4.0E+00	NA	2.4E+03	ug/m3	Johnson & Ettinger model	see Appendix T
	Xylene (Total)	mg/kg	NA	2.6E-01	NA	7.8E+01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

(1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.

NA = Not applicable.

(a) The EPC presented is the maximum detected concentration because the ProUCL-recommended UCL exceeded the maximum concentration due to the large number of non-detects in the dataset.

(2) The exposure point concentrations were estimated using the Johnson & Ettinger (basement) model (see Appendix T).

TABLE 3.29.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel	Naphthalene	ug/L	NA	1.1E+01	NA	6.8E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	1,4-Dichlorobenzene	ug/L	NA	1.7E+00	NA	5.9E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzene	ug/L	NA	1.2E+01	NA	1.5E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Chloroform	ug/L	NA	1.2E+00	NA	1.2E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Ethylbenzene	ug/L	NA	NA	1.7E+01	2.3E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Vinyl chloride	ug/L	NA	NA	8.5E-01 (a)	7.8E-01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

- (1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.
NA = Not applicable.
(a) The EPC presented is the maximum detected concentration because the ProUCL-recommended UCL exceeded the maximum concentration due to the large number of non-detects in the dataset.
- (2) The exposure point concentrations were estimated using the Johnson & Ettinger (basement) model (see Appendix T).

TABLE 3.29.CT
EXPOSURE POINT CONCENTRATION SUMMARY
CENTRAL TENDENCY EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	UCL (Distribution) (1)	Maximum Concentration (Qualifier) (1)	Exposure Point Concentration (2)			
						Value (2)	Units	Statistic	Rationale
Nunes Parcel	Naphthalene	ug/L	NA	1.1E+01	NA	6.8E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	1,4-Dichlorobenzene	ug/L	NA	1.7E+00	NA	5.9E-02	ug/m3	Johnson & Ettinger model	see Appendix T
	Benzene	ug/L	NA	1.2E+01	NA	1.5E+00	ug/m3	Johnson & Ettinger model	see Appendix T
	Chloroform	ug/L	NA	1.2E+00	NA	1.2E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Ethylbenzene	ug/L	1.2E+00	NA	NA	1.6E-01	ug/m3	Johnson & Ettinger model	see Appendix T
	Vinyl chloride	ug/L	NA	NA	8.5E-01 (a)	7.8E-01	ug/m3	Johnson & Ettinger model	see Appendix T

Notes:

- (1) Only statistics utilized for Johnson & Ettinger modeling have been presented. Refer to Appendix V for statistics on each COPC.
NA = Not applicable.
(a) The EPC presented is the maximum detected concentration because the ProUCL-recommended UCL exceeded the maximum concentration due to the large number of non-detects in the dataset.
- (2) The exposure point concentrations were estimated using the Johnson & Ettinger (basement) model (see Appendix T).

TABLE 4.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe: Current
Medium: Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespasser	Adolescent	(1) Debris Fields (2) Landfill (3) Quinville wellfield (4) Wetlands (5) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	mg/kg	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	100	mg/day	USEPA, 2002	
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	10	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Dermal	Trespasser	Adolescent	(1) Debris Fields (2) Landfill (3) Quinville wellfield (4) Wetlands (5) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	mg/kg	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	5,900	cm ²	USEPA, 1997	
				AF	Adherence Factor	0.07	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	10	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Ingestion	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	100	mg/day	USEPA, 1997; 2002	
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	

TABLE 4.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe: Current
Medium: Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	5,700	cm ²	USEPA, 1997	
				AF	Adherence Factor	0.07	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Ingestion	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	100	mg/day	USEPA, 2002	
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
Dermal	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	4,400	cm ²	USEPA, 1997	
				AF	Adherence Factor	0.20	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe: Current
Medium: Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Commercial Worker	Adult	(1) Nunes Parcel (2) Quinnville Wellfield	CS	Chemical Concentration in Soil	See Tables 3.5; 3.1	mg/kg	See Tables 3.5; 3.1	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	100	mg/day	USEPA, 1997; 2002	
				EF	Exposure Frequency	250	days/yr	USEPA, 2002	
				ED	Exposure Duration	25	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	9,125	days	USEPA, 1989	
Dermal	Commercial Worker	Adult	(1) Nunes Parcel (2) Quinnville Wellfield	CS	Chemical Concentration in Soil	See Tables 3.5; 3.1	mg/kg	See Tables 3.5; 3.1	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	3,300	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.20	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	250	days/yr	USEPA, 2002	
				ED	Exposure Duration	25	years	USEPA, 2002	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	9,125	days	USEPA, 1989	

Adherence factor for adolescent soil exposure represents the geometric mean for adult gardeners.

Adolescent surface area assumes head, forearms, hands, lower legs, and feet.

Adult recreational user surface area assumes head, forearms, hands, and lower legs.

Older child surface area assumes head, forearms, hands, lower legs, and feet.

Adult commercial worker surface area assumes head, forearms, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.1.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespasser	Adolescent	(1) Debris Fields (2) Landfill (3) Quinville wellfield (4) Wetlands (5) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	mg/kg	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	<u>$CS \times IR \times EF \times ED \times CF \times FI$</u> BW x AT
				IR	Ingestion Rate	50	mg/day	USEPA, 1997; 2002	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	10	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Dermal	Trespasser	Adolescent	(1) Debris Fields (2) Landfill (3) Quinville wellfield (4) Wetlands (5) Nunes Parcel	CS	Chemical Concentration in Soil	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	mg/kg	See Tables 3.4; 3.2; 3.1; 3.16; 3.5	<u>$CS \times SA \times AF \times ABS \times EF \times ED \times CF$</u> BW x AT
				SA	Surface Area	5,900	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.07	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	10	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Ingestion	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	<u>$CS \times IR \times EF \times ED \times CF \times FI$</u> BW x AT
				IR	Ingestion Rate	50	mg/day	USEPA, 1997; 2002	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	

TABLE 4.1.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	5,700	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.07	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
Ingestion	Recreational User	Older child	Southern Bank (Lincoln side)	ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
				CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	50	mg/day	USEPA, 1997; 2002	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,555	days	USEPA, 1989	
Dermal	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	4,400	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.20	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
Ingestion	Recreational User	Older child	Southern Bank (Lincoln side)	ATnc	Averaging Time - noncancer	2,555	days	USEPA, 1989	

TABLE 4.1.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Commercial Worker	Adult	(1) Nunes Parcel (2) Quinville Wellfield	CS	Chemical Concentration in Soil	See Tables 3.5; 3.1	mg/kg	See Tables 3.5; 3.1 USEPA, 2002 USEPA, 2002 USEPA, 1989 USEPA, 1989 USEPA, 1989 USEPA, 1989 USEPA, 1989 USEPA, 1989	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	50	mg/day		
				EF	Exposure Frequency	219	days/yr		
				ED	Exposure Duration	9	years		
				FI	Fraction Ingested from Site	1	unitless		
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg		
				ATc	Averaging Time - cancer	25,550	days		
				ATnc	Averaging Time - noncancer	3,285	days		
Dermal	Commercial Worker	Adult	(1) Nunes Parcel (2) Quinville Wellfield	CS	Chemical Concentration in Soil	See Tables 3.5; 3.1	mg/kg	See Tables 3.5; 3.1 USEPA, 2004 USEPA, 2004 USEPA, 2004 USEPA, 2002 USEPA, 1989 USEPA, 1989 USEPA, 1989 USEPA, 1989	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	3,300	cm ²		
				AF	Adherence Factor	0.20	mg/cm ² -day		
				ABS	Dermal absorption fraction	see Appendix U	unitless		
				EF	Exposure Frequency	219	days/yr		
				ED	Exposure Duration	9	years		
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg		
				ATc	Averaging Time - cancer	25,550	days		
				ATnc	Averaging Time - noncancer	3,285	days		

Adherence factor for adolescent soil exposure represents that for teens in moist soil conditions.

Adolescent surface area assumes head, forearms, hands, lower legs, and feet.

Adult recreational user surface area assumes head, forearms, hands, and lower legs.

Older child surface area assumes head, forearms, hands, lower legs, and feet.

Adult commercial worker surface area assumes head, forearms, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Soil/Groundwater
Exposure Medium:	Ambient Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Trespasser	Adolescent	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	mg/m ³	See Table 3.25	$\frac{CA \times ET \times EF \times ED}{AT \times CF}$
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	10	years	USEPA, 1989	
				ET	Exposure Time	1	hours/day	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
Inhalation	Site Worker	Adult	Landfill	ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	$\frac{CA \times ET \times EF \times ED}{AT \times CF}$
				CA	Chemical Concentration in Ambient Air	See Table 3.25	mg/m ³	See Table 3.25	
				ET	Exposure Time	8	hrs/day	Professional judgement	
				EF	Exposure Frequency	150	days/yr	USEPA, 2004	
				ED	Exposure Duration	25	years	USEPA, 2004	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	9,125	days	USEPA, 1989	

Exposure time for site worker assumes 8-hr work day.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.2.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe: Current
Medium: Soil/Groundwater
Exposure Medium: Ambient Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Trespasser	Adolescent	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	mg/m ³	See Table 3.25	$\frac{CA \times ET \times EF \times ED}{AT \times CF}$
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	10	years	USEPA, 1989	
				ET	Exposure Time	1	hour/day	Professional Judgement	
				CF	Conversion factor	24	hour/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Inhalation	Site Worker	Adult	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	mg/m ³	See Table 3.25	$\frac{CA \times ET \times EF \times ED}{AT \times CF}$
				ET	Exposure Time	8	hrs/day	Professional judgement	
				EF	Exposure Frequency	150	days/yr	Professional Judgement	
				ED	Exposure Duration	9	years	USEPA, 2004	
				CF	Conversion factor	24	hour/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,285	days	USEPA, 1989	

Exposure time for site worker assumes 8-hr work day.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.3.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe: Current
Medium: Leachate
Exposure Medium: Leachate

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Trespasser	Adolescent	(1) Landfill	CW	Chemical Concentration in Water	See Table 3.7	ug/L	See Table 3.7	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	3,700	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1	events/day	Professional Judgement	
				EF	Exposure Frequency	52	days/year	Professional Judgement	
				ED	Exposure Duration	10	years	USEPA, 1989	
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3650	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	

Surface area assumes lower legs, feet, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.3.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Leachate
Exposure Medium:	Leachate

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal-wading	Trespasser	Adolescent	(1) Landfill	CW	Chemical Concentration in Water	See Table 3.7	ug/L	See Table 3.7	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	3,700	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1	events/day	Professional Judgement	
				EF	Exposure Frequency	26	days/year	Professional Judgement	
				ED	Exposure Duration	10	years	USEPA, 1989	
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3650	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	

Surface area assumes lower legs, feet, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.4.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe: Current
Medium: Surface water
Exposure Medium: Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Trespasser	Adolescent	(1) Upstream of landfill (2) Adjacent to landfill (3) Downstream of landfill (4) and Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.18	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	7,600	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1.0	events/day	Professional Judgement	
				EF	Exposure Frequency	52	days/year	Professional Judgement	
				ED	Exposure Duration	10	years	USEPA, 1989	
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3650	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	
Dermal - wading	Recreational User	Adult	Southern Bank (Lincoln side)	CW	Chemical Concentration in Water	See Table 3.12	ug/L	See Table 3.12	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	7,310	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1.0	events/day	Professional Judgement	
				EF	Exposure Frequency	52	days/year	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8760	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	

TABLE 4.4.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Recreational User	Older child	Southern Bank (Lincoln side)	CW	Chemical Concentration in Water	See Table 3.12	ug/L	See Table 3.12	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	4,170	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1.0	events/day	Professional Judgement	
				EF	Exposure Frequency	52	days/year	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	

Surface areas for wading exposures assume hands, feet, forearms, and lower legs.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.4.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe: Current
Medium: Surface water
Exposure Medium: Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal-wading	Trespasser	Adolescent	(1) Upstream of landfill (2) Adjacent to landfill (3) Downstream of landfill (4) and Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.18	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	7,600	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1.0	events/day	Professional Judgement	
				EF	Exposure Frequency	26	days/year	Professional Judgement	
				ED	Exposure Duration	10	years	USEPA, 1989	
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3650	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	
Dermal-wading	Recreational User	Adult	Southern Bank (Lincoln side)	CW	Chemical Concentration in Water	See Table 3.12	ug/L	See Table 3.12	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	7,310	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1.0	events/day	Professional Judgement	
				EF	Exposure Frequency	26	days/year	Professional Judgement	
				ED	Exposure Duration	20	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7300	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	

TABLE 4.4.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal-wading	Recreational User	Older child	Southern Bank (Lincoln side)	CW	Chemical Concentration in Water	See Table 3.12	ug/L	See Table 3.12	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	4,170	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hrs/event	USEPA, 2004	
				EV	Event Frequency	1.0	events/day	Professional Judgement	
				EF	Exposure Frequency	26	days/year	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	

Surface areas for wading exposures assume hands, feet, forearms, and lower legs.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.5.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespasser	Adolescent	(1) Upstream of landfill	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	mg/kg	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	$CS \times IR \times EF \times ED \times CF \times FI$ BW x AT
			(2) Adjacent to landfill	IR	Ingestion Rate	100	mg/day	USEPA, 1989; 1997; 2002	
			(3) Downstream of landfill	EF	Exposure Frequency	52	days/yr	Professional Judgement	
			(4) Wetlands	ED	Exposure Duration	10	years	Professional Judgement	
			(5) and Southern Bank	FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Dermal	Trespasser	Adolescent	(1) Upstream of landfill	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	mg/kg	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	$CS \times SA \times AF \times ABS \times EF \times ED \times CF$ BW x AT
			(2) Adjacent to landfill	SA	Surface Area	7,600	cm ²	USEPA, 1997	
			(3) Downstream of landfill	AF	Adherence Factor	0.30	mg/cm ² -day	USEPA, 2004	
			(4) Wetlands	ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) and Southern Bank	EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	10	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Ingestion	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	$CS \times IR \times EF \times ED \times CF \times FI$ BW x AT
				IR	Ingestion Rate	100	mg/day	USEPA, 1989; 1997; 2002	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	

TABLE 4.5.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe: Current
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	7,310	cm ²	USEPA, 1997	
				AF	Adherence Factor	0.30	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Ingestion	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	100	mg/day	USEPA, 1989; 1997; 2002	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
Dermal	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	4,170	cm ²	USEPA, 1997	
				AF	Adherence Factor	0.30	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Surface areas assume lower legs, feet, forearms, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.5.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion - wading	Trespasser	Adolescent	(1) Upstream of landfill (2) Adjacent to landfill (3) Downstream of landfill (4) Wetlands (5) and Southern Bank	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	mg/kg	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	50	mg/day	USEPA, 1989; 2002	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	10	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Dermal - wading	Trespasser	Adolescent	(1) Upstream of landfill (2) Adjacent to landfill (3) Downstream of landfill (4) Wetlands (5) and Southern Bank	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	mg/kg	See Tables 3.9; 3.10; 3.11; 3.17; 3.8	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	7,600	cm ²	USEPA, 1997	
				AF	Adherence Factor	0.30	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	10	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	50	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,650	days	USEPA, 1989	
Ingestion	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	50	mg/day	USEPA, 1989; 2002	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	

TABLE 4.5.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Adult	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	7,310	cm ²	USEPA, 1997	
				AF	Adherence Factor	0.30	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
Ingestion	Recreational User	Older child	Southern Bank (Lincoln side)	ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
				CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	50	mg/day	USEPA, 1989; 2002	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
Dermal	Recreational User	Older child	Southern Bank (Lincoln side)	CS	Chemical Concentration in Sediment	See Table 3.8	mg/kg	See Table 3.8	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	4,170	cm ²	USEPA, 1997	
				AF	Adherence Factor	0.30	mg/cm ² -day	USEPA, 2004	
				Abs	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Surface areas assume lower legs, feet, forearms, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.6.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe: Current/Future
Medium: Fish Tissue (Fillet)
Exposure Medium: Fish Tissue (Fillet)

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	Blackstone River	CF	Chemical Concentration in Fish	See Tables 3.19; 3.20; 3.21; 3.22	mg/kg	See Tables 3.19; 3.20; 3.21; 3.22	$\frac{CF \times IR \times EF \times ED \times FI}{BW \times AT}$
				IR	Ingestion Rate	0.014	kg/day	Ebert and Harrington, 1993	
				EF	Exposure Frequency	365	days/yr	USEPA, 1989	
				ED	Exposure Duration	24	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
Ingestion	Recreational User	Young Child	Blackstone River	ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
				CF	Chemical Concentration in Fish	See Tables 3.19; 3.20; 3.21; 3.22	mg/kg	See Tables 3.19; 3.20; 3.21; 3.22	$\frac{CF \times IR \times EF \times ED \times FI}{BW \times AT}$
				IR	Ingestion Rate	0.0061	kg/day	Ebert and Harrington, 1993	
				EF	Exposure Frequency	365	days/yr	USEPA, 1989	
				ED	Exposure Duration	6	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				BW	Body Weight	15	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Ebert, E.S. and N.W. Harrington. 1993. Estimating Consumption of Freshwater Fish among Marine Anglers. North American Journal of Fisheries Management 13:737-745.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

TABLE 4.6.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRA TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Current/Future
Medium:	Fish Tissue (Fillet)
Exposure Medium:	Fish Tissue (Fillet)

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	Blackstone River	CF	Chemical Concentration in Fish	See Tables 3.19; 3.20; 3.21; 3.22	mg/kg	See Tables 3.19; 3.20; 3.21; 3.22	$\frac{CF \times IR \times EF \times ED \times FI}{BW \times AT}$
				IR	Ingestion Rate	0.0089	kg/day	Ebert and Harrington, 1993	
				EF	Exposure Frequency	365	days/yr	USEPA, 1989	
				ED	Exposure Duration	7	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,555	days	USEPA, 1989	
Ingestion	Recreational User	Young Child	Blackstone River	CF	Chemical Concentration in Fish	See Tables 3.19; 3.20; 3.21; 3.22	mg/kg	See Tables 3.19; 3.20; 3.21; 3.22	$\frac{CF \times IR \times EF \times ED \times FI}{BW \times AT}$
				IR	Ingestion Rate	0.0037	kg/day	Ebert and Harrington, 1993	
				EF	Exposure Frequency	365	days/yr	USEPA, 1989	
				ED	Exposure Duration	2	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				BW	Body Weight	15	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	730	days	USEPA, 1989	

Ebert, E.S. and N.W. Harrington. 1993. Estimating Consumption of Freshwater Fish among Marine Anglers. North American Journal of Fisheries Management 13:737-745.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

TABLE 4.7.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	Resident	Adult	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	$\frac{CW \times IR \times EF \times ED \times CF}{BW \times AT}$
				IR	Ingestion Rate	2	liters/day	USEPA, 1989	
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	
				ED	Exposure Duration	24	years	USEPA, 1989	
				CF	Conversion Factor	0.001	mg/ug		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Inhalation	Resident	Adult	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	Chronic Daily Intake (CDI) (ug/m ³) = $\frac{CA \times K \times EF \times ED}{AT}$
				K	Volatilization Factor	0.5	L/m ³	USEPA, 1991	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	24	years	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8760	days	USEPA, 1989	
Dermal	Resident	Adult	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	18,000	cm ²	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	0.58	hour/event	USEPA, 2004	
				EV	Event Frequency	1	event/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	
				ED	Exposure Duration	24	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8760	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	- -	
				CF2	Conversion Factor 2	0.001	mg/ug	- -	
Ingestion	Resident	Young child	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	$\frac{CW \times IR \times EF \times ED \times CF}{BW \times AT}$
				IR	Ingestion Rate	1.5	liters/day	USEPA, 1997	
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	
				ED	Exposure Duration	6	years	USEPA, 2004	
				CF	Conversion Factor	0.001	mg/ug		
				BW	Body Weight	15	kg	USEPA, 2004	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.7.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Young child	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23 USEPA, 1991 USEPA, 2004 USEPA, 2004 USEPA, 1989 USEPA, 1989	Chronic Daily Intake (CDI) (ug/m ³) = $\frac{CA \times K \times EF \times ED}{AT}$
				K	Volatilization Factor	0.5	L/m ³		
				EF	Exposure Frequency	350	days/year		
				ED	Exposure Duration	6	years		
				AT-C	Averaging Time (Cancer)	25550	days		
				AT-N	Averaging Time (Non-Cancer)	2190	days		
Dermal	Resident	Young child	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23 USEPA, 2004 USEPA, 2004 USEPA, 2004 USEPA, 2004 USEPA, 2004 USEPA, 1989 USEPA, 2004 USEPA, 1989 USEPA, 1989 -- --	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event		
				SA	Surface Area	6,600	cm ²		
				PC	Permeability Constant	see Appendix U	cm/hr		
				ET	Event Time	1	hour/event		
				EV	Event Frequency	1	event/day		
				EF	Exposure Frequency	350	days/yr		
				ED	Exposure Duration	6	years		
				BW	Body Weight	15	kg		
				ATc	Averaging Time - cancer	25550	days		
				ATnc	Averaging Time - noncancer	2190	days		
				CF1	Conversion Factor 1	0.001	L/cm ³		
				CF2	Conversion Factor 2	0.001	mg/ug		
Ingestion	Construction Worker	Adult	Shallow Monitoring Well	CW	Chemical Concentration in Water	See Table 3.24	ug/L	See Table 3.24 USEPA, 1989 Professional Judgement Professional Judgement USEPA, 1989 USEPA, 1989 USEPA, 1989	$\frac{CW \times CR \times EF \times ED \times CF}{BW \times AT}$
				CR	Contact Rate	0.05	liters/day		
				EF	Exposure Frequency	125	days/yr		
				ED	Exposure Duration	1	years		
				CF	Conversion Factor	0.001	mg/ug		
				BW	Body Weight	70	kg		
				ATc	Averaging Time - cancer	25,550	days		
				ATnc	Averaging Time - noncancer	365	days		

TABLE 4.7.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Dermal	Construction Worker	Adult	Shallow Monitoring Well	CW	Chemical Concentration in Water	See Table 3.24	ug/L	See Table 3.24	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	2,100	cm ²	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	0.2	hour/event	USEPA, 2004	
				EV	Event Frequency	1	event/day	USEPA, 2004	
				EF	Exposure Frequency	125	days/yr	USEPA, 2004	
				ED	Exposure Duration	1	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

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USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.7.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	Resident	Adult	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	$\frac{CW \times IR \times EF \times ED \times CF}{BW \times AT}$
				IR	Ingestion Rate	1.4	liters/day	USEPA, 1997	
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	
				ED	Exposure Duration	7	years	USEPA, 2004	
				CF	Conversion Factor	0.001	mg/ug		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
Inhalation	Resident	Adult	On-site Monitoring Wells	ATnc	Averaging Time - noncancer	2,555	days	USEPA, 1989	$\text{Chronic Daily Intake (CDI)} (\text{ug}/\text{m}^3) = \frac{CA \times K \times EF \times ED}{AT}$
				CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	
				K	Volatilization Factor	0.5	L/m ³	USEPA, 1991	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	7	years	USEPA, 1989	
Dermal	Resident	Adult	On-site Monitoring Wells	AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	Organics: $\text{Chronic Daily Intake (CDI)} (\text{mg}/\text{kg}\cdot\text{day}) = \frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: $\text{CDI} (\text{mg}/\text{kg}\cdot\text{day}) = \frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				AT-N	Averaging Time (Non-Cancer)	2555	days	USEPA, 1989	
				CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	18,000	cm ²	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	0.25	hour/event	USEPA, 2004	
				EV	Event Frequency	1	event/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	
				ED	Exposure Duration	7	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2555	days	USEPA, 1989	
Ingestion	Resident	Young child	On-site Monitoring Wells	CF1	Conversion Factor 1	0.001	L/cm ³	--	$\frac{CW \times IR \times EF \times ED \times CF}{BW \times AT}$
				CF2	Conversion Factor 2	0.001	mg/ug	--	
				CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	
				IR	Ingestion Rate	0.87	liters/day	USEPA, 1997	
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	
				ED	Exposure Duration	2	years	USEPA, 2004	
				CF	Conversion Factor	0.001	mg/ug		
				BW	Body Weight	15	kg	USEPA, 2004	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	730	days	USEPA, 1989	

TABLE 4.7.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Young child	On-site Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	Chronic Daily Intake (CDI) (ug/m ³) = $\frac{CA \times K \times EF \times ED}{AT}$
				K	Volatilization Factor	0.5	L/m ³	USEPA, 1991	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	2	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
Dermal	Resident	Young child	On-site Monitoring Wells	AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				CW	Chemical Concentration in Water	See Table 3.23	ug/L	See Table 3.23	
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	6,600	cm ²	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	0.33	hour/event	USEPA, 2004	
				EV	Event Frequency	1	event/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2004	
				ED	Exposure Duration	2	years	USEPA, 1989	
				BW	Body Weight	15	kg	USEPA, 2004	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	730	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	
Ingestion	Construction Worker	Adult	Shallow Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.24	ug/L	See Table 3.24	$\frac{CW \times CR \times EF \times ED \times CF}{BW \times AT}$
				CR	Contact Rate	0.05	liters/day	USEPA, 1989	
				EF	Exposure Frequency	62	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				CF	Conversion Factor	0.001	mg/ug		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	

TABLE 4.7.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Construction Worker	Adult	Shallow Monitoring Wells	CW	Chemical Concentration in Water	See Table 3.24	ug/L	See Table 3.24	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	2,100	cm ²	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	0.2	hour/event	USEPA, 2004	
				EV	Event Frequency	1	event/day	USEPA, 2004	
				EF	Exposure Frequency	62	days/yr	USEPA, 2004	
				ED	Exposure Duration	1	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1991. Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual, Part B - Interim Final.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.8.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	(1) Landfill; (2) Southern Bank; (3) Nunes Parcel; (4) Quinnville Wellfield; (5) Wetlands; (6) Debris Fields	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	$CS \times IR \times EF \times ED \times CF \times FI$ BW x AT
				IR	Ingestion Rate	100	mg/day	USEPA, 1997; 2002	
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
Dermal	Recreational User	Adult	(1) Landfill; (2) Southern Bank; (3) Nunes Parcel; (4) Quinnville Wellfield; (5) Wetlands; (6) Debris Fields	ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	$CS \times SA \times AF \times ABS \times EF \times ED \times CF$ BW x AT
				CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	
				SA	Surface Area	5,700	cm ²	USEPA, 1997	
				AF	Adherence Factor	0.07	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
Ingestion	Recreational User	Older child	(1) Landfill; (2) Southern Bank; (3) Nunes Parcel; (4) Quinnville Wellfield; (5) Wetlands; (6) Debris Fields	BW	Body Weight	70	kg	USEPA, 1989	$CS \times IR \times EF \times ED \times CF \times FI$ BW x AT
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
				CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	
				IR	Ingestion Rate	100	mg/day	USEPA, 1997; 2002	
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
Ingestion	Recreational User	Older child	(1) Landfill; (2) Southern Bank; (3) Nunes Parcel; (4) Quinnville Wellfield; (5) Wetlands; (6) Debris Fields	CF	Conversion Factor	1.00E-06	kg/mg		$CS \times IR \times EF \times ED \times CF \times FI$ BW x AT
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.8.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Older child	(1) Landfill; (2) Southern Bank; (3) Nunes Parcel; (4) Quinnville Wellfield; (5) Wetlands; (6) Debris Fields	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	4,400	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.20	mg/cm ² -day	USEPA, 2004	
				Abs	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
Ingestion	Commercial Worker	Adult	(1) Nunes Parcel (2) Quinnville Wellfield	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1	mg/kg	See Tables 3.6; 3.1	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	100	mg/day	USEPA, 1997; 2002	
				EF	Exposure Frequency	250	days/yr	USEPA, 2002	
				ED	Exposure Duration	25	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	9,125	days	USEPA, 1989	
Dermal	Commercial Worker	Adult	(1) Nunes Parcel (2) Quinnville Wellfield	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1	mg/kg	See Tables 3.6; 3.1	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	3,300	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.20	mg/cm ² -day	USEPA, 2004	
				Abs	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	250	days/yr	USEPA, 2002	
				ED	Exposure Duration	25	years	USEPA, 2004	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	9,125	days	USEPA, 1989	

TABLE 4.8.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	$CS \times IR \times EF \times ED \times CF \times FI$ BW x AT
				IR	Ingestion Rate	100	mg/day	USEPA, 1997; 2002	
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	24	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Dermal	Resident	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	$CS \times SA \times AF \times ABS \times EF \times ED \times CF$ BW x AT
				SA	Surface Area	5,700	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.07	mg/cm ² -day	USEPA, 2004	
				Abs	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	24	years	USEPA, 2004	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Ingestion	Resident	Young Child	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	$CS \times IR \times EF \times ED \times CF \times FI$ BW x AT
				IR	Ingestion Rate	200	mg/day	USEPA, 1997; 2002	
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	6	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	15	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
Dermal	Resident	Young Child	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	$CS \times SA \times AF \times ABS \times EF \times ED \times CF$ BW x AT
				SA	Surface Area	2,800	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.20	mg/cm ² -day	USEPA, 2004	
				Abs	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	6	years	USEPA, 2004	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	15	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.8.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Worker	Adult	(1) Nunes Parcel (2) Quinnville Wellfield (3) Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1; 3.3	mg/kg	See Tables 3.6; 3.1; 3.3	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	330	mg/day	USEPA, 2002	
				EF	Exposure Frequency	125	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
Dermal	Construction Worker	Adult	(1) Nunes Parcel (2) Quinnville Wellfield (3) Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1; 3.3	mg/kg	See Tables 3.6; 3.1; 3.3	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	3,300	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.3	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	125	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
Inhalation of fugitive dust	Construction Worker	Adult	(1) Nunes Parcel (2) Quinnville wellfield (3) Southern Bank	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1; 3.3	mg/kg	See Tables 3.6; 3.1; 3.3	Chronic Daily Intake (CDI) (ug/m ³) = $\frac{CS \times ET \times EF \times ED \times CF_2}{PEF \times AT \times CF_1}$
				ET	Exposure Time	8	hrs/day	Professional judgement	
				EF	Exposure Frequency	125	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				PEF	Particulate Emission Factor	1.36E+09	m ³ /kg	USEPA, 2002	
				CF1	Conversion Factor 1	24	hrs/day	-	
				CF2	Conversion Factor 2	1000	ug/mg	-	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	

Exposure time for construction worker assumes 8-hr work day.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.8.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	Recreational User	Adult	(1) Landfill; (2) Southern Bank; (3) Nunes Parcel; (4) Quinville Wellfield; (5) Wetlands; (6) Debris Fields	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	50	mg/day	USEPA, 1997	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Dermal	Recreational User	Adult	(1) Landfill; (2) Southern Bank; (3) Nunes Parcel; (4) Quinville Wellfield; (5) Wetlands; (6) Debris Fields	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	5,700	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.07	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Ingestion	Recreational User	Older child	(1) Landfill; (2) Southern Bank; (3) Nunes Parcel; (4) Quinville Wellfield; (5) Wetlands; (6) Debris Fields	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	50	mg/day	USEPA, 1997	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.8.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Recreational User	Older child	(1) Landfill; (2) Southern Bank; (3) Nunes Parcel; (4) Quinville Wellfield; (5) Wetlands; (6) Debris Fields	CS	Chemical Concentration in Soil	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	mg/kg	See Tables 3.2; 3.3; 3.6; 3.1; 3.16; 3.4	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	4,400	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.20	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
Ingestion	Commercial Worker	Adult	(1) Nunes Parcel (2) Quinville Wellfield	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1	mg/kg	See Tables 3.6; 3.1	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	50	mg/day	USEPA, 1997	
				EF	Exposure Frequency	219	days/yr	USEPA, 2002	
				ED	Exposure Duration	9	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,285	days	USEPA, 1989	
Dermal	Commercial Worker	Adult	(1) Nunes Parcel (2) Quinville Wellfield	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1	mg/kg	See Tables 3.6; 3.1	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	3,300	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.20	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	219	days/yr	USEPA, 2002	
				ED	Exposure Duration	9	years	USEPA, 2004	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	3,285	days	USEPA, 1989	

TABLE 4.8.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	Resident	Adult	(1) Nunes Parcel	CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	50	mg/day	USEPA, 1997	
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	7	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
Dermal	Resident	Adult	(1) Nunes Parcel	ATnc	Averaging Time - noncancer	2,555	days	USEPA, 1989	
				CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	5,700	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.07	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	7	years	USEPA, 2004	
				CF	Conversion Factor	1.00E-06	kg/mg	USEPA, 2004	
Ingestion	Resident	Young Child	(1) Nunes Parcel	BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,555	days	USEPA, 1989	
				CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	100	mg/day	USEPA, 1997	
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	6	years	USEPA, 2004	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
Dermal	Resident	Young Child	(1) Nunes Parcel	CF	Conversion Factor	1.00E-06	kg/mg	USEPA, 1989	
				BW	Body Weight	15	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	
				CS	Chemical Concentration in Soil	See Table 3.6	mg/kg	See Table 3.6	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	2,800	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.20	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	350	days/yr	USEPA, 2002	
				ED	Exposure Duration	6	years	USEPA, 2004	
				CF	Conversion Factor	1.00E-06	kg/mg	USEPA, 2004	
				BW	Body Weight	15	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.8.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Worker	Adult	(1) Nunes Parcel (2) Quinnville Wellfield (3) Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1; 3.3	mg/kg	See Tables 3.6; 3.1; 3.3	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	330	mg/day	USEPA, 2002	
				EF	Exposure Frequency	62	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
Dermal	Construction Worker	Adult	(1) Nunes Parcel (2) Quinnville Wellfield (3) Southern Bank (Lincoln side)	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1; 3.3	mg/kg	See Tables 3.6; 3.1; 3.3	$\frac{CS \times SA \times AF \times Abs \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	3,300	cm ²	USEPA, 2004	
				AF	Adherence Factor	0.3	mg/cm ² -day	USEPA, 2004	
				Abs	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	62	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
Inhalation of fugitive dust	Construction Worker	Adult	(1) Nunes Parcel; (2) Quinnville wellfield; (3) Southern Bank	CS	Chemical Concentration in Soil	See Tables 3.6; 3.1; 3.3	mg/kg	See Tables 3.6; 3.1; 3.3	Chronic Daily Intake (CDI) (ug/m ³) = $\frac{CS \times ET \times EF \times ED \times CF2}{PEF \times AT \times CF1}$
				ET	Exposure Time	8	hrs/day	Professional judgement	
				EF	Exposure Frequency	62	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				PEF	Particulate Emission Factor	1.36E+09	m ³ /kg	USEPA, 2002	
				CF1	Conversion Factor 1	24	hrs/day	-	
				CF2	Conversion Factor 2	1000	ug/mg	-	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	

Exposure time for construction worker assumes 8-hr work day.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.9.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil/Groundwater
Exposure Medium:	Ambient/Outdoor (Trench) Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Worker	Adult	(1) Nunes Parcel; (2) Quinville wellfield (3) Southern Bank (Lincoln side)	CA	Chemical Concentration in Trench Air	See Tables 3.26; 3.27	ug/m ³	See Tables 3.26; 3.27	<u>CA x ET x EF x ED</u> AT x CF
				ET	Exposure Time	8	hrs/day	Professional judgement	
				EF	Exposure Frequency	125	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
Inhalation	Recreational User	Adult	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	ug/m ³	See Table 3.25	<u>CA x ET x EF x ED</u> AT x CF
				EF	Exposure Frequency	104	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				ET	Exposure Time	1	hrs/day	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Inhalation	Recreational User	Older Child	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	ug/m ³	See Table 3.25	<u>CA x ET x EF x ED</u> AT x CF
				EF	Exposure Frequency	64	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				ET	Exposure Time	1	hrs/day	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Exposure time for construction worker assumes 8-hr work day.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

TABLE 4.9.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil/Groundwater
Exposure Medium:	Ambient/Outdoor (Trench) Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Worker	Adult	(1) Nunes Parcel; (2) Quinnville wellfield (3) Southern Bank (Lincoln side)	CA	Chemical Concentration in Trench Air	See Tables 3.26; 3.27	ug/m ³	See Tables 3.26; 3.27	<u>CA x ET x EF x ED</u> AT x CF
				ET	Exposure Time	8	hrs/day	Professional judgement	
				EF	Exposure Frequency	62	days/yr	Professional Judgement	
				ED	Exposure Duration	1	years	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	365	days	USEPA, 1989	
Inhalation	Recreational User	Adult	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	ug/m ³	See Table 3.25	<u>CA x ET x EF x ED</u> AT x CF
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	USEPA, 1989	
				ET	Exposure Time	1	hr/day	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Inhalation	Recreational User	Older Child	Landfill	CA	Chemical Concentration in Ambient Air	See Table 3.25	ug/m ³	See Table 3.25	<u>CA x ET x EF x ED</u> AT x CF
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				ET	Exposure Time	1	hr/day	Professional Judgement	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Exposure time for construction worker assumes 8-hr work day.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

TABLE 4.10.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil/Groundwater
Exposure Medium:	Indoor Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Commercial Worker	Adult	(1) Nunes Parcel; (2) Quinnville wellfield	CA _{building}	Modeled Indoor Air Concentration	See Tables 3.28; 3.29	ug/m ³	See Tables 3.28; 3.29	$\frac{CA_{building} \times ET \times EF \times ED}{AT \times CF}$
				ET	Exposure Time	8	hours/day		
				EF	Exposure frequency	250	days/year	USEPA, 2002	
				ED	Exposure duration	25	years	USEPA, 2002	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 2002	
				ATnc	Averaging time for noncarcinogens	9,125	days	USEPA, 2002	
	Resident	Adult	Nunes Parcel	CA _{building}	Modeled Indoor Air Concentration	See Tables 3.28; 3.29	ug/m ³	See Tables 3.28; 3.29	$\frac{CA_{building} \times ET \times EF \times ED}{AT \times CF}$
				ET	Exposure Time	24	hours/day	USEPA, 1997	
				EF	Exposure frequency	350	days/year	USEPA, 2002	
				ED	Exposure duration	24	years	USEPA, 2004	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 1989	
				ATnc	Averaging time for noncarcinogens	8,760	days	USEPA, 1989	
		Young Child	Nunes Parcel	CA _{building}	Modeled Indoor Air Concentration	See Tables 3.28; 3.29	ug/m ³	See Tables 3.28; 3.29	$\frac{CA_{building} \times ET \times EF \times ED}{AT \times CF}$
				ET	Exposure Time	24	hours/day	USEPA, 1997	
				EF	Exposure frequency	350	days/year	USEPA, 2002	
				ED	Exposure duration	6	years	USEPA, 2004	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 1989	
				ATnc	Averaging time for noncarcinogens	2,190	days	USEPA, 1989	

Indoor air concentration will be modeled with Johnson & Ettinger Model.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.10.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Soil/Groundwater
Exposure Medium:	Indoor Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Commercial Worker	Adult	(1) Nunes Parcel; (2) Quinville wellfield	CA _{building}	Modeled Indoor Air Concentration	See Tables 3.28; 3.29	ug/m ³	See Tables 3.28; 3.29	$\frac{CA_{building} \times ET \times EF \times ED}{AT \times CF}$
				ET	Exposure Time	8	hours/day		
				EF	Exposure frequency	219	days/year	USEPA, 2002	
				ED	Exposure duration	9	years	USEPA, 2002	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 2002	
				ATnc	Averaging time for noncarcinogens	3,285	days	USEPA, 2002	
	Resident	Adult	Nunes Parcel	CA _{building}	Modeled Indoor Air Concentration	See Tables 3.28; 3.29	ug/m ³	See Tables 3.28; 3.29	
				ET	Exposure Time	16	hours/day	USEPA, 1997	
				EF	Exposure frequency	350	days/year	USEPA, 2002	
				ED	Exposure duration	7	years	USEPA, 2004	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 1989	
				ATnc	Averaging time for noncarcinogens	2,555	days	USEPA, 1989	
		Young Child	Nunes Parcel	CA _{building}	Modeled Indoor Air Concentration	See Tables 3.28; 3.29	ug/m ³	See Tables 3.28; 3.29	
				ET	Exposure Time	16	hours/day	USEPA, 1997	
				EF	Exposure frequency	350	days/year	USEPA, 2002	
				ED	Exposure duration	6	years	USEPA, 2004	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 1989	
				ATnc	Averaging time for noncarcinogens	2,190	days	USEPA, 1989	

Indoor air concentration will be modeled with Johnson & Ettinger Model.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.11.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Leachate
Exposure Medium:	Leachate

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Recreational User	Adult	(1) Landfill	CW	Chemical Concentration in Water	See Table 3.7	ug/L	See Table 3.7	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	4,500	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8760	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	
Dermal - wading	Recreational User	Older child	(1) Landfill	CW	Chemical Concentration in Water	See Table 3.7	ug/L	See Table 3.7	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	2,700	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	

Surface areas assume lower legs, feet, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.11.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe: Future
Medium: Leachate
Exposure Medium: Leachate

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal-wading	Recreational User	Adult	(1) Landfill	CW	Chemical Concentration in Water	See Table 3.7	ug/L	See Table 3.7	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	4,500	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7300	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	
Dermal-wading	Recreational User	Older child	(1) Landfill	CW	Chemical Concentration in Water	See Table 3.7	ug/L	See Table 3.7	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	2,700	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	

Surface areas assume lower legs, feet, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.12.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Recreational User	Adult	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	7,310	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hour/event	Professional Judgement	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8760	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	
Dermal-swimming	Recreational User	Adult	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	18,000	cm ²	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	32	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8760	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	

TABLE 4.12.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion-swimming	Recreational User	Adult	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	$\frac{CW \times CR \times ET \times EF \times ED \times CF1}{BW \times AT}$
				CR	Contact Rate	0.05	L/hr	USEPA, 1989	
				ET	Exposure Time	1.0	hr/day	Professional Judgement	
				EF	Exposure Frequency	32	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Dermal-wading	Recreational User	Older child	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	4,170	cm ²	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	

TABLE 4.12.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal- swimming	Recreational User	Older child	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	11,000	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	32	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	
Ingestion - swimming	Recreational User	Older child	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	$\frac{CW \times CR \times ET \times EF \times ED \times CF1}{BW \times AT}$
				CR	Contact Rate	0.05	L/hr	USEPA, 1989	
				ET	Exposure Time	1.0	hr/day	USEPA, 1989	
				EF	Exposure Frequency	32	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				BW	Body Weight	35	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Surface areas for wading exposures assume hands, forearms, lower legs, and feet.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.12.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe: Future
Medium: Surface water
Exposure Medium: Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Recreational User	Adult	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	7,310	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hour/event	Professional Judgement	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7300	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	
Dermal-swimming	Recreational User	Adult	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	18,000	cm ²	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	16	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7300	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	

TABLE 4.12.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe: Future
Medium: Surface water
Exposure Medium: Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion-swimming	Recreational User	Adult	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	$\frac{CW \times CR \times ET \times EF \times ED \times CF1}{BW \times AT}$
				CR	Contact Rate	0.05	L/hr	USEPA, 1989	
				ET	Exposure Time	1.0	hr/day	Professional Judgement	
				EF	Exposure Frequency	16	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Dermal-wading	Recreational User	Older child	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	4,170	cm ²	USEPA, 2004	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	

TABLE 4.12.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Surface water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Dermal- swimming	Recreational User	Older child	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	Organics: Chronic Daily Intake (CDI) (mg/kg-day) = $\frac{DA \times SA \times EV \times EF \times ED}{BW \times AT}$ Inorganics: CDI (mg/kg-day) = $\frac{CW \times SA \times PC \times ET \times EV \times EF \times ED \times CF1 \times CF2}{BW \times AT}$
				DA	Dose Absorbed per Unit Area per Event	see Appendix U	mg/cm ² -event	USEPA, 2004	
				SA	Surface Area	11,000	cm ²	USEPA, 1997	
				PC	Permeability Constant	see Appendix U	cm/hr	USEPA, 2004	
				ET	Event Time	1	hour/event	USEPA, 2004	
				EV	Event Frequency	1.0	event/day	Professional Judgement	
				EF	Exposure Frequency	16	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2190	days	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	L/cm ³	--	
				CF2	Conversion Factor 2	0.001	mg/ug	--	
Ingestion - swimming	Recreational User	Older child	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CW	Chemical Concentration in Water	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	ug/L	See Tables 3.13; 3.14; 3.15; 3.12; 3.18	$\frac{CW \times CR \times ET \times EF \times ED \times CF1}{BW \times AT}$
				CR	Contact Rate	0.05	L/hr	USEPA, 1989	
				ET	Exposure Time	1.0	hr/day	USEPA, 1989	
				EF	Exposure Frequency	16	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				BW	Body Weight	35	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Surface areas for wading exposures assume hands, forearms, lower legs, and feet.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.13.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion - wading	Recreational User	Adult	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	100	mg/day	USEPA, 1989; 1997; 2002	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Dermal - wading	Recreational User	Adult	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	7,310	cm ²	USEPA, 1997	
				AF	Adherence Factor	0.30	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	24	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	8,760	days	USEPA, 1989	
Ingestion - wading	Recreational User	Older child	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	100	mg/day	USEPA, 1989; 1997; 2002	
				EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.13.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Recreational User	Older child	(1) Upstream of landfill;	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
			(2) Adjacent to landfill;	SA	Surface Area	4,170	cm ²	USEPA, 1997	
			(3) Downstream of landfill;	AF	Adherence Factor	0.30	mg/cm ² -day	USEPA, 2004	
			(4) Southern Bank (Lincoln side)	ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
			(5) Wetlands	EF	Exposure Frequency	52	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Surface areas assume lower legs, feet, forearms, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 4.13.CTE
VALUES FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion - wading	Recreational User	Adult	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	50	mg/day	USEPA, 1989; 1997; 2002	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	USEPA, 1989	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Dermal - wading	Recreational User	Adult	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	7,310	cm ²	USEPA, 1997	
				AF	Adherence Factor	0.30	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	20	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	70	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	7,300	days	USEPA, 1989	
Ingestion - wading	Recreational User	Older child	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	$\frac{CS \times IR \times EF \times ED \times CF \times FI}{BW \times AT}$
				IR	Ingestion Rate	50	mg/day	USEPA, 1989; 1997; 2002	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	Professional Judgement	
				FI	Fraction Ingested from Site	1	unitless	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1997	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

TABLE 4.13.CTE
VALUES FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Peterson Puritan Superfund Site - Operable Unit 2

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal - wading	Recreational User	Older child	(1) Upstream of landfill; (2) Adjacent to landfill; (3) Downstream of landfill; (4) Southern Bank (Lincoln side) (5) Wetlands	CS	Chemical Concentration in Sediment	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	mg/kg	See Tables 3.9; 3.10; 3.11; 3.8; 3.17	$\frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$
				SA	Surface Area	4,170	cm ²	USEPA, 1997	
				AF	Adherence Factor	0.30	mg/cm ² -day	USEPA, 2004	
				ABS	Dermal absorption fraction	see Appendix U	unitless	USEPA, 2004	
				EF	Exposure Frequency	26	days/yr	Professional Judgement	
				ED	Exposure Duration	6	years	USEPA, 1989	
				CF	Conversion Factor	1.00E-06	kg/mg		
				BW	Body Weight	35	kg	USEPA, 1989	
				ATc	Averaging Time - cancer	25,550	days	USEPA, 1989	
				ATnc	Averaging Time - noncancer	2,190	days	USEPA, 1989	

Surface areas assume lower legs, feet, forearms, and hands.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
1,2,4-Trichlorobenzene	Chronic	1E-02	mg/kg-day	(4)	1E-02	mg/kg-day	Endocrine	1000	IRIS	01/15/09
1,2-Dichlorobenzene	Chronic	9E-02	mg/kg-day	(4)	9E-02	mg/kg-day	Liver	1000	IRIS	01/15/09
1,3-Dichlorobenzene	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Endocrine	100	ATSDR	01/15/09
1,4-Dichlorobenzene	Chronic	7E-02	mg/kg-day	(4)	7E-02	mg/kg-day	Liver	100	ATSDR	01/15/09
2-Butanone	Chronic	6E-01	mg/kg-day	(4)	6E-01	mg/kg-day	Developmental	1000	IRIS	01/15/09
Benzene	Chronic	4E-03	mg/kg-day	(4)	4E-03	mg/kg-day	Immune System	300	IRIS	01/15/09
Bromodichloromethane	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Kidney	1000	IRIS	01/15/09
Chlorobenzene	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Liver/Kidney	1000	IRIS	01/15/09
Chloroethane	Chronic	1E-01	mg/kg-day	(4)	1E-01	mg/kg-day	CNS/Liver	3000	PPRTV	01/15/09
Chloroform	Chronic	1E-02	mg/kg-day	(4)	1E-02	mg/kg-day	Liver	100	IRIS	01/15/09
Ethylbenzene	Chronic	1E-01	mg/kg-day	(4)	1E-01	mg/kg-day	Liver/Kidney	1000	IRIS	01/15/09
Isopropylbenzene	Chronic	1E-01	mg/kg-day	(4)	1E-01	mg/kg-day	Kidney	1000	IRIS	01/15/09
Methyl tert-butyl ether	Chronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Liver	300	ATSDR	01/15/09
Tetrachloroethene	Chronic	1E-02	mg/kg-day	(4)	1E-02	mg/kg-day	Liver	1000	IRIS	01/15/09
Toluene	Chronic	8E-02	mg/kg-day	(4)	8E-02	mg/kg-day	Kidney	3000	IRIS	01/15/09
Trichloroethene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride	Chronic	3E-03	mg/kg-day	(4)	3E-03	mg/kg-day	Liver	30	IRIS	01/15/09
Xylene (total)	Chronic	2E-01	mg/kg-day	(4)	2E-01	mg/kg-day	General Toxicity	1000	IRIS	01/15/09
1,4-Dioxane	Chronic	1E-01	mg/kg-day	(4)	1E-01	mg/kg-day	Liver	100	ATSDR	01/15/09
2,4-Dimethylphenol	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Blood/CNS	3000	IRIS	01/15/09
2-Chlorophenol	Chronic	5E-03	mg/kg-day	(4)	5E-03	mg/kg-day	Reproductive	1000	IRIS	01/15/09
4-Chloro-3-methylphenol	Chronic	7E-01	mg/kg-day	(4)	7E-01	mg/kg-day	Kidney	300	PPRTV	01/15/09
4-Chloroaniline	Chronic	4E-03	mg/kg-day	(4)	4E-03	mg/kg-day	Spleen	3000	IRIS	01/15/09
4-Methylphenol	Chronic	5E-03	mg/kg-day	(4)	5E-03	mg/kg-day	CNS	1000	HEAST	July 1997
4-Nitrophenol	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acenaphthylene	Chronic	6E-02	mg/kg-day	(4)	6E-02	mg/kg-day	Liver	3000	IRIS	01/15/09
Atrazine	Chronic	3.5E-02	mg/kg-day	(4)	3.5E-02	mg/kg-day	General Toxicity/Cardiovascular	100	IRIS	01/15/09
Benzaldehyde	Chronic	1E-01	mg/kg-day	(4)	1.0E-01	mg/kg-day	Kidney	1000	IRIS	01/15/09
Benzo(a)anthracene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(b)fluoranthene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	Chronic	3E-02	mg/kg-day	(4)	3E-02	mg/kg-day	Kidney	3000	IRIS	01/15/09

TABLE 5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Benzo(k)fluoranthene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-ethylhexyl)phthalate	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Liver	1000	IRIS	01/15/09
Carbazole	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzofuran	Chronic	4E-03	mg/kg-day	(4)	4E-03	mg/kg-day	Kidney	3000	PPRTV	01/15/09
Hexachlorobenzene	Chronic	8E-04	mg/kg-day	(4)	8E-04	mg/kg-day	Liver	100	IRIS	01/15/09
Indeno(1,2,3-cd)pyrene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Isophorone	Chronic	2E-01	mg/kg-day	(4)	2E-01	mg/kg-day	Kidney	1000	IRIS	01/15/09
Naphthalene	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	General Toxicity	3000	IRIS	01/15/09
N-Nitrosodiphenylamine	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pentachlorophenol	Chronic	3E-02	mg/kg-day	(4)	3E-02	mg/kg-day	Liver/Kidney	100	IRIS	01/15/09
Phenanthrene	Chronic	3E-02	mg/kg-day	(4)	3E-02	mg/kg-day	Kidney	3000	IRIS	01/15/09
Aroclor-1242	Chronic	2E-05	mg/kg-day	(4)	2E-05	mg/kg-day	General Toxicity/Immune System	300	IRIS	01/15/09
Aroclor-1248	Chronic	2E-05	mg/kg-day	(4)	2E-05	mg/kg-day	General Toxicity/Immune System	300	IRIS	01/15/09
Aroclor-1254	Chronic	2E-05	mg/kg-day	(4)	2E-05	mg/kg-day	General Toxicity/Immune System	300	IRIS	01/15/09
Aroclor-1260	Chronic	2E-05	mg/kg-day	(4)	2E-05	mg/kg-day	General Toxicity/Immune System	300	IRIS	01/15/09
Total PCBs	Chronic	2E-05	mg/kg-day	(4)	2E-05	mg/kg-day	General Toxicity/Immune System	300	IRIS	01/15/09
Total PCB Homologs	Chronic	2E-05	mg/kg-day	(4)	2E-05	mg/kg-day	General Toxicity/Immune System	300	IRIS	01/15/09
4,4'-DDD	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDE	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDT	Chronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	100	IRIS	01/15/09
Aldrin	Chronic	3E-05	mg/kg-day	(4)	3E-05	mg/kg-day	Liver	1000	IRIS	01/15/09
alpha-BHC	Chronic	8E-03	mg/kg-day	(4)	8E-03	mg/kg-day	Liver	100	ATSDR	01/15/09
alpha-Chlordane	Chronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	300	IRIS	01/15/09
beta-BHC	Chronic	6E-04	mg/kg-day	(4)	6E-04	mg/kg-day	Liver	300	ATSDR	01/15/09
Dieldrin	Chronic	5E-05	mg/kg-day	(4)	5E-05	mg/kg-day	Liver	100	IRIS	01/15/09
Endosulfan I	Chronic	6E-03	mg/kg-day	(4)	6E-03	mg/kg-day	General Toxicity/Kidney	100	IRIS	01/15/09
Endosulfan II	Chronic	6E-03	mg/kg-day	(4)	6E-03	mg/kg-day	General Toxicity/Kidney	100	IRIS	01/15/09
Endosulfan Sulfate	Chronic	6E-03	mg/kg-day	(4)	6E-03	mg/kg-day	General Toxicity/Kidney	100	IRIS	01/15/09
gamma-BHC (Lindane)	Chronic	3E-04	mg/kg-day	(4)	3E-04	mg/kg-day	Liver/Kidney	1000	IRIS	01/15/09

TABLE 5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
gamma-Chlordane	Chronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	300	IRIS	01/15/09
Heptachlor	Chronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	300	IRIS	01/15/09
Heptachlor epoxide	Chronic	1.3E-05	mg/kg-day	(4)	1.3E-05	mg/kg-day	Liver	1000	IRIS	01/15/09
Dioxin TEQ	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aluminum	Chronic	1E+00	mg/kg-day	0.01	1.0E-02	mg/kg-day	Developmental	100	PPRTV	01/15/09
Antimony	Chronic	4E-04	mg/kg-day	0.15	6.0E-05	mg/kg-day	General Toxicity	1000	IRIS	01/15/09
Arsenic	Chronic	3E-04	mg/kg-day	(4)	3E-04	mg/kg-day	Skin	3	IRIS	01/15/09
Barium	Chronic	2E-01	mg/kg-day	0.07	1.4E-02	mg/kg-day	Kidney	300	IRIS	01/15/09
Beryllium	Chronic	2E-03	mg/kg-day	0.007	1.4E-05	mg/kg-day	GI System	300	IRIS	01/15/09
Cadmium (drinking water)	Chronic	5E-04	mg/kg-day	0.05	2.5E-05	mg/kg-day	Kidney	10	IRIS	01/15/09
Cadmium (other media)	Chronic	1E-03	mg/kg-day	0.025	2.5E-05	mg/kg-day	Kidney	10	IRIS	01/15/09
Chromium	Chronic	3E-03	mg/kg-day	0.025	7.5E-05	mg/kg-day	GI System	300	IRIS	01/15/09
Cobalt	Chronic	3E-04	mg/kg-day	(4)	3E-04	mg/kg-day	Endocrine	3000	PPRTV	01/15/09
Copper	Chronic	4E-02	mg/kg-day	(4)	4E-02	mg/kg-day	GI System	100	HEAST	July 1997
Cyanide	Chronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Endocrine/CNS	500	IRIS	01/15/09
Iron	Chronic	7E-01	mg/kg-day	(4)	7E-01	mg/kg-day	Liver/GI System	1.5	PPRTV	01/15/09
Lead	Chronic	N/A	N/A	N/A	N/A	N/A	CNS	N/A	IRIS	01/15/09
Manganese (drinking water)	Chronic	2.4E-02	mg/kg-day	0.04	9.6E-04	mg/kg-day	CNS	9	IRIS	01/15/09
Manganese (food)	Chronic	1.4E-01	mg/kg-day	1	1.4E-01	mg/kg-day	CNS	1	IRIS	01/15/09
Manganese (other media)	Chronic	7E-02	mg/kg-day	1	7.0E-02	mg/kg-day	CNS	3	IRIS	01/15/09
Mercury (other media)	Chronic	1E-04	mg/kg-day	(4)	1E-04	mg/kg-day	CNS	10	IRIS	01/15/09
Mercury (water)	Chronic	3E-04	mg/kg-day	0.07	2.1E-05	mg/kg-day	Immune System	1000	IRIS	01/15/09
Nickel	Chronic	2E-02	mg/kg-day	0.04	8.0E-04	mg/kg-day	General Toxicity	300	IRIS	01/15/09
Selenium	Chronic	5E-03	mg/kg-day	(4)	5E-03	mg/kg-day	Liver	3	IRIS	01/15/09
Silver	Chronic	5E-03	mg/kg-day	0.04	2.0E-04	mg/kg-day	Skin	3	IRIS	01/15/09
Thallium	Chronic	8E-05	mg/kg-day	(4)	8E-05	mg/kg-day	Blood	3000	IRIS	01/15/09
Vanadium	Chronic	7E-03	mg/kg-day	0.026	1.8E-04	mg/kg-day	Kidney	100	HEAST	July 1997
Zinc	Chronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Blood	3	IRIS	01/15/09
1,2,4-Trichlorobenzene	Subchronic	1E-02	mg/kg-day	(4)	1E-02	mg/kg-day	Endocrine	1000	IRIS	01/15/09
1,2-Dichlorobenzene	Subchronic	9E-02	mg/kg-day	(4)	9E-02	mg/kg-day	Liver	1000	IRIS	01/15/09

TABLE 5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
1,3-Dichlorobenzene	Subchronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Endocrine	100	ATSDR	01/15/09
1,4-Dichlorobenzene	Subchronic	7E-02	mg/kg-day	(4)	7E-02	mg/kg-day	Liver	100	ATSDR	01/15/09
2-Butanone	Subchronic	6E-01	mg/kg-day	(4)	6E-01	mg/kg-day	Developmental	1000	IRIS	01/15/09
Benzene	Subchronic	1.2E-02	mg/kg-day	(4)	1.2E-02	mg/kg-day	Immune System	100	IRIS	01/15/09
Bromodichloromethane	Subchronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Kidney	1000	IRIS	01/15/09
Chlorobenzene	Subchronic	7E-02	mg/kg-day	(4)	7E-02	mg/kg-day	Liver/Kidney	300	IRIS	01/15/09
Chloroethane	Subchronic	1E-01	mg/kg-day	(4)	1E-01	mg/kg-day	CNS/Liver	3000	PPRTV	01/15/09
Chloroform	Subchronic	1E-02	mg/kg-day	(4)	1E-02	mg/kg-day	Liver	100	IRIS	01/15/09
Ethylbenzene	Subchronic	1E+00	mg/kg-day	(4)	1E+00	mg/kg-day	Liver/Kidney	100	IRIS	01/15/09
Isopropylbenzene	Subchronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Kidney	300	IRIS	01/15/09
Methyl tert-butyl ether	Subchronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Liver	300	ATSDR	01/15/09
Tetrachloroethene	Subchronic	1E-01	mg/kg-day	(4)	1E-01	mg/kg-day	Liver	100	IRIS	01/15/09
Toluene	Subchronic	8E-01	mg/kg-day	(4)	8E-01	mg/kg-day	Kidney	300	IRIS	01/15/09
Trichloroethene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride	Subchronic	3E-03	mg/kg-day	(4)	3E-03	mg/kg-day	Liver	30	IRIS	01/15/09
Xylene (Total)	Subchronic	2E-01	mg/kg-day	(4)	2E-01	mg/kg-day	General Toxicity	1000	IRIS	01/15/09
1,4-Dioxane	Subchronic	6E-01	mg/kg-day	(4)	6E-01	mg/kg-day	Liver	100	ATSDR	01/15/09
2,4-Dimethylphenol	Subchronic	2E-01	mg/kg-day	(4)	2E-01	mg/kg-day	Blood/CNS	300	HEAST	July 1997
2-Chlorophenol	Subchronic	5E-02	mg/kg-day	(4)	5E-02	mg/kg-day	Reproductive	100	IRIS	01/15/09
4-Chloro-3-methylphenol	Subchronic	7E-01	mg/kg-day	(4)	7E-01	mg/kg-day	Kidney	300	PPRTV	01/15/09
4-Chloroaniline	Subchronic	4E-03	mg/kg-day	(4)	4E-03	mg/kg-day	Spleen	3000	IRIS	01/15/09
4-Methylphenol	Subchronic	5E-03	mg/kg-day	(4)	5E-03	mg/kg-day	CNS	1000	HEAST	July 1997
4-Nitrophenol	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acenaphthylene	Subchronic	6E-01	mg/kg-day	(4)	6E-01	mg/kg-day	Liver	300	IRIS	01/15/09
Atrazine	Subchronic	3.5E-02	mg/kg-day	(4)	3.5E-02	mg/kg-day	General Toxicity/Cardiovascular	100	IRIS	01/15/09
Benzaldehyde	Subchronic	1E+00	mg/kg-day	(4)	1.0E+00	mg/kg-day	Kidney	100	IRIS	01/15/09
Benzo(a)anthracene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(b)fluoranthene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	Subchronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Kidney	300	IRIS	01/15/09
Benzo(k)fluoranthene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-ethylhexyl)phthalate	Subchronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Liver	1000	IRIS	01/15/09

TABLE 5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Carbazole	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzofuran	Subchronic	4E-03	mg/kg-day	(4)	4E-03	mg/kg-day	Kidney	3000	PPRTV	01/15/09
Hexachlorobenzene	Subchronic	8E-04	mg/kg-day	(4)	8E-04	mg/kg-day	Liver	100	IRIS	01/15/09
Indeno(1,2,3-cd)pyrene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Isophorone	Subchronic	2E+00	mg/kg-day	(4)	2E+00	mg/kg-day	Kidney	100	IRIS	01/15/09
Naphthalene	Subchronic	2E-01	mg/kg-day	(4)	2E-01	mg/kg-day	General Toxicity	300	IRIS	04/01/07
N-Nitrosodiphenylamine	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pentachlorophenol	Subchronic	3E-02	mg/kg-day	(4)	3E-02	mg/kg-day	Liver/Kidney	100	IRIS	01/15/09
Phenanthrene	Subchronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Kidney	300	IRIS	01/15/09
Aroclor-1242	Subchronic	6E-05	mg/kg-day	(4)	6E-05	mg/kg-day	General Toxicity/Immune System	100	IRIS	01/15/09
Aroclor-1248	Subchronic	6E-05	mg/kg-day	(4)	6E-05	mg/kg-day	General Toxicity/Immune System	100	IRIS	01/15/09
Aroclor-1254	Subchronic	6E-05	mg/kg-day	(4)	6E-05	mg/kg-day	General Toxicity/Immune System	100	IRIS	01/15/09
Aroclor-1260	Subchronic	6E-05	mg/kg-day	(4)	6E-05	mg/kg-day	General Toxicity/Immune System	100	IRIS	01/15/09
Total PCBs	Subchronic	6E-05	mg/kg-day	(4)	6E-05	mg/kg-day	General Toxicity/Immune System	100	IRIS	01/15/09
Total PCB Homologs	Subchronic	6E-05	mg/kg-day	(4)	6E-05	mg/kg-day	General Toxicity/Immune System	100	IRIS	01/15/09
4,4'-DDD	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDE	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDT	Subchronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	100	IRIS	01/15/09
Aldrin	Subchronic	3E-05	mg/kg-day	(4)	3E-05	mg/kg-day	Liver	1000	IRIS	01/15/09
alpha-BHC	Subchronic	8E-03	mg/kg-day	(4)	8E-03	mg/kg-day	Liver	100	ATSDR	01/15/09
alpha-Chlordane	Subchronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	300	IRIS	01/15/09
beta-BHC	Subchronic	6E-04	mg/kg-day	(4)	6E-04	mg/kg-day	Liver	300	ATSDR	01/15/09
Dieldrin	Subchronic	5E-05	mg/kg-day	(4)	5E-05	mg/kg-day	Liver	100	IRIS	01/15/09
Endosulfan I	Subchronic	6E-03	mg/kg-day	(4)	6E-03	mg/kg-day	General Toxicity/Kidney	100	IRIS	01/15/09
Endosulfan II	Subchronic	6E-03	mg/kg-day	(4)	6E-03	mg/kg-day	General Toxicity/Kidney	100	IRIS	01/15/09
Endosulfan Sulfate	Subchronic	6E-03	mg/kg-day	(4)	6E-03	mg/kg-day	General Toxicity/Kidney	100	IRIS	01/15/09
gamma-BHC (Lindane)	Subchronic	3E-03	mg/kg-day	(4)	3E-03	mg/kg-day	Liver/Kidney	100	IRIS	01/15/09
gamma-Chlordane	Subchronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	300	IRIS	01/15/09
Heptachlor	Subchronic	5E-04	mg/kg-day	(4)	5E-04	mg/kg-day	Liver	300	IRIS	01/15/09

TABLE 5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Heptachlor epoxide	Subchronic	1.3E-05	mg/kg-day	(4)	1.3E-05	mg/kg-day	Liver	1000	IRIS	01/15/09
Dioxin TEQ	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	Subchronic	1E+00	mg/kg-day	0.01	1.0E-02	mg/kg-day	Developmental	100	PPRTV	01/15/09
Antimony	Subchronic	4E-04	mg/kg-day	0.15	6.0E-05	mg/kg-day	General Toxicity	1000	IRIS	01/15/09
Arsenic	Subchronic	3E-04	mg/kg-day	(4)	3E-04	mg/kg-day	Skin	3	IRIS	01/15/09
Barium	Subchronic	2E-01	mg/kg-day	0.07	1.4E-02	mg/kg-day	Kidney	300	IRIS	01/15/09
Beryllium	Subchronic	2E-03	mg/kg-day	0.007	1.4E-05	mg/kg-day	GI System	300	IRIS	01/15/09
Cadmium (drinking water)	Subchronic	5E-04	mg/kg-day	0.05	2.5E-05	mg/kg-day	Kidney	10	IRIS	01/15/09
Cadmium (other media)	Subchronic	1E-03	mg/kg-day	0.025	2.5E-05	mg/kg-day	Kidney	10	IRIS	01/15/09
Chromium	Subchronic	9E-03	mg/kg-day	0.025	2.3E-04	mg/kg-day	GI System	100	IRIS	01/15/09
Cobalt	Subchronic	3E-03	mg/kg-day	(4)	3E-03	mg/kg-day	Endocrine	300	PPRTV	01/15/09
Copper	Subchronic	4E-02	mg/kg-day	(4)	4E-02	mg/kg-day	GI System	100	HEAST	July 1997
Cyanide	Subchronic	2E-02	mg/kg-day	(4)	2E-02	mg/kg-day	Endocrine/CNS	500	IRIS	01/15/09
Iron	Subchronic	7E-01	mg/kg-day	(4)	7E-01	mg/kg-day	Liver/GI System	1.5	PPRTV	01/15/09
Lead	Subchronic	N/A	N/A	N/A	N/A	N/A	CNS	N/A	IRIS	01/15/09
Manganese (drinking water)	Subchronic	2.4E-02	mg/kg-day	0.04	9.6E-04	mg/kg-day	CNS	9	IRIS	01/15/09
Manganese (food)	Subchronic	1.4E-01	mg/kg-day	1	1.4E-01	mg/kg-day	CNS	1	IRIS	01/15/09
Manganese (other media)	Subchronic	7E-02	mg/kg-day	1	7.0E-02	mg/kg-day	CNS	3	IRIS	01/15/09
Mercury (other media)	Subchronic	1E-04	mg/kg-day	(4)	1E-04	mg/kg-day	CNS	10	IRIS	01/15/09
Mercury (water)	Subchronic	3E-03	mg/kg-day	0.07	2.1E-04	mg/kg-day	Immune System	100	IRIS	01/15/09
Nickel	Subchronic	2E-02	mg/kg-day	0.04	8.0E-04	mg/kg-day	General Toxicity	300	IRIS	01/15/09
Selenium	Subchronic	5E-03	mg/kg-day	(4)	5E-03	mg/kg-day	Liver	3	IRIS	01/15/09
Silver	Subchronic	5E-03	mg/kg-day	0.04	2.0E-04	mg/kg-day	Skin	3	IRIS	01/15/09
Thallium	Subchronic	8E-04	mg/kg-day	(4)	8E-04	mg/kg-day	Blood	300	IRIS	01/15/09
Vanadium	Subchronic	7E-03	mg/kg-day	0.026	1.8E-04	mg/kg-day	Kidney	100	HEAST	July 1997
Zinc	Subchronic	3E-01	mg/kg-day	(4)	3E-01	mg/kg-day	Blood	3	IRIS	01/15/09

TABLE 5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)

(1) Oral Absorption Efficiencies from Exhibit 4-1, RAGS Part E, USEPA 2004b.

Oral absorption efficiencies for aluminum, cobalt, copper and iron obtained from ATSDR Toxicological Profiles.

(2) Calculated as: (oral RfD) x (oral to dermal adjustment factor).

(3) RfD for Aroclor 1254 used as a surrogate for Aroclor 1242, Aroclor 1248, and Aroclor 1260 (High risk and persistence; upper-bound slope factor).

RfDs for manganese are based on total allowable intake (10 mg/day) minus the background intake (5 mg/day). The remaining intake (5 mg/day) is divided by 70 kg.

RfD for thallium is based on thallium sulfate.

RfD for mercury (water/inorganic) based on mercuric chloride; for mercury (other media/organic), based on methylmercury.

RfD for acenaphthene used as a surrogate for acenaphthylene.

RfD for pyrene used as a surrogate for phenanthrene and benzo(g,h,i)perylene.

RfD for nickel is based on nickel, soluble salts.

RfD for chlordane used as a surrogate for alpha-chlordane and gamma-chlordane.

Subchronic RfD for chloroethane used as chronic RfD.

Subchronic RfD for 4-chloro-3-methylphenol used as chronic RfD.

Subchronic RfD for dibenzofuran used as chronic RfD.

Subchronic RfD for 1,3-dichlorobenzene used as chronic RfD.

Subchronic RfD for beta-BHC used as chronic RfD.

RfD for endosulfan used as a surrogate for endosulfan I, endosulfan II and endosulfan sulfate.

(4) Oral absorption efficiency exceeds 50%. Therefore, no adjustment of the oral reference dose is necessary (USEPA, 2001).

When the chronic RfD is based on a subchronic study, a subchronic RfD has been developed by the elimination of the 10-fold uncertainty factor for subchronic to chronic adjustment. If no subchronic data are available, the chronic RfD has been adopted as the subchronic RfD.

(5) Permeability constants (Kp) used for water absorption calculations: 2E-03 cm/hr for chromium (VI), 4E-04 cm/hr for cobalt, 1E-04 cm/hr for lead, 2E-04 cm/hr for nickel, 6E-04 cm/hr for silver and zinc, and 1E-03 cm/hr for the remaining inorganics (USEPA, 2004); for organics, see Appendix U.

(6) See Appendix Z for lead model calculations.

IRIS = Integrated Risk Information System

HEAST = Health Effects Assessment Summary Tables

N/A = Not Applicable/Not Available

NOAEL = No Observed Adverse Effects Level

STSC = Superfund Technical Support Center

ATSDR = Agency for Toxic Substances and Disease Registry

PPRTV = Provisional Peer Reviewed Toxicity Values developed by STSC

TABLE 5.2
NON-CANCER TOXICITY DATA -- INHALATION
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD ⁽¹⁾		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
1,1-Dichloroethane	Chronic	5.0E+02	ug/m ³	N/A	N/A	Kidney	1000	HEAST	July 1997
1,2,4-Trichlorobenzene	Chronic	4.0E+00	ug/m ³	N/A	N/A	Liver/Kidney	1000	PPRTV	01/15/09
1,2,4-Trimethylbenzene	Chronic	7.0E+00	ug/m ³	N/A	N/A	Blood	3000	PPRTV	01/15/09
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	Chronic	2.0E+02	ug/m ³	N/A	N/A	General Toxicity	1000	HEAST	July 1997
1,3,5-Trimethylbenzene	Chronic	6.0E+00	ug/m ³	N/A	N/A	Respiratory/CNS/Blood	3000	PPRTV	01/15/09
1,3-Dichlorobenzene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	Chronic	8.0E+02	ug/m ³	N/A	N/A	Liver	100	IRIS	01/15/09
2-Butanone	Chronic	5.0E+03	ug/m ³	N/A	N/A	Developmental	300	IRIS	01/15/09
4-Ethyltoluene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	Chronic	3.0E+01	ug/m ³	N/A	N/A	Immune System	300	IRIS	01/15/09
Bromodichloromethane	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon disulfide	Chronic	7.0E+02	ug/m ³	N/A	N/A	CNS	30	IRIS	01/15/09
Carbon tetrachloride	Chronic	1.9E+02	ug/m ³	N/A	N/A	Liver	30	ATSDR	01/15/09
Chlorobenzene	Chronic	5.0E+01	ug/m ³	N/A	N/A	Liver/Kidney	1000	PPRTV	01/15/09
Chloroethane	Chronic	1.0E+04	ug/m ³	N/A	N/A	Developmental	300	IRIS	01/15/09
Chloroform	Chronic	1.0E+02	ug/m ³	N/A	N/A	Liver	100	ATSDR	01/15/09
cis-1,2-Dichloroethene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dichlorodifluoromethane	Chronic	2.0E+02	ug/m ³	N/A	N/A	Liver	10000	HEAST	July 1997
Ethylbenzene	Chronic	1.0E+03	ug/m ³	N/A	N/A	Developmental	300	IRIS	01/15/09
Isopropylbenzene	Chronic	4.0E+02	ug/m ³	N/A	N/A	Kidney	1000	IRIS	01/15/09
Methyl acetate	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methyl tert-butyl ether	Chronic	3.0E+03	ug/m ³	N/A	N/A	Liver/Kidney	100	IRIS	01/15/09
Methylene Chloride	Chronic	1.1E+03	ug/m ³	N/A	N/A	Liver	30	ATSDR	01/15/09
Tetrachloroethene	Chronic	2.7E+02	ug/m ³	N/A	N/A	CNS	100	ATSDR	01/15/09
Toluene	Chronic	5.0E+03	ug/m ³	N/A	N/A	CNS	10	IRIS	01/15/09
trans-1,2-Dichloroethene	Chronic	6.0E+01	ug/m ³	N/A	N/A	Respiratory/Liver	3000	PPRTV	01/15/09
Trichloroethene	Chronic	1.0E+01	ug/m ³	N/A	N/A	CNS	1000	NYSDOH	01/15/09
Vinyl Chloride	Chronic	1.0E+02	ug/m ³	N/A	N/A	Liver	30	IRIS	01/15/09
Xylene (Total)	Chronic	1.0E+02	ug/m ³	N/A	N/A	CNS	300	IRIS	01/15/09

TABLE 5.2
NON-CANCER TOXICITY DATA -- INHALATION
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD ⁽¹⁾		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
1,1'-Biphenyl	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chlorophenol	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Methylnaphthalene	Chronic	3.0E+00	ug/m ³	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Acenaphthene	Chronic	3.0E+00	ug/m ³	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Acetophenone	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzaldehyde	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(b)fluoranthene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	Chronic	3.0E+00	ug/m ³	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Benzo(k)fluoranthene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-ethylhexyl)phthalate	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbazole	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzofuran	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalene	Chronic	3.0E+00	ug/m ³	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Phenanthrene	Chronic	3.0E+00	ug/m ³	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Aroclor-1248	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor-1254	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor-1260	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dioxin TEQ	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aluminum	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	Chronic	1.5E-03	ug/m ³	N/A	N/A	Developmental	30	CalEPA	01/15/09
Cadmium (drinking water)	Chronic	1.0E-02	ug/m ³	N/A	N/A	Kidney	9	ATSDR	01/15/09
Cadmium (other media)	Chronic	1.0E-02	ug/m ³	N/A	N/A	Kidney	9	ATSDR	01/15/09

TABLE 5.2
NON-CANCER TOXICITY DATA -- INHALATION
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD ⁽¹⁾		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Chromium	Chronic	1.0E-01	ug/m ³	N/A	N/A	Respiratory	300	IRIS	01/15/09
Cobalt	Chronic	6.0E-03	ug/m ³	N/A	N/A	Respiratory	300	PPRTV	01/15/09
Copper	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	Chronic	N/A	N/A	N/A	N/A	CNS	N/A	IRIS	01/15/09
Manganese (drinking water)	Chronic	5.0E-02	ug/m ³	N/A	N/A	CNS	1000	IRIS	01/15/09
Manganese (food)	Chronic	5.0E-02	ug/m ³	N/A	N/A	CNS	1000	IRIS	01/15/09
Manganese (other media)	Chronic	5.0E-02	ug/m ³	N/A	N/A	CNS	1000	IRIS	01/15/09
Mercury (other media)	Chronic	3.0E-02	ug/m ³	N/A	N/A	CNS	300	CalEPA	01/15/09
Mercury (water)	Chronic	3.0E-02	ug/m ³	N/A	N/A	CNS	300	CalEPA	01/15/09
Thallium	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1-Dichloroethane	Subchronic	5.0E+03	ug/m ³	N/A	N/A	Kidney	100	HEAST	July 1997
1,2,4-Trichlorobenzene	Subchronic	4.0E+00	ug/m ³	N/A	N/A	Liver/Kidney	1000	PPRTV	01/15/09
1,2,4-Trimethylbenzene	Subchronic	7.0E+01	ug/m ³	N/A	N/A	Blood	300	PPRTV	01/15/09
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	Subchronic	2.0E+03	ug/m ³	N/A	N/A	General Toxicity	100	HEAST	July 1997
1,3,5-Trimethylbenzene	Subchronic	6.0E+01	ug/m ³	N/A	N/A	Respiratory/CNS/Blood	300	PPRTV	01/15/09
1,3-Dichlorobenzene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	Subchronic	2.4E+03	ug/m ³	N/A	N/A	Liver	30	IRIS	01/15/09
2-Butanone	Subchronic	5.0E+03	ug/m ³	N/A	N/A	Developmental	300	IRIS	01/15/09
4-Ethyltoluene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	Subchronic	9.0E+01	ug/m ³	N/A	N/A	Immune System	100	IRIS	01/15/09
Bromodichloromethane	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon disulfide	Subchronic	7.0E+02	ug/m ³	N/A	N/A	CNS	30	IRIS	01/15/09
Carbon tetrachloride	Subchronic	1.9E+02	ug/m ³	N/A	N/A	Liver	30	ATSDR	01/15/09
Chlorobenzene	Subchronic	5.0E+02	ug/m ³	N/A	N/A	Liver/Kidney	100	PPRTV	01/15/09
Chloroethane	Subchronic	1.0E+04	ug/m ³	N/A	N/A	Developmental	300	IRIS	01/15/09
Chloroform	Subchronic	2.5E+02	ug/m ³	N/A	N/A	Liver	100	ATSDR	01/15/09
cis-1,2-Dichloroethene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 5.2
NON-CANCER TOXICITY DATA -- INHALATION
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD ⁽¹⁾		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Dichlorodifluoromethane	Subchronic	2.0E+03	ug/m ³	N/A	N/A	Liver	1000	HEAST	July 1997
Ethylbenzene	Subchronic	1.0E+03	ug/m ³	N/A	N/A	Developmental	300	IRIS	01/15/09
Isopropylbenzene	Subchronic	4.0E+03	ug/m ³	N/A	N/A	Kidney	100	IRIS	01/15/09
Methyl acetate	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methyl tert-butyl Ether	Subchronic	3.0E+03	ug/m ³	N/A	N/A	Liver/Kidney	100	IRIS	01/15/09
Methylene Chloride	Subchronic	1.1E+03	ug/m ³	N/A	N/A	Liver	100	ATSDR	01/15/09
Tetrachloroethene	Subchronic	2.7E+02	ug/m ³	N/A	N/A	CNS	100	ATSDR	01/15/09
Toluene	Subchronic	5.0E+03	ug/m ³	N/A	N/A	CNS	10	IRIS	01/15/09
trans-1,2-Dichloroethene	Subchronic	6.0E+01	ug/m ³	N/A	N/A	Respiratory/Liver	3000	PPRTV	01/15/09
Trichloroethene	Subchronic	1.0E+02	ug/m ³	N/A	N/A	CNS	100	NYSDOH	01/15/09
Vinyl Chloride	Subchronic	1.0E+02	ug/m ³	N/A	N/A	Liver	30	IRIS	01/15/09
Xylene (Total)	Subchronic	3.0E+02	ug/m ³	N/A	N/A	CNS	100	IRIS	01/15/09
1,1'-Biphenyl	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chlorophenol	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Methylnaphthalene	Subchronic	3.0E+00	ug/m ³	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Acenaphthene	Subchronic	3.0E+00	ug/m ³	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Acetophenone	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzaldehyde	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(b)fluoranthene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	Subchronic	3.0E+00	ug/m ³	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Benzo(k)fluoranthene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-ethylhexyl)phthalate	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbazole	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzofuran	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalene	Subchronic	3.0E+00	ug/m ³	N/A	N/A	Respiratory	3000	IRIS	01/15/09
Phenanthrene	Subchronic	3.0E+00	ug/m ³	N/A	N/A	Respiratory	3000	IRIS	01/15/09

TABLE 5.2
 NON-CANCER TOXICITY DATA -- INHALATION
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD ⁽¹⁾		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Aroclor-1248	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor-1254	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor-1260	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dioxin TEQ	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aluminum	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	Subchronic	1.5E-03	ug/m ³	N/A	N/A	Developmental	30	CalEPA	01/15/09
Cadmium (drinking water)	Subchronic	1.0E-02	ug/m ³	N/A	N/A	Kidney	9	ATSDR	01/15/09
Cadmium (other media)	Subchronic	1.0E-02	ug/m ³	N/A	N/A	Kidney	9	ATSDR	01/15/09
Chromium	Subchronic	3.0E-01	ug/m ³	N/A	N/A	Respiratory	100	IRIS	01/15/09
Cobalt	Subchronic	2.0E-02	ug/m ³	N/A	N/A	Respiratory	100	PPRTV	01/15/09
Copper	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	Subchronic	N/A	N/A	N/A	N/A	CNS	N/A	IRIS	01/15/09
Manganese (drinking water)	Subchronic	5.0E-02	ug/m ³	N/A	N/A	CNS	1000	IRIS	01/15/09
Manganese (food)	Subchronic	5.0E-02	ug/m ³	N/A	N/A	CNS	1000	IRIS	01/15/09
Manganese (other media)	Subchronic	5.0E-02	ug/m ³	N/A	N/A	CNS	1000	IRIS	01/15/09
Mercury (other media)	Subchronic	3.0E-02	ug/m ³	N/A	N/A	CNS	300	CalEPA	01/15/09
Mercury (water)	Subchronic	3.0E-02	ug/m ³	N/A	N/A	CNS	300	CalEPA	01/15/09
Thallium	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 5.2
NON-CANCER TOXICITY DATA -- INHALATION
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD ⁽¹⁾		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)

IRIS = Integrated Risk Information System

HEAST = Health Effects Assessment Summary Tables

STSC = Superfund Technical Support Center

PPRTV = Provisional Peer Reviewed Toxicity Value developed by STSC

CalEPA = California Environmental Protection Agency, Office of Environmental
Health Hazard Assessment

ATSDR = Agency for Toxic Substances and Disease Registry

NYSDOH = New York State Department of Health

N/A = Not Applicable or Not Available

(1) RfC for naphthalene used as a surrogate for all noncarcinogenic PAHs.

TABLE 6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal (2)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
1,2,4-Trichlorobenzene	3.6E-03	(mg/kg-day) ⁻¹	(1)	3.6E-03	(mg/kg-day) ⁻¹	C	CalEPA	01/15/09
1,2-Dichlorobenzene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
1,3-Dichlorobenzene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
1,4-Dichlorobenzene	5.4E-03	(mg/kg-day) ⁻¹	(1)	5.4E-03	(mg/kg-day) ⁻¹	C	CalEPA	01/15/09
2-Butanone	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Benzene	5.5E-02	(mg/kg-day) ⁻¹	(1)	5.5E-02	(mg/kg-day) ⁻¹	A	IRIS	01/15/09
Bromodichloromethane	6.2E-02	(mg/kg-day) ⁻¹	(1)	6.2E-02	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Chlorobenzene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Chloroethane	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Chloroform	3.10E-02	(mg/kg-day) ⁻¹	(1)	3.10E-02	(mg/kg-day) ⁻¹	B2	CalEPA	01/15/09
Ethylbenzene	1.10E-02	(mg/kg-day) ⁻¹	(1)	1.10E-02	(mg/kg-day) ⁻¹	B2	CalEPA	01/15/09
Isopropylbenzene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Methyl tert-butyl ether	1.8E-03	(mg/kg-day) ⁻¹	(1)	1.8E-03	(mg/kg-day) ⁻¹	B2	CalEPA	01/15/09
Tetrachloroethene	5.4E-01	(mg/kg-day) ⁻¹	(1)	5.4E-01	(mg/kg-day) ⁻¹	B2	CalEPA	01/15/09
Toluene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Trichloroethene	1.3E-02	(mg/kg-day) ⁻¹	(1)	1E-02	(mg/kg-day) ⁻¹	C-B2	CalEPA	01/15/09
Vinyl Chloride	7.2E-01	(mg/kg-day) ⁻¹	(1)	7.2E-01	(mg/kg-day) ⁻¹	A	IRIS	01/15/09
Xylene (Total)	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
1,4-Dioxane	1.1E-02	(mg/kg-day) ⁻¹	(1)	1.1E-02	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
2,4-Dimethylphenol	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
2-Chlorophenol	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4-Chloro-3-methylphenol	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4-Chloroaniline	2.0E-01	(mg/kg-day) ⁻¹	(1)	2.0E-01	(mg/kg-day) ⁻¹	C	PPRTV	01/15/09
4-Methylphenol	N/A	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
4-Nitrophenol	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acenaphthylene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Atrazine	2.3E-01	(mg/kg-day) ⁻¹	(1)	2.3E-01	(mg/kg-day) ⁻¹	C	CalEPA	01/15/09
Benzaldehyde	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	7.3E-01	(mg/kg-day) ⁻¹	(1)	7.3E-01	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Benzo(a)pyrene	7.3E+00	(mg/kg-day) ⁻¹	(1)	7.3E+00	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Benzo(b)fluoranthene	7.3E-01	(mg/kg-day) ⁻¹	(1)	7.3E-01	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Benzo(g,h,i)perylene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09

TABLE 6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal (2)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Benzo(k)fluoranthene	7.3E-02	(mg/kg-day) ⁻¹	(1)	7.3E-02	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Bis(2-ethylhexyl)phthalate	1.4E-02	(mg/kg-day) ⁻¹	(1)	1.4E-02	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Carbazole	2E-02	(mg/kg-day) ⁻¹	(1)	2E-02	(mg/kg-day) ⁻¹	B2	HEAST	July 1997
Chrysene	7.3E-03	(mg/kg-day) ⁻¹	(1)	7.3E-03	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Dibenz(a,h)anthracene	7.3E+00	(mg/kg-day) ⁻¹	(1)	7.3E+00	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Dibenzofuran	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Hexachlorobenzene	1.60E+00	(mg/kg-day) ⁻¹	(1)	1.6E+00	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Indeno(1,2,3-cd)pyrene	7.3E-01	(mg/kg-day) ⁻¹	(1)	7.3E-01	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Isophorone	9.50E-04	(mg/kg-day) ⁻¹	(1)	9.50E-04	(mg/kg-day) ⁻¹	C	IRIS	01/15/09
Naphthalene	N/A	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
N-Nitrosodiphenylamine	4.90E-03	(mg/kg-day) ⁻¹	(1)	4.90E-03	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Pentachlorophenol	1.2E-01	(mg/kg-day) ⁻¹	(1)	1.2E-01	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Phenanthrene	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Aroclor-1242	2E+00	(mg/kg-day) ⁻¹	(1)	2E+00	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Aroclor-1248	2E+00	(mg/kg-day) ⁻¹	(1)	2E+00	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Aroclor-1254	2E+00	(mg/kg-day) ⁻¹	(1)	2E+00	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Aroclor-1260	2E+00	(mg/kg-day) ⁻¹	(1)	2E+00	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Total PCBs	2E+00	(mg/kg-day) ⁻¹	(1)	2E+00	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Total PCB Homologs	2E+00	(mg/kg-day) ⁻¹	(1)	2E+00	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
4,4'-DDD	2.4E-01	(mg/kg-day) ⁻¹	(1)	2.4E-01	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
4,4'-DDE	3.4E-01	(mg/kg-day) ⁻¹	(1)	3.4E-01	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
4,4'-DDT	3.4E-01	(mg/kg-day) ⁻¹	(1)	3.4E-01	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Aldrin	1.7E+01	(mg/kg-day) ⁻¹	(1)	1.7E+01	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
alpha-BHC	6.3E+00	(mg/kg-day) ⁻¹	(1)	6.3E+00	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
alpha-Chlordane	3.5E-01	(mg/kg-day) ⁻¹	(1)	3.5E-01	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
beta-BHC	1.8E+00	(mg/kg-day) ⁻¹	(1)	1.8E+00	(mg/kg-day) ⁻¹	C	IRIS	01/15/09
Dieldrin	1.6E+01	(mg/kg-day) ⁻¹	(1)	1.6E+01	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Endosulfan I	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Endosulfan II	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Endosulfan Sulfate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
gamma-BHC (Lindane)	1.1E+00	(mg/kg-day) ⁻¹	(1)	1.1E+00	(mg/kg-day) ⁻¹	C-B2	CalEPA	01/15/09

TABLE 6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal (2)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
gamma-Chlordane	3.5E-01	(mg/kg-day) ⁻¹	(1)	3.5E-01	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Heptachlor	4.5E+00	(mg/kg-day) ⁻¹	(1)	4.5E+00	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Heptachlor epoxide	9.1E+00	(mg/kg-day) ⁻¹	(1)	9.1E+00	(mg/kg-day) ⁻¹	B2	IRIS	01/15/09
Dioxin TEQ	1.3E+05	(mg/kg-day) ⁻¹	(1)	1.3E+05	(mg/kg-day) ⁻¹	B2	CalEPA	01/15/09
Aluminum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Arsenic	1.5E+00	(mg/kg-day) ⁻¹	(1)	1.5E+00	(mg/kg-day) ⁻¹	A	IRIS	01/15/09
Barium	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Beryllium	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Cadmium (drinking water)	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Cadmium (other media)	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Chromium	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Cobalt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Cyanide	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Iron	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	N/A	N/A	N/A	N/A	N/A	B2	IRIS	01/15/09
Manganese (drinking water)	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Manganese (food)	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Manganese (other media)	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Mercury (other media)	N/A	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
Mercury (water)	N/A	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
Nickel	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Selenium	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Silver	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Thallium	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Vanadium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	N/A	N/A	N/A	N/A	N/A	D	IRIS	01/15/09

TABLE 6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern (3)	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal (2)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)

IRIS = Integrated Risk Information System

STSC = Superfund Technical Support Center

PPRTV = Provisional Peer Reviewed Toxicity Value developed by STSC

N/A = Not Applicable/Not Available

CalEPA = California Environmental Protection Agency, Office of Environmental Health Hazard Assessment

Slope factor for benzo(a)pyrene, along with the appropriate relative potency factor

(USEPA, 1993), used for the other carcinogenic PAHs.

The slope factor presented for benzene is the high end of the range from 0.015 to 0.055 per mg/kg-day.

For PCBs, the RME slope factor presented represents the upper-bound slope factor for high risk and persistence situations.

The CTE slope factor is 1 per mg/kg-day and represents the central-estimate slope factor.

(1) Oral absorption efficiency exceeds 50%. Therefore, no adjustment of the oral slope factor is necessary.

(2) Calculated as: (oral slope factor) / (oral to dermal adjustment factor)

(3) See Appendix Z for lead model calculations.

EPA Group:

A - Human carcinogen

B1 - Probable human carcinogen - indicates that limited human data are available

B2 - Probable human carcinogen - indicates sufficient evidence in animals and
inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen (by the oral route)

E - Evidence of noncarcinogenicity

TABLE 6.2
CANCER TOXICITY DATA -- INHALATION
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
1,1-Dichloroethane	1.60E-06	(ug/m ³) ⁻¹	N/A	N/A	C	CalEPA	01/15/09
1,2,4-Trichlorobenzene	N/A	N/A	N/A	N/A	C	CalEPA	01/15/09
1,2,4-Trimethylbenzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
1,3,5-Trimethylbenzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,3-Dichlorobenzene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
1,4-Dichlorobenzene	1.10E-05	(ug/m ³) ⁻¹	N/A	N/A	C	CalEPA	01/15/09
2-Butanone	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
4-Ethyltoluene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	7.8E-06	(ug/m ³) ⁻¹	N/A	N/A	A	IRIS	01/15/09
Bromodichloromethane	N/A	N/A	N/A	N/A	B2	IRIS	01/15/09
Carbon disulfide	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon tetrachloride	1.5E-05	(ug/m ³) ⁻¹	N/A	N/A	B2	IRIS	01/15/09
Chlorobenzene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Chloroethane	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Chloroform	2.3E-05	(ug/m ³) ⁻¹	N/A	N/A	B2	IRIS	01/15/09
cis-1,2-Dichloroethene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Dichlorodifluoromethane	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Ethylbenzene	2.50E-06	(ug/m ³) ⁻¹	N/A	N/A	B2	CalEPA	01/15/09
Isopropylbenzene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Methyl acetate	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methyl tert-butyl ether	2.6E-07	(ug/m ³) ⁻¹	N/A	N/A	B2	CalEPA	01/15/09
Methylene Chloride	4.7E-07	(ug/m ³) ⁻¹	N/A	N/A	B2	IRIS	01/15/09
Tetrachloroethene	5.9E-06	(ug/m ³) ⁻¹	N/A	N/A	B2	CalEPA	01/15/09
Toluene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
trans-1,2-Dichloroethene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Trichloroethene	2.0E-06	(ug/m ³) ⁻¹	N/A	N/A	C-B2	CalEPA	01/15/09
Vinyl Chloride	4.4E-06	(ug/m ³) ⁻¹	N/A	N/A	A	IRIS	01/15/09
Xylene (Total)	N/A	N/A	N/A	N/A	D	IRIS	01/15/09

TABLE 6.2
CANCER TOXICITY DATA -- INHALATION
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
1,1'-Biphenyl	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
2-Chlorophenol	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Methylnaphthalene	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
Acenaphthene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Acetophenone	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Benzaldehyde	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	1.1E-04	(ug/m ³) ⁻¹	N/A	N/A	B2	CalEPA	01/15/09
Benzo(a)pyrene	1.1E-03	(ug/m ³) ⁻¹	N/A	N/A	B2	CalEPA	01/15/09
Benzo(b)fluoranthene	1.1E-04	(ug/m ³) ⁻¹	N/A	N/A	B2	CalEPA	01/15/09
Benzo(g,h,i)perylene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Benzo(k)fluoranthene	1.1E-04	(ug/m ³) ⁻¹	N/A	N/A	B2	CalEPA	01/15/09
Bis(2-ethylhexyl)phthalate	NA	N/A	N/A	N/A	B2	IRIS	01/15/09
Carbazole	N/A	N/A	N/A	N/A	B2	HEAST	July 1997
Chrysene	1.1E-05	(ug/m ³) ⁻¹	N/A	N/A	B2	CalEPA	01/15/09
Dibenz(a,h)anthracene	1.2E-03	(ug/m ³) ⁻¹	N/A	N/A	B2	CalEPA	01/15/09
Dibenzofuran	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Indeno(1,2,3-cd)pyrene	1.1E-04	(ug/m ³) ⁻¹	N/A	N/A	B2	CalEPA	01/15/09
Naphthalene	3.40E-05	(ug/m ³) ⁻¹	N/A	N/A	C	CalEPA	01/15/09
Phenanthrene	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Aroclor-1248	5.7E-04	(ug/m ³) ⁻¹	N/A	N/A	B2	IRIS	01/15/09
Aroclor-1254	5.7E-04	(ug/m ³) ⁻¹	N/A	N/A	B2	IRIS	01/15/09
Aroclor-1260	5.7E-04	(ug/m ³) ⁻¹	N/A	N/A	B2	IRIS	01/15/09
Dieldrin	4.6E-03	(ug/m ³) ⁻¹	N/A	N/A	B2	IRIS	01/15/09
Dioxin TEQ	3.8E+01	(ug/m ³) ⁻¹	N/A	N/A	B2	CalEPA	01/15/09
Aluminum	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	N/A	N/A	N/A	N/A	N/A	IRIS	01/15/09
Arsenic	4.30E-03	(ug/m ³) ⁻¹	N/A	N/A	A	IRIS	01/15/09
Cadmium (drinking water)	1.80E-03	(ug/m ³) ⁻¹	N/A	N/A	B1	IRIS	01/15/09
Cadmium (other media)	1.80E-03	(ug/m ³) ⁻¹	N/A	N/A	B1	IRIS	01/15/09

TABLE 6.2
CANCER TOXICITY DATA -- INHALATION
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Chromium	8.40E-02	(ug/m ³) ⁻¹	N/A	N/A	A	IRIS	01/15/09
Cobalt	9.00E-03	(ug/m ³) ⁻¹	N/A	N/A	B2	PPRTV	01/15/09
Copper	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Iron	N/A	N/A	N/A	N/A	N/A	N/A	01/15/09
Lead	N/A	N/A	N/A	N/A	B2	IRIS	01/15/09
Manganese (drinking water)	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Manganese (food)	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Manganese (other media)	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Mercury (other media)	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
Mercury (water)	N/A	N/A	N/A	N/A	C	IRIS	01/15/09
Thallium	N/A	N/A	N/A	N/A	D	IRIS	01/15/09
Vanadium	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	N/A	N/A	N/A	N/A	D	IRIS	01/15/09

IRIS = Integrated Risk Information System

STSC = Superfund Technical Support Center

PPRTV = Provisional Peer Reviewed Toxicity Values developed by STSC

CalEPA = California Environmental Protection Agency, Office of Environmental
Health Hazard Assessment

HEAST = Health Effects Assessment Summary Tables

N/A = Not Applicable

(1) See Appendix Z for lead model calculations.

The unit risk presented for benzene is the high end of the range from 2.2E-06 to 7E-06 per ug/m³.

EPA Group:

A - Human carcinogen

B1 - Probable human carcinogen - indicates that limited human data are available

B2 - Probable human carcinogen - indicates sufficient evidence in animals and
inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen (by the oral route)

E - Evidence of noncarcinogenicity

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-07	9.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-06	9.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	4.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.0E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	1.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-08	3.7E-06	mg/kg-day	2.0E-02	mg/kg-day	1.8E-04
				Carbazole	3E-01	mg/kg	3.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.7E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	9.0E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	6.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.3E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	7.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.5E-07	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	7.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.1E-06	2.0E-07	mg/kg-day	5.0E-05	mg/kg-day	4.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-06	5.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02
				Cadmium (other media)	9E+00	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.7E-06	mg/kg-day	1.0E-03	mg/kg-day	3.7E-03
				Chromium	2E+02	mg/kg	2.2E-05	mg/kg-day	N/A	N/A	N/A	6.3E-05	mg/kg-day	3.0E-03	mg/kg-day	2.1E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	2.8E-05	mg/kg-day	N/A	N/A	N/A	8.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.0E-03
				Iron	2E+04	mg/kg	2.9E-03	mg/kg-day	N/A	N/A	N/A	8.4E-03	mg/kg-day	7.0E-01	mg/kg-day	1.2E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	4.0E-04	mg/kg-day	7.0E-02	mg/kg-day	5.7E-03
				Mercury (other media)	5E-01	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	2E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	8.0E-05	mg/kg-day	7.6E-03
				Vanadium	2E+01	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	9.9E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03
				Zinc	3E+02	mg/kg	3.9E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.8E-04
				Exp. Route Total										8E-06	9E-02	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-06	5.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.4E-09	2.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	5.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.0E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05
				Carbazole	3E-01	mg/kg	2.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.0E-10	5.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.6E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	4.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	4.0E-03	mg/kg-day	3.6E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.9E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	4.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.6E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.3E-03
				Dieldrin	5E-01	mg/kg	2.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.5E-07	8.1E-08	mg/kg-day	5.0E-05	mg/kg-day	1.6E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.3E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03
				Cadmium (other media)	9E+00	mg/kg	5.1E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
					Exp. Route Total							3E-06				1E-02
			Exposure Point Total								1E-05				1E-01	
		Exposure Medium Total								N/A						
Medium Total										N/A					N/A	
Surface Water	Surface Water	Southern Bank	Dermal	Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.1.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Recreational User
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	1.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.0E-08	3.7E-09	mg/kg-day	5.0E-05	mg/kg-day	7.3E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	3.3E-06	mg/kg-day	N/A	N/A	N/A	9.6E-06	mg/kg-day	1.0E-02	mg/kg-day	9.6E-04
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	3.4E-09	mg/kg-day	N/A	N/A	N/A	1.0E-08	mg/kg-day	2.5E-05	mg/kg-day	4.0E-04
				Chromium	3E+00	ug/L	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	7.5E-05	mg/kg-day	1.3E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	6.9E-09	mg/kg-day	N/A	N/A	N/A	2.0E-08	mg/kg-day	1.8E-04	mg/kg-day	1.1E-04
			Exp. Route Total								2E-08					3E-03
		Exposure Point Total									2E-08					3E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.9E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.3E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.7E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	3.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.5E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.8E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.5E-09	5.3E-07	mg/kg-day	2.0E-02	mg/kg-day	2.6E-05
				Carbazole	3E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.1E-10	6.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	8.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.5E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.3E-08	mg/kg-day	4.0E-03	mg/kg-day	8.2E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	5.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.1E-08	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	7.8E-04
				Aroclor-1260	2E-01	mg/kg	1.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.2E-08	3.3E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Dieldrin	1E-02	mg/kg	9.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-08	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05
				Aluminum	5E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	9.4E-04	mg/kg-day	1.0E+00	mg/kg-day	9.4E-04
				Antimony	5E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	9.9E-08	mg/kg-day	4.0E-04	mg/kg-day	2.5E-04
				Arsenic	5E+00	mg/kg	3.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.3E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	2.4E-07	mg/kg-day	N/A	N/A	N/A	6.9E-07	mg/kg-day	1.0E-03	mg/kg-day	6.9E-04
				Chromium	4E+01	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	3.0E-03	mg/kg-day	2.9E-03
				Cobalt	5E+00	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.6E-03
				Copper	5E+01	mg/kg	3.8E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.8E-04
				Iron	9E+03	mg/kg	6.0E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.5E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	7.0E-02	mg/kg-day	5.2E-04
				Mercury (other media)	1E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	1.0E-04	mg/kg-day	3.0E-04
				Thallium	3E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	8.0E-05	mg/kg-day	7.4E-04
				Vanadium	1E+01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.2E-04
				Exp. Route Total								1E-06				
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	7.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	6.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	9.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	7.1E-09	2.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.6E-09	1.2E-06	mg/kg-day	2.0E-02	mg/kg-day	5.8E-05
				Carbazole	3E-01	mg/kg	5.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.2E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	2.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-07	7.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	9.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.7E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.3E-08	4.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.4E-03
				Aroclor-1260	2E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.9E-08	1.0E-07	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03
				Dieldrin	1E-02	mg/kg	2.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.3E-08	6.0E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	2.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.5E-07	6.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03
				Cadmium (other media)	3E+00	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Exp. Route Total								2E-06				
			Exposure Point Total								4E-06					3E-02

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
	Exposure Medium Total										N/A					N/A	
Medium Total											N/A					N/A	

TABLE 7.1.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.8E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.2E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.8E-10	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	9.8E-06
				Carbazole	3E-01	mg/kg	8.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.6E-10	2.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.6E-08	3.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.6E-09	mg/kg-day	N/A	N/A	N/A	9.0E-09	mg/kg-day	4.0E-03	mg/kg-day	2.2E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.6E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	9.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	9.0E-09	3.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Dieldrin	1E-01	mg/kg	4.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.8E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	7.6E-04	mg/kg-day	1.0E+00	mg/kg-day	7.6E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.3E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	1.0E-03	mg/kg-day	5.0E-04
				Chromium	1E+02	mg/kg	3.2E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.8E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	4.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	4.0E-02	mg/kg-day	3.8E-04
				Iron	2E+04	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.4E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	7.0E-02	mg/kg-day	7.2E-04
				Mercury (other media)	4E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	1.0E-04	mg/kg-day	3.8E-04
				Thallium	1E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	2E+01	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	7.0E-03	mg/kg-day	2.9E-04
				Zinc	2E+02	mg/kg	4.8E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-01	mg/kg-day	5.6E-05
				Exp. Route Total										1E-06		
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-07	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.2E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.2E-09	1.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.2E-10	1.6E-07	mg/kg-day	2.0E-02	mg/kg-day	7.8E-06
				Carbazole	3E-01	mg/kg	8.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	2.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.9E-08	3.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	7.2E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.1.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
				Phenanthrene	2E+00	mg/kg	5.9E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06				
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
				Aroclor-1260	3E-01	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.0E-08	3.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03				
				Dieldrin	1E-01	mg/kg	3.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.5E-08	1.2E-08	mg/kg-day	5.0E-05	mg/kg-day	2.4E-04				
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A				
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A				
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A				
				Arsenic	1E+01	mg/kg	6.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.0E-07	2.4E-07	mg/kg-day	3.0E-04	mg/kg-day	8.0E-04				
				Cadmium (other media)	5E+00	mg/kg	1.1E-09	mg/kg-day	N/A	N/A	N/A	4.0E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04				
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A				
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A				
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
				Lead																
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A				
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A				
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A				
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A				
				Exp. Route Total				8E-07							3E-03					
				Exposure Point Total				2E-06							2E-02					
				Exposure Medium Total				N/A							N/A					
				Medium Total				N/A							N/A					
				Surface Water	Surface Water	Southern Bank	Dermal	Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
								Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	
								Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	
Benzo(g,h,i)perylene	ND	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A					
Benzo(k)fluoranthene	ND	ug/L	N/A					N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A					
bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A					N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
Chrysene	1E-01	ug/L	N/A					N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A					
Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A					N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A					
Naphthalene	ND	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A					
Phenanthrene	1E-01	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A					
1,4-Dichlorobenzene	ND	ug/L	N/A					N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
Benzene	ND	ug/L	N/A					N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A				
Aroclor-1260	ND	ug/L	N/A					N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
4,4'-DDD	ND	ug/L	N/A					N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A				

TABLE 7.1.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Recreational User
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	5.2E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.3E-09	1.8E-09	mg/kg-day	5.0E-05	mg/kg-day	3.7E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	1.4E-06	mg/kg-day	N/A	N/A	N/A	4.8E-06	mg/kg-day	1.0E-02	mg/kg-day	4.8E-04
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	1.4E-09	mg/kg-day	N/A	N/A	N/A	5.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.0E-04
				Chromium	3E+00	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	5.0E-08	mg/kg-day	7.5E-05	mg/kg-day	6.7E-04
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	2.9E-09	mg/kg-day	N/A	N/A	N/A	1.0E-08	mg/kg-day	1.8E-04	mg/kg-day	5.5E-05
			Exp. Route Total								8E-09					1E-03
		Exposure Point Total									8E-09					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-08	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.0E-08	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-08	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	7.1E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.2E-10	2.5E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	3.8E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.3E-10	1.3E-07	mg/kg-day	2.0E-02	mg/kg-day	6.6E-06
				Carbazole	3E-01	mg/kg	4.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.6E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-08	6.5E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	8.2E-09	mg/kg-day	4.0E-03	mg/kg-day	2.0E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.9E-09	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-09	3.9E-09	mg/kg-day	2.0E-05	mg/kg-day	2.0E-04
				Aroclor-1260	2E-01	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.3E-09	8.2E-09	mg/kg-day	2.0E-05	mg/kg-day	4.1E-04
				Dieldrin	1E-02	mg/kg	1.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.1E-09	6.8E-10	mg/kg-day	5.0E-05	mg/kg-day	1.4E-05
				Aluminum	5E+03	mg/kg	6.7E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	1.0E+00	mg/kg-day	2.3E-04
				Antimony	5E-01	mg/kg	7.1E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	4.0E-04	mg/kg-day	6.2E-05
				Arsenic	5E+00	mg/kg	7.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.1E-07	2.6E-07	mg/kg-day	3.0E-04	mg/kg-day	8.6E-04

TABLE 7.1.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	4.9E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	1.0E-03	mg/kg-day	1.7E-04
				Chromium	4E+01	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-03	mg/kg-day	7.3E-04
				Cobalt	5E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	3.0E-04	mg/kg-day	9.1E-04
				Copper	5E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	4.0E-02	mg/kg-day	7.0E-05
				Iron	9E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	7.0E-01	mg/kg-day	6.2E-04
				Lead												
				Manganese (other media)	2E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	9.0E-06	mg/kg-day	7.0E-02	mg/kg-day	1.3E-04
				Mercury (other media)	1E-01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.6E-09	mg/kg-day	1.0E-04	mg/kg-day	7.6E-05
				Thallium	3E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	8.0E-05	mg/kg-day	1.8E-04
				Vanadium	1E+01	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	7.0E-03	mg/kg-day	7.9E-05
				Exp. Route Total						3E-07						
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.1E-08	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	7.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.1E-07	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.8E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	4.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.0E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.3E-09	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Carbazole	3E-01	mg/kg	2.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.9E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.7E-08	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	9.0E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	6.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.9E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aroclor-1260	2E-01	mg/kg	1.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.4E-08	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Dieldrin	1E-02	mg/kg	8.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.4E-08	3.0E-09	mg/kg-day	5.0E-05	mg/kg-day	6.0E-05
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	9.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-07	3.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Cadmium (other media)	3E+00	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.5E-09	mg/kg-day	2.5E-05	mg/kg-day	3.0E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Exp. Route Total						1E-06						
			Exposure Point Total						1E-06							1E-02

TABLE 7.1.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Recreational User
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
	Exposure Medium Total											N/A						N/A	
Medium Total													N/A						N/A
							Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A	

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.5E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.7E-06	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-07	2.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.6E-08	8.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	6.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.8E-09	7.3E-06	mg/kg-day	2.0E-02	mg/kg-day	3.7E-04
				Carbazole	3E-01	mg/kg	1.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.8E-10	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.2E-09	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	3.0E-02	mg/kg-day	6.5E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.7E-08	4.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.2E-02
				Dieldrin	5E-01	mg/kg	3.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.6E-07	4.1E-07	mg/kg-day	5.0E-05	mg/kg-day	8.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	7.4E-03	mg/kg-day	1.0E+00	mg/kg-day	7.4E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.5E-02
				Cadmium (other media)	9E+00	mg/kg	6.4E-07	mg/kg-day	N/A	N/A	N/A	7.5E-06	mg/kg-day	1.0E-03	mg/kg-day	7.5E-03
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	4.2E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	4.0E-02	mg/kg-day	4.0E-03
				Iron	2E+04	mg/kg	1.4E-03	mg/kg-day	N/A	N/A	N/A	1.7E-02	mg/kg-day	7.0E-01	mg/kg-day	2.4E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	6.9E-05	mg/kg-day	N/A	N/A	N/A	8.0E-04	mg/kg-day	7.0E-02	mg/kg-day	1.1E-02
				Mercury (other media)	5E-01	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	4.1E-07	mg/kg-day	1.0E-04	mg/kg-day	4.1E-03
				Thallium	2E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	8.0E-05	mg/kg-day	1.5E-02
				Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-03	mg/kg-day	2.8E-03
				Zinc	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	3.0E-01	mg/kg-day	7.5E-04
				Exp. Route Total										8E-06		
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.2E-06	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.8E-07	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.8E-08	9.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	5.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.7E-09	6.4E-06	mg/kg-day	2.0E-02	mg/kg-day	3.2E-04
				Carbazole	3E-01	mg/kg	2.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.4E-10	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.6E-07	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	4.0E-03	mg/kg-day	1.6E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A

TABLE 7.2.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Recreational User
 Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-02	mg/kg-day	7.5E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	4.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.5E-08	5.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.8E-02
				Dieldrin	5E-01	mg/kg	3.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.9E-07	3.6E-07	mg/kg-day	5.0E-05	mg/kg-day	7.2E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.6E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.3E-03
				Cadmium (other media)	9E+00	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								7E-06					5E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal	Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A				
				Dieldrin	2E-03	ug/L	3.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.7E-09	4.2E-09	mg/kg-day	5.0E-05	mg/kg-day	8.3E-05				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A				
				Aluminum	6E+02	ug/L	9.4E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	1.0E-02	mg/kg-day	1.1E-03				
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Cadmium (other media)	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A				
				Chromium	3E+00	ug/L	9.9E-09	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	7.5E-05	mg/kg-day	1.5E-03				
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A				
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A				
				Vanadium	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A				
						Exp. Route Total								6E-09					3E-03	
						Exposure Point Total								6E-09						3E-03
					Exposure Medium Total									N/A						N/A
				Medium Total										N/A						N/A
				Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	4.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	5.5E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(a)pyrene	8E-01	mg/kg	3.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.5E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(b)fluoranthene	1E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.6E-08	4.6E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(k)fluoranthene	5E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.7E-09	2.0E-07	mg/kg-day	N/A	N/A	N/A
								bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	9.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.3E-09	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.3E-05
								Carbazole	3E-01	mg/kg	1.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
								Dibenz(a,h)anthracene	1E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.8E-08	5.2E-08	mg/kg-day	N/A	N/A	N/A
								Dibenzofuran	2E-01	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.6E-05
						Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.5E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A		
				Phenanthrene	2E+00	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	9.9E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05				
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
				Aroclor-1254	8E-02	mg/kg	2.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.4E-09	3.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03				
				Aroclor-1260	2E-01	mg/kg	5.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.1E-08	6.5E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03				
				Dieldrin	1E-02	mg/kg	4.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.5E-09	5.4E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04				
				Aluminum	5E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03				
				Antimony	5E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	4.0E-04	mg/kg-day	4.9E-04				
				Arsenic	5E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-07	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	6.9E-03				

TABLE 7.2.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Recreational User
 Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	1.0E-03	mg/kg-day	1.4E-03
				Chromium	4E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-03	mg/kg-day	5.8E-03
				Cobalt	5E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.3E-03
				Copper	5E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	4.0E-02	mg/kg-day	5.6E-04
				Iron	9E+03	mg/kg	3.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	6.2E-06	mg/kg-day	N/A	N/A	N/A	7.2E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03
				Mercury (other media)	1E-01	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	6.1E-08	mg/kg-day	1.0E-04	mg/kg-day	6.1E-04
				Thallium	3E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	7.0E-03	mg/kg-day	6.3E-04
			Exp. Route Total								1E-06					4E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	4.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-06	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	6.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	2.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.1E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.6E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.6E-05
				Carbazole	3E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	8.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.0E-09	mg/kg-day	N/A	N/A	N/A	8.2E-08	mg/kg-day	4.0E-03	mg/kg-day	2.0E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.8E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	3.0E-02	mg/kg-day	5.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	4.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.4E-09	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aroclor-1260	2E-01	mg/kg	9.8E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.0E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.7E-03
				Dieldrin	1E-02	mg/kg	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.3E-09	6.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	6.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.0E-07	7.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.6E-03
				Cadmium (other media)	3E+00	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	2.5E-05	mg/kg-day	6.9E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									3E-06					5E-02

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
	Exposure Medium Total											N/A				N/A		
Medium Total													N/A				N/A	
							Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A

Notes
Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.2.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.9E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.8E-07	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.9E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.9E-09	1.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.7E-10	3.3E-07	mg/kg-day	2.0E-02	mg/kg-day	1.7E-05
				Carbazole	3E-01	mg/kg	4.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.6E-11	4.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-07	6.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	3.0E-02	mg/kg-day	1.1E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	5.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.4E-09	5.4E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Dieldrin	1E-01	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.1E-08	2.6E-08	mg/kg-day	5.0E-05	mg/kg-day	5.1E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	1.3E-03	mg/kg-day	1.0E+00	mg/kg-day	1.3E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.6E-07	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.8E-03
				Cadmium (other media)	5E+00	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	8.5E-07	mg/kg-day	1.0E-03	mg/kg-day	8.5E-04
				Chromium	1E+02	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	3.0E-03	mg/kg-day	6.5E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	2.6E-05	mg/kg-day	4.0E-02	mg/kg-day	6.5E-04
				Iron	2E+04	mg/kg	2.9E-04	mg/kg-day	N/A	N/A	N/A	2.9E-03	mg/kg-day	7.0E-01	mg/kg-day	4.1E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	8.7E-06	mg/kg-day	N/A	N/A	N/A	8.7E-05	mg/kg-day	7.0E-02	mg/kg-day	1.2E-03
				Mercury (other media)	4E-01	mg/kg	6.5E-09	mg/kg-day	N/A	N/A	N/A	6.5E-08	mg/kg-day	1.0E-04	mg/kg-day	6.5E-04
				Thallium	1E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	8.0E-05	mg/kg-day	2.6E-03
				Vanadium	2E+01	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	3.5E-06	mg/kg-day	7.0E-03	mg/kg-day	5.0E-04
				Zinc	2E+02	mg/kg	2.9E-06	mg/kg-day	N/A	N/A	N/A	2.9E-05	mg/kg-day	3.0E-01	mg/kg-day	9.7E-05
				Exp. Route Total										1E-06		
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	7.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	7.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	7.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-06	7.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	8.9E-09	4.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.3E-10	5.9E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Carbazole	3E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.2E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	2.7E-08	mg/kg-day	4.0E-03	mg/kg-day	6.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.2E-08	4.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.2.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	7.7E-07	mg/kg-day	3.0E-02	mg/kg-day	2.6E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	1.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.3E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.6E-03
				Dieldrin	1E-01	mg/kg	4.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.2E-08	4.5E-08	mg/kg-day	5.0E-05	mg/kg-day	9.0E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-07	9.1E-07	mg/kg-day	3.0E-04	mg/kg-day	3.0E-03
				Cadmium (other media)	5E+00	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-06					1E-02
		Exposure Point Total									4E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal	Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.2.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations										
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient						
							Value	Units	Value	Units		Value	Units	Value	Units							
Sediment	Sediment	Southern Bank	Ingestion	4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A				
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A				
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A	N/A				
				Dieldrin	2E-03	ug/L	1.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.9E-09	2.1E-09	mg/kg-day	5.0E-05	mg/kg-day	4.2E-05	N/A	N/A				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A				
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A	N/A				
				Aluminum	6E+02	ug/L	4.7E-07	mg/kg-day	N/A	N/A	N/A	5.5E-06	mg/kg-day	1.0E-02	mg/kg-day	5.5E-04	N/A	N/A				
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A	N/A				
				Cadmium (other media)	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A	N/A	N/A				
				Chromium	3E+00	ug/L	4.9E-09	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	7.5E-05	mg/kg-day	7.7E-04	N/A	N/A				
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A	N/A				
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	N/A	N/A				
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	N/A	N/A				
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	N/A	N/A				
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	N/A	N/A	N/A			
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	N/A	N/A	N/A			
				Vanadium	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A	N/A	N/A	N/A			
				Exp. Route Total										3E-09					1E-03			
				Exposure Point Total										3E-09					1E-03			
				Exposure Medium Total										N/A					N/A			
				Medium Total										N/A					N/A			
				Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A	N/A	
								Benzo(a)pyrene	8E-01	mg/kg	7.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	8.6E-08	mg/kg-day	N/A	N/A	N/A	N/A	
								Benzo(b)fluoranthene	1E+00	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A	N/A	
								Benzo(k)fluoranthene	5E-01	mg/kg	4.3E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.4E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A	N/A	
								bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.2E-10	2.6E-07	mg/kg-day	2.0E-02	mg/kg-day	1.3E-05	N/A	N/A
								Carbazole	3E-01	mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.2E-11	3.0E-08	mg/kg-day	N/A	N/A	N/A	N/A	N/A
								Dibenz(a,h)anthracene	1E-01	mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-08	1.3E-08	mg/kg-day	N/A	N/A	N/A	N/A	N/A
								Dibenzofuran	2E-01	mg/kg	1.4E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.1E-06	N/A	N/A
								Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	4.0E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.9E-09	4.7E-08	mg/kg-day	N/A	N/A	N/A	N/A	N/A
								Phenanthrene	2E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-02	mg/kg-day	8.3E-06	N/A	N/A
Aroclor-1242	ND	mg/kg	N/A					N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	N/A	N/A				
Aroclor-1254	8E-02	mg/kg	6.7E-10					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04	N/A	N/A				
Aroclor-1260	2E-01	mg/kg	1.4E-09					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.4E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	8.2E-04	N/A	N/A				
Dieldrin	1E-02	mg/kg	1.2E-10					mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.9E-09	1.4E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05	N/A	N/A				
Aluminum	5E+03	mg/kg	4.0E-05					mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	1.0E+00	mg/kg-day	4.7E-04	N/A	N/A				
Antimony	5E-01	mg/kg	4.2E-09					mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	4.0E-04	mg/kg-day	1.2E-04	N/A	N/A				
Arsenic	5E+00	mg/kg	4.4E-08					mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.6E-08	5.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03	N/A	N/A				

TABLE 7.2.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	2.9E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	1.0E-03	mg/kg-day	3.4E-04
				Chromium	4E+01	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	3.0E-03	mg/kg-day	1.5E-03
				Cobalt	5E+00	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				Copper	5E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	4.0E-02	mg/kg-day	1.4E-04
				Iron	9E+03	mg/kg	7.5E-05	mg/kg-day	N/A	N/A	N/A	8.7E-04	mg/kg-day	7.0E-01	mg/kg-day	1.2E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	2.6E-04
				Mercury (other media)	1E-01	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04
				Thallium	3E-01	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	8.0E-05	mg/kg-day	3.7E-04
				Vanadium	1E+01	mg/kg	9.5E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.0E-03	mg/kg-day	1.6E-04
			Exp. Route Total								3E-07					1E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.3E-07	2.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.0E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.0E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	5.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.9E-10	6.6E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Carbazole	3E-01	mg/kg	8.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	9.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.9E-08	4.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.0E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.9E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	6.9E-08	mg/kg-day	N/A	N/A	N/A	8.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.4E-09	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.4E-03
				Aroclor-1260	2E-01	mg/kg	4.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	4.9E-09	5.7E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Dieldrin	1E-02	mg/kg	2.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.7E-09	3.4E-09	mg/kg-day	5.0E-05	mg/kg-day	6.8E-05
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	3.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.0E-08	3.9E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Cadmium (other media)	3E+00	mg/kg	7.4E-10	mg/kg-day	N/A	N/A	N/A	8.6E-09	mg/kg-day	2.5E-05	mg/kg-day	3.4E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								9E-07					6E-03
		Exposure Point Total									1E-06					2E-02

TABLE 7.2.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
	Exposure Medium Total										N/A					N/A			
Medium Total											N/A					N/A			
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media							N/A

Notes
Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.3.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Commercial Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	9.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.9E-07	2.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.2E-06	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.8E-06	3.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.9E-07	3.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	5.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.0E-08	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	1.5E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.1E-09	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-06	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.5E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	4.0E-03	mg/kg-day	5.3E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	5.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.1E-07	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	6.6E-06	mg/kg-day	3.0E-02	mg/kg-day	2.2E-04
				Aroclor-1260	4E-01	mg/kg	1.3E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.6E-07	3.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Dieldrin	1E-01	mg/kg	4.7E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.5E-07	1.3E-07	mg/kg-day	5.0E-05	mg/kg-day	2.6E-03
				Dioxin TEQ	5E-05	mg/kg	1.6E-11	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	2.0E-06	4.4E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	3.7E-03	mg/kg-day	N/A	N/A	N/A	1.0E-02	mg/kg-day	1.0E+00	mg/kg-day	1.0E-02
				Arsenic	2E+01	mg/kg	5.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	8.7E-06	1.6E-05	mg/kg-day	3.0E-04	mg/kg-day	5.4E-02
				Cadmium (other media)	1E+01	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	1.0E-03	mg/kg-day	1.1E-02
				Chromium	2E+02	mg/kg	7.8E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-03	mg/kg-day	7.3E-02
				Cobalt	1E+01	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.8E-02
				Copper	3E+02	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	3.3E-04	mg/kg-day	4.0E-02	mg/kg-day	8.2E-03
				Iron	2E+04	mg/kg	8.6E-03	mg/kg-day	N/A	N/A	N/A	2.4E-02	mg/kg-day	7.0E-01	mg/kg-day	3.4E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	3.3E-04	mg/kg-day	N/A	N/A	N/A	9.3E-04	mg/kg-day	7.0E-02	mg/kg-day	1.3E-02
				Mercury (other media)	6E-01	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	1.0E-04	mg/kg-day	6.1E-03
				Thallium	2E+00	mg/kg	6.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	8.0E-05	mg/kg-day	2.3E-02
			Exp. Route Total								2E-05					3E-01
			Dermal	Benzo(a)anthracene	3E+00	mg/kg	8.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.0E-07	2.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.0E-06	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.5E-06	2.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.0E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.6E-07	2.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	4.7E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.4E-08	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	1.3E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.7E-09	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	4.0E-03	mg/kg-day	3.5E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	4.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.5E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	5.7E-06	mg/kg-day	3.0E-02	mg/kg-day	1.9E-04
				Aroclor-1260	4E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.4E-07	3.3E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02
				Dieldrin	1E-01	mg/kg	3.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.0E-07	8.7E-08	mg/kg-day	5.0E-05	mg/kg-day	1.7E-03
				Dioxin TEQ	5E-05	mg/kg	3.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	4.0E-07	8.7E-12	mg/kg-day	N/A	N/A	N/A

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
1	1	1		Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.7E-06	3.2E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Cadmium (other media)	1E+01	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	7.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.9E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Exp. Route Total								1E-05				3E-02
				Exposure Point Total								4E-05				3E-01
				Exposure Medium Total								N/A				N/A
				Medium Total								N/A				N/A
Total of Receptor Risks Across All Media							N/A		Total of Receptor Hazards Across All Media					N/A		

TABLE 7.3.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-06	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	8.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.3E-09	6.7E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	2.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.9E-10	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.2E-07	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	9.3E-08	mg/kg-day	4.0E-03	mg/kg-day	2.3E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	8.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.4E-08	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-02	mg/kg-day	9.7E-05
				Aroclor-1260	4E-01	mg/kg	2.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.0E-08	1.6E-07	mg/kg-day	2.0E-05	mg/kg-day	7.8E-03
				Dieldrin	1E-01	mg/kg	7.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.2E-07	5.8E-08	mg/kg-day	5.0E-05	mg/kg-day	1.2E-03
				Dioxin TEQ	4E-05	mg/kg	2.0E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	2.7E-07	1.6E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	5.8E-04	mg/kg-day	N/A	N/A	N/A	4.5E-03	mg/kg-day	1.0E+00	mg/kg-day	4.5E-03
				Arsenic	2E+01	mg/kg	9.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-06	7.1E-06	mg/kg-day	3.0E-04	mg/kg-day	2.4E-02
				Cadmium (other media)	1E+01	mg/kg	6.3E-07	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	1.0E-03	mg/kg-day	4.9E-03
				Chromium	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	9.5E-05	mg/kg-day	3.0E-03	mg/kg-day	3.2E-02
				Cobalt	1E+01	mg/kg	6.3E-07	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	3.0E-04	mg/kg-day	1.6E-02
				Copper	3E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	4.0E-02	mg/kg-day	3.6E-03
				Iron	2E+04	mg/kg	1.4E-03	mg/kg-day	N/A	N/A	N/A	1.1E-02	mg/kg-day	7.0E-01	mg/kg-day	1.5E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	5.2E-05	mg/kg-day	N/A	N/A	N/A	4.1E-04	mg/kg-day	7.0E-02	mg/kg-day	5.8E-03
				Mercury (other media)	6E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	1.0E-04	mg/kg-day	2.7E-03
				Thallium	2E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	8.1E-07	mg/kg-day	8.0E-05	mg/kg-day	1.0E-02
			Exp. Route Total								4E-06					1E-01
			Dermal	Benzo(a)anthracene	3E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	3.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-06	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-07	2.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.1E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	4.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.4E-10	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.7E-07	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	4.0E-03	mg/kg-day	3.1E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	6.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-06	mg/kg-day	3.0E-02	mg/kg-day	1.7E-04
				Aroclor-1260	4E-01	mg/kg	3.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.7E-08	2.9E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Dieldrin	1E-01	mg/kg	9.8E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.6E-07	7.6E-08	mg/kg-day	5.0E-05	mg/kg-day	1.5E-03
				Dioxin TEQ	4E-05	mg/kg	8.1E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.0E-07	6.3E-12	mg/kg-day	N/A	N/A	N/A

TABLE 7.3.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	3.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.4E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.4E-03
				Cadmium (other media)	1E+01	mg/kg	8.3E-09	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total							4E-06				3E-02		
			Exposure Point Total								8E-06				2E-01	
			Exposure Medium Total													
Medium Total											N/A				N/A	

TABLE 7.4.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Commercial Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	4.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-06	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.5E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.3E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.7E-08	6.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	3.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.2E-09	8.3E-07	mg/kg-day	2.0E-02	mg/kg-day	4.2E-05
				Carbazole	1E-01	mg/kg	5.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.0E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	6.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.7E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.7E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	4.0E-03	mg/kg-day	4.0E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	4.1E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-02	mg/kg-day	3.8E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.8E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.6E-07	5.1E-07	mg/kg-day	2.0E-05	mg/kg-day	2.5E-02
				Dieldrin	5E-01	mg/kg	1.6E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.5E-06	4.4E-07	mg/kg-day	5.0E-05	mg/kg-day	8.8E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	2.7E-03	mg/kg-day	N/A	N/A	N/A	7.6E-03	mg/kg-day	1.0E+00	mg/kg-day	7.6E-03
				Antimony	1E+00	mg/kg	3.9E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	4.0E-04	mg/kg-day	2.7E-03
				Arsenic	1E+01	mg/kg	4.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.2E-06	1.2E-05	mg/kg-day	3.0E-04	mg/kg-day	3.8E-02
				Cadmium (other media)	4E+00	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	1.0E-03	mg/kg-day	3.8E-03
				Chromium	2E+02	mg/kg	7.8E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-03	mg/kg-day	7.3E-02
				Cobalt	4E+00	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.4E-02
				Copper	1E+02	mg/kg	4.7E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	4.0E-02	mg/kg-day	3.3E-03
				Iron	2E+04	mg/kg	5.6E-03	mg/kg-day	N/A	N/A	N/A	1.6E-02	mg/kg-day	7.0E-01	mg/kg-day	2.2E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	4.6E-04	mg/kg-day	7.0E-02	mg/kg-day	6.5E-03
				Mercury (other media)	8E-01	mg/kg	2.8E-07	mg/kg-day	N/A	N/A	N/A	7.7E-07	mg/kg-day	1.0E-04	mg/kg-day	7.7E-03
				Thallium	2E-01	mg/kg	6.3E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	8.0E-05	mg/kg-day	2.2E-03
				Vanadium	3E+01	mg/kg	8.8E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	7.0E-03	mg/kg-day	3.5E-03
				Zinc	1E+02	mg/kg	4.1E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	3.0E-01	mg/kg-day	3.9E-04
				Exp. Route Total										1E-05	2E-01	
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	3.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.7E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.9E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.0E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.5E-08	5.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.7E-09	5.5E-07	mg/kg-day	2.0E-02	mg/kg-day	2.7E-05
				Carbazole	1E-01	mg/kg	4.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.8E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.0E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-03	mg/kg-day	2.6E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-07	8.6E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.7E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.4E-07	4.7E-07	mg/kg-day	2.0E-05	mg/kg-day	2.4E-02
				Dieldrin	5E-01	mg/kg	1.0E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.7E-06	2.9E-07	mg/kg-day	5.0E-05	mg/kg-day	5.8E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	8.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-06	2.3E-06	mg/kg-day	3.0E-04	mg/kg-day	7.6E-03
				Cadmium (other media)	4E+00	mg/kg	8.8E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	2.5E-05	mg/kg-day	9.9E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
							Exp. Route Total								7E-06	
			Exposure Point Total									2E-05				3E-01
			Exposure Medium Total									N/A				N/A
Medium Total												N/A				N/A
Total of Receptor Risks Across All Media							N/A		Total of Receptor Hazards Across All Media					N/A		

TABLE 7.4.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-08	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	6.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.9E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.1E-08	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	3.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.7E-09	2.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	4.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.6E-10	3.6E-07	mg/kg-day	2.0E-02	mg/kg-day	1.8E-05
				Carbazole	1E-01	mg/kg	8.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.6E-10	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.4E-08	7.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.1E-08	4.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	6.4E-08	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	2.9E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.9E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	2.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.0E-07	1.9E-07	mg/kg-day	5.0E-05	mg/kg-day	3.9E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	3.3E-03	mg/kg-day	1.0E+00	mg/kg-day	3.3E-03
				Antimony	1E+00	mg/kg	6.2E-08	mg/kg-day	N/A	N/A	N/A	4.8E-07	mg/kg-day	4.0E-04	mg/kg-day	1.2E-03
				Arsenic	1E+01	mg/kg	6.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.7E-07	5.0E-06	mg/kg-day	3.0E-04	mg/kg-day	1.7E-02
				Cadmium (other media)	4E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03
				Chromium	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	9.6E-05	mg/kg-day	3.0E-03	mg/kg-day	3.2E-02
				Cobalt	4E+00	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.0E-03
				Copper	1E+02	mg/kg	7.4E-06	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	4.0E-02	mg/kg-day	1.4E-03
				Iron	2E+04	mg/kg	8.8E-04	mg/kg-day	N/A	N/A	N/A	6.8E-03	mg/kg-day	7.0E-01	mg/kg-day	9.7E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	2.6E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	7.0E-02	mg/kg-day	2.9E-03
				Mercury (other media)	8E-01	mg/kg	4.3E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	1.0E-04	mg/kg-day	3.4E-03
				Thallium	2E-01	mg/kg	9.9E-09	mg/kg-day	N/A	N/A	N/A	7.7E-08	mg/kg-day	8.0E-05	mg/kg-day	9.6E-04
				Vanadium	3E+01	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-03	mg/kg-day	1.5E-03
				Zinc	1E+02	mg/kg	6.5E-06	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	3.0E-01	mg/kg-day	1.7E-04
				Exp. Route Total										2E-06		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.5E-08	9.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.4E-07	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.6E-09	4.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	6.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.7E-10	4.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.4E-05
				Carbazole	1E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.8E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	9.2E-08	mg/kg-day	4.0E-03	mg/kg-day	2.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	9.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.1E-08	7.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.4.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	8.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.9E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	5.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.3E-08	4.1E-07	mg/kg-day	2.0E-05	mg/kg-day	2.1E-02
				Dieldrin	5E-01	mg/kg	3.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.3E-07	2.6E-07	mg/kg-day	5.0E-05	mg/kg-day	5.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.9E-07	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.7E-03
				Cadmium (other media)	4E+00	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	2.5E-05	mg/kg-day	8.7E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
							Exp. Route Total								2E-06	
			Exposure Point Total								4E-06				1E-01	
			Exposure Medium Total								N/A				N/A	
Medium Total											N/A				N/A	
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A

TABLE 7.5.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.2E-07	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.3E-06	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.4E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.4E-08	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	3.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.2E-10	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.3E-07	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	4.0E-03	mg/kg-day	3.1E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.5E-07	9.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	5.5E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-02	mg/kg-day	1.3E-04
				Aroclor-1260	4E-01	mg/kg	3.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.9E-08	2.1E-07	mg/kg-day	2.0E-05	mg/kg-day	1.0E-02
				Dieldrin	1E-01	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.8E-07	7.7E-08	mg/kg-day	5.0E-05	mg/kg-day	1.5E-03
				Dioxin TEQ	5E-05	mg/kg	3.7E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	4.8E-07	2.6E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	8.6E-04	mg/kg-day	N/A	N/A	N/A	6.0E-03	mg/kg-day	1.0E+00	mg/kg-day	6.0E-03
				Arsenic	2E+01	mg/kg	1.3E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.0E-06	9.4E-06	mg/kg-day	3.0E-04	mg/kg-day	3.1E-02
				Cadmium (other media)	1E+01	mg/kg	9.3E-07	mg/kg-day	N/A	N/A	N/A	6.5E-06	mg/kg-day	1.0E-03	mg/kg-day	6.5E-03
				Chromium	2E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	4.2E-02
				Cobalt	1E+01	mg/kg	9.4E-07	mg/kg-day	N/A	N/A	N/A	6.6E-06	mg/kg-day	3.0E-04	mg/kg-day	2.2E-02
				Copper	3E+02	mg/kg	2.7E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	4.0E-02	mg/kg-day	4.8E-03
				Iron	2E+04	mg/kg	2.0E-03	mg/kg-day	N/A	N/A	N/A	1.4E-02	mg/kg-day	7.0E-01	mg/kg-day	2.0E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	7.7E-05	mg/kg-day	N/A	N/A	N/A	5.4E-04	mg/kg-day	7.0E-02	mg/kg-day	7.7E-03
				Mercury (other media)	6E-01	mg/kg	5.1E-08	mg/kg-day	N/A	N/A	N/A	3.5E-07	mg/kg-day	1.0E-04	mg/kg-day	3.5E-03
				Thallium	2E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	8.0E-05	mg/kg-day	1.3E-02
			Exp. Route Total								1E-05					2E-01
			Dermal	Benzo(a)anthracene	3E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-07	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.5E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.9E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.9E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.3E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	1.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.9E-10	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.4E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.3E-09	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.3E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	3.0E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	6.9E-05
				Aroclor-1260	4E-01	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.4E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.0E-03
				Dieldrin	1E-01	mg/kg	4.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.2E-08	3.2E-08	mg/kg-day	5.0E-05	mg/kg-day	6.3E-04
				Dioxin TEQ	5E-05	mg/kg	4.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	5.9E-08	3.2E-12	mg/kg-day	N/A	N/A	N/A

TABLE 7.5.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.5E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	3.9E-03
				Cadmium (other media)	1E+01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.7E-08	mg/kg-day	2.5E-05	mg/kg-day	1.1E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								4E-06					1E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E-01	ug/L	4.1E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.4E-05
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	1E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	1.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.0E-08	8.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.8E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	8.6E-07	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	1.0E-02	mg/kg-day	6.0E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	1.7E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.5E-05	mg/kg-day	4.8E-04
				Chromium	3E+00	ug/L	2.1E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	7.5E-05	mg/kg-day	1.9E-03

TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	
				Vanadium	2E+00	ug/L	5.7E-09	mg/kg-day	N/A	N/A	N/A	4.0E-08	mg/kg-day	1.8E-04	mg/kg-day	2.2E-04
			Exp. Route Total								2E-08					3E-03
			Exposure Point Total									2E-08				
Exposure Medium Total									N/A					N/A		
Medium Total									N/A					N/A		
Sediment	Sediment	Downstream of Landfill	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.2E-06	8.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-07	8.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.5E-08	5.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.7E-09	8.3E-07	mg/kg-day	2.0E-02	mg/kg-day	4.2E-05
				Carbazole	3E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.5E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	2.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	4.0E-03	mg/kg-day	6.6E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	4.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	7.2E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	4.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.3E-08	3.3E-07	mg/kg-day	2.0E-05	mg/kg-day	1.6E-02
				Aroclor-1260	4E-01	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.1E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03
				Dieldrin	7E-03	mg/kg	2.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.5E-09	2.0E-09	mg/kg-day	5.0E-05	mg/kg-day	3.9E-05
				Aluminum	8E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	2.3E-03	mg/kg-day	1.0E+00	mg/kg-day	2.3E-03
				Antimony	2E+00	mg/kg	6.4E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	4.0E-04	mg/kg-day	1.1E-03
				Arsenic	9E+00	mg/kg	3.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.8E-07	2.7E-06	mg/kg-day	3.0E-04	mg/kg-day	9.0E-03
				Cadmium (other media)	2E+01	mg/kg	7.2E-07	mg/kg-day	N/A	N/A	N/A	5.0E-06	mg/kg-day	1.0E-03	mg/kg-day	5.0E-03
				Chromium	1E+02	mg/kg	5.1E-06	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	3.0E-03	mg/kg-day	1.2E-02
				Cobalt	6E+00	mg/kg	2.6E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Copper	2E+02	mg/kg	6.6E-06	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	4.0E-02	mg/kg-day	1.2E-03
				Iron	2E+04	mg/kg	7.7E-04	mg/kg-day	N/A	N/A	N/A	5.4E-03	mg/kg-day	7.0E-01	mg/kg-day	7.7E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	7.7E-05	mg/kg-day	7.0E-02	mg/kg-day	1.1E-03
				Mercury (other media)	5E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	1.0E-04	mg/kg-day	1.4E-03
				Thallium	4E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	2E+01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	5.3E-06	mg/kg-day	7.0E-03	mg/kg-day	7.6E-04
			Exp. Route Total									4E-06				
Dermal																

TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzo(a)anthracene	3E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.0E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	3.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.4E-06	2.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	3.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.7E-07	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	2.3E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.4E-08	1.6E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.8E-09	1.9E-06	mg/kg-day	2.0E-02	mg/kg-day	9.5E-05
				Carbazole	3E-01	mg/kg	3.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.3E-10	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	6.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	8.6E-09	mg/kg-day	N/A	N/A	N/A	6.0E-08	mg/kg-day	4.0E-03	mg/kg-day	1.5E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	3.1E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	7.1E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.5E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.0E-07	1.0E-06	mg/kg-day	2.0E-05	mg/kg-day	5.2E-02
				Aroclor-1260	4E-01	mg/kg	5.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.0E-07	3.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02
				Dieldrin	7E-03	mg/kg	6.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.0E-08	4.5E-09	mg/kg-day	5.0E-05	mg/kg-day	8.9E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.0E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Cadmium (other media)	2E+01	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	2.5E-05	mg/kg-day	4.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
						Exp. Route Total										
					Exposure Point Total											2E-01
				Exposure Medium Total											N/A	
Medium Total													N/A			
Total of Receptor Risks Across All Media											N/A		Total of Receptor Hazards Across All Media			N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.5.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	7.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-06	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	5.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.0E-09	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	9.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.8E-10	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.1E-07	7.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	4.4E-09	mg/kg-day	N/A	N/A	N/A	3.1E-08	mg/kg-day	4.0E-03	mg/kg-day	7.7E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	3.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.2E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.6E-07	mg/kg-day	3.0E-02	mg/kg-day	3.2E-05
				Aroclor-1260	4E-01	mg/kg	7.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.4E-09	5.2E-08	mg/kg-day	2.0E-05	mg/kg-day	2.6E-03
				Dieldrin	1E-01	mg/kg	2.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.4E-08	1.9E-08	mg/kg-day	5.0E-05	mg/kg-day	3.8E-04
				Dioxin TEQ	4E-05	mg/kg	7.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	9.8E-08	5.3E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	1.5E-03	mg/kg-day	1.0E+00	mg/kg-day	1.5E-03
				Arsenic	2E+01	mg/kg	3.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.1E-07	2.4E-06	mg/kg-day	3.0E-04	mg/kg-day	7.9E-03
				Cadmium (other media)	1E+01	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03
				Chromium	2E+02	mg/kg	4.5E-06	mg/kg-day	N/A	N/A	N/A	3.2E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02
				Cobalt	1E+01	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	3.0E-04	mg/kg-day	5.5E-03
				Copper	3E+02	mg/kg	6.8E-06	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	4.0E-02	mg/kg-day	1.2E-03
				Iron	2E+04	mg/kg	5.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03
				Lead												
				Manganese (other media)	1E+03	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	7.0E-02	mg/kg-day	1.9E-03
				Mercury (other media)	6E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	8.8E-08	mg/kg-day	1.0E-04	mg/kg-day	8.8E-04
				Thallium	2E+00	mg/kg	3.9E-08	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	8.0E-05	mg/kg-day	3.4E-03
			Exp. Route Total								2E-06					4E-02
			Dermal	Benzo(a)anthracene	3E+00	mg/kg	6.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	7.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-06	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	3.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.5E-09	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	4E-01	mg/kg	9.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.9E-10	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.2E-07	8.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	4.0E-03	mg/kg-day	6.4E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.6E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-02	mg/kg-day	3.4E-05
				Aroclor-1260	4E-01	mg/kg	8.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	8.6E-09	6.0E-08	mg/kg-day	2.0E-05	mg/kg-day	3.0E-03
				Dieldrin	1E-01	mg/kg	2.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.6E-08	1.6E-08	mg/kg-day	5.0E-05	mg/kg-day	3.2E-04
				Dioxin TEQ	4E-05	mg/kg	1.9E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	2.4E-08	1.3E-12	mg/kg-day	N/A	N/A	N/A

TABLE 7.5.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	8.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.3E-07	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Cadmium (other media)	1E+01	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.4E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								2E-06					6E-03
		Exposure Point Total									5E-06					5E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	5E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	5E-02	ug/L	7.5E-09	mg/kg-day	N/A	N/A	N/A	5.2E-08	mg/kg-day	2.0E-02	mg/kg-day	2.6E-06
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	1E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	6.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.0E-08	4.4E-09	mg/kg-day	5.0E-05	mg/kg-day	8.8E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	4.3E-07	mg/kg-day	N/A	N/A	N/A	3.0E-06	mg/kg-day	1.0E-02	mg/kg-day	3.0E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	8.6E-10	mg/kg-day	N/A	N/A	N/A	6.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.4E-04
				Chromium	3E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	7.5E-05	mg/kg-day	9.6E-04

TABLE 7.5.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	2.9E-09	mg/kg-day	N/A	N/A	N/A	2.0E-08	mg/kg-day	1.8E-04	mg/kg-day	1.1E-04	
				Exp. Route Total						1E-08						2E-03	
				Exposure Point Total						1E-08						2E-03	
Exposure Medium Total							N/A					N/A					
Medium Total							N/A					N/A					

Sediment	Sediment	Downstream of Landfill	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	2.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.1E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.4E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.7E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.7E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	3.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.2E-10	2.1E-07	mg/kg-day	2.0E-02	mg/kg-day	1.0E-05
				Carbazole	3E-01	mg/kg	3.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.2E-11	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	5.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.8E-08	3.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	9.4E-10	mg/kg-day	N/A	N/A	N/A	6.6E-09	mg/kg-day	4.0E-03	mg/kg-day	1.6E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	3.0E-02	mg/kg-day	6.0E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.2E-08	8.1E-08	mg/kg-day	2.0E-05	mg/kg-day	4.1E-03
				Aroclor-1260	4E-01	mg/kg	3.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.9E-09	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.4E-03
				Dieldrin	7E-03	mg/kg	7.0E-11	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.1E-09	4.9E-10	mg/kg-day	5.0E-05	mg/kg-day	9.8E-06
				Aluminum	8E+03	mg/kg	8.1E-05	mg/kg-day	N/A	N/A	N/A	5.7E-04	mg/kg-day	1.0E+00	mg/kg-day	5.7E-04
				Antimony	2E+00	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.8E-04
				Arsenic	9E+00	mg/kg	9.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-07	6.7E-07	mg/kg-day	3.0E-04	mg/kg-day	2.2E-03
				Cadmium (other media)	2E+01	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	1.0E-03	mg/kg-day	1.3E-03
				Chromium	1E+02	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	8.9E-06	mg/kg-day	3.0E-03	mg/kg-day	3.0E-03
				Cobalt	6E+00	mg/kg	6.5E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.5E-03
				Copper	2E+02	mg/kg	1.6E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	4.0E-02	mg/kg-day	2.9E-04
				Iron	2E+04	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	7.0E-01	mg/kg-day	1.9E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	2.8E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	7.0E-02	mg/kg-day	2.8E-04
				Mercury (other media)	5E-01	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	3.5E-08	mg/kg-day	1.0E-04	mg/kg-day	3.5E-04
				Thallium	4E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	8.0E-05	mg/kg-day	3.7E-04
				Vanadium	2E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	7.0E-03	mg/kg-day	1.9E-04
Exp. Route Total						9E-07						2E-02				
Dermal																

TABLE 7.5.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Benzo(a)anthracene	3E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A			
				Benzo(a)pyrene	3E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.2E-06	1.2E-06	mg/kg-day	N/A	N/A	N/A			
				Benzo(b)fluoranthene	3E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.4E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A			
				Benzo(k)fluoranthene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.2E-08	8.2E-07	mg/kg-day	N/A	N/A	N/A			
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.4E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.9E-09	9.5E-07	mg/kg-day	2.0E-02	mg/kg-day	4.7E-05			
				Carbazole	3E-01	mg/kg	1.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.7E-10	1.3E-07	mg/kg-day	N/A	N/A	N/A			
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.8E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A			
				Dibenzofuran	9E-02	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	4.0E-03	mg/kg-day	7.5E-06			
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	6.1E-07	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	3E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-02	mg/kg-day	3.6E-05			
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1254	1E+00	mg/kg	7.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.4E-08	5.2E-07	mg/kg-day	2.0E-05	mg/kg-day	2.6E-02			
				Aroclor-1260	4E-01	mg/kg	2.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.5E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.7E-03			
				Dieldrin	7E-03	mg/kg	3.2E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.1E-09	2.2E-09	mg/kg-day	5.0E-05	mg/kg-day	4.5E-05			
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	9E+00	mg/kg	1.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.0E-07	9.2E-07	mg/kg-day	3.0E-04	mg/kg-day	3.1E-03			
				Cadmium (other media)	2E+01	mg/kg	8.2E-09	mg/kg-day	N/A	N/A	N/A	5.7E-08	mg/kg-day	2.5E-05	mg/kg-day	2.3E-03			
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
						Exp. Route Total								5E-06					4E-02
					Exposure Point Total								6E-06					6E-02	
				Exposure Medium Total								N/A					N/A		
Medium Total										N/A					N/A				
					Total of Receptor Risks Across All Media					N/A		Total of Receptor Hazards Across All Media					N/A		

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.6.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	9.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-06	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	5.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.0E-08	3.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	6.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	9.7E-10	4.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.4E-05
				Carbazole	1E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.4E-10	8.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.8E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.3E-08	mg/kg-day	4.0E-03	mg/kg-day	2.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	5.8E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	9.5E-08	mg/kg-day	N/A	N/A	N/A	6.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	4.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.5E-08	3.0E-07	mg/kg-day	2.0E-05	mg/kg-day	1.5E-02
				Dieldrin	5E-01	mg/kg	3.7E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.9E-07	2.6E-07	mg/kg-day	5.0E-05	mg/kg-day	5.2E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	4.4E-03	mg/kg-day	1.0E+00	mg/kg-day	4.4E-03
				Antimony	1E+00	mg/kg	9.1E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	4.0E-04	mg/kg-day	1.6E-03
				Arsenic	1E+01	mg/kg	9.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-06	6.7E-06	mg/kg-day	3.0E-04	mg/kg-day	2.2E-02
				Cadmium (other media)	4E+00	mg/kg	3.1E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	1.0E-03	mg/kg-day	2.2E-03
				Chromium	2E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	4.2E-02
				Cobalt	4E+00	mg/kg	3.4E-07	mg/kg-day	N/A	N/A	N/A	2.4E-06	mg/kg-day	3.0E-04	mg/kg-day	8.0E-03
				Copper	1E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	7.6E-05	mg/kg-day	4.0E-02	mg/kg-day	1.9E-03
				Iron	2E+04	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	9.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.3E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	3.8E-05	mg/kg-day	N/A	N/A	N/A	2.7E-04	mg/kg-day	7.0E-02	mg/kg-day	3.8E-03
				Mercury (other media)	8E-01	mg/kg	6.4E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	1.0E-04	mg/kg-day	4.5E-03
				Thallium	2E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	8.0E-05	mg/kg-day	1.3E-03
				Vanadium	3E+01	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	7.0E-03	mg/kg-day	2.1E-03
				Zinc	1E+02	mg/kg	9.7E-06	mg/kg-day	N/A	N/A	N/A	6.8E-05	mg/kg-day	3.0E-01	mg/kg-day	2.3E-04
				Exp. Route Total										5E-06	1E-01	
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	5.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	5.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.0E-06	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	5.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.5E-09	2.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.0E-10	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.0E-05
				Carbazole	1E-01	mg/kg	6.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.3E-10	4.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	8.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.5E-07	5.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.5E-09	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	4.0E-03	mg/kg-day	9.6E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.5E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	5.1E-08	mg/kg-day	N/A	N/A	N/A	3.6E-07	mg/kg-day	3.0E-02	mg/kg-day	1.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	2.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.9E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.6E-03
				Dieldrin	5E-01	mg/kg	1.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.4E-07	1.1E-07	mg/kg-day	5.0E-05	mg/kg-day	2.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.8E-07	8.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.8E-03
				Cadmium (other media)	4E+00	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	9.0E-09	mg/kg-day	2.5E-05	mg/kg-day	3.6E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									7E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	6.9E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	9.6E-08	4.8E-05	mg/kg-day	2.0E-02	mg/kg-day	2.4E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day)	⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A		
				alpha-Chlordane	4E-03	ug/L	4.1E-09	mg/kg-day	3.5E-01	(mg/kg-day)	⁻¹	1.4E-09	2.8E-08	mg/kg-day	5.0E-04	mg/kg-day	5.7E-05		
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day)	⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A		
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day)	⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A		
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day)	⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A		
				Heptachlor Epoxide	3E-03	ug/L	2.1E-09	mg/kg-day	9.1E+00	(mg/kg-day)	⁻¹	1.9E-08	1.4E-08	mg/kg-day	1.3E-05	mg/kg-day	1.1E-03		
				Aluminum	2E+03	ug/L	6.4E-06	mg/kg-day	N/A	N/A	N/A	N/A	4.5E-05	mg/kg-day	1.0E-02	mg/kg-day	4.5E-03		
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day)	⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A		
				Cadmium (other media)	5E-01	ug/L	1.5E-09	mg/kg-day	N/A	N/A	N/A	N/A	1.0E-08	mg/kg-day	2.5E-05	mg/kg-day	4.1E-04		
				Chromium	9E+00	ug/L	5.3E-08	mg/kg-day	N/A	N/A	N/A	N/A	3.7E-07	mg/kg-day	7.5E-05	mg/kg-day	4.9E-03		
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A		
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A		
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A		
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A		
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A		
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A		
				Vanadium	4E+00	ug/L	1.3E-08	mg/kg-day	N/A	N/A	N/A	N/A	N/A	9.1E-08	mg/kg-day	1.8E-04	mg/kg-day	5.0E-04	
					Exp. Route Total								1E-07					1E-02	
					Exposure Point Total								1E-07					1E-02	
				Exposure Medium Total									N/A					N/A	
			Medium Total										N/A					N/A	
			Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.5E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A
							Benzo(a)pyrene	1E+00	mg/kg	4.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.6E-07	2.8E-07	mg/kg-day	N/A	N/A	N/A
							Benzo(b)fluoranthene	1E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.3E-08	3.4E-07	mg/kg-day	N/A	N/A	N/A
							Benzo(k)fluoranthene	6E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.5E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
							bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	5.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.4E-09	3.7E-06	mg/kg-day	2.0E-02	mg/kg-day	1.9E-04
							Carbazole	1E-01	mg/kg	5.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.1E-10	3.7E-08	mg/kg-day	N/A	N/A	N/A
							Dibenz(a,h)anthracene	1E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.5E-08	3.1E-08	mg/kg-day	N/A	N/A	N/A
							Dibenzofuran	7E-02	mg/kg	2.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	4.0E-03	mg/kg-day	5.1E-06
		Indeno(1,2,3-cd)pyrene					4E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.2E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A	
Phenanthrene	1E+00	mg/kg					4.5E-08	mg/kg-day	N/A	N/A	N/A	3.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.0E-05			
Aroclor-1242	ND	mg/kg					N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
Aroclor-1254	6E-02	mg/kg					2.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.8E-09	1.7E-08	mg/kg-day	2.0E-05	mg/kg-day	8.4E-04			
Aroclor-1260	6E-01	mg/kg					2.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.5E-08	1.6E-07	mg/kg-day	2.0E-05	mg/kg-day	7.8E-03			
Dieldrin	7E-02	mg/kg					3.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.8E-08	2.1E-08	mg/kg-day	5.0E-05	mg/kg-day	4.2E-04			
Aluminum	9E+03	mg/kg					3.7E-04	mg/kg-day	N/A	N/A	N/A	2.6E-03	mg/kg-day	1.0E+00	mg/kg-day	2.6E-03			
Antimony	ND	mg/kg					N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A			
Arsenic	9E+00	mg/kg					3.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.5E-07	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.5E-03			

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	5.6E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	1.0E-03	mg/kg-day	3.9E-03
				Chromium	2E+02	mg/kg	6.6E-06	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	3.0E-03	mg/kg-day	1.5E-02
				Cobalt	1E+01	mg/kg	4.5E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.0E-02
				Copper	2E+02	mg/kg	8.5E-06	mg/kg-day	N/A	N/A	N/A	6.0E-05	mg/kg-day	4.0E-02	mg/kg-day	1.5E-03
				Iron	1E+04	mg/kg	5.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	3.4E-05	mg/kg-day	N/A	N/A	N/A	2.4E-04	mg/kg-day	7.0E-02	mg/kg-day	3.4E-03
				Mercury (other media)	4E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.0E-04	mg/kg-day	1.2E-03
				Thallium	6E-01	mg/kg	2.4E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	8.0E-05	mg/kg-day	2.1E-03
				Vanadium	2E+01	mg/kg	9.7E-07	mg/kg-day	N/A	N/A	N/A	6.8E-06	mg/kg-day	7.0E-03	mg/kg-day	9.7E-04
			Exp. Route Total								2E-06					6E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.5E-07	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.2E-06	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	7.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.3E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	1.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.7E-08	8.4E-06	mg/kg-day	2.0E-02	mg/kg-day	4.2E-04
				Carbazole	1E-01	mg/kg	1.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.1E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.5E-07	9.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	6.7E-09	mg/kg-day	N/A	N/A	N/A	4.7E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.4E-08	3.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	9.3E-07	mg/kg-day	3.0E-02	mg/kg-day	3.1E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	7.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.5E-08	5.4E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aroclor-1260	6E-01	mg/kg	7.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.4E-07	5.0E-07	mg/kg-day	2.0E-05	mg/kg-day	2.5E-02
				Dieldrin	7E-02	mg/kg	6.9E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.1E-07	4.8E-08	mg/kg-day	5.0E-05	mg/kg-day	9.6E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	2.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.8E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	5.8E-03
				Cadmium (other media)	1E+01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.0E-08	mg/kg-day	2.5E-05	mg/kg-day	3.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								4E-06					4E-02
		Exposure Point Total									6E-06					1E-01

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
	Exposure Medium Total											N/A						N/A	
Medium Total													N/A						N/A
							Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A	

Notes
Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.6.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	2.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.8E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.7E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.8E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.6E-09	9.5E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.4E-10	1.2E-07	mg/kg-day	2.0E-02	mg/kg-day	6.1E-06
				Carbazole	1E-01	mg/kg	3.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.0E-11	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	3.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.1E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.3E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	4.0E-03	mg/kg-day	5.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.4E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	3.0E-02	mg/kg-day	5.5E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.1E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-08	7.4E-08	mg/kg-day	2.0E-05	mg/kg-day	3.7E-03
				Dieldrin	5E-01	mg/kg	9.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-07	6.4E-08	mg/kg-day	5.0E-05	mg/kg-day	1.3E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	1.0E+00	mg/kg-day	1.1E-03
				Antimony	1E+00	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	4.0E-04	mg/kg-day	4.0E-04
				Arsenic	1E+01	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.6E-07	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.6E-03
				Cadmium (other media)	4E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	1.0E-03	mg/kg-day	5.5E-04
				Chromium	2E+02	mg/kg	4.5E-06	mg/kg-day	N/A	N/A	N/A	3.2E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02
				Cobalt	4E+00	mg/kg	8.6E-08	mg/kg-day	N/A	N/A	N/A	6.0E-07	mg/kg-day	3.0E-04	mg/kg-day	2.0E-03
				Copper	1E+02	mg/kg	2.7E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	4.0E-02	mg/kg-day	4.8E-04
				Iron	2E+04	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	2.3E-03	mg/kg-day	7.0E-01	mg/kg-day	3.2E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	9.5E-06	mg/kg-day	N/A	N/A	N/A	6.7E-05	mg/kg-day	7.0E-02	mg/kg-day	9.5E-04
				Mercury (other media)	8E-01	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	1.0E-04	mg/kg-day	1.1E-03
				Thallium	2E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	8.0E-05	mg/kg-day	3.2E-04
				Vanadium	3E+01	mg/kg	5.2E-07	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	7.0E-03	mg/kg-day	5.2E-04
				Zinc	1E+02	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-01	mg/kg-day	5.6E-05
				Exp. Route Total										1E-06	3E-02	
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	2.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.1E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.0E-07	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.3E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.8E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.4E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.0E-10	1.0E-07	mg/kg-day	2.0E-02	mg/kg-day	5.0E-06
				Carbazole	1E-01	mg/kg	3.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.4E-11	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	4.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.6E-08	2.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	4.0E-03	mg/kg-day	4.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.2E-08	1.6E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.6.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	3.0E-02	mg/kg-day	5.9E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.2E-08	8.6E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03
				Dieldrin	5E-01	mg/kg	7.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.2E-07	5.3E-08	mg/kg-day	5.0E-05	mg/kg-day	1.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	5.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	8.9E-08	4.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Cadmium (other media)	4E+00	mg/kg	6.4E-10	mg/kg-day	N/A	N/A	N/A	4.5E-09	mg/kg-day	2.5E-05	mg/kg-day	1.8E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-06					7E-03
		Exposure Point Total									2E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal	Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	1.7E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.4E-08	1.2E-05	mg/kg-day	2.0E-02	mg/kg-day	6.0E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.6.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
Sediment	Sediment	Upstream of Landfill	Ingestion	4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A			
				alpha-Chlordane	2E-03	ug/L	9.2E-10	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	3.2E-10	6.5E-09	mg/kg-day	5.0E-04	mg/kg-day	1.3E-05				
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A				
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				Heptachlor Epoxide	2E-03	ug/L	6.4E-10	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	5.8E-09	4.5E-09	mg/kg-day	1.3E-05	mg/kg-day	3.5E-04				
				Aluminum	7E+02	ug/L	1.1E-06	mg/kg-day	N/A	N/A	N/A	7.9E-06	mg/kg-day	1.0E-02	mg/kg-day	7.9E-04				
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Cadmium (other media)	4E-01	ug/L	5.6E-10	mg/kg-day	N/A	N/A	N/A	3.9E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04				
				Chromium	3E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	7.1E-08	mg/kg-day	7.5E-05	mg/kg-day	9.5E-04				
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A				
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A				
				Vanadium	2E+00	ug/L	2.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	1.8E-04	mg/kg-day	1.1E-04				
				Exp. Route Total									3E-08				3E-03			
				Exposure Point Total									3E-08				3E-03			
				Exposure Medium Total									N/A				N/A			
				Medium Total									N/A				N/A			
				Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	7E-01	mg/kg	6.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-08	4.8E-08	mg/kg-day	N/A	N/A	N/A
								Benzo(a)pyrene	6E-01	mg/kg	6.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-07	4.4E-08	mg/kg-day	N/A	N/A	N/A
								Benzo(b)fluoranthene	8E-01	mg/kg	7.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-08	5.4E-08	mg/kg-day	N/A	N/A	N/A
								Benzo(k)fluoranthene	3E-01	mg/kg	3.1E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.9E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
								bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	5.8E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.2E-10	4.1E-07	mg/kg-day	2.0E-02	mg/kg-day	2.0E-05
		Carbazole	1E-01					mg/kg	1.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.6E-11	9.2E-09	mg/kg-day	N/A	N/A	N/A		
		Dibenz(a,h)anthracene	7E-02					mg/kg	7.5E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-08	5.2E-09	mg/kg-day	N/A	N/A	N/A		
		Dibenzofuran	7E-02					mg/kg	7.3E-10	mg/kg-day	N/A	N/A	N/A	5.1E-09	mg/kg-day	4.0E-03	mg/kg-day	1.3E-06		
		Indeno(1,2,3-cd)pyrene	3E-01					mg/kg	2.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.5E-09	2.0E-08	mg/kg-day	N/A	N/A	N/A		
		Phenanthrene	6E-01					mg/kg	6.3E-09	mg/kg-day	N/A	N/A	N/A	4.4E-08	mg/kg-day	3.0E-02	mg/kg-day	1.5E-06		
Aroclor-1242	ND	mg/kg	N/A					N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
Aroclor-1254	2E-02	mg/kg	2.2E-10					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.2E-10	1.6E-09	mg/kg-day	2.0E-05	mg/kg-day	7.8E-05				
Aroclor-1260	2E-01	mg/kg	1.9E-09					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.9E-09	1.3E-08	mg/kg-day	2.0E-05	mg/kg-day	6.6E-04				
Dieldrin	3E-02	mg/kg	2.7E-10					mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.3E-09	1.9E-09	mg/kg-day	5.0E-05	mg/kg-day	3.7E-05				
Aluminum	6E+03	mg/kg	6.1E-05					mg/kg-day	N/A	N/A	N/A	4.2E-04	mg/kg-day	1.0E+00	mg/kg-day	4.2E-04				
Antimony	ND	mg/kg	N/A					N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A				
Arsenic	6E+00	mg/kg	5.7E-08					mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	8.5E-08	4.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03				

TABLE 7.6.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	5E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	1.0E-03	mg/kg-day	3.9E-04
				Chromium	7E+01	mg/kg	7.0E-07	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	3.0E-03	mg/kg-day	1.6E-03
				Cobalt	6E+00	mg/kg	6.1E-08	mg/kg-day	N/A	N/A	N/A	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Copper	9E+01	mg/kg	8.7E-07	mg/kg-day	N/A	N/A	N/A	6.1E-06	mg/kg-day	4.0E-02	mg/kg-day	1.5E-04
				Iron	1E+04	mg/kg	1.1E-04	mg/kg-day	N/A	N/A	N/A	7.4E-04	mg/kg-day	7.0E-01	mg/kg-day	1.1E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	7.0E-02	mg/kg-day	4.0E-04
				Mercury (other media)	2E-01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04
				Thallium	4E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	8.0E-05	mg/kg-day	3.7E-04
				Vanadium	1E+01	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	7.0E-03	mg/kg-day	1.4E-04
			Exp. Route Total								3E-07					8E-03
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.8E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	3.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.1E-07	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	4.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.7E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.5E-09	1.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	2.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.7E-09	1.9E-06	mg/kg-day	2.0E-02	mg/kg-day	9.3E-05
				Carbazole	1E-01	mg/kg	7.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.6E-10	5.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.4E-08	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	3.3E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	4.0E-03	mg/kg-day	5.8E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	3.7E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	3.0E-02	mg/kg-day	8.7E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	1.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.4E-09	1.0E-08	mg/kg-day	2.0E-05	mg/kg-day	5.0E-04
				Aroclor-1260	2E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.2E-08	8.5E-08	mg/kg-day	2.0E-05	mg/kg-day	4.2E-03
				Dieldrin	3E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.0E-08	8.5E-09	mg/kg-day	5.0E-05	mg/kg-day	1.7E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	7.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	5.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				Cadmium (other media)	5E+00	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.1E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								1E-06					8E-03
		Exposure Point Total									1E-06					2E-02

TABLE 7.6.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
	Exposure Medium Total												N/A							N/A
Medium Total													N/A							N/A
							Total of Receptor Risks Across All Media						N/A	Total of Receptor Hazards Across All Media						N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.7.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.7E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.4E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	9.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-08	6.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	3.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.5E-09	2.7E-06	mg/kg-day	2.0E-02	mg/kg-day	1.4E-04
				Carbazole	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.5E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.9E-07	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	7.7E-09	mg/kg-day	N/A	N/A	N/A	5.4E-08	mg/kg-day	4.0E-03	mg/kg-day	1.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-07	8.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-02	mg/kg-day	4.4E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	2.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.9E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	6.8E-03
				Aroclor-1260	4E-01	mg/kg	2.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.7E-08	2.0E-07	mg/kg-day	2.0E-05	mg/kg-day	1.0E-02
				Dieldrin	1E-01	mg/kg	9.8E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.6E-07	6.8E-08	mg/kg-day	5.0E-05	mg/kg-day	1.4E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	8.5E-04	mg/kg-day	N/A	N/A	N/A	6.0E-03	mg/kg-day	1.0E+00	mg/kg-day	6.0E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.3E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.9E-06	8.8E-06	mg/kg-day	3.0E-04	mg/kg-day	2.9E-02
				Cadmium (other media)	9E+00	mg/kg	7.2E-07	mg/kg-day	N/A	N/A	N/A	5.1E-06	mg/kg-day	1.0E-03	mg/kg-day	5.1E-03
				Chromium	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	9.5E-05	mg/kg-day	3.0E-03	mg/kg-day	3.2E-02
			Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
			Copper	2E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	4.0E-02	mg/kg-day	3.3E-03	
			Iron	3E+04	mg/kg	2.1E-03	mg/kg-day	N/A	N/A	N/A	1.5E-02	mg/kg-day	7.0E-01	mg/kg-day	2.1E-02	
			Lead													
			Manganese (other media)	1E+03	mg/kg	7.8E-05	mg/kg-day	N/A	N/A	N/A	5.5E-04	mg/kg-day	7.0E-02	mg/kg-day	7.8E-03	
			Mercury (other media)	6E-01	mg/kg	4.9E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	1.0E-04	mg/kg-day	3.4E-03	
			Thallium	2E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	8.0E-05	mg/kg-day	1.3E-02	
			Vanadium	3E+01	mg/kg	2.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-03	mg/kg-day	2.5E-03	
			Zinc	3E+02	mg/kg	2.2E-05	mg/kg-day	N/A	N/A	N/A	1.5E-04	mg/kg-day	3.0E-01	mg/kg-day	5.0E-04	
			Exp. Route Total										7E-06			
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	7.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	8.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.7E-06	6.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.9E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.0E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	1.6E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.3E-09	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.6E-05
				Carbazole	2E-01	mg/kg	9.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.9E-10	6.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.2E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	3.2E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	4.0E-03	mg/kg-day	5.6E-06

TABLE 7.7.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	6.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	3.0E-02	mg/kg-day	2.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	1.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.3E-08	7.9E-08	mg/kg-day	2.0E-05	mg/kg-day	4.0E-03
				Aroclor-1260	4E-01	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.3E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	5.8E-03
				Dieldrin	1E-01	mg/kg	4.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.5E-08	2.8E-08	mg/kg-day	5.0E-05	mg/kg-day	5.6E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.3E-07	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.6E-03
				Cadmium (other media)	9E+00	mg/kg	3.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	2.5E-05	mg/kg-day	8.4E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-06					1E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	6.9E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	9.6E-08	4.8E-05	mg/kg-day	2.0E-02	mg/kg-day	2.4E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.7.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A		
				alpha-Chlordane	4E-03	ug/L	4.1E-09	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.4E-09	2.8E-08	mg/kg-day	5.0E-04	mg/kg-day	5.7E-05				
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A	N/A			
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A	N/A			
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A			
				Heptachlor Epoxide	3E-03	ug/L	2.1E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.9E-08	1.4E-08	mg/kg-day	1.3E-05	mg/kg-day	1.1E-03				
				Aluminum	2E+03	ug/L	6.4E-06	mg/kg-day	N/A	N/A	N/A	4.5E-05	mg/kg-day	1.0E-02	mg/kg-day	4.5E-03				
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A			
				Cadmium (other media)	5E-01	ug/L	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.0E-08	mg/kg-day	2.5E-05	mg/kg-day	4.1E-04				
				Chromium	9E+00	ug/L	5.3E-08	mg/kg-day	N/A	N/A	N/A	3.7E-07	mg/kg-day	7.5E-05	mg/kg-day	4.9E-03				
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A			
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	N/A			
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	N/A			
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	N/A			
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	N/A			
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	N/A			
				Vanadium	4E+00	ug/L	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.1E-08	mg/kg-day	1.8E-04	mg/kg-day	5.0E-04				
						Exp. Route Total									1E-07				1E-02	
						Exposure Point Total									1E-07				1E-02	
						Exposure Medium Total									N/A				N/A	
				Medium Total											N/A				N/A	
				Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.5E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(a)pyrene	1E+00	mg/kg	4.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.6E-07	2.8E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(b)fluoranthene	1E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.3E-08	3.4E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(k)fluoranthene	6E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.5E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
					bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	5.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.4E-09	3.7E-06	mg/kg-day	2.0E-02	mg/kg-day	1.9E-04			
					Carbazole	1E-01	mg/kg	5.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.1E-10	3.7E-08	mg/kg-day	N/A	N/A	N/A			
					Dibenz(a,h)anthracene	1E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.5E-08	3.1E-08	mg/kg-day	N/A	N/A	N/A			
					Dibenzofuran	7E-02	mg/kg	2.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	4.0E-03	mg/kg-day	5.1E-06			
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.2E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A				
				Phenanthrene	1E+00	mg/kg	4.5E-08	mg/kg-day	N/A	N/A	N/A	3.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.0E-05				
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
				Aroclor-1254	6E-02	mg/kg	2.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.8E-09	1.7E-08	mg/kg-day	2.0E-05	mg/kg-day	8.4E-04				
				Aroclor-1260	6E-01	mg/kg	2.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.5E-08	1.6E-07	mg/kg-day	2.0E-05	mg/kg-day	7.8E-03				
				Dieldrin	7E-02	mg/kg	3.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.8E-08	2.1E-08	mg/kg-day	5.0E-05	mg/kg-day	4.2E-04				
				Aluminum	9E+03	mg/kg	3.7E-04	mg/kg-day	N/A	N/A	N/A	2.6E-03	mg/kg-day	1.0E+00	mg/kg-day	2.6E-03				
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A				

TABLE 7.7.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units			
				Arsenic	9E+00	mg/kg	3.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.5E-07	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.5E-03
				Cadmium (other media)	1E+01	mg/kg	5.6E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	1.0E-03	mg/kg-day	3.9E-03
				Chromium	2E+02	mg/kg	6.6E-06	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	3.0E-03	mg/kg-day	1.5E-02
				Cobalt	1E+01	mg/kg	4.5E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.0E-02
				Copper	2E+02	mg/kg	8.5E-06	mg/kg-day	N/A	N/A	N/A	6.0E-05	mg/kg-day	4.0E-02	mg/kg-day	1.5E-03
				Iron	1E+04	mg/kg	5.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	3.4E-05	mg/kg-day	N/A	N/A	N/A	2.4E-04	mg/kg-day	7.0E-02	mg/kg-day	3.4E-03
				Mercury (other media)	4E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.0E-04	mg/kg-day	1.2E-03
				Thallium	6E-01	mg/kg	2.4E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	8.0E-05	mg/kg-day	2.1E-03
				Vanadium	2E+01	mg/kg	9.7E-07	mg/kg-day	N/A	N/A	N/A	6.8E-06	mg/kg-day	7.0E-03	mg/kg-day	9.7E-04
			Exp. Route Total								2E-06					6E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.5E-07	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.2E-06	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	7.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.3E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	1.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.7E-08	8.4E-06	mg/kg-day	2.0E-02	mg/kg-day	4.2E-04
				Carbazole	1E-01	mg/kg	1.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.1E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.5E-07	9.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	6.7E-09	mg/kg-day	N/A	N/A	N/A	4.7E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.4E-08	3.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	9.3E-07	mg/kg-day	3.0E-02	mg/kg-day	3.1E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	7.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.5E-08	5.4E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aroclor-1260	6E-01	mg/kg	7.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.4E-07	5.0E-07	mg/kg-day	2.0E-05	mg/kg-day	2.5E-02
				Dieldrin	7E-02	mg/kg	6.9E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.1E-07	4.8E-08	mg/kg-day	5.0E-05	mg/kg-day	9.6E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	2.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.8E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	5.8E-03
				Cadmium (other media)	1E+01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.0E-08	mg/kg-day	2.5E-05	mg/kg-day	3.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								4E-06					4E-02

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
		Exposure Point Total									6E-06					1E-01	
	Exposure Medium Total										N/A					N/A	
Medium Total											N/A					N/A	
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media					N/A

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.7.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.3E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.5E-08	2.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	2.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.7E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.1E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.3E-10	2.2E-07	mg/kg-day	2.0E-02	mg/kg-day	1.1E-05
				Carbazole	2E-01	mg/kg	4.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.7E-11	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	5.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.0E-07	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	4.0E-03	mg/kg-day	3.4E-06
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.8E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.6E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.6E-09	1.1E-08	mg/kg-day	2.0E-05	mg/kg-day	5.6E-04
				Aroclor-1260	1E-01	mg/kg	2.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.5E-09	1.7E-08	mg/kg-day	2.0E-05	mg/kg-day	8.7E-04
				Dieldrin	5E-02	mg/kg	1.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.7E-08	7.5E-09	mg/kg-day	5.0E-05	mg/kg-day	1.5E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	1.0E-03	mg/kg-day	1.0E+00	mg/kg-day	1.0E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.3E-03
				Cadmium (other media)	4E+00	mg/kg	7.1E-08	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	1.0E-03	mg/kg-day	5.0E-04
				Chromium	9E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	4.4E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	4.0E-02	mg/kg-day	4.2E-04
				Iron	1E+04	mg/kg	3.0E-04	mg/kg-day	N/A	N/A	N/A	2.1E-03	mg/kg-day	7.0E-01	mg/kg-day	3.0E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	7.3E-06	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	7.0E-02	mg/kg-day	7.3E-04
				Mercury (other media)	3E-01	mg/kg	6.7E-09	mg/kg-day	N/A	N/A	N/A	4.7E-08	mg/kg-day	1.0E-04	mg/kg-day	4.7E-04
				Thallium	1E+00	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	8.0E-05	mg/kg-day	1.7E-03
				Vanadium	2E+01	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	3.0E-06	mg/kg-day	7.0E-03	mg/kg-day	4.4E-04
				Zinc	1E+02	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	3.0E-01	mg/kg-day	7.0E-05
				Exp. Route Total									1E-06			
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.4E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.6E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.1E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	2.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.0E-09	1.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	2.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.6E-10	1.8E-07	mg/kg-day	2.0E-02	mg/kg-day	8.9E-06
				Carbazole	2E-01	mg/kg	4.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.3E-11	3.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	5.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-07	4.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	4.0E-03	mg/kg-day	2.8E-06

TABLE 7.7.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.9E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	7.1E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.8E-09	1.3E-08	mg/kg-day	2.0E-05	mg/kg-day	6.5E-04
				Aroclor-1260	1E-01	mg/kg	2.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.9E-09	2.0E-08	mg/kg-day	2.0E-05	mg/kg-day	1.0E-03
				Dieldrin	5E-02	mg/kg	8.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.4E-08	6.2E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	4.5E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.8E-08	3.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Cadmium (other media)	4E+00	mg/kg	5.9E-10	mg/kg-day	N/A	N/A	N/A	4.1E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04
				Chromium	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								8E-07					3E-03
		Exposure Point Total									2E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal	Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	1.7E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.4E-08	1.2E-05	mg/kg-day	2.0E-02	mg/kg-day	6.0E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.7.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	9.2E-10	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	3.2E-10	6.5E-09	mg/kg-day	5.0E-04	mg/kg-day	1.3E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	6.4E-10	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	5.8E-09	4.5E-09	mg/kg-day	1.3E-05	mg/kg-day	3.5E-04
				Aluminum	7E+02	ug/L	1.1E-06	mg/kg-day	N/A	N/A	N/A	7.9E-06	mg/kg-day	1.0E-02	mg/kg-day	7.9E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	5.6E-10	mg/kg-day	N/A	N/A	N/A	3.9E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04
				Chromium	3E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	7.1E-08	mg/kg-day	7.5E-05	mg/kg-day	9.5E-04
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	2.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	1.8E-04	mg/kg-day	1.1E-04
			Exp. Route Total								3E-08					3E-03
		Exposure Point Total									3E-08					3E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	7E-01	mg/kg	6.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-08	4.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	6.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-07	4.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	7.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-08	5.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	3.1E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.9E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	5.8E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.2E-10	4.1E-07	mg/kg-day	2.0E-02	mg/kg-day	2.0E-05
				Carbazole	1E-01	mg/kg	1.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.6E-11	9.2E-09	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	7.5E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-08	5.2E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	7.3E-10	mg/kg-day	N/A	N/A	N/A	5.1E-09	mg/kg-day	4.0E-03	mg/kg-day	1.3E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.5E-09	2.0E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	6.3E-09	mg/kg-day	N/A	N/A	N/A	4.4E-08	mg/kg-day	3.0E-02	mg/kg-day	1.5E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	2.2E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.2E-10	1.6E-09	mg/kg-day	2.0E-05	mg/kg-day	7.8E-05
				Aroclor-1260	2E-01	mg/kg	1.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.9E-09	1.3E-08	mg/kg-day	2.0E-05	mg/kg-day	6.6E-04
				Dieldrin	3E-02	mg/kg	2.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.3E-09	1.9E-09	mg/kg-day	5.0E-05	mg/kg-day	3.7E-05
				Aluminum	6E+03	mg/kg	6.1E-05	mg/kg-day	N/A	N/A	N/A	4.2E-04	mg/kg-day	1.0E+00	mg/kg-day	4.2E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A

TABLE 7.7.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Arsenic	6E+00	mg/kg	5.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	8.5E-08	4.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Cadmium (other media)	5E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	1.0E-03	mg/kg-day	3.9E-04
				Chromium	7E+01	mg/kg	7.0E-07	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	3.0E-03	mg/kg-day	1.6E-03
				Cobalt	6E+00	mg/kg	6.1E-08	mg/kg-day	N/A	N/A	N/A	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Copper	9E+01	mg/kg	8.7E-07	mg/kg-day	N/A	N/A	N/A	6.1E-06	mg/kg-day	4.0E-02	mg/kg-day	1.5E-04
				Iron	1E+04	mg/kg	1.1E-04	mg/kg-day	N/A	N/A	N/A	7.4E-04	mg/kg-day	7.0E-01	mg/kg-day	1.1E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	7.0E-02	mg/kg-day	4.0E-04
				Mercury (other media)	2E-01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04
				Thallium	4E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	8.0E-05	mg/kg-day	3.7E-04
				Vanadium	1E+01	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	7.0E-03	mg/kg-day	1.4E-04
			Exp. Route Total								3E-07					8E-03
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.8E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	3.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.1E-07	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	4.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.7E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.5E-09	1.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	2.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.7E-09	1.9E-06	mg/kg-day	2.0E-02	mg/kg-day	9.3E-05
				Carbazole	1E-01	mg/kg	7.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.6E-10	5.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.4E-08	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	3.3E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	4.0E-03	mg/kg-day	5.8E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	3.7E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	3.0E-02	mg/kg-day	8.7E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	1.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.4E-09	1.0E-08	mg/kg-day	2.0E-05	mg/kg-day	5.0E-04
				Aroclor-1260	2E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.2E-08	8.5E-08	mg/kg-day	2.0E-05	mg/kg-day	4.2E-03
				Dieldrin	3E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.0E-08	8.5E-09	mg/kg-day	5.0E-05	mg/kg-day	1.7E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	7.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	5.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				Cadmium (other media)	5E+00	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.1E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								1E-06					8E-03

TABLE 7.7.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient					
							Value	Units	Value	Units		Value	Units	Value	Units						
		Exposure Point Total										1E-06						2E-02			
	Exposure Medium Total										N/A						N/A				
Medium Total										N/A						N/A					
Total of Receptor Risks Across All Media										N/A	Total of Receptor Hazards Across All Media										N/A

Notes
 Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.8.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
Soil	Surface Soil	Wetlands	Ingestion	Benzo(a)pyrene	1E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.2E-07	8.0E-08	mg/kg-day	N/A	N/A	N/A		
				Benzo(b)fluoranthene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.5E-08	9.1E-08	mg/kg-day	N/A	N/A	N/A		
				Arsenic	7E+00	mg/kg	5.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	8.8E-07	4.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.4E-02		
				Iron	9E+03	mg/kg	7.7E-04	mg/kg-day	N/A	N/A	N/A	5.4E-03	mg/kg-day	7.0E-01	mg/kg-day	7.7E-03		
				Thallium	1E+00	mg/kg	8.0E-08	mg/kg-day	N/A	N/A	N/A	5.6E-07	mg/kg-day	8.0E-05	mg/kg-day	7.0E-03		
			Exp. Route Total									1E-06					3E-02	
			Dermal	Benzo(a)pyrene	1E-01	mg/kg	6.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-07	4.3E-08	mg/kg-day	N/A	N/A	N/A		
				Benzo(b)fluoranthene	2E-01	mg/kg	7.0E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-08	4.9E-08	mg/kg-day	N/A	N/A	N/A		
				Arsenic	7E+00	mg/kg	7.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.1E-07	5.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03		
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A		
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A		
			Exp. Route Total									2E-07					2E-03	
			Exposure Point Total										1E-06					3E-02
	Exposure Medium Total										N/A					N/A		
Medium Total										N/A					N/A			
Surface Water	Surface Water	Wetlands	Dermal	Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A		
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	1.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-08	9.1E-06	mg/kg-day	2.0E-02	mg/kg-day	4.6E-04		
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A		
				beta-BHC	5E-03	ug/L	1.1E-09	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	1.9E-09	7.6E-09	mg/kg-day	6.0E-04	mg/kg-day	1.3E-05		
				Arsenic	2E+00	ug/L	5.0E-09	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.5E-09	3.5E-08	mg/kg-day	3.0E-04	mg/kg-day	1.2E-04		
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A		
				Cyanide	9E+01	ug/L	2.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	2.0E-02	mg/kg-day	9.9E-05		
				Iron	2E+03	ug/L	5.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-05	mg/kg-day	7.0E-01	mg/kg-day	5.0E-05		
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A		
				Exp. Route Total									3E-08					7E-04
			Exposure Point Total										3E-08					7E-04
			Exposure Medium Total										N/A					N/A
			Medium Total										N/A					N/A
	Sediment	Sediment	Wetlands	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	4.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.8E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A	
Benzo(a)pyrene					2E+00	mg/kg	6.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	4.3E-07	mg/kg-day	N/A	N/A	N/A		
Benzo(b)fluoranthene					2E+00	mg/kg	6.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	4.8E-07	mg/kg-day	N/A	N/A	N/A		
Benzo(k)fluoranthene					1E+00	mg/kg	5.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.5E-09	3.5E-07	mg/kg-day	N/A	N/A	N/A		
Carbazole					2E-01	mg/kg	7.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.4E-10	4.9E-08	mg/kg-day	N/A	N/A	N/A		
Dibenz(a,h)anthracene					2E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-07	7.0E-08	mg/kg-day	N/A	N/A	N/A		
Indeno(1,2,3-cd)pyrene					1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.8E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A		

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
Medium 1				Aroclor-1260	7E-02	mg/kg	3.0E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.1E-09	2.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.1E-03			
				Aluminum	2E+04	mg/kg	7.0E-04	mg/kg-day	N/A	N/A	N/A	4.9E-03	mg/kg-day	1.0E+00	mg/kg-day	4.9E-03			
				Antimony	1E+00	mg/kg	4.5E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	4.0E-04	mg/kg-day	7.9E-04			
				Arsenic	8E+00	mg/kg	3.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.6E-07	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.2E-03			
				Chromium	5E+01	mg/kg	2.2E-06	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	3.0E-03	mg/kg-day	5.2E-03			
				Cobalt	1E+01	mg/kg	5.4E-07	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02			
				Iron	3E+04	mg/kg	1.1E-03	mg/kg-day	N/A	N/A	N/A	7.7E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02			
				Lead															
				Manganese (other media)	6E+02	mg/kg	2.6E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	7.0E-02	mg/kg-day	2.6E-03			
				Thallium	4E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	8.0E-05	mg/kg-day	1.3E-03			
				Vanadium	4E+01	mg/kg	1.6E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-03	mg/kg-day	1.6E-03			
				Exp. Route Total						2E-06					5E-02				
				Dermal	Benzo(a)anthracene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-07	9.6E-07	mg/kg-day	N/A	N/A	N/A		
					Benzo(a)pyrene	2E+00	mg/kg	1.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.5E-06	1.3E-06	mg/kg-day	N/A	N/A	N/A		
					Benzo(b)fluoranthene	2E+00	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.9E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A		
					Benzo(k)fluoranthene	1E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.8E-08	1.0E-06	mg/kg-day	N/A	N/A	N/A		
					Carbazole	2E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.2E-10	1.5E-07	mg/kg-day	N/A	N/A	N/A		
					Dibenz(a,h)anthracene	2E-01	mg/kg	3.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.7E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A		
					Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-07	8.5E-07	mg/kg-day	N/A	N/A	N/A		
			Aroclor-1260		7E-02	mg/kg	9.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.9E-08	6.8E-08	mg/kg-day	2.0E-05	mg/kg-day	3.4E-03			
			Aluminum		2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
			Antimony		1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
			Arsenic		8E+00	mg/kg	2.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.2E-07	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	4.9E-03			
			Chromium		5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
			Cobalt		1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
			Iron		3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
			Lead																
			Manganese (other media)		6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
			Thallium		4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
			Vanadium		4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
			Exp. Route Total							5E-06					8E-03				
			Exposure Point Total							7E-06					6E-02				
			Exposure Medium Total							N/A					N/A				
			Medium Total							N/A					N/A				
										Total of Receptor Risks Across All Media					Total of Receptor Hazards Across All Media				

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.8.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion	Benzo(a)pyrene	1E-01	mg/kg	2.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.2E-08	1.6E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	3.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.2E-09	2.3E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	8.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Iron	8E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.6E-03
				Thallium	7E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.3E-08	mg/kg-day	8.0E-05	mg/kg-day	1.2E-03
			Exp. Route Total								2E-07					5E-03
			Dermal	Benzo(a)pyrene	1E-01	mg/kg	2.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.6E-08	1.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	3.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.6E-09	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	2.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.0E-08	1.4E-07	mg/kg-day	3.0E-04	mg/kg-day	4.7E-04
				Iron	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								8E-08					5E-04
			Exposure Point Total								3E-07					5E-03
			Exposure Medium Total								N/A					N/A
			Medium Total								N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal	Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	6.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	9.1E-09	4.6E-06	mg/kg-day	2.0E-02	mg/kg-day	2.3E-04
				Chrysene	5E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	5.4E-10	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	9.7E-10	3.8E-09	mg/kg-day	6.0E-04	mg/kg-day	6.3E-06
				Arsenic	2E+00	ug/L	2.5E-09	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.7E-09	1.7E-08	mg/kg-day	3.0E-04	mg/kg-day	5.8E-05
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.9E-07	mg/kg-day	2.0E-02	mg/kg-day	5.0E-05
				Iron	2E+03	ug/L	2.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-01	mg/kg-day	2.5E-05
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
			Exp. Route Total								1E-08					4E-04
			Exposure Point Total								1E-08					4E-04
			Exposure Medium Total								N/A					N/A
			Medium Total								N/A					N/A
Sediment	Sediment	Wetlands	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	8.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.9E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.4E-09	8.8E-08	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	1.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.5E-11	1.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.8E-08	1.8E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-08	7.2E-08	mg/kg-day	N/A	N/A	N/A

TABLE 7.8.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations									
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient					
							Value	Units	Value	Units		Value	Units	Value	Units						
1	1	1		Aroclor-1260	7E-02	mg/kg	7.6E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.6E-10	5.3E-09	mg/kg-day	2.0E-05	mg/kg-day	2.7E-04					
				Aluminum	2E+04	mg/kg	1.8E-04	mg/kg-day	N/A	N/A	N/A	1.2E-03	mg/kg-day	1.0E+00	mg/kg-day	1.2E-03					
				Antimony	1E+00	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	7.9E-08	mg/kg-day	4.0E-04	mg/kg-day	2.0E-04					
				Arsenic	8E+00	mg/kg	7.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	5.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03					
				Chromium	5E+01	mg/kg	5.6E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-03	mg/kg-day	1.3E-03					
				Cobalt	1E+01	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.5E-07	mg/kg-day	3.0E-04	mg/kg-day	3.2E-03					
				Iron	3E+04	mg/kg	2.7E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	7.0E-01	mg/kg-day	2.7E-03					
				Lead																	
				Manganese (other media)	6E+02	mg/kg	6.4E-06	mg/kg-day	N/A	N/A	N/A	4.5E-05	mg/kg-day	7.0E-02	mg/kg-day	6.4E-04					
				Thallium	4E-01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	8.0E-05	mg/kg-day	3.3E-04					
			Vanadium	4E+01	mg/kg	4.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	7.0E-03	mg/kg-day	4.0E-04						
			Exp. Route Total							5E-07							1E-02				
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	4.8E-07	mg/kg-day	N/A	N/A	N/A					
				Benzo(a)pyrene	2E+00	mg/kg	9.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.7E-06	6.4E-07	mg/kg-day	N/A	N/A	N/A					
				Benzo(b)fluoranthene	2E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-07	7.2E-07	mg/kg-day	N/A	N/A	N/A					
				Benzo(k)fluoranthene	1E+00	mg/kg	7.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.4E-08	5.2E-07	mg/kg-day	N/A	N/A	N/A					
				Carbazole	2E-01	mg/kg	1.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	7.3E-08	mg/kg-day	N/A	N/A	N/A					
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.8E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A					
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	6.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A					
				Aroclor-1260	7E-02	mg/kg	4.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	4.8E-09	3.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.7E-03					
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A					
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A					
			Arsenic	8E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-07	7.4E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03						
			Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A						
			Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A						
			Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A						
			Lead																		
			Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A					
			Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A					
			Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A					
			Exp. Route Total							3E-06							4E-03				
			Exposure Point Total								3E-06							2E-02			
			Exposure Medium Total								N/A							N/A			
			Medium Total								N/A							N/A			
										Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.9.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.9E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.2E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.6E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	6.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.2E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.8E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.6E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.5E-05
				Carbazole	2E-01	mg/kg	1.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.5E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	2.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.1E-07	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	7.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.9E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	5.6E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-02	mg/kg-day	1.3E-04
				Aroclor-1248	6E+00	mg/kg	5.0E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.0E-06	3.5E-06	mg/kg-day	2.0E-05	mg/kg-day	1.8E-01
				Aroclor-1254	5E-01	mg/kg	4.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.9E-08	3.1E-07	mg/kg-day	2.0E-05	mg/kg-day	1.6E-02
				Aroclor-1260	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.0E-08	1.0E-07	mg/kg-day	2.0E-05	mg/kg-day	5.2E-03
				Dieldrin	2E-02	mg/kg	1.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.6E-08	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	2.3E-04
				Dioxin TEQ	6E-05	mg/kg	4.8E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	6.2E-07	3.4E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	7.2E-04	mg/kg-day	N/A	N/A	N/A	5.1E-03	mg/kg-day	1.0E+00	mg/kg-day	5.1E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.3E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.9E-06	8.9E-06	mg/kg-day	3.0E-04	mg/kg-day	3.0E-02
				Cadmium (other media)	1E+01	mg/kg	8.9E-07	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	1.0E-03	mg/kg-day	6.2E-03
				Chromium	1E+02	mg/kg	1.0E-05	mg/kg-day	N/A	N/A	N/A	7.0E-05	mg/kg-day	3.0E-03	mg/kg-day	2.3E-02
				Cobalt	4E+00	mg/kg	2.9E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	6.8E-03
				Copper	2E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	4.0E-02	mg/kg-day	2.8E-03
				Iron	3E+04	mg/kg	2.2E-03	mg/kg-day	N/A	N/A	N/A	1.6E-02	mg/kg-day	7.0E-01	mg/kg-day	2.2E-02
				Lead												
				Manganese (other media)	7E+02	mg/kg	5.6E-05	mg/kg-day	N/A	N/A	N/A	3.9E-04	mg/kg-day	7.0E-02	mg/kg-day	5.6E-03
				Mercury (other media)	5E-01	mg/kg	4.1E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-04	mg/kg-day	2.8E-03
				Thallium	1E+00	mg/kg	9.1E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	8.0E-05	mg/kg-day	7.9E-03
				Vanadium	3E+01	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	7.0E-03	mg/kg-day	2.4E-03
				Zinc	9E+02	mg/kg	7.4E-05	mg/kg-day	N/A	N/A	N/A	5.2E-04	mg/kg-day	3.0E-01	mg/kg-day	1.7E-03
				Exp. Route Total										1E-05	3E-01	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	5.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.5E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.8E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-07	7.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	3.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.5E-09	2.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	7.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.1E-09	5.3E-07	mg/kg-day	2.0E-02	mg/kg-day	2.7E-05
				Carbazole	2E-01	mg/kg	9.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.9E-10	6.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.8E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	4.5E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	7.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.4E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.9.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	3.0E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	7.0E-05
				Aroclor-1248	6E+00	mg/kg	2.9E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.8E-07	2.0E-06	mg/kg-day	2.0E-05	mg/kg-day	1.0E-01
				Aroclor-1254	5E-01	mg/kg	2.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.1E-08	1.8E-07	mg/kg-day	2.0E-05	mg/kg-day	9.0E-03
				Aroclor-1260	2E-01	mg/kg	8.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.7E-08	6.0E-08	mg/kg-day	2.0E-05	mg/kg-day	3.0E-03
				Dieldrin	2E-02	mg/kg	6.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.1E-08	4.7E-09	mg/kg-day	5.0E-05	mg/kg-day	9.4E-05
				Dioxin TEQ	6E-05	mg/kg	6.0E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	7.7E-08	4.2E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.4E-07	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.7E-03
				Cadmium (other media)	1E+01	mg/kg	3.7E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	2.5E-05	mg/kg-day	1.0E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-06					1E-01
		Exposure Point Total									1E-05					4E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal	Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	5E-01	ug/L	1.6E-07	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	8.8E-10	1.1E-06	mg/kg-day	7.0E-02	mg/kg-day	1.6E-05
				Benzene	8E-01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.9.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A			
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A			
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A	N/A			
				Dieldrin	1E-02	ug/L	4.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.1E-08	3.1E-08	mg/kg-day	5.0E-05	mg/kg-day	6.2E-04				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A			
				Heptachlor Epoxide	4E-03	ug/L	2.6E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	2.4E-08	1.8E-08	mg/kg-day	1.3E-05	mg/kg-day	1.4E-03				
				Aluminum	2E+04	ug/L	5.2E-05	mg/kg-day	N/A	N/A	N/A	3.7E-04	mg/kg-day	1.0E-02	mg/kg-day	3.7E-02				
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A			
				Cadmium (other media)	2E+01	ug/L	5.0E-08	mg/kg-day	N/A	N/A	N/A	3.5E-07	mg/kg-day	2.5E-05	mg/kg-day	1.4E-02				
				Chromium	2E+02	ug/L	1.3E-06	mg/kg-day	N/A	N/A	N/A	9.3E-06	mg/kg-day	7.5E-05	mg/kg-day	1.2E-01				
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A			
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	N/A			
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	N/A			
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	N/A			
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	N/A			
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	N/A			
				Vanadium	5E+01	ug/L	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	1.8E-04	mg/kg-day	5.8E-03				
						Exp. Route Total								1E-07				2E-01		
						Exposure Point Total								1E-07				2E-01		
					Exposure Medium Total									N/A				N/A		
				Medium Total										N/A				N/A		
				Sediment	Sediment	Adjacent to Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	3.7E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(a)pyrene	2E+00	mg/kg	6.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	4.5E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(b)fluoranthene	1E+00	mg/kg	6.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(k)fluoranthene	8E-01	mg/kg	3.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.9E-09	2.2E-07	mg/kg-day	N/A	N/A	N/A
								bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	9.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.3E-08	6.3E-06	mg/kg-day	2.0E-02	mg/kg-day	3.2E-04
								Carbazole	2E-01	mg/kg	9.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.0E-10	6.9E-08	mg/kg-day	N/A	N/A	N/A
								Dibenz(a,h)anthracene	2E-01	mg/kg	8.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.5E-07	5.7E-08	mg/kg-day	N/A	N/A	N/A
								Dibenzofuran	2E-01	mg/kg	6.9E-09	mg/kg-day	N/A	N/A	N/A	4.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
		Indeno(1,2,3-cd)pyrene	6E-01					mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A		
Phenanthrene	2E+00	mg/kg	8.5E-08					mg/kg-day	N/A	N/A	N/A	5.9E-07	mg/kg-day	3.0E-02	mg/kg-day	2.0E-05				
Aroclor-1242	2E-01	mg/kg	9.9E-09					mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.0E-08	6.9E-08	mg/kg-day	2.0E-05	mg/kg-day	3.5E-03				
Aroclor-1254	3E-01	mg/kg	1.3E-08					mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.5E-08	8.9E-08	mg/kg-day	2.0E-05	mg/kg-day	4.4E-03				
Aroclor-1260	1E-01	mg/kg	4.9E-09					mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.8E-09	3.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.7E-03				
Dieldrin	2E-02	mg/kg	6.8E-10					mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.1E-08	4.8E-09	mg/kg-day	5.0E-05	mg/kg-day	9.5E-05				
Aluminum	9E+03	mg/kg	3.6E-04					mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	1.0E+00	mg/kg-day	2.5E-03				
Antimony	2E+00	mg/kg	7.5E-08					mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	4.0E-04	mg/kg-day	1.3E-03				
Arsenic	4E+01	mg/kg	1.6E-06					mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.4E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.7E-02				

TABLE 7.9.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	4.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	1.0E-03	mg/kg-day	2.8E-03
				Chromium	1E+02	mg/kg	5.8E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	3.0E-03	mg/kg-day	1.3E-02
				Cobalt	5E+00	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.7E-03
				Copper	2E+02	mg/kg	8.4E-06	mg/kg-day	N/A	N/A	N/A	5.9E-05	mg/kg-day	4.0E-02	mg/kg-day	1.5E-03
				Iron	2E+04	mg/kg	9.0E-04	mg/kg-day	N/A	N/A	N/A	6.3E-03	mg/kg-day	7.0E-01	mg/kg-day	9.0E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	7.6E-05	mg/kg-day	7.0E-02	mg/kg-day	1.1E-03
				Mercury (other media)	3E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	8.3E-08	mg/kg-day	1.0E-04	mg/kg-day	8.3E-04
				Thallium	7E-01	mg/kg	2.9E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	8.0E-05	mg/kg-day	2.5E-03
				Vanadium	2E+01	mg/kg	8.6E-07	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	7.0E-03	mg/kg-day	8.6E-04
			Exp. Route Total								4E-06					9E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.6E-06	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	9.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.7E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	2.1E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.9E-08	1.4E-05	mg/kg-day	2.0E-02	mg/kg-day	7.2E-04
				Carbazole	2E-01	mg/kg	2.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.8E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.6E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-03	mg/kg-day	2.7E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	5.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-02	mg/kg-day	5.9E-05
				Aroclor-1242	2E-01	mg/kg	3.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.3E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Aroclor-1254	3E-01	mg/kg	4.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.1E-08	2.8E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Aroclor-1260	1E-01	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.1E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03
				Dieldrin	2E-02	mg/kg	1.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.5E-08	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	2.2E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-06	7.6E-06	mg/kg-day	3.0E-04	mg/kg-day	2.5E-02
				Cadmium (other media)	1E+01	mg/kg	9.1E-09	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								7E-06					6E-02
		Exposure Point Total									1E-05					1E-01

TABLE 7.9.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
	Exposure Medium Total										N/A					N/A	
Medium Total											N/A					N/A	
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media					N/A

Notes
Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.9.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.3E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	6.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-06	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.0E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.0E-09	1.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.5E-10	3.2E-07	mg/kg-day	2.0E-02	mg/kg-day	1.6E-05
				Carbazole	2E-01	mg/kg	4.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.9E-11	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	6.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-07	4.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	4.0E-03	mg/kg-day	4.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.9E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.7E-07	mg/kg-day	3.0E-02	mg/kg-day	3.2E-05
				Aroclor-1248	6E+00	mg/kg	1.3E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.3E-07	8.8E-07	mg/kg-day	2.0E-05	mg/kg-day	4.4E-02
				Aroclor-1254	5E-01	mg/kg	1.1E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-08	7.8E-08	mg/kg-day	2.0E-05	mg/kg-day	3.9E-03
				Aroclor-1260	2E-01	mg/kg	3.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.7E-09	2.6E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-03
				Dieldrin	2E-02	mg/kg	4.1E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.5E-09	2.8E-09	mg/kg-day	5.0E-05	mg/kg-day	5.7E-05
				Dioxin TEQ	3E-05	mg/kg	6.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	8.4E-08	4.5E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.8E-04	mg/kg-day	N/A	N/A	N/A	1.3E-03	mg/kg-day	1.0E+00	mg/kg-day	1.3E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	3.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.8E-07	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.4E-03
				Cadmium (other media)	1E+01	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03
				Chromium	1E+02	mg/kg	2.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	3.0E-03	mg/kg-day	5.9E-03
				Cobalt	4E+00	mg/kg	7.3E-08	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03
				Copper	2E+02	mg/kg	4.1E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	4.0E-02	mg/kg-day	7.1E-04
				Iron	3E+04	mg/kg	5.5E-04	mg/kg-day	N/A	N/A	N/A	3.9E-03	mg/kg-day	7.0E-01	mg/kg-day	5.5E-03
				Lead												
				Manganese (other media)	7E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	9.8E-05	mg/kg-day	7.0E-02	mg/kg-day	1.4E-03
				Mercury (other media)	5E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	7.1E-08	mg/kg-day	1.0E-04	mg/kg-day	7.1E-04
				Thallium	1E+00	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	8.0E-05	mg/kg-day	2.0E-03
				Vanadium	3E+01	mg/kg	5.9E-07	mg/kg-day	N/A	N/A	N/A	4.2E-06	mg/kg-day	7.0E-03	mg/kg-day	5.9E-04
				Zinc	9E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-01	mg/kg-day	4.3E-04
				Exp. Route Total										2E-06		
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.9E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	7.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-06	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.7E-08	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.3E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.8E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.3E-10	2.7E-07	mg/kg-day	2.0E-02	mg/kg-day	1.3E-05
				Carbazole	2E-01	mg/kg	4.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.5E-11	3.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-07	5.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	3.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.2E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.9.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-02	mg/kg-day	3.5E-05
				Aroclor-1248	6E+00	mg/kg	1.5E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.5E-07	1.0E-06	mg/kg-day	2.0E-05	mg/kg-day	5.1E-02
				Aroclor-1254	5E-01	mg/kg	1.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.3E-08	9.0E-08	mg/kg-day	2.0E-05	mg/kg-day	4.5E-03
				Aroclor-1260	2E-01	mg/kg	4.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	4.3E-09	3.0E-08	mg/kg-day	2.0E-05	mg/kg-day	1.5E-03
				Dieldrin	2E-02	mg/kg	3.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.4E-09	2.3E-09	mg/kg-day	5.0E-05	mg/kg-day	4.7E-05
				Dioxin TEQ	3E-05	mg/kg	1.6E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	2.1E-08	1.1E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	7.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	5.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				Cadmium (other media)	1E+01	mg/kg	1.8E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.1E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					6E-02
		Exposure Point Total									4E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal	Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	3E-01	ug/L	4.2E-08	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	2.3E-10	3.0E-07	mg/kg-day	7.0E-02	mg/kg-day	4.2E-06
				Benzene	6E-01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	3E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	1E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.9.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations									
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient					
							Value	Units	Value	Units		Value	Units	Value	Units						
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A				
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A				
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A	N/A				
				Dieldrin	1E-02	ug/L	2.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.5E-08	1.6E-08	mg/kg-day	5.0E-05	mg/kg-day	3.1E-04	N/A				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A				
				Heptachlor Epoxide	4E-03	ug/L	1.3E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.2E-08	9.2E-09	mg/kg-day	1.3E-05	mg/kg-day	7.1E-04	N/A				
				Aluminum	2E+04	ug/L	2.6E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	1.0E-02	mg/kg-day	1.8E-02	N/A				
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A				
				Cadmium (other media)	2E+01	ug/L	2.5E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	2.5E-05	mg/kg-day	7.0E-03	N/A				
				Chromium	2E+02	ug/L	6.7E-07	mg/kg-day	N/A	N/A	N/A	4.7E-06	mg/kg-day	7.5E-05	mg/kg-day	6.2E-02	N/A				
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A				
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	N/A				
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	N/A				
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	N/A				
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	N/A	N/A			
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	N/A	N/A			
				Vanadium	5E+01	ug/L	7.6E-08	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	1.8E-04	mg/kg-day	2.9E-03	N/A	N/A			
						Exp. Route Total								5E-08					9E-02		
						Exposure Point Total								5E-08						9E-02	
					Exposure Medium Total									N/A						N/A	
				Medium Total										N/A						N/A	
				Sediment	Sediment	Adjacent to Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.5E-08	9.2E-08	mg/kg-day	N/A	N/A	N/A	N/A
								Benzo(a)pyrene	2E+00	mg/kg	1.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.0E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A	N/A
								Benzo(b)fluoranthene	1E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.9E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A	N/A
								Benzo(k)fluoranthene	8E-01	mg/kg	7.8E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.5E-09	5.4E-08	mg/kg-day	N/A	N/A	N/A	N/A
								bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	2.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.2E-09	1.6E-06	mg/kg-day	2.0E-02	mg/kg-day	7.9E-05	N/A
	Carbazole	2E-01	mg/kg					2.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.9E-11	1.7E-08	mg/kg-day	N/A	N/A	N/A	N/A			
	Dibenz(a,h)anthracene	2E-01	mg/kg					2.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.8E-08	1.4E-08	mg/kg-day	N/A	N/A	N/A	N/A			
	Dibenzofuran	2E-01	mg/kg					1.7E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	4.0E-03	mg/kg-day	3.0E-06	N/A			
	Indeno(1,2,3-cd)pyrene	6E-01	mg/kg					6.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-08	4.6E-08	mg/kg-day	N/A	N/A	N/A	N/A			
Phenanthrene	2E+00	mg/kg	2.1E-08					mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	3.0E-02	mg/kg-day	5.0E-06	N/A				
Aroclor-1242	2E-01	mg/kg	2.5E-09					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.5E-09	1.7E-08	mg/kg-day	2.0E-05	mg/kg-day	8.7E-04	N/A				
Aroclor-1254	3E-01	mg/kg	3.2E-09					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.2E-09	2.2E-08	mg/kg-day	2.0E-05	mg/kg-day	1.1E-03	N/A				
Aroclor-1260	1E-01	mg/kg	1.2E-09					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.2E-09	8.6E-09	mg/kg-day	2.0E-05	mg/kg-day	4.3E-04	N/A				
Dieldrin	2E-02	mg/kg	1.7E-10					mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.7E-09	1.2E-09	mg/kg-day	5.0E-05	mg/kg-day	2.4E-05	N/A				
Aluminum	9E+03	mg/kg	8.9E-05					mg/kg-day	N/A	N/A	N/A	6.2E-04	mg/kg-day	1.0E+00	mg/kg-day	6.2E-04	N/A				
Antimony	2E+00	mg/kg	1.9E-08					mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	4.0E-04	mg/kg-day	3.3E-04	N/A				
Arsenic	4E+01	mg/kg	3.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.9E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.2E-03	N/A								

TABLE 7.9.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	1.0E-03	mg/kg-day	7.0E-04
				Chromium	1E+02	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	3.0E-03	mg/kg-day	3.4E-03
				Cobalt	5E+00	mg/kg	5.0E-08	mg/kg-day	N/A	N/A	N/A	3.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Copper	2E+02	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	4.0E-02	mg/kg-day	3.7E-04
				Iron	2E+04	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	7.0E-01	mg/kg-day	2.2E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	2.7E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	7.0E-02	mg/kg-day	2.7E-04
				Mercury (other media)	3E-01	mg/kg	3.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	1.0E-04	mg/kg-day	2.1E-04
				Thallium	7E-01	mg/kg	7.2E-09	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	8.0E-05	mg/kg-day	6.3E-04
				Vanadium	2E+01	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	7.0E-03	mg/kg-day	2.2E-04
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	7.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	5.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	9.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.8E-06	6.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	8.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	6.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	4.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	8.7E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	1.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.4E-08	7.2E-06	mg/kg-day	2.0E-02	mg/kg-day	3.6E-04
				Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.9E-10	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.3E-07	8.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.8E-09	mg/kg-day	N/A	N/A	N/A	5.5E-08	mg/kg-day	4.0E-03	mg/kg-day	1.4E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.4E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	8.8E-07	mg/kg-day	3.0E-02	mg/kg-day	2.9E-05
				Aroclor-1242	2E-01	mg/kg	1.6E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.6E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03
				Aroclor-1254	3E-01	mg/kg	2.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.0E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.1E-03
				Aroclor-1260	1E-01	mg/kg	7.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.8E-09	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Dieldrin	2E-02	mg/kg	7.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.2E-08	5.4E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	5.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	8.1E-07	3.8E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02
				Cadmium (other media)	1E+01	mg/kg	4.6E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	2.5E-05	mg/kg-day	1.3E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					3E-02
		Exposure Point Total									4E-06					5E-02

TABLE 7.9.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
	Exposure Medium Total										N/A					N/A	
Medium Total											N/A					N/A	
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media					N/A

Notes
Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 8/10 of the result (ages 9-16) and an ADAF of 1 for 2/10 of the result (ages 17-18).

TABLE 7.10.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	3.8E-07	mg/kg-day	N/A	N/A	N/A		
				Benzo(a)pyrene	8E-01	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.5E-07	2.4E-07	mg/kg-day	N/A	N/A	N/A		
				Benzo(b)fluoranthene	1E+00	mg/kg	4.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.7E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A		
				Benzo(k)fluoranthene	5E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.8E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A		
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.5E-09	7.4E-07	mg/kg-day	2.0E-02	mg/kg-day	3.7E-05		
				Carbazole	3E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.4E-10	8.4E-08	mg/kg-day	N/A	N/A	N/A		
				Dibenz(a,h)anthracene	1E-01	mg/kg	5.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.9E-08	3.6E-08	mg/kg-day	N/A	N/A	N/A		
				Dibenzofuran	2E-01	mg/kg	6.6E-09	mg/kg-day	N/A	N/A	N/A	4.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.1E-05		
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.6E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A		
				Phenanthrene	2E+00	mg/kg	9.9E-08	mg/kg-day	N/A	N/A	N/A	6.9E-07	mg/kg-day	3.0E-02	mg/kg-day	2.3E-05		
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A		
				Aroclor-1254	8E-02	mg/kg	3.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.3E-09	2.2E-08	mg/kg-day	2.0E-05	mg/kg-day	1.1E-03		
				Aroclor-1260	2E-01	mg/kg	6.5E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.3E-08	4.6E-08	mg/kg-day	2.0E-05	mg/kg-day	2.3E-03		
				Dieldrin	1E-02	mg/kg	5.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.7E-09	3.8E-09	mg/kg-day	5.0E-05	mg/kg-day	7.6E-05		
				Aluminum	5E+03	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	1.3E-03	mg/kg-day	1.0E+00	mg/kg-day	1.3E-03		
				Antimony	5E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	4.0E-04	mg/kg-day	3.5E-04		
				Arsenic	5E+00	mg/kg	2.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.1E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.8E-03		
				Cadmium (other media)	3E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	9.6E-07	mg/kg-day	1.0E-03	mg/kg-day	9.6E-04		
				Chromium	4E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	3.0E-03	mg/kg-day	4.1E-03		
				Cobalt	5E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.1E-03		
				Copper	5E+01	mg/kg	2.2E-06	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	4.0E-02	mg/kg-day	3.9E-04		
				Iron	9E+03	mg/kg	3.5E-04	mg/kg-day	N/A	N/A	N/A	2.4E-03	mg/kg-day	7.0E-01	mg/kg-day	3.5E-03		
				Lead														
				Manganese (other media)	2E+02	mg/kg	7.2E-06	mg/kg-day	N/A	N/A	N/A	5.0E-05	mg/kg-day	7.0E-02	mg/kg-day	7.2E-04		
				Mercury (other media)	1E-01	mg/kg	6.1E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	1.0E-04	mg/kg-day	4.2E-04		
				Thallium	3E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	8.3E-08	mg/kg-day	8.0E-05	mg/kg-day	1.0E-03		
				Vanadium	1E+01	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	7.0E-03	mg/kg-day	4.4E-04		
			Exp. Route Total										1E-06					3E-02
			Dermal	Dermal	Southern Bank	Benzo(a)anthracene	1E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
						Benzo(a)pyrene	8E-01	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-06	7.1E-07	mg/kg-day	N/A	N/A	N/A
						Benzo(b)fluoranthene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-07	9.5E-07	mg/kg-day	N/A	N/A	N/A
						Benzo(k)fluoranthene	5E-01	mg/kg	5.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.1E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A
						bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.4E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.4E-09	1.7E-06	mg/kg-day	2.0E-02	mg/kg-day	8.4E-05
						Carbazole	3E-01	mg/kg	3.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.1E-10	2.5E-07	mg/kg-day	N/A	N/A	N/A
						Dibenz(a,h)anthracene	1E-01	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.9E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
						Dibenzofuran	2E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	4.0E-03	mg/kg-day	2.6E-05
						Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	3.9E-07	mg/kg-day	N/A	N/A	N/A
						Phenanthrene	2E+00	mg/kg	2.9E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	6.8E-05
						Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.10.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Aroclor-1254	8E-02	mg/kg	1.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.0E-08	7.0E-08	mg/kg-day	2.0E-05	mg/kg-day	3.5E-03			
				Aroclor-1260	2E-01	mg/kg	2.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.2E-08	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.3E-03			
				Dieldrin	1E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.0E-08	8.7E-09	mg/kg-day	5.0E-05	mg/kg-day	1.7E-04			
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	5E+00	mg/kg	1.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.1E-07	9.9E-07	mg/kg-day	3.0E-04	mg/kg-day	3.3E-03			
				Cadmium (other media)	3E+00	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	2.5E-05	mg/kg-day	8.8E-04			
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Exp. Route Total											3E-06				2E-02
				Exposure Point Total											5E-06				4E-02
				Exposure Medium Total											N/A				N/A
				Medium Total											N/A				N/A
				Total of Receptor Risks Across All Media							N/A	Total of Receptor Hazards Across All Media			N/A				

TABLE 7.10.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-08	9.6E-08	mg/kg-day	N/A	N/A	N/A		
				Benzo(a)pyrene	8E-01	mg/kg	8.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	6.0E-08	mg/kg-day	N/A	N/A	N/A		
				Benzo(b)fluoranthene	1E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	8.0E-08	mg/kg-day	N/A	N/A	N/A		
				Benzo(k)fluoranthene	5E-01	mg/kg	5.0E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.5E-10	3.5E-08	mg/kg-day	N/A	N/A	N/A		
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.7E-10	1.8E-07	mg/kg-day	2.0E-02	mg/kg-day	9.2E-06		
				Carbazole	3E-01	mg/kg	3.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.0E-11	2.1E-08	mg/kg-day	N/A	N/A	N/A		
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.5E-08	9.1E-09	mg/kg-day	N/A	N/A	N/A		
				Dibenzofuran	2E-01	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	4.0E-03	mg/kg-day	2.9E-06		
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	4.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.0E-09	3.3E-08	mg/kg-day	N/A	N/A	N/A		
				Phenanthrene	2E+00	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	3.0E-02	mg/kg-day	5.8E-06		
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A		
				Aroclor-1254	8E-02	mg/kg	7.8E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.8E-10	5.5E-09	mg/kg-day	2.0E-05	mg/kg-day	2.7E-04		
				Aroclor-1260	2E-01	mg/kg	1.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.6E-09	1.1E-08	mg/kg-day	2.0E-05	mg/kg-day	5.7E-04		
				Dieldrin	1E-02	mg/kg	1.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.2E-09	9.5E-10	mg/kg-day	5.0E-05	mg/kg-day	1.9E-05		
				Aluminum	5E+03	mg/kg	4.7E-05	mg/kg-day	N/A	N/A	N/A	3.3E-04	mg/kg-day	1.0E+00	mg/kg-day	3.3E-04		
				Antimony	5E-01	mg/kg	4.9E-09	mg/kg-day	N/A	N/A	N/A	3.5E-08	mg/kg-day	4.0E-04	mg/kg-day	8.6E-05		
				Arsenic	5E+00	mg/kg	5.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.8E-08	3.6E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03		
				Cadmium (other media)	3E+00	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	1.0E-03	mg/kg-day	2.4E-04		
				Chromium	4E+01	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	3.0E-03	mg/kg-day	1.0E-03		
				Cobalt	5E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	3.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03		
				Copper	5E+01	mg/kg	5.6E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	4.0E-02	mg/kg-day	9.8E-05		
				Iron	9E+03	mg/kg	8.7E-05	mg/kg-day	N/A	N/A	N/A	6.1E-04	mg/kg-day	7.0E-01	mg/kg-day	8.7E-04		
				Lead														
				Manganese (other media)	2E+02	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	7.0E-02	mg/kg-day	1.8E-04		
				Mercury (other media)	1E-01	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	1.0E-04	mg/kg-day	1.1E-04		
				Thallium	3E-01	mg/kg	3.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04		
				Vanadium	1E+01	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	7.7E-07	mg/kg-day	7.0E-03	mg/kg-day	1.1E-04		
			Exp. Route Total										3E-07					7E-03
			Dermal			Benzo(a)anthracene	1E+00	mg/kg	8.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	5.7E-07	mg/kg-day	N/A	N/A	N/A
						Benzo(a)pyrene	8E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.7E-07	3.6E-07	mg/kg-day	N/A	N/A	N/A
						Benzo(b)fluoranthene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	4.8E-07	mg/kg-day	N/A	N/A	N/A
						Benzo(k)fluoranthene	5E-01	mg/kg	3.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.6E-09	2.1E-07	mg/kg-day	N/A	N/A	N/A
						bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.7E-09	8.4E-07	mg/kg-day	2.0E-02	mg/kg-day	4.2E-05
						Carbazole	3E-01	mg/kg	1.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.6E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
						Dibenz(a,h)anthracene	1E-01	mg/kg	7.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.5E-07	5.4E-08	mg/kg-day	N/A	N/A	N/A
						Dibenzofuran	2E-01	mg/kg	7.5E-09	mg/kg-day	N/A	N/A	N/A	5.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.3E-05
						Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.3E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
						Phenanthrene	2E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-02	mg/kg-day	3.4E-05
						Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.10.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Aroclor-1254	8E-02	mg/kg	5.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.0E-09	3.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.7E-03			
				Aroclor-1260	2E-01	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.0E-08	7.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.6E-03			
				Dieldrin	1E-02	mg/kg	6.2E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.9E-09	4.3E-09	mg/kg-day	5.0E-05	mg/kg-day	8.7E-05			
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	5E+00	mg/kg	7.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.1E-07	5.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03			
				Cadmium (other media)	3E+00	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	2.5E-05	mg/kg-day	4.4E-04			
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
								Exp. Route Total							2E-06				8E-03
								Exposure Point Total							2E-06				1E-02
								Exposure Medium Total							N/A				N/A
								Medium Total							N/A				N/A

TABLE 7.11.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Leachate	Leachate	Landfill	Dermal	4-Methylphenol	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				Acenaphthylene	2E-02	ug/L	5.5E-09	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	6.0E-02	mg/kg-day	6.5E-07
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	8E-01	ug/L	2.6E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.6E-09	1.8E-06	mg/kg-day	2.0E-02	mg/kg-day	9.1E-05
				Chrysene	ND	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenz(a,h)anthracene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	1.7E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	4.0E-03	mg/kg-day	3.0E-04
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	3.2E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	2.0E-02	mg/kg-day	1.1E-05
				N-Nitrosodiphenylamine	2E+00	ug/L	N/A	N/A	4.9E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Pentachlorophenol	ND	ug/L	N/A	N/A	1.2E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	2E+00	ug/L	2.7E-07	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	1.4E-09	1.9E-06	mg/kg-day	7.0E-02	mg/kg-day	2.7E-05
				Benzene	6E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Chlorobenzene	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Ethylbenzene	1E+00	ug/L	1.4E-07	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	1.6E-09	1.0E-06	mg/kg-day	1.0E-01	mg/kg-day	1.0E-05
				Xylene (total)	3E+00	ug/L	4.1E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	2.0E-01	mg/kg-day	1.4E-05
				Total PCBs	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	3.8E-10	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	2.4E-09	2.7E-09	mg/kg-day	8.0E-03	mg/kg-day	3.4E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+02	ug/L	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	1.0E-02	mg/kg-day	1.0E-04
				Antimony	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	7E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Barium	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-02	mg/kg-day	N/A
				Beryllium	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-05	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	6.4E-09	mg/kg-day	N/A	N/A	N/A	4.5E-08	mg/kg-day	7.5E-05	mg/kg-day	6.0E-04
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A

TABLE 7.11.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cyanide	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A

TABLE 7.11.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
 Receptor Population: Trespasser
 Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Leachate	Leachate	Landfill	Dermal	4-Methylphenol	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				Acenaphthylene	2E-02	ug/L	2.8E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	6.0E-02	mg/kg-day	3.2E-07
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	8E-01	ug/L	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-09	9.1E-07	mg/kg-day	2.0E-02	mg/kg-day	4.5E-05
				Chrysene	ND	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenz(a,h)anthracene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	8.7E-08	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	4.0E-03	mg/kg-day	1.5E-04
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	2.0E-02	mg/kg-day	5.7E-06
				N-Nitrosodiphenylamine	2E+00	ug/L	N/A	N/A	4.9E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Pentachlorophenol	ND	ug/L	N/A	N/A	1.2E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	2E+00	ug/L	1.3E-07	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	7.2E-10	9.3E-07	mg/kg-day	7.0E-02	mg/kg-day	1.3E-05
				Benzene	6E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Chlorobenzene	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Ethylbenzene	1E+00	ug/L	7.2E-08	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	7.9E-10	5.0E-07	mg/kg-day	1.0E-01	mg/kg-day	5.0E-06
				Xylene (total)	3E+00	ug/L	2.1E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	2.0E-01	mg/kg-day	7.2E-06
				Total PCBs	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	1.9E-10	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	1.2E-09	1.3E-09	mg/kg-day	8.0E-03	mg/kg-day	1.7E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+02	ug/L	7.4E-08	mg/kg-day	N/A	N/A	N/A	5.2E-07	mg/kg-day	1.0E-02	mg/kg-day	5.2E-05
				Antimony	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	7E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Barium	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-02	mg/kg-day	N/A
				Beryllium	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-05	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	3.2E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	7.5E-05	mg/kg-day	3.0E-04
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A

TABLE 7.11.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Cyanide	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Iron	4E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	
				Lead	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Manganese (other media)	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A	
				Silver	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A	
				Thallium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A	
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A	
				Zinc	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A	
			Exp. Route Total						5E-09								6E-04
		Exposure Point Total						5E-09								6E-04	
	Exposure Medium Total						N/A								N/A		
Medium Total						N/A								N/A			
Total of Receptor Risks Across All Media							N/A					Total of Receptor Hazards Across All Media					N/A

TABLE 7.12.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
Soil/Groundwater	Ambient Air	Landfill	Inhalation	1,1-Dichloroethane	4E-03	ug/m³	7.1E-06	ug/m3	1.6E-06	(ug/m3) ⁻¹	1.1E-11	5.0E-05	ug/m3	5.0E+02	ug/m3	1.0E-07				
				1,2,4-Trimethylbenzene	5E-02	ug/m³	9.2E-05	ug/m3	N/A	N/A	N/A	6.4E-04	ug/m3	7.0E+00	ug/m3	9.2E-05				
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (R113)	7E-02	ug/m³	1.2E-04	ug/m3	N/A	N/A	N/A	8.5E-04	ug/m3	N/A	N/A	N/A				
					1,2-Dichlorobenzene	5E-02	ug/m³	8.8E-05	ug/m3	N/A	N/A	N/A	6.2E-04	ug/m3	2.0E+02	ug/m3	3.1E-06			
				1,3,5-Trimethylbenzene	1E-02	ug/m³	1.7E-05	ug/m3	N/A	N/A	N/A	1.2E-04	ug/m3	6.0E+00	ug/m3	2.0E-05				
				1,3-Dichlorobenzene	1E-01	ug/m³	1.8E-04	ug/m3	N/A	N/A	N/A	1.2E-03	ug/m3	N/A	N/A	N/A				
				1,4-Dichlorobenzene	3E-01	ug/m³	4.9E-04	ug/m3	1.1E-05	(ug/m3) ⁻¹	5.4E-09	3.4E-03	ug/m3	8.0E+02	ug/m3	4.3E-06				
				4-Ethyltoluene	5E-02	ug/m³	8.2E-05	ug/m3	N/A	N/A	N/A	5.8E-04	ug/m3	N/A	N/A	N/A				
				Benzene	7E-01	ug/m³	1.2E-03	ug/m3	7.8E-06	(ug/m3) ⁻¹	9.5E-09	8.5E-03	ug/m3	3.0E+01	ug/m3	2.8E-04				
				Carbon tetrachloride	2E-03	ug/m³	3.6E-06	ug/m3	1.5E-05	(ug/m3) ⁻¹	5.3E-11	2.5E-05	ug/m3	1.9E+02	ug/m3	1.3E-07				
				Chlorobenzene	2E+00	ug/m³	2.8E-03	ug/m3	N/A	N/A	N/A	2.0E-02	ug/m3	5.0E+01	ug/m3	3.9E-04				
				cis-1,2-Dichloroethene	9E-03	ug/m³	1.5E-05	ug/m3	N/A	N/A	N/A	1.0E-04	ug/m3	N/A	N/A	N/A				
				Dichlorodifluoromethane	2E-02	ug/m³	3.0E-05	ug/m3	N/A	N/A	N/A	2.1E-04	ug/m3	2.0E+02	ug/m3	1.0E-06				
				Ethylbenzene	6E-01	ug/m³	9.4E-04	ug/m3	2.5E-06	(ug/m3) ⁻¹	2.3E-09	6.6E-03	ug/m3	1.0E+03	ug/m3	6.6E-06				
				Methylene chloride	4E-03	ug/m³	7.0E-06	ug/m3	4.7E-07	(ug/m3) ⁻¹	3.3E-12	4.9E-05	ug/m3	1.1E+03	ug/m3	4.5E-08				
				trans-1,2-Dichloroethene	1E-02	ug/m³	1.7E-05	ug/m3	N/A	N/A	N/A	1.2E-04	ug/m3	6.0E+01	ug/m3	2.0E-06				
				Trichloroethene	2E-02	ug/m³	3.9E-05	ug/m3	2.0E-06	(ug/m3) ⁻¹	7.9E-11	2.8E-04	ug/m3	1.0E+01	ug/m3	2.8E-05				
				Vinyl Chloride	9E-02	ug/m³	1.5E-04	ug/m3	4.4E-06	(ug/m3) ⁻¹	6.6E-10	1.0E-03	ug/m3	1.0E+02	ug/m3	1.0E-05				
				Xylene (Total)	3E-01	ug/m³	5.2E-04	ug/m3	N/A	N/A	N/A	3.7E-03	ug/m3	1.0E+02	ug/m3	3.7E-05				
								Exp. Route Total							2E-08					9E-04
								Exposure Point Total							2E-08					9E-04
				Exposure Medium Total							N/A					N/A				
Medium Total										N/A					N/A					
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A				

TABLE 7.12.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RID/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
Soil/Groundwater	Ambient Air	Landfill	Inhalation	1,1-Dichloroethane	3E-03	ug/m³	2.5E-06	ug/m3	1.6E-06	(ug/m3) ⁻¹	4.0E-12	1.7E-05	ug/m3	5.0E+02	ug/m3	3.5E-08				
				1,2,4-Trimethylbenzene	4E-02	ug/m³	3.2E-05	ug/m3	N/A	N/A	N/A	2.3E-04	ug/m3	7.0E+00	ug/m3	3.2E-05				
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (R113)	5E-02	ug/m³	4.3E-05	ug/m3	N/A	N/A	N/A	3.0E-04	ug/m3	N/A	N/A	N/A				
				1,2-Dichlorobenzene	4E-02	ug/m³	3.1E-05	ug/m3	N/A	N/A	N/A	2.2E-04	ug/m3	2.0E+02	ug/m3	1.1E-06				
				1,3,5-Trimethylbenzene	7E-03	ug/m³	5.9E-06	ug/m3	N/A	N/A	N/A	4.1E-05	ug/m3	6.0E+00	ug/m3	6.9E-06				
				1,3-Dichlorobenzene	7E-02	ug/m³	6.2E-05	ug/m3	N/A	N/A	N/A	4.4E-04	ug/m3	N/A	N/A	N/A				
				1,4-Dichlorobenzene	2E-01	ug/m³	1.7E-04	ug/m3	1.1E-05	(ug/m3) ⁻¹	1.9E-09	1.2E-03	ug/m3	8.0E+02	ug/m3	1.5E-06				
				4-Ethyltoluene	3E-02	ug/m³	2.9E-05	ug/m3	N/A	N/A	N/A	2.0E-04	ug/m3	N/A	N/A	N/A				
				Benzene	5E-01	ug/m³	4.3E-04	ug/m3	7.8E-06	(ug/m3) ⁻¹	3.3E-09	3.0E-03	ug/m3	3.0E+01	ug/m3	9.9E-05				
				Carbon tetrachloride	1E-03	ug/m³	1.2E-06	ug/m3	1.5E-05	(ug/m3) ⁻¹	1.9E-11	8.7E-06	ug/m3	1.9E+02	ug/m3	4.6E-08				
				Chlorobenzene	1E+00	ug/m³	9.8E-04	ug/m3	N/A	N/A	N/A	6.9E-03	ug/m3	5.0E+01	ug/m3	1.4E-04				
				cis-1,2-Dichloroethene	6E-03	ug/m³	5.2E-06	ug/m3	N/A	N/A	N/A	3.7E-05	ug/m3	N/A	N/A	N/A				
				Dichlorodifluoromethane	1E-02	ug/m³	1.0E-05	ug/m3	N/A	N/A	N/A	7.3E-05	ug/m3	2.0E+02	ug/m3	3.7E-07				
				Ethylbenzene	4E-01	ug/m³	3.3E-04	ug/m3	2.5E-06	(ug/m3) ⁻¹	8.2E-10	2.3E-03	ug/m3	1.0E+03	ug/m3	2.3E-06				
				Methylene chloride	3E-03	ug/m³	2.5E-06	ug/m3	4.7E-07	(ug/m3) ⁻¹	1.2E-12	1.7E-05	ug/m3	1.1E+03	ug/m3	1.6E-08				
				trans-1,2-Dichloroethene	7E-03	ug/m³	5.9E-06	ug/m3	N/A	N/A	N/A	4.1E-05	ug/m3	6.0E+01	ug/m3	6.9E-07				
				Trichloroethene	2E-02	ug/m³	1.4E-05	ug/m3	2.0E-06	(ug/m3) ⁻¹	2.8E-11	9.6E-05	ug/m3	1.0E+01	ug/m3	9.6E-06				
				Vinyl Chloride	6E-02	ug/m³	5.2E-05	ug/m3	4.4E-06	(ug/m3) ⁻¹	2.3E-10	3.7E-04	ug/m3	1.0E+02	ug/m3	3.7E-06				
				Xylene (Total)	2E-01	ug/m³	1.8E-04	ug/m3	N/A	N/A	N/A	1.3E-03	ug/m3	1.0E+02	ug/m3	1.3E-05				
								Exp. Route Total							6E-09					3E-04
								Exposure Point Total							6E-09					3E-04
								Exposure Medium Total							N/A					N/A
				Medium Total										N/A					N/A	
Total of Receptor Risks Across All Media							N/A		Total of Receptor Hazards Across All Media							N/A				

TABLE 7.13.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
Soil/Groundwater	Ambient Air	Landfill	Inhalation	1,1-Dichloroethane	4E-03	ug/m³	2.1E-04	ug/m3	1.6E-06	(ug/m3) ⁻¹	3.3E-10	5.8E-04	ug/m3	5.0E+02	ug/m3	1.2E-06		
				1,2,4-Trimethylbenzene	5E-02	ug/m³	2.6E-03	ug/m3	N/A	N/A	N/A	7.4E-03	ug/m3	7.0E+00	ug/m3	1.1E-03		
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (R113)	7E-02	ug/m³	3.5E-03	ug/m3	N/A	N/A	N/A	9.8E-03	ug/m3	N/A	N/A	N/A		
					1,2-Dichlorobenzene	5E-02	ug/m³	2.5E-03	ug/m3	N/A	N/A	N/A	7.1E-03	ug/m3	2.0E+02	ug/m3	3.6E-05	
				1,3,5-Trimethylbenzene	1E-02	ug/m³	4.9E-04	ug/m3	N/A	N/A	N/A	1.4E-03	ug/m3	6.0E+00	ug/m3	2.3E-04		
				1,3-Dichlorobenzene	1E-01	ug/m³	5.1E-03	ug/m3	N/A	N/A	N/A	1.4E-02	ug/m3	N/A	N/A	N/A		
				1,4-Dichlorobenzene	3E-01	ug/m³	1.4E-02	ug/m3	1.1E-05	(ug/m3) ⁻¹	1.5E-07	3.9E-02	ug/m3	8.0E+02	ug/m3	4.9E-05		
				4-Ethyltoluene	5E-02	ug/m³	2.4E-03	ug/m3	N/A	N/A	N/A	6.7E-03	ug/m3	N/A	N/A	N/A		
				Benzene	7E-01	ug/m³	3.5E-02	ug/m3	7.8E-06	(ug/m3) ⁻¹	2.7E-07	9.8E-02	ug/m3	3.0E+01	ug/m3	3.3E-03		
				Carbon tetrachloride	2E-03	ug/m³	1.0E-04	ug/m3	1.5E-05	(ug/m3) ⁻¹	1.5E-09	2.9E-04	ug/m3	1.9E+02	ug/m3	1.5E-06		
				Chlorobenzene	2E+00	ug/m³	8.1E-02	ug/m3	N/A	N/A	N/A	2.3E-01	ug/m3	5.0E+01	ug/m3	4.5E-03		
				cis-1,2-Dichloroethene	9E-03	ug/m³	4.3E-04	ug/m3	N/A	N/A	N/A	1.2E-03	ug/m3	N/A	N/A	N/A		
				Dichlorodifluoromethane	2E-02	ug/m³	8.7E-04	ug/m3	N/A	N/A	N/A	2.4E-03	ug/m3	2.0E+02	ug/m3	1.2E-05		
				Ethylbenzene	6E-01	ug/m³	2.7E-02	ug/m3	2.5E-06	(ug/m3) ⁻¹	6.8E-08	7.6E-02	ug/m3	1.0E+03	ug/m3	7.6E-05		
				Methylene chloride	4E-03	ug/m³	2.0E-04	ug/m3	4.7E-07	(ug/m3) ⁻¹	9.5E-11	5.7E-04	ug/m3	1.1E+03	ug/m3	5.2E-07		
				trans-1,2-Dichloroethene	1E-02	ug/m³	4.9E-04	ug/m3	N/A	N/A	N/A	1.4E-03	ug/m3	6.0E+01	ug/m3	2.3E-05		
				Trichloroethene	2E-02	ug/m³	1.1E-03	ug/m3	2.0E-06	(ug/m3) ⁻¹	2.3E-09	3.2E-03	ug/m3	1.0E+01	ug/m3	3.2E-04		
				Vinyl Chloride	9E-02	ug/m³	4.3E-03	ug/m3	4.4E-06	(ug/m3) ⁻¹	1.9E-08	1.2E-02	ug/m3	1.0E+02	ug/m3	1.2E-04		
				Xylene (Total)	3E-01	ug/m³	1.5E-02	ug/m3	N/A	N/A	N/A	4.2E-02	ug/m3	1.0E+02	ug/m3	4.2E-04		
							Exp. Route Total							5E-07				1E-02
							Exposure Point Total								5E-07			
				Exposure Medium Total								N/A				N/A		
Medium Total											N/A				N/A			
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A		

TABLE 7.13.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
Soil/Groundwater	Ambient Air	Landfill	Inhalation	1,1-Dichloroethane	3E-03	ug/m³	5.1E-05	ug/m3	1.6E-06	(ug/m3) ⁻¹	8.2E-11	4.0E-04	ug/m3	5.0E+02	ug/m3	8.0E-07			
				1,2,4-Trimethylbenzene	4E-02	ug/m³	6.7E-04	ug/m3	N/A	N/A	N/A	5.2E-03	ug/m3	7.0E+00	ug/m3	7.4E-04			
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (R113)	5E-02	ug/m³	8.9E-04	ug/m3	N/A	N/A	N/A	6.9E-03	ug/m3	N/A	N/A	N/A			
				1,2-Dichlorobenzene	4E-02	ug/m³	6.4E-04	ug/m3	N/A	N/A	N/A	5.0E-03	ug/m3	2.0E+02	ug/m3	2.5E-05			
				1,3,5-Trimethylbenzene	7E-03	ug/m³	1.2E-04	ug/m3	N/A	N/A	N/A	9.5E-04	ug/m3	6.0E+00	ug/m3	1.6E-04			
				1,3-Dichlorobenzene	7E-02	ug/m³	1.3E-03	ug/m3	N/A	N/A	N/A	1.0E-02	ug/m3	N/A	N/A	N/A			
				1,4-Dichlorobenzene	2E-01	ug/m³	3.5E-03	ug/m3	1.1E-05	(ug/m3) ⁻¹	3.9E-08	2.8E-02	ug/m3	8.0E+02	ug/m3	3.4E-05			
				4-Ethyltoluene	3E-02	ug/m³	6.0E-04	ug/m3	N/A	N/A	N/A	4.7E-03	ug/m3	N/A	N/A	N/A			
				Benzene	5E-01	ug/m³	8.9E-03	ug/m3	7.8E-06	(ug/m3) ⁻¹	6.9E-08	6.9E-02	ug/m3	3.0E+01	ug/m3	2.3E-03			
				Carbon tetrachloride	1E-03	ug/m³	2.6E-05	ug/m3	1.5E-05	(ug/m3) ⁻¹	3.9E-10	2.0E-04	ug/m3	1.9E+02	ug/m3	1.1E-06			
				Chlorobenzene	1E+00	ug/m³	2.0E-02	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	5.0E+01	ug/m3	3.2E-03			
				cis-1,2-Dichloroethene	6E-03	ug/m³	1.1E-04	ug/m3	N/A	N/A	N/A	8.5E-04	ug/m3	N/A	N/A	N/A			
				Dichlorodifluoromethane	1E-02	ug/m³	2.2E-04	ug/m3	N/A	N/A	N/A	1.7E-03	ug/m3	2.0E+02	ug/m3	8.5E-06			
				Ethylbenzene	4E-01	ug/m³	6.8E-03	ug/m3	2.5E-06	(ug/m3) ⁻¹	1.7E-08	5.3E-02	ug/m3	1.0E+03	ug/m3	5.3E-05			
				Methylene chloride	3E-03	ug/m³	5.1E-05	ug/m3	4.7E-07	(ug/m3) ⁻¹	2.4E-11	4.0E-04	ug/m3	1.1E+03	ug/m3	3.6E-07			
				trans-1,2-Dichloroethene	7E-03	ug/m³	1.2E-04	ug/m3	N/A	N/A	N/A	9.5E-04	ug/m3	6.0E+01	ug/m3	1.6E-05			
				Trichloroethene	2E-02	ug/m³	2.9E-04	ug/m3	2.0E-06	(ug/m3) ⁻¹	5.7E-10	2.2E-03	ug/m3	1.0E+01	ug/m3	2.2E-04			
				Vinyl Chloride	6E-02	ug/m³	1.1E-03	ug/m3	4.4E-06	(ug/m3) ⁻¹	4.8E-09	8.5E-03	ug/m3	1.0E+02	ug/m3	8.5E-05			
				Xylene (Total)	2E-01	ug/m³	3.8E-03	ug/m3	N/A	N/A	N/A	3.0E-02	ug/m3	1.0E+02	ug/m3	3.0E-04			
				Exp. Route Total											1E-07				7E-03
				Exposure Point Total											1E-07				7E-03
	Exposure Medium Total											N/A				N/A			
Medium Total											N/A				N/A				
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media					N/A		

TABLE 7.14.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2	Ingestion	4-Chloro-3-methylphenol	2E-01	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	7.0E-01	mg/kg-day	6.6E-05
				4-Nitrophenol	1E+00	mg/kg	6.9E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A	N/A	N/A
				Benzaldehyde	3E-01	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	1.0E-01	mg/kg-day	5.7E-04
				Benzo(a)anthracene	9E-03	mg/kg	5.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	9E-03	mg/kg	6.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.5E-06	1.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Dibenz(a,h)anthracene	9E-03	mg/kg	6.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.7E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	7.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.2E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	3E-01	mg/kg	2.0E-05	mg/kg-day	9.5E-04	(mg/kg-day) ⁻¹	1.9E-08	5.9E-05	mg/kg-day	2.0E-01	mg/kg-day	2.9E-04
				Total PCB Homologs	6E-01	mg/kg	4.1E-05	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.2E-05	1.2E-04	mg/kg-day	2.0E-05	mg/kg-day	6.0E+00
				4,4'-DDD	1E-02	mg/kg	7.3E-07	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.8E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	mg/kg	1.2E-06	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	4.1E-07	3.6E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	2E-03	mg/kg	1.3E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	4.4E-08	3.8E-07	mg/kg-day	5.0E-04	mg/kg-day	7.6E-04
				Aldrin	9E-04	mg/kg	6.4E-08	mg/kg-day	1.7E+01	(mg/kg-day) ⁻¹	1.1E-06	1.9E-07	mg/kg-day	3.0E-05	mg/kg-day	6.2E-03
				alpha-Chlordane	7E-03	mg/kg	4.7E-07	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.7E-07	1.4E-06	mg/kg-day	5.0E-04	mg/kg-day	2.8E-03
				Dieldrin	1E-02	mg/kg	9.4E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-05	2.7E-06	mg/kg-day	5.0E-05	mg/kg-day	5.5E-02
				Endosulfan I	1E-03	mg/kg	7.3E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	6.0E-03	mg/kg-day	3.5E-05
				Endosulfan II	3E-04	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	6.7E-08	mg/kg-day	6.0E-03	mg/kg-day	1.1E-05
				Endosulfan Sulfate	5E-03	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	9.2E-07	mg/kg-day	6.0E-03	mg/kg-day	1.5E-04
				Gamma-Chlordane	4E-03	mg/kg	2.6E-07	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	9.1E-08	7.6E-07	mg/kg-day	5.0E-04	mg/kg-day	1.5E-03
				Heptachlor	2E-03	mg/kg	1.6E-07	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	7.4E-07	4.8E-07	mg/kg-day	5.0E-04	mg/kg-day	9.6E-04
				Heptachlor Epoxide	4E-04	mg/kg	2.7E-08	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	2.5E-07	8.0E-08	mg/kg-day	1.3E-05	mg/kg-day	6.2E-03
				Arsenic	4E-02	mg/kg	2.7E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.1E-06	8.0E-06	mg/kg-day	3.0E-04	mg/kg-day	2.7E-02
				Cadmium (other media)	2E-02	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	4.0E-06	mg/kg-day	1.0E-03	mg/kg-day	4.0E-03
				Chromium	3E+00	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	5.6E-04	mg/kg-day	3.0E-03	mg/kg-day	1.9E-01
				Cobalt	3E-02	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02
				Iron	4E+01	mg/kg	2.9E-03	mg/kg-day	N/A	N/A	N/A	8.3E-03	mg/kg-day	7.0E-01	mg/kg-day	1.2E-02
				Lead	3E-02	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	6.9E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	1.0E-04	mg/kg-day	2.0E-01
				Nickel	1E+00	mg/kg	9.6E-05	mg/kg-day	N/A	N/A	N/A	2.8E-04	mg/kg-day	2.0E-02	mg/kg-day	1.4E-02
				Selenium	5E-01	mg/kg	3.4E-05	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	5.0E-03	mg/kg-day	2.0E-02
			Exp. Route Total							1E-04				7E+00		
			Exposure Point Total							1E-04				7E+00		
			Exposure Medium Total							N/A				N/A		
Medium Total									N/A				N/A			
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A

Total of Receptor Risks Across All Media

Total of Receptor Hazards Across All Media

TABLE 7.14.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2	Ingestion	4-Chloro-3-methylphenol	2E-01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	7.0E-01	mg/kg-day	2.7E-05
				4-Nitrophenol	6E-01	mg/kg	7.8E-06	mg/kg-day	N/A	N/A	N/A	7.8E-05	mg/kg-day	N/A	N/A	N/A
				Benzaldehyde	3E-01	mg/kg	3.6E-06	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	1.0E-01	mg/kg-day	3.6E-04
				Benzo(a)anthracene	9E-03	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.0E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	9E-03	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.4E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Dibenz(a,h)anthracene	9E-03	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.7E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.6E-08	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	3E-01	mg/kg	3.7E-06	mg/kg-day	9.5E-04	(mg/kg-day) ⁻¹	3.5E-09	3.7E-05	mg/kg-day	2.0E-01	mg/kg-day	1.9E-04
				Total PCB Homologs	6E-01	mg/kg	7.6E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.5E-05	7.6E-05	mg/kg-day	2.0E-05	mg/kg-day	3.8E+00
				4,4'-DDD	1E-02	mg/kg	1.4E-07	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	3.3E-08	1.4E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	mg/kg	2.3E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	7.7E-08	2.3E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	2E-03	mg/kg	2.4E-08	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	8.2E-09	2.4E-07	mg/kg-day	5.0E-04	mg/kg-day	4.8E-04
				Aldrin	2E-04	mg/kg	2.2E-09	mg/kg-day	1.7E+01	(mg/kg-day) ⁻¹	3.7E-08	2.2E-08	mg/kg-day	3.0E-05	mg/kg-day	7.2E-04
				alpha-Chlordane	7E-03	mg/kg	8.8E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	3.1E-08	8.8E-07	mg/kg-day	5.0E-04	mg/kg-day	1.8E-03
				Dieldrin	1E-02	mg/kg	1.7E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.8E-06	1.7E-06	mg/kg-day	5.0E-05	mg/kg-day	3.5E-02
				Endosulfan I	1E-03	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	6.0E-03	mg/kg-day	2.2E-05
				Endosulfan II	3E-04	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	4.3E-08	mg/kg-day	6.0E-03	mg/kg-day	7.1E-06
				Endosulfan Sulfate	5E-03	mg/kg	5.9E-08	mg/kg-day	N/A	N/A	N/A	5.9E-07	mg/kg-day	6.0E-03	mg/kg-day	9.8E-05
				Gamma-Chlordane	4E-03	mg/kg	4.8E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.7E-08	4.8E-07	mg/kg-day	5.0E-04	mg/kg-day	9.7E-04
				Heptachlor	2E-04	mg/kg	2.5E-09	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	1.1E-08	2.5E-08	mg/kg-day	5.0E-04	mg/kg-day	5.1E-05
				Heptachlor Epoxide	4E-04	mg/kg	5.1E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	4.6E-08	5.1E-08	mg/kg-day	1.3E-05	mg/kg-day	3.9E-03
				Arsenic	4E-02	mg/kg	5.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.6E-07	5.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.7E-02
				Cadmium (other media)	2E-02	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	1.0E-03	mg/kg-day	2.5E-03
				Chromium	3E+00	mg/kg	3.6E-05	mg/kg-day	N/A	N/A	N/A	3.6E-04	mg/kg-day	3.0E-03	mg/kg-day	1.2E-01
				Cobalt	3E-02	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02
				Iron	4E+01	mg/kg	5.3E-04	mg/kg-day	N/A	N/A	N/A	5.3E-03	mg/kg-day	7.0E-01	mg/kg-day	7.6E-03
				Lead	3E-02	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	1.0E-04	mg/kg-day	1.3E-01
				Nickel	1E+00	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	2.0E-02	mg/kg-day	8.9E-03
				Selenium	5E-01	mg/kg	6.4E-06	mg/kg-day	N/A	N/A	N/A	6.4E-05	mg/kg-day	5.0E-03	mg/kg-day	1.3E-02
			Exp. Route Total							2E-05					4E+00	
			Exposure Point Total							2E-05					4E+00	
			Exposure Medium Total							N/A					N/A	
Medium Total									N/A					N/A		
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A

TABLE 7.15.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2	Ingestion	4-Chloro-3-methylphenol	2E-01	mg/kg	8.0E-06	mg/kg-day	N/A	N/A	N/A	9.4E-05	mg/kg-day	7.0E-01	mg/kg-day	1.3E-04
				4-Nitrophenol	1E+00	mg/kg	3.5E-05	mg/kg-day	N/A	N/A	N/A	4.1E-04	mg/kg-day	N/A	N/A	N/A
				Benzaldehyde	3E-01	mg/kg	1.0E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	1.0E-01	mg/kg-day	1.2E-03
				Benzo(a)anthracene	9E-03	mg/kg	3.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-06	3.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	9E-03	mg/kg	3.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-05	3.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Dibenz(a,h)anthracene	9E-03	mg/kg	3.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-05	3.8E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	3.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-06	4.2E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	3E-01	mg/kg	1.0E-05	mg/kg-day	9.5E-04	(mg/kg-day) ⁻¹	9.7E-09	1.2E-04	mg/kg-day	2.0E-01	mg/kg-day	6.0E-04
				Total PCB Homologs	6E-01	mg/kg	2.1E-05	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.2E-05	2.4E-04	mg/kg-day	2.0E-05	mg/kg-day	1.2E+01
				4,4'-DDD	1E-02	mg/kg	3.7E-07	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	9.0E-08	4.4E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	mg/kg	6.2E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	2.1E-07	7.2E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	2E-03	mg/kg	6.6E-08	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	2.3E-08	7.7E-07	mg/kg-day	5.0E-04	mg/kg-day	1.5E-03
				Aldrin	9E-04	mg/kg	3.2E-08	mg/kg-day	1.7E+01	(mg/kg-day) ⁻¹	5.5E-07	3.8E-07	mg/kg-day	3.0E-05	mg/kg-day	1.3E-02
				alpha-Chlordane	7E-03	mg/kg	2.4E-07	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	8.4E-08	2.8E-06	mg/kg-day	5.0E-04	mg/kg-day	5.6E-03
				Dieldrin	1E-02	mg/kg	4.8E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.6E-06	5.6E-06	mg/kg-day	5.0E-05	mg/kg-day	1.1E-01
				Endosulfan I	1E-03	mg/kg	3.7E-08	mg/kg-day	N/A	N/A	N/A	4.3E-07	mg/kg-day	6.0E-03	mg/kg-day	7.2E-05
				Endosulfan II	3E-04	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	6.0E-03	mg/kg-day	2.3E-05
				Endosulfan Sulfate	5E-03	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	6.0E-03	mg/kg-day	3.1E-04
				Gamma-Chlordane	4E-03	mg/kg	1.3E-07	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	4.6E-08	1.5E-06	mg/kg-day	5.0E-04	mg/kg-day	3.1E-03
				Heptachlor	2E-03	mg/kg	8.4E-08	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	3.8E-07	9.8E-07	mg/kg-day	5.0E-04	mg/kg-day	2.0E-03
				Heptachlor Epoxide	4E-04	mg/kg	1.4E-08	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.3E-07	1.6E-07	mg/kg-day	1.3E-05	mg/kg-day	1.3E-02
				Arsenic	4E-02	mg/kg	1.4E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.1E-06	1.6E-05	mg/kg-day	3.0E-04	mg/kg-day	5.4E-02
				Cadmium (other media)	2E-02	mg/kg	7.0E-07	mg/kg-day	N/A	N/A	N/A	8.1E-06	mg/kg-day	1.0E-03	mg/kg-day	8.1E-03
				Chromium	3E+00	mg/kg	9.8E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	3.0E-03	mg/kg-day	3.8E-01
				Cobalt	3E-02	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	3.0E-04	mg/kg-day	4.1E-02
				Iron	4E+01	mg/kg	1.5E-03	mg/kg-day	N/A	N/A	N/A	1.7E-02	mg/kg-day	7.0E-01	mg/kg-day	2.4E-02
				Lead	3E-02	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	1.0E-04	mg/kg-day	4.1E-01
				Nickel	1E+00	mg/kg	4.9E-05	mg/kg-day	N/A	N/A	N/A	5.7E-04	mg/kg-day	2.0E-02	mg/kg-day	2.8E-02
				Selenium	5E-01	mg/kg	1.7E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	5.0E-03	mg/kg-day	4.1E-02
			Exp. Route Total							8E-05					1E+01	
			Exposure Point Total							8E-05					1E+01	
			Exposure Medium Total							N/A					N/A	
Medium Total									N/A					N/A		
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A

Total of Receptor Risks Across All Media

Total of Receptor Hazards Across All Media

[Notes](#)

TABLE 7.15.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk		Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units			Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.15.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
 Receptor Population: Recreational User
 Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2	Ingestion	4-Chloro-3-methylphenol	2E-01	mg/kg	1.1E-06	mg/kg-day	N/A	N/A	N/A	3.7E-05	mg/kg-day	7.0E-01	mg/kg-day	5.3E-05
				4-Nitrophenol	6E-01	mg/kg	4.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-04	mg/kg-day	N/A	N/A	N/A
				Benzaldehyde	3E-01	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	7.1E-05	mg/kg-day	1.0E-01	mg/kg-day	7.1E-04
				Benzo(a)anthracene	9E-03	mg/kg	6.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	9E-03	mg/kg	6.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.5E-06	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Dibenz(a,h)anthracene	9E-03	mg/kg	6.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.6E-06	2.3E-06	mg/kg-day	N/A	N/A	N/A
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	7.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-07	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Isophorone	3E-01	mg/kg	2.1E-06	mg/kg-day	9.5E-04	(mg/kg-day) ⁻¹	2.0E-09	7.2E-05	mg/kg-day	2.0E-01	mg/kg-day	3.6E-04
				Total PCB Homologs	6E-01	mg/kg	4.2E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.5E-06	1.5E-04	mg/kg-day	2.0E-05	mg/kg-day	7.4E+00
				4,4'-DDD	1E-02	mg/kg	7.5E-08	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.8E-08	2.6E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	mg/kg	1.3E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	4.3E-08	4.4E-06	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	2E-03	mg/kg	1.3E-08	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	4.6E-09	4.7E-07	mg/kg-day	5.0E-04	mg/kg-day	9.4E-04
				Aldrin	2E-04	mg/kg	1.2E-09	mg/kg-day	1.7E+01	(mg/kg-day) ⁻¹	2.0E-08	4.2E-08	mg/kg-day	3.0E-05	mg/kg-day	1.4E-03
				alpha-Chlordane	7E-03	mg/kg	4.9E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.7E-08	1.7E-06	mg/kg-day	5.0E-04	mg/kg-day	3.4E-03
				Dieldrin	1E-02	mg/kg	9.7E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-06	3.4E-06	mg/kg-day	5.0E-05	mg/kg-day	6.8E-02
				Endosulfan I	1E-03	mg/kg	7.5E-09	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	6.0E-03	mg/kg-day	4.4E-05
				Endosulfan II	3E-04	mg/kg	2.4E-09	mg/kg-day	N/A	N/A	N/A	8.3E-08	mg/kg-day	6.0E-03	mg/kg-day	1.4E-05
				Endosulfan Sulfate	5E-03	mg/kg	3.2E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	6.0E-03	mg/kg-day	1.9E-04
				Gamma-Chlordane	4E-03	mg/kg	2.7E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	9.4E-09	9.4E-07	mg/kg-day	5.0E-04	mg/kg-day	1.9E-03
				Heptachlor	2E-04	mg/kg	1.4E-09	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	6.3E-09	4.9E-08	mg/kg-day	5.0E-04	mg/kg-day	9.9E-05
				Heptachlor Epoxide	4E-04	mg/kg	2.8E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	2.6E-08	9.9E-08	mg/kg-day	1.3E-05	mg/kg-day	7.6E-03
				Arsenic	4E-02	mg/kg	2.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.2E-07	9.9E-06	mg/kg-day	3.0E-04	mg/kg-day	3.3E-02
				Cadmium (other media)	2E-02	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	1.0E-03	mg/kg-day	4.9E-03
				Chromium	3E+00	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	6.9E-04	mg/kg-day	3.0E-03	mg/kg-day	2.3E-01
				Cobalt	3E-02	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	7.4E-06	mg/kg-day	3.0E-04	mg/kg-day	2.5E-02
				Iron	4E+01	mg/kg	2.9E-04	mg/kg-day	N/A	N/A	N/A	1.0E-02	mg/kg-day	7.0E-01	mg/kg-day	1.5E-02
				Lead	3E-02	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	7.4E-06	mg/kg-day	N/A	N/A	N/A
				Mercury (other media)	1E-01	mg/kg	7.0E-07	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	1.0E-04	mg/kg-day	2.5E-01
				Nickel	1E+00	mg/kg	9.9E-06	mg/kg-day	N/A	N/A	N/A	3.5E-04	mg/kg-day	2.0E-02	mg/kg-day	1.7E-02
				Selenium	5E-01	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	5.0E-03	mg/kg-day	2.5E-02
				Exp. Route Total							2E-05					8E+00
				Exposure Point Total							2E-05					8E+00
				Exposure Medium Total							N/A					N/A
Medium Total										N/A					N/A	
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A

Total of Receptor Risks Across All Media

Total of Receptor Hazards Across All Media

Notes

TABLE 7.15.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk		Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units			Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.16.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1	Ingestion	4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	1E-01	mg/kg	7.4E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	1.0E-01	mg/kg-day	2.2E-04	
				Benzo(a)anthracene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				Benzo(a)pyrene	9E-03	mg/kg	5.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.3E-06	1.7E-06	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	1E-01	mg/kg	1.0E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.4E-07	3.0E-05	mg/kg-day	2.0E-02	mg/kg-day	1.5E-03	
				Dibenz(a,h)anthracene	1E-02	mg/kg	6.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.9E-06	2.0E-06	mg/kg-day	N/A	N/A	N/A	
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A	
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	5.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A	
				Isophorone	1E-01	mg/kg	9.9E-06	mg/kg-day	9.5E-04	(mg/kg-day) ⁻¹	9.4E-09	2.9E-05	mg/kg-day	2.0E-01	mg/kg-day	1.4E-04	
				Total PCB Homologs	5E-01	mg/kg	3.2E-05	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.3E-05	9.2E-05	mg/kg-day	2.0E-05	mg/kg-day	4.6E+00	
				4,4'-DDD	6E-03	mg/kg	3.9E-07	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	9.3E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDE	2E-02	mg/kg	1.3E-06	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	4.5E-07	3.9E-06	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDT	9E-03	mg/kg	5.9E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	2.0E-07	1.7E-06	mg/kg-day	5.0E-04	mg/kg-day	3.5E-03	
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A	
				alpha-Chlordane	5E-03	mg/kg	3.3E-07	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.2E-07	9.7E-07	mg/kg-day	5.0E-04	mg/kg-day	1.9E-03	
				Dieldrin	1E-02	mg/kg	6.7E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.1E-05	1.9E-06	mg/kg-day	5.0E-05	mg/kg-day	3.9E-02	
				Endosulfan I	3E-03	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	6.3E-07	mg/kg-day	6.0E-03	mg/kg-day	1.1E-04	
				Endosulfan II	5E-04	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	6.0E-03	mg/kg-day	1.7E-05	
				Endosulfan Sulfate	3E-03	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	6.0E-03	mg/kg-day	1.0E-04	
				Gamma-Chlordane	3E-03	mg/kg	2.4E-07	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	8.3E-08	6.9E-07	mg/kg-day	5.0E-04	mg/kg-day	1.4E-03	
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor Epoxide	2E-03	mg/kg	1.3E-07	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.2E-06	3.7E-07	mg/kg-day	1.3E-05	mg/kg-day	2.9E-02	
				Arsenic	8E-02	mg/kg	5.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	8.7E-06	1.7E-05	mg/kg-day	3.0E-04	mg/kg-day	5.7E-02	
				Cadmium (other media)	2E-02	mg/kg	1.6E-06	mg/kg-day	N/A	N/A	N/A	4.8E-06	mg/kg-day	1.0E-03	mg/kg-day	4.8E-03	
				Chromium	2E+00	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	3.0E-03	mg/kg-day	1.6E-01	
				Cobalt	1E-02	mg/kg	9.9E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	9.7E-03	
				Iron	2E+01	mg/kg	1.4E-03	mg/kg-day	N/A	N/A	N/A	4.0E-03	mg/kg-day	7.0E-01	mg/kg-day	5.6E-03	
				Lead	3E-02	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	5.0E-06	mg/kg-day	N/A	N/A	N/A	
				Mercury (other media)	1E-01	mg/kg	9.1E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	1.0E-04	mg/kg-day	2.7E-01	
				Nickel	1E+00	mg/kg	8.0E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	2.0E-02	mg/kg-day	1.2E-02	
				Selenium	6E-01	mg/kg	4.4E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	5.0E-03	mg/kg-day	2.6E-02	
				Exp. Route Total							9E-05						
				Exposure Point Total							9E-05						
				Exposure Medium Total							N/A						
Medium Total										N/A							
Total of Receptor Risks Across All Media												N/A	Total of Receptor Hazards Across All Media				N/A

Total of Receptor Risks Across All Media

Total of Receptor Hazards Across All Media

TABLE 7.16.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations																							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient																			
							Value	Units	Value	Units		Value	Units	Value	Units																				
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1	Ingestion	4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A																		
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A																		
				Benzaldehyde	1E-01	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	1.0E-01	mg/kg-day	1.4E-04																			
				Benzo(a)anthracene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A																		
				Benzo(a)pyrene	9E-03	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A	N/A																		
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A																			
				bis(2-Ethylhexyl)phthalate	1E-01	mg/kg	1.9E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.7E-08	1.9E-05	mg/kg-day	2.0E-02	mg/kg-day	9.5E-04																			
				Dibenz(a,h)anthracene	1E-02	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.1E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A																			
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A																			
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.0E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A																			
				Isophorone	1E-01	mg/kg	1.8E-06	mg/kg-day	9.5E-04	(mg/kg-day) ⁻¹	1.7E-09	1.8E-05	mg/kg-day	2.0E-01	mg/kg-day	9.2E-05																			
				Total PCB Homologs	5E-01	mg/kg	5.9E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.2E-05	5.9E-05	mg/kg-day	2.0E-05	mg/kg-day	2.9E+00																			
				4,4'-DDD	6E-03	mg/kg	7.2E-08	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.7E-08	7.2E-07	mg/kg-day	N/A	N/A	N/A																			
				4,4'-DDE	2E-02	mg/kg	2.5E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	8.4E-08	2.5E-06	mg/kg-day	N/A	N/A	N/A																			
				4,4'-DDT	9E-03	mg/kg	1.1E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	3.7E-08	1.1E-06	mg/kg-day	5.0E-04	mg/kg-day	2.2E-03																			
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A																			
				alpha-Chlordane	5E-03	mg/kg	6.1E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	2.1E-08	6.1E-07	mg/kg-day	5.0E-04	mg/kg-day	1.2E-03																			
				Dieldrin	1E-02	mg/kg	1.2E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.0E-06	1.2E-06	mg/kg-day	5.0E-05	mg/kg-day	2.5E-02																			
				Endosulfan I	3E-03	mg/kg	4.0E-08	mg/kg-day	N/A	N/A	N/A	4.0E-07	mg/kg-day	6.0E-03	mg/kg-day	6.7E-05																			
				Endosulfan II	2E-04	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	6.0E-03	mg/kg-day	3.8E-06																			
				Endosulfan Sulfate	3E-03	mg/kg	3.9E-08	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	6.0E-03	mg/kg-day	6.4E-05																			
				Gamma-Chlordane	3E-03	mg/kg	4.4E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.5E-08	4.4E-07	mg/kg-day	5.0E-04	mg/kg-day	8.8E-04																			
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A																			
				Heptachlor Epoxide	2E-03	mg/kg	2.4E-08	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	2.1E-07	2.4E-07	mg/kg-day	1.3E-05	mg/kg-day	1.8E-02																			
				Arsenic	8E-02	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.6E-02																			
				Cadmium (other media)	2E-02	mg/kg	3.0E-07	mg/kg-day	N/A	N/A	N/A	3.0E-06	mg/kg-day	1.0E-03	mg/kg-day	3.0E-03																			
				Chromium	2E+00	mg/kg	3.0E-05	mg/kg-day	N/A	N/A	N/A	3.0E-04	mg/kg-day	3.0E-03	mg/kg-day	1.0E-01																			
				Cobalt	1E-02	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03																			
				Iron	2E+01	mg/kg	2.5E-04	mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	7.0E-01	mg/kg-day	3.6E-03																			
				Lead	3E-02	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	N/A	N/A	N/A																			
				Mercury (other media)	1E-01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	1.0E-04	mg/kg-day	1.7E-01																			
				Nickel	1E+00	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	1.5E-04	mg/kg-day	2.0E-02	mg/kg-day	7.4E-03																			
				Selenium	6E-01	mg/kg	8.2E-06	mg/kg-day	N/A	N/A	N/A	8.2E-05	mg/kg-day	5.0E-03	mg/kg-day	1.6E-02																			
				Exp. Route Total							2E-05					3E+00																			
				Exposure Point Total							2E-05					3E+00																			
				Exposure Medium Total							N/A					N/A																			
Medium Total										N/A					N/A																				
Total of Receptor Risks Across All Media																	N/A	Total of Receptor Hazards Across All Media																	N/A

Total of Receptor Risks Across All Media

Total of Receptor Hazards Across All Media

TABLE 7.17.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1	Ingestion	4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	1E-01	mg/kg	3.8E-06	mg/kg-day	N/A	N/A	N/A	N/A	4.4E-05	mg/kg-day	1.0E-01	mg/kg-day	4.4E-04
				Benzo(a)anthracene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	9E-03	mg/kg	3.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-05	3.5E-06	mg/kg-day	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	1E-01	mg/kg	5.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.3E-08	6.1E-05	mg/kg-day	2.0E-02	mg/kg-day	3.0E-03	
				Dibenz(a,h)anthracene	1E-02	mg/kg	3.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-05	4.0E-06	mg/kg-day	N/A	N/A	N/A	
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A	
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	3.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-06	3.5E-06	mg/kg-day	N/A	N/A	N/A	
				Isophorone	1E-01	mg/kg	5.0E-06	mg/kg-day	9.5E-04	(mg/kg-day) ⁻¹	4.8E-09	5.9E-05	mg/kg-day	2.0E-01	mg/kg-day	2.9E-04	
				Total PCB Homologs	5E-01	mg/kg	1.6E-05	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.2E-05	1.9E-04	mg/kg-day	2.0E-05	mg/kg-day	9.4E+00	
				4,4'-DDD	6E-03	mg/kg	2.0E-07	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	4.7E-08	2.3E-06	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDE	2E-02	mg/kg	6.8E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	2.3E-07	7.9E-06	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDT	9E-03	mg/kg	3.0E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.0E-07	3.5E-06	mg/kg-day	5.0E-04	mg/kg-day	7.0E-03	
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A	
				alpha-Chlordane	5E-03	mg/kg	1.7E-07	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	5.9E-08	2.0E-06	mg/kg-day	5.0E-04	mg/kg-day	3.9E-03	
				Dieldrin	1E-02	mg/kg	3.4E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.4E-06	4.0E-06	mg/kg-day	5.0E-05	mg/kg-day	7.9E-02	
				Endosulfan I	3E-03	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	6.0E-03	mg/kg-day	2.1E-04	
				Endosulfan II	5E-04	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	6.0E-03	mg/kg-day	3.5E-05	
				Endosulfan Sulfate	3E-03	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	6.0E-03	mg/kg-day	2.1E-04	
				Gamma-Chlordane	3E-03	mg/kg	1.2E-07	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	4.2E-08	1.4E-06	mg/kg-day	5.0E-04	mg/kg-day	2.8E-03	
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor Epoxide	2E-03	mg/kg	6.5E-08	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	5.9E-07	7.5E-07	mg/kg-day	1.3E-05	mg/kg-day	5.8E-02	
				Arsenic	8E-02	mg/kg	3.0E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.4E-06	3.5E-05	mg/kg-day	3.0E-04	mg/kg-day	1.2E-01	
				Cadmium (other media)	2E-02	mg/kg	8.3E-07	mg/kg-day	N/A	N/A	N/A	9.7E-06	mg/kg-day	1.0E-03	mg/kg-day	9.7E-03	
				Chromium	2E+00	mg/kg	8.3E-05	mg/kg-day	N/A	N/A	N/A	9.6E-04	mg/kg-day	3.0E-03	mg/kg-day	3.2E-01	
				Cobalt	1E-02	mg/kg	5.1E-07	mg/kg-day	N/A	N/A	N/A	5.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02	
				Iron	2E+01	mg/kg	6.9E-04	mg/kg-day	N/A	N/A	N/A	8.0E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02	
				Lead	3E-02	mg/kg	8.7E-07	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	N/A	N/A	N/A	
				Mercury (other media)	1E-01	mg/kg	4.6E-06	mg/kg-day	N/A	N/A	N/A	5.4E-05	mg/kg-day	1.0E-04	mg/kg-day	5.4E-01	
				Nickel	1E+00	mg/kg	4.1E-05	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	2.0E-02	mg/kg-day	2.4E-02	
				Selenium	6E-01	mg/kg	2.3E-05	mg/kg-day	N/A	N/A	N/A	2.6E-04	mg/kg-day	5.0E-03	mg/kg-day	5.3E-02	
				Exp. Route Total							7E-05					1E+01	
				Exposure Point Total							7E-05					1E+01	
				Exposure Medium Total							N/A					N/A	
Medium Total										N/A					N/A		
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A	

Total of Receptor Risks Across All Media

Total of Receptor Hazards Across All Media

[Notes](#)

TABLE 7.17.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk		Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units			Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.17.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1	Ingestion	4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	1E-01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	1.0E-01	mg/kg-day	2.7E-04	
				Benzo(a)anthracene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				Benzo(a)pyrene	9E-03	mg/kg	6.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-06	2.1E-06	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	ND	mg/kg	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A		
				bis(2-Ethylhexyl)phthalate	1E-01	mg/kg	1.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.5E-08	3.7E-05	mg/kg-day	2.0E-02	mg/kg-day	1.8E-03	
				Dibenz(a,h)anthracene	1E-02	mg/kg	6.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.7E-06	2.4E-06	mg/kg-day	N/A	N/A	N/A	
				Hexachlorobenzene	ND	mg/kg	N/A	N/A	1.6E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A	
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	6.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A	
				Isophorone	1E-01	mg/kg	1.0E-06	mg/kg-day	9.5E-04	(mg/kg-day) ⁻¹	9.6E-10	3.6E-05	mg/kg-day	2.0E-01	mg/kg-day	1.8E-04	
				Total PCB Homologs	5E-01	mg/kg	3.3E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.5E-06	1.1E-04	mg/kg-day	2.0E-05	mg/kg-day	5.7E+00	
				4,4'-DDD	6E-03	mg/kg	4.0E-08	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	9.6E-09	1.4E-06	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDE	2E-02	mg/kg	1.4E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	4.6E-08	4.8E-06	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDT	9E-03	mg/kg	6.1E-08	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	2.1E-08	2.1E-06	mg/kg-day	5.0E-04	mg/kg-day	4.3E-03	
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A	
				alpha-Chlordane	5E-03	mg/kg	3.4E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.2E-08	1.2E-06	mg/kg-day	5.0E-04	mg/kg-day	2.4E-03	
				Dieldrin	1E-02	mg/kg	6.9E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.1E-06	2.4E-06	mg/kg-day	5.0E-05	mg/kg-day	4.8E-02	
				Endosulfan I	3E-03	mg/kg	2.2E-08	mg/kg-day	N/A	N/A	N/A	7.8E-07	mg/kg-day	6.0E-03	mg/kg-day	1.3E-04	
				Endosulfan II	2E-04	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	4.4E-08	mg/kg-day	6.0E-03	mg/kg-day	7.4E-06	
				Endosulfan Sulfate	3E-03	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	7.5E-07	mg/kg-day	6.0E-03	mg/kg-day	1.2E-04	
				Gamma-Chlordane	3E-03	mg/kg	2.4E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	8.5E-09	8.5E-07	mg/kg-day	5.0E-04	mg/kg-day	1.7E-03	
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor Epoxide	2E-03	mg/kg	1.3E-08	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.2E-07	4.6E-07	mg/kg-day	1.3E-05	mg/kg-day	3.5E-02	
				Arsenic	8E-02	mg/kg	6.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.0E-07	2.1E-05	mg/kg-day	3.0E-04	mg/kg-day	7.0E-02	
				Cadmium (other media)	2E-02	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.9E-06	mg/kg-day	1.0E-03	mg/kg-day	5.9E-03	
				Chromium	2E+00	mg/kg	1.7E-05	mg/kg-day	N/A	N/A	N/A	5.8E-04	mg/kg-day	3.0E-03	mg/kg-day	1.9E-01	
				Cobalt	1E-02	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	3.0E-04	mg/kg-day	1.2E-02	
				Iron	2E+01	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	4.9E-03	mg/kg-day	7.0E-01	mg/kg-day	7.0E-03	
				Lead	3E-02	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	N/A	N/A	N/A	
				Mercury (other media)	1E-01	mg/kg	9.4E-07	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	1.0E-04	mg/kg-day	3.3E-01	
				Nickel	1E+00	mg/kg	8.2E-06	mg/kg-day	N/A	N/A	N/A	2.9E-04	mg/kg-day	2.0E-02	mg/kg-day	1.4E-02	
				Selenium	6E-01	mg/kg	4.6E-06	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	5.0E-03	mg/kg-day	3.2E-02	
				Exp. Route Total							1E-05					6E+00	
				Exposure Point Total							1E-05					6E+00	
				Exposure Medium Total							N/A					N/A	
Medium Total										N/A					N/A		
Total of Receptor Risks Across All Media												N/A	Total of Receptor Hazards Across All Media				N/A

Total of Receptor Risks Across All Media

Total of Receptor Hazards Across All Media

[Notes](#)

TABLE 7.17.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk		Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units			Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.18.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2	Ingestion	4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	mg/kg	2.0E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-06	5.8E-06	mg/kg-day	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-02	mg/kg	1.9E-06	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-05	5.6E-06	mg/kg-day	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	9E-03	mg/kg	6.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.6E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E-01	mg/kg	1.7E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.4E-07	5.1E-05	mg/kg-day	2.0E-02	mg/kg-day	2.6E-03	
				Dibenz(a,h)anthracene	8E-03	mg/kg	5.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.1E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A	
				Hexachlorobenzene	8E-03	mg/kg	5.4E-07	mg/kg-day	1.6E+00	(mg/kg-day) ⁻¹	8.7E-07	1.6E-06	mg/kg-day	8.0E-04	mg/kg-day	2.0E-03	
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	8.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.0E-07	2.4E-06	mg/kg-day	N/A	N/A	N/A	
				Isophorone	3E-01	mg/kg	2.3E-05	mg/kg-day	9.5E-04	(mg/kg-day) ⁻¹	2.2E-08	6.6E-05	mg/kg-day	2.0E-01	mg/kg-day	3.3E-04	
				Total PCB Homologs	1E+00	mg/kg	6.9E-05	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.4E-04	2.0E-04	mg/kg-day	2.0E-05	mg/kg-day	1.0E+01	
				4,4'-DDD	1E-02	mg/kg	8.1E-07	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.9E-07	2.3E-06	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDE	4E-02	mg/kg	2.9E-06	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	9.8E-07	8.4E-06	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDT	3E-03	mg/kg	2.0E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	6.9E-08	5.9E-07	mg/kg-day	5.0E-04	mg/kg-day	1.2E-03	
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A	
				alpha-Chlordane	7E-03	mg/kg	4.7E-07	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.7E-07	1.4E-06	mg/kg-day	5.0E-04	mg/kg-day	2.8E-03	
				Dieldrin	2E-02	mg/kg	1.1E-06	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.8E-05	3.2E-06	mg/kg-day	5.0E-05	mg/kg-day	6.4E-02	
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A	
				Endosulfan II	4E-04	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	7.6E-08	mg/kg-day	6.0E-03	mg/kg-day	1.3E-05	
				Endosulfan Sulfate	1E-02	mg/kg	6.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	6.0E-03	mg/kg-day	3.3E-04	
				Gamma-Chlordane	6E-03	mg/kg	3.9E-07	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.4E-07	1.2E-06	mg/kg-day	5.0E-04	mg/kg-day	2.3E-03	
				Heptachlor	1E-03	mg/kg	6.9E-08	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	3.1E-07	2.0E-07	mg/kg-day	5.0E-04	mg/kg-day	4.0E-04	
				Heptachlor Epoxide	5E-04	mg/kg	3.2E-08	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	2.9E-07	9.3E-08	mg/kg-day	1.3E-05	mg/kg-day	7.1E-03	
				Arsenic	7E-02	mg/kg	4.7E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.1E-06	1.4E-05	mg/kg-day	3.0E-04	mg/kg-day	4.6E-02	
				Cadmium (other media)	1E-02	mg/kg	8.8E-07	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	1.0E-03	mg/kg-day	2.6E-03	
				Chromium	3E+00	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	5.5E-04	mg/kg-day	3.0E-03	mg/kg-day	1.8E-01	
				Cobalt	2E-02	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02	
				Iron	2E+01	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	7.0E-01	mg/kg-day	5.3E-03	
				Lead	1E-02	mg/kg	6.9E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	N/A	N/A	N/A	
				Mercury (other media)	1E-01	mg/kg	7.6E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	1.0E-04	mg/kg-day	2.2E-01	
				Nickel	2E+00	mg/kg	1.1E-04	mg/kg-day	N/A	N/A	N/A	3.1E-04	mg/kg-day	2.0E-02	mg/kg-day	1.5E-02	
				Selenium	6E-01	mg/kg	4.0E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	5.0E-03	mg/kg-day	2.3E-02	
				Exp. Route Total							2E-04					1E+01	
				Exposure Point Total							2E-04					1E+01	
				Exposure Medium Total							N/A					N/A	
				Medium Total							N/A					N/A	
Total of Receptor Risks Across All Media						N/A		Total of Receptor Hazards Across All Media						N/A			

TABLE 7.18.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2	Ingestion	4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	mg/kg	3.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-07	3.7E-06	mg/kg-day	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-02	mg/kg	3.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.6E-06	3.6E-06	mg/kg-day	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	9E-03	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.6E-08	1.2E-06	mg/kg-day	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E-01	mg/kg	3.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.5E-08	3.2E-05	mg/kg-day	2.0E-02	mg/kg-day	1.6E-03	
				Dibenz(a,h)anthracene	8E-03	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.5E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A	
				Hexachlorobenzene	4E-03	mg/kg	5.1E-08	mg/kg-day	1.6E+00	(mg/kg-day) ⁻¹	8.1E-08	5.1E-07	mg/kg-day	8.0E-04	mg/kg-day	6.4E-04	
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A	
				Isophorone	3E-01	mg/kg	4.2E-06	mg/kg-day	9.5E-04	(mg/kg-day) ⁻¹	4.0E-09	4.2E-05	mg/kg-day	2.0E-01	mg/kg-day	2.1E-04	
				Total PCB Homologs	1E+00	mg/kg	1.3E-05	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.6E-05	1.3E-04	mg/kg-day	2.0E-05	mg/kg-day	6.4E+00	
				4,4'-DDD	1E-02	mg/kg	1.5E-07	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	3.6E-08	1.5E-06	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDE	4E-02	mg/kg	5.4E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.8E-07	5.4E-06	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDT	3E-03	mg/kg	3.8E-08	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.3E-08	3.8E-07	mg/kg-day	5.0E-04	mg/kg-day	7.5E-04	
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A	
				alpha-Chlordane	7E-03	mg/kg	8.8E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	3.1E-08	8.8E-07	mg/kg-day	5.0E-04	mg/kg-day	1.8E-03	
				Dieldrin	2E-02	mg/kg	2.0E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.3E-06	2.0E-06	mg/kg-day	5.0E-05	mg/kg-day	4.1E-02	
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A	
				Endosulfan II	2E-04	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	6.0E-03	mg/kg-day	3.6E-06	
				Endosulfan Sulfate	1E-02	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	6.0E-03	mg/kg-day	2.1E-04	
				Gamma-Chlordane	6E-03	mg/kg	7.3E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	2.6E-08	7.3E-07	mg/kg-day	5.0E-04	mg/kg-day	1.5E-03	
				Heptachlor	2E-04	mg/kg	2.7E-09	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	1.2E-08	2.7E-08	mg/kg-day	5.0E-04	mg/kg-day	5.3E-05	
				Heptachlor Epoxide	5E-04	mg/kg	5.9E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	5.4E-08	5.9E-08	mg/kg-day	1.3E-05	mg/kg-day	4.5E-03	
				Arsenic	7E-02	mg/kg	8.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.3E-06	8.7E-06	mg/kg-day	3.0E-04	mg/kg-day	2.9E-02	
				Cadmium (other media)	1E-02	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03	
				Chromium	3E+00	mg/kg	3.5E-05	mg/kg-day	N/A	N/A	N/A	3.5E-04	mg/kg-day	3.0E-03	mg/kg-day	1.2E-01	
				Cobalt	2E-02	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	3.0E-04	mg/kg-day	8.2E-03	
				Iron	2E+01	mg/kg	2.4E-04	mg/kg-day	N/A	N/A	N/A	2.4E-03	mg/kg-day	7.0E-01	mg/kg-day	3.4E-03	
				Lead	1E-02	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	N/A	N/A	N/A	
				Mercury (other media)	1E-01	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	1.0E-04	mg/kg-day	1.4E-01	
				Nickel	2E+00	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	2.0E-02	mg/kg-day	9.7E-03	
				Selenium	6E-01	mg/kg	7.3E-06	mg/kg-day	N/A	N/A	N/A	7.3E-05	mg/kg-day	5.0E-03	mg/kg-day	1.5E-02	
			Exp. Route Total									3E-05				7E+00	
			Exposure Point Total									3E-05				7E+00	
			Exposure Medium Total									N/A				N/A	
Medium Total											N/A				N/A		
						Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media			N/A		

Total of Receptor Risks Across All Media

Total of Receptor Hazards Across All Media

TABLE 7.19.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations																							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient																			
							Value	Units	Value	Units		Value	Units	Value	Units																				
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2	Ingestion	4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A																		
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A																		
				Benzaldehyde	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A																		
				Benzo(a)anthracene	3E-02	mg/kg	1.0E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.9E-06	1.2E-05	mg/kg-day	N/A	N/A	N/A	N/A																		
				Benzo(a)pyrene	3E-02	mg/kg	9.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.8E-05	1.1E-05	mg/kg-day	N/A	N/A	N/A	N/A																		
				Benzo(b)fluoranthene	9E-03	mg/kg	3.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-06	3.8E-06	mg/kg-day	N/A	N/A	N/A	N/A																		
				bis(2-Ethylhexyl)phthalate	3E-01	mg/kg	8.9E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.2E-07	1.0E-04	mg/kg-day	2.0E-02	mg/kg-day	5.2E-03																			
				Dibenz(a,h)anthracene	8E-03	mg/kg	2.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-05	3.3E-06	mg/kg-day	N/A	N/A	N/A																			
				Hexachlorobenzene	8E-03	mg/kg	2.8E-07	mg/kg-day	1.6E+00	(mg/kg-day) ⁻¹	4.4E-07	3.2E-06	mg/kg-day	8.0E-04	mg/kg-day	4.0E-03																			
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	4.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-06	4.9E-06	mg/kg-day	N/A	N/A	N/A																			
				Isophorone	3E-01	mg/kg	1.2E-05	mg/kg-day	9.5E-04	(mg/kg-day) ⁻¹	1.1E-08	1.3E-04	mg/kg-day	2.0E-01	mg/kg-day	6.7E-04																			
				Total PCB Homologs	1E+00	mg/kg	3.5E-05	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.0E-05	4.1E-04	mg/kg-day	2.0E-05	mg/kg-day	2.0E+01																			
				4,4'-DDD	1E-02	mg/kg	4.1E-07	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	9.8E-08	4.8E-06	mg/kg-day	N/A	N/A	N/A																			
				4,4'-DDE	4E-02	mg/kg	1.5E-06	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	5.0E-07	1.7E-05	mg/kg-day	N/A	N/A	N/A																			
				4,4'-DDT	3E-03	mg/kg	1.0E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	3.5E-08	1.2E-06	mg/kg-day	5.0E-04	mg/kg-day	2.4E-03																			
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A																			
				alpha-Chlordane	7E-03	mg/kg	2.4E-07	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	8.4E-08	2.8E-06	mg/kg-day	5.0E-04	mg/kg-day	5.6E-03																			
				Dieldrin	2E-02	mg/kg	5.6E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.0E-06	6.5E-06	mg/kg-day	5.0E-05	mg/kg-day	1.3E-01																			
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A																			
				Endosulfan II	4E-04	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	6.0E-03	mg/kg-day	2.6E-05																			
				Endosulfan Sulfate	1E-02	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	6.0E-03	mg/kg-day	6.8E-04																			
				Gamma-Chlordane	6E-03	mg/kg	2.0E-07	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	7.0E-08	2.3E-06	mg/kg-day	5.0E-04	mg/kg-day	4.7E-03																			
				Heptachlor	1E-03	mg/kg	3.5E-08	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	1.6E-07	4.1E-07	mg/kg-day	5.0E-04	mg/kg-day	8.1E-04																			
				Heptachlor Epoxide	5E-04	mg/kg	1.6E-08	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.5E-07	1.9E-07	mg/kg-day	1.3E-05	mg/kg-day	1.5E-02																			
				Arsenic	7E-02	mg/kg	2.4E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.6E-06	2.8E-05	mg/kg-day	3.0E-04	mg/kg-day	9.3E-02																			
				Cadmium (other media)	1E-02	mg/kg	4.5E-07	mg/kg-day	N/A	N/A	N/A	5.2E-06	mg/kg-day	1.0E-03	mg/kg-day	5.2E-03																			
				Chromium	3E+00	mg/kg	9.5E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	3.0E-03	mg/kg-day	3.7E-01																			
				Cobalt	2E-02	mg/kg	6.8E-07	mg/kg-day	N/A	N/A	N/A	7.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.6E-02																			
				Iron	2E+01	mg/kg	6.4E-04	mg/kg-day	N/A	N/A	N/A	7.5E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02																			
				Lead	1E-02	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	N/A	N/A	N/A																			
				Mercury (other media)	1E-01	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	4.5E-05	mg/kg-day	1.0E-04	mg/kg-day	4.5E-01																			
				Nickel	2E+00	mg/kg	5.3E-05	mg/kg-day	N/A	N/A	N/A	6.2E-04	mg/kg-day	2.0E-02	mg/kg-day	3.1E-02																			
				Selenium	6E-01	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	2.4E-04	mg/kg-day	5.0E-03	mg/kg-day	4.7E-02																			
			Exp. Route Total							1E-04					2E+01																				
			Exposure Point Total							1E-04					2E+01																				
			Exposure Medium Total							N/A					N/A																				
Medium Total									N/A					N/A																					
Total of Receptor Risks Across All Media																	N/A	Total of Receptor Hazards Across All Media																	N/A

Total of Receptor Risks Across All Media

Total of Receptor Hazards Across All Media

[Notes](#)

TABLE 7.19.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk		Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units			Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.19.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2	Ingestion	4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.0E-07	7.2E-06	mg/kg-day	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-02	mg/kg	2.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.7E-06	6.9E-06	mg/kg-day	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	9E-03	mg/kg	6.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.5E-07	2.3E-06	mg/kg-day	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E-01	mg/kg	1.8E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.5E-08	6.3E-05	mg/kg-day	2.0E-02	mg/kg-day	3.1E-03	
				Dibenz(a,h)anthracene	8E-03	mg/kg	5.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.2E-06	2.0E-06	mg/kg-day	N/A	N/A	N/A	
				Hexachlorobenzene	4E-03	mg/kg	2.8E-08	mg/kg-day	1.6E+00	(mg/kg-day) ⁻¹	4.5E-08	9.9E-07	mg/kg-day	8.0E-04	mg/kg-day	1.2E-03	
				Indeno(1,2,3-cd)pyrene	1E-02	mg/kg	8.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-07	3.0E-06	mg/kg-day	N/A	N/A	N/A	
				Isophorone	3E-01	mg/kg	2.3E-06	mg/kg-day	9.5E-04	(mg/kg-day) ⁻¹	2.2E-09	8.2E-05	mg/kg-day	2.0E-01	mg/kg-day	4.1E-04	
				Total PCB Homologs	1E+00	mg/kg	7.1E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.4E-05	2.5E-04	mg/kg-day	2.0E-05	mg/kg-day	1.2E+01	
				4,4'-DDD	1E-02	mg/kg	8.3E-08	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	2.0E-08	2.9E-06	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDE	4E-02	mg/kg	3.0E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.0E-07	1.0E-05	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDT	3E-03	mg/kg	2.1E-08	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	7.1E-09	7.3E-07	mg/kg-day	5.0E-04	mg/kg-day	1.5E-03	
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A	
				alpha-Chlordane	7E-03	mg/kg	4.9E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.7E-08	1.7E-06	mg/kg-day	5.0E-04	mg/kg-day	3.4E-03	
				Dieldrin	2E-02	mg/kg	1.1E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.8E-06	4.0E-06	mg/kg-day	5.0E-05	mg/kg-day	7.9E-02	
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A	
				Endosulfan II	2E-04	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	6.0E-03	mg/kg-day	7.0E-06	
				Endosulfan Sulfate	1E-02	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	6.0E-03	mg/kg-day	4.1E-04	
				Gamma-Chlordane	6E-03	mg/kg	4.1E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.4E-08	1.4E-06	mg/kg-day	5.0E-04	mg/kg-day	2.8E-03	
				Heptachlor	2E-04	mg/kg	1.5E-09	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	6.7E-09	5.2E-08	mg/kg-day	5.0E-04	mg/kg-day	1.0E-04	
				Heptachlor Epoxide	5E-04	mg/kg	3.3E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	3.0E-08	1.1E-07	mg/kg-day	1.3E-05	mg/kg-day	8.8E-03	
				Arsenic	7E-02	mg/kg	4.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.3E-07	1.7E-05	mg/kg-day	3.0E-04	mg/kg-day	5.6E-02	
				Cadmium (other media)	1E-02	mg/kg	9.0E-08	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	1.0E-03	mg/kg-day	3.2E-03	
				Chromium	3E+00	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	6.7E-04	mg/kg-day	3.0E-03	mg/kg-day	2.2E-01	
				Cobalt	2E-02	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	4.8E-06	mg/kg-day	3.0E-04	mg/kg-day	1.6E-02	
				Iron	2E+01	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	4.6E-03	mg/kg-day	7.0E-01	mg/kg-day	6.5E-03	
				Lead	1E-02	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	N/A	N/A	N/A	
				Mercury (other media)	1E-01	mg/kg	7.8E-07	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	1.0E-04	mg/kg-day	2.7E-01	
				Nickel	2E+00	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.8E-04	mg/kg-day	2.0E-02	mg/kg-day	1.9E-02	
				Selenium	6E-01	mg/kg	4.1E-06	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	5.0E-03	mg/kg-day	2.9E-02	
			Exp. Route Total									3E-05				1E+01	
			Exposure Point Total									3E-05				1E+01	
			Exposure Medium Total									N/A				N/A	
Medium Total											N/A				N/A		
						Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media			N/A		

Notes

TABLE 7.19.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk		Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units			Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.20.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6	Ingestion	4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	2E-01	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.1E-05	mg/kg-day	1.0E-01	mg/kg-day	3.1E-04	
				Benzo(a)anthracene	7E-03	mg/kg	5.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.7E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	8E-03	mg/kg	5.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.8E-06	1.5E-06	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	8E-03	mg/kg	5.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-07	1.6E-06	mg/kg-day	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Dibenz(a,h)anthracene	9E-03	mg/kg	5.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.3E-06	1.7E-06	mg/kg-day	N/A	N/A	N/A	
				Hexachlorobenzene	6E-03	mg/kg	4.3E-07	mg/kg-day	1.6E+00	(mg/kg-day) ⁻¹	6.9E-07	1.3E-06	mg/kg-day	8.0E-04	mg/kg-day	1.6E-03	
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	5.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A	
				Isophorone	ND	mg/kg	N/A	N/A	9.5E-04	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-01	mg/kg-day	N/A	
				Total PCB Homologs	8E-02	mg/kg	5.7E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.1E-05	1.7E-05	mg/kg-day	2.0E-05	mg/kg-day	8.3E-01	
				4,4'-DDD	6E-04	mg/kg	4.3E-08	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.0E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDE	3E-03	mg/kg	2.2E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	7.5E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDT	ND	mg/kg	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A	
				alpha-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Dieldrin	ND	mg/kg	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A	
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A	
				Endosulfan II	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A	
				Endosulfan Sulfate	1E-03	mg/kg	7.5E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	6.0E-03	mg/kg-day	3.7E-05	
				Gamma-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor Epoxide	ND	mg/kg	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A	
				Arsenic	ND	mg/kg	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Cadmium (other media)	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-03	mg/kg-day	N/A	
				Chromium	5E-01	mg/kg	3.6E-05	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	3.0E-03	mg/kg-day	3.5E-02	
				Cobalt	7E-03	mg/kg	4.5E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.4E-03	
				Iron	9E+00	mg/kg	5.8E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.4E-03	
				Lead	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Mercury (other media)	5E-01	mg/kg	3.5E-05	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	1.0E-04	mg/kg-day	1.0E+00	
				Nickel	2E-01	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	4.4E-05	mg/kg-day	2.0E-02	mg/kg-day	2.2E-03	
				Selenium	2E-01	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	5.0E-03	mg/kg-day	9.5E-03	
				Exp. Route Total							2E-05					2E+00	
				Exposure Point Total							2E-05					2E+00	
				Exposure Medium Total							N/A					N/A	
Medium Total										N/A					N/A		
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media					N/A

Total of Receptor Risks Across All Media

Total of Receptor Hazards Across All Media

TABLE 7.20.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6	Ingestion	4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	2E-01	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	1.0E-01	mg/kg-day	2.0E-04	
				Benzo(a)anthracene	7E-03	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.8E-08	9.3E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	8E-03	mg/kg	9.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.1E-07	9.7E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	8E-03	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.3E-08	1.0E-06	mg/kg-day	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Dibenz(a,h)anthracene	9E-03	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A	
				Hexachlorobenzene	6E-03	mg/kg	8.0E-08	mg/kg-day	1.6E+00	(mg/kg-day) ⁻¹	1.3E-07	8.0E-07	mg/kg-day	8.0E-04	mg/kg-day	1.0E-03	
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.9E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A	
				Isophorone	ND	mg/kg	N/A	N/A	9.5E-04	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-01	mg/kg-day	N/A	
				Total PCB Homologs	8E-02	mg/kg	1.0E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.1E-06	1.0E-05	mg/kg-day	2.0E-05	mg/kg-day	5.2E-01	
				4,4'-DDD	6E-04	mg/kg	8.0E-09	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.9E-09	8.0E-08	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDE	3E-03	mg/kg	4.1E-08	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.4E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDT	ND	mg/kg	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A	
				alpha-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Dieldrin	ND	mg/kg	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A	
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A	
				Endosulfan II	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A	
				Endosulfan Sulfate	1E-03	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	6.0E-03	mg/kg-day	2.3E-05	
				Gamma-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor Epoxide	ND	mg/kg	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A	
				Arsenic	ND	mg/kg	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Cadmium (other media)	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-03	mg/kg-day	N/A	
				Chromium	5E-01	mg/kg	6.6E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	3.0E-03	mg/kg-day	2.2E-02	
				Cobalt	7E-03	mg/kg	8.4E-08	mg/kg-day	N/A	N/A	N/A	8.4E-07	mg/kg-day	3.0E-04	mg/kg-day	2.8E-03	
				Iron	9E+00	mg/kg	1.1E-04	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.5E-03	
				Lead	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Mercury (other media)	5E-01	mg/kg	6.5E-06	mg/kg-day	N/A	N/A	N/A	6.5E-05	mg/kg-day	1.0E-04	mg/kg-day	6.5E-01	
				Nickel	2E-01	mg/kg	2.8E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	2.0E-02	mg/kg-day	1.4E-03	
				Selenium	2E-01	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	5.0E-03	mg/kg-day	6.1E-03	
			Exp. Route Total							4E-06				1E+00			
			Exposure Point Total							4E-06				1E+00			
			Exposure Medium Total							N/A				N/A			
Medium Total											N/A				N/A		
							Total of Receptor Risks Across All Media		N/A					Total of Receptor Hazards Across All Media	N/A		

TABLE 7.21.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6	Ingestion	4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	2E-01	mg/kg	5.4E-06	mg/kg-day	N/A	N/A	N/A	6.3E-05	mg/kg-day	1.0E-01	mg/kg-day	6.3E-04	
				Benzo(a)anthracene	7E-03	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.9E-07	3.0E-06	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	8E-03	mg/kg	2.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.0E-05	3.1E-06	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	8E-03	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-06	3.2E-06	mg/kg-day	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Dibenz(a,h)anthracene	9E-03	mg/kg	3.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-05	3.5E-06	mg/kg-day	N/A	N/A	N/A	
				Hexachlorobenzene	6E-03	mg/kg	2.2E-07	mg/kg-day	1.6E+00	(mg/kg-day) ⁻¹	3.5E-07	2.6E-06	mg/kg-day	8.0E-04	mg/kg-day	3.2E-03	
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	3.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-06	3.5E-06	mg/kg-day	N/A	N/A	N/A	
				Isophorone	ND	mg/kg	N/A	N/A	9.5E-04	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-01	mg/kg-day	N/A	
				Total PCB Homologs	8E-02	mg/kg	2.9E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.8E-06	3.4E-05	mg/kg-day	2.0E-05	mg/kg-day	1.7E+00	
				4,4'-DDD	6E-04	mg/kg	2.2E-08	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	5.3E-09	2.6E-07	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDE	3E-03	mg/kg	1.1E-07	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	3.8E-08	1.3E-06	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDT	ND	mg/kg	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A	
				alpha-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Dieldrin	ND	mg/kg	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A	
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A	
				Endosulfan II	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A	
				Endosulfan Sulfate	1E-03	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	6.0E-03	mg/kg-day	7.5E-05	
				Gamma-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor Epoxide	ND	mg/kg	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A	
				Arsenic	ND	mg/kg	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Cadmium (other media)	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-03	mg/kg-day	N/A	
				Chromium	5E-01	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	2.1E-04	mg/kg-day	3.0E-03	mg/kg-day	7.0E-02	
				Cobalt	7E-03	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	2.7E-06	mg/kg-day	3.0E-04	mg/kg-day	8.9E-03	
				Iron	9E+00	mg/kg	3.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03	
				Lead	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Mercury (other media)	5E-01	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	2.1E-04	mg/kg-day	1.0E-04	mg/kg-day	2.1E+00	
				Nickel	2E-01	mg/kg	7.7E-06	mg/kg-day	N/A	N/A	N/A	9.0E-05	mg/kg-day	2.0E-02	mg/kg-day	4.5E-03	
				Selenium	2E-01	mg/kg	8.3E-06	mg/kg-day	N/A	N/A	N/A	9.7E-05	mg/kg-day	5.0E-03	mg/kg-day	1.9E-02	
				Exp. Route Total							3E-05					4E+00	
				Exposure Point Total							3E-05					4E+00	
				Exposure Medium Total							N/A					N/A	
Medium Total										N/A					N/A		
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A	

Total of Receptor Risks Across All Media

Total of Receptor Hazards Across All Media

[Notes](#)

TABLE 7.21.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk		Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units			Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.21.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6	Ingestion	4-Chloro-3-methylphenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				4-Nitrophenol	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Benzaldehyde	2E-01	mg/kg	1.1E-06	mg/kg-day	N/A	N/A	N/A	3.8E-05	mg/kg-day	1.0E-01	mg/kg-day	3.8E-04	
				Benzo(a)anthracene	7E-03	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	1.8E-06	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	8E-03	mg/kg	5.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.1E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	8E-03	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	ND	mg/kg	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Dibenz(a,h)anthracene	9E-03	mg/kg	6.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-06	2.1E-06	mg/kg-day	N/A	N/A	N/A	
				Hexachlorobenzene	6E-03	mg/kg	4.4E-08	mg/kg-day	1.6E+00	(mg/kg-day) ⁻¹	7.1E-08	1.5E-06	mg/kg-day	8.0E-04	mg/kg-day	1.9E-03	
				Indeno(1,2,3-cd)pyrene	9E-03	mg/kg	6.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A	
				Isophorone	ND	mg/kg	N/A	N/A	9.5E-04	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-01	mg/kg-day	N/A	
				Total PCB Homologs	8E-02	mg/kg	5.8E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.2E-06	2.0E-05	mg/kg-day	2.0E-05	mg/kg-day	1.0E+00	
				4,4'-DDD	6E-04	mg/kg	4.5E-09	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.1E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDE	3E-03	mg/kg	2.3E-08	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	7.7E-09	7.9E-07	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDT	ND	mg/kg	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Aldrin	ND	mg/kg	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A	
				alpha-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Dieldrin	ND	mg/kg	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A	
				Endosulfan I	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A	
				Endosulfan II	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A	
				Endosulfan Sulfate	1E-03	mg/kg	7.8E-09	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	6.0E-03	mg/kg-day	4.5E-05	
				Gamma-Chlordane	ND	mg/kg	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor	ND	mg/kg	N/A	N/A	4.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor Epoxide	ND	mg/kg	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A	
				Arsenic	ND	mg/kg	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Cadmium (other media)	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-03	mg/kg-day	N/A	
				Chromium	5E-01	mg/kg	3.7E-06	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	4.3E-02	
				Cobalt	7E-03	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	3.0E-04	mg/kg-day	5.4E-03	
				Iron	9E+00	mg/kg	6.0E-05	mg/kg-day	N/A	N/A	N/A	2.1E-03	mg/kg-day	7.0E-01	mg/kg-day	3.0E-03	
				Lead	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Mercury (other media)	5E-01	mg/kg	3.6E-06	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	1.0E-04	mg/kg-day	1.3E+00	
				Nickel	2E-01	mg/kg	1.6E-06	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	2.0E-02	mg/kg-day	2.7E-03	
				Selenium	2E-01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	5.9E-05	mg/kg-day	5.0E-03	mg/kg-day	1.2E-02	
				Exp. Route Total							6E-06					2E+00	
				Exposure Point Total							6E-06					2E+00	
				Exposure Medium Total							N/A					N/A	
Medium Total										N/A					N/A		
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A	

Total of Receptor Risks Across All Media

Total of Receptor Hazards Across All Media

[Notes](#)

TABLE 7.21.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk		Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units			Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.22.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	On-site Monitoring Wells	Ingestion	1,4-Dioxane	6E+01	ug/L	5.2E-04	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	5.7E-06	1.5E-03	mg/kg-day	1.0E-01	mg/kg-day	1.5E-02
				2,4-Dimethylphenol	8E+00	ug/L	7.5E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	2.0E-02	mg/kg-day	1.1E-02
				2-Chlorophenol	3E-01	ug/L	3.2E-06	mg/kg-day	N/A	N/A	N/A	9.3E-06	mg/kg-day	5.0E-03	mg/kg-day	1.9E-03
				4-Chloroaniline	1E+00	ug/L	1.3E-05	mg/kg-day	2.0E-01	(mg/kg-day) ⁻¹	2.6E-06	3.8E-05	mg/kg-day	4.0E-03	mg/kg-day	9.6E-03
				Atrazine	3E+00	ug/L	3.0E-05	mg/kg-day	2.3E-01	(mg/kg-day) ⁻¹	6.8E-06	8.6E-05	mg/kg-day	3.5E-02	mg/kg-day	2.5E-03
				Benzaldehyde	1E+00	ug/L	1.0E-05	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	1.0E-01	mg/kg-day	3.0E-04
				Benzo(a)anthracene	4E-01	ug/L	3.4E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.5E-06	9.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	2.4E-06	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.8E-05	7.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	3.6E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-06	1.0E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	1.4E-06	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	3.0E-02	mg/kg-day	1.4E-04
				bis(2-Ethylhexyl)phthalate	5E+01	ug/L	4.7E-04	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.6E-06	1.4E-03	mg/kg-day	2.0E-02	mg/kg-day	6.8E-02
				Carbazole	5E-01	ug/L	4.5E-06	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.0E-08	1.3E-05	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	3E+00	ug/L	2.6E-05	mg/kg-day	N/A	N/A	N/A	7.7E-05	mg/kg-day	4.0E-03	mg/kg-day	1.9E-02
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	1.3E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.6E-07	3.8E-06	mg/kg-day	N/A	N/A	N/A
				Naphthalene	1E+01	ug/L	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.8E-04	mg/kg-day	2.0E-02	mg/kg-day	1.9E-02
				Phenanthrene	6E+00	ug/L	5.5E-05	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	3.0E-02	mg/kg-day	5.4E-03
				1,2,4-Trichlorobenzene	2E-01	ug/L	2.3E-06	mg/kg-day	3.6E-03	(mg/kg-day) ⁻¹	8.1E-09	6.6E-06	mg/kg-day	1.0E-02	mg/kg-day	6.6E-04
				1,2-Dichlorobenzene	4E+00	ug/L	4.1E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	9.0E-02	mg/kg-day	1.3E-03
				1,3-Dichlorobenzene	7E-01	ug/L	6.5E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	2.0E-02	mg/kg-day	9.5E-04
				1,4-Dichlorobenzene	8E+00	ug/L	7.9E-05	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	4.3E-07	2.3E-04	mg/kg-day	7.0E-02	mg/kg-day	3.3E-03
				2-Butanone	1E+00	ug/L	1.2E-05	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	6.0E-01	mg/kg-day	5.9E-05
				Benzene	1E+03	ug/L	1.0E-02	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	5.7E-04	3.0E-02	mg/kg-day	4.0E-03	mg/kg-day	7.5E+00
				Bromodichloromethane	3E-01	ug/L	3.0E-06	mg/kg-day	6.2E-02	(mg/kg-day) ⁻¹	1.9E-07	8.8E-06	mg/kg-day	2.0E-02	mg/kg-day	4.4E-04
				Chlorobenzene	9E+01	ug/L	8.7E-04	mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	2.0E-02	mg/kg-day	1.3E-01
				Chloroethane	2E+00	ug/L	2.0E-05	mg/kg-day	N/A	N/A	N/A	5.8E-05	mg/kg-day	1.0E-01	mg/kg-day	5.8E-04
				Chloroform	4E+00	ug/L	3.7E-05	mg/kg-day	3.1E-02	(mg/kg-day) ⁻¹	1.1E-06	1.1E-04	mg/kg-day	1.0E-02	mg/kg-day	1.1E-02
				Ethylbenzene	2E+01	ug/L	1.6E-04	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	1.8E-06	4.7E-04	mg/kg-day	1.0E-01	mg/kg-day	4.7E-03
				Isopropylbenzene	2E+02	ug/L	1.5E-03	mg/kg-day	N/A	N/A	N/A	4.4E-03	mg/kg-day	1.0E-01	mg/kg-day	4.4E-02
				Methyl tert-butyl ether	2E+01	ug/L	2.0E-04	mg/kg-day	1.8E-03	(mg/kg-day) ⁻¹	3.6E-07	5.8E-04	mg/kg-day	3.0E-01	mg/kg-day	1.9E-03
				Tetrachloroethene	3E+00	ug/L	2.3E-05	mg/kg-day	5.4E-01	(mg/kg-day) ⁻¹	1.3E-05	6.8E-05	mg/kg-day	1.0E-02	mg/kg-day	6.8E-03
				Toluene	5E+00	ug/L	4.6E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	8.0E-02	mg/kg-day	1.7E-03
				Trichloroethene	4E+00	ug/L	3.9E-05	mg/kg-day	1.3E-02	(mg/kg-day) ⁻¹	5.0E-07	1.1E-04	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	1E+00	ug/L	1.1E-05	mg/kg-day	7.2E-01	(mg/kg-day) ⁻¹	8.1E-06	3.3E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02
				Xylene (Total)	5E+01	ug/L	4.8E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	2.0E-01	mg/kg-day	7.0E-03
				Aroclor-1242	3E-01	ug/L	3.1E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.2E-06	9.0E-06	mg/kg-day	2.0E-05	mg/kg-day	4.5E-01
				Aroclor-1248	2E-01	ug/L	1.7E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.4E-06	4.9E-06	mg/kg-day	2.0E-05	mg/kg-day	2.5E-01
				Aroclor-1254	6E-01	ug/L	5.4E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.1E-05	1.6E-05	mg/kg-day	2.0E-05	mg/kg-day	7.9E-01
				4,4'-DDD	7E-03	ug/L	6.3E-08	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.5E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	6E-03	ug/L	5.3E-08	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	4E-03	ug/L	3.6E-08	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.2E-08	1.0E-07	mg/kg-day	5.0E-04	mg/kg-day	2.1E-04
				Aldrin	6E-03	ug/L	5.6E-08	mg/kg-day	1.7E+01	(mg/kg-day) ⁻¹	9.6E-07	1.6E-07	mg/kg-day	3.0E-05	mg/kg-day	5.5E-03

TABLE 7.22.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				alpha-BHC	4E-03	ug/L	3.3E-08	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	2.1E-07	9.6E-08	mg/kg-day	8.0E-03	mg/kg-day	1.2E-05
				Dieldrin	8E-03	ug/L	7.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.2E-06	2.3E-07	mg/kg-day	5.0E-05	mg/kg-day	4.5E-03
				Endosulfan Sulfate	8E-03	ug/L	7.7E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	6.0E-03	mg/kg-day	3.7E-05
				Gamma-BHC (Lindane)	2E-02	ug/L	1.5E-07	mg/kg-day	1.1E+00	(mg/kg-day) ⁻¹	1.7E-07	4.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.5E-03
				Heptachlor	5E-03	ug/L	4.3E-08	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	1.9E-07	1.3E-07	mg/kg-day	5.0E-04	mg/kg-day	2.5E-04
				Aluminum	1E+04	ug/L	1.2E-01	mg/kg-day	N/A	N/A	N/A	3.6E-01	mg/kg-day	1.0E+00	mg/kg-day	3.6E-01
				Arsenic	1E+02	ug/L	1.1E-03	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.7E-03	3.3E-03	mg/kg-day	3.0E-04	mg/kg-day	1.1E+01
				Cadmium (drinking water)	3E+01	ug/L	2.5E-04	mg/kg-day	N/A	N/A	N/A	7.4E-04	mg/kg-day	5.0E-04	mg/kg-day	1.5E+00
				Chromium	1E+01	ug/L	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.7E-04	mg/kg-day	3.0E-03	mg/kg-day	1.2E-01
				Cobalt	3E+01	ug/L	3.1E-04	mg/kg-day	N/A	N/A	N/A	9.0E-04	mg/kg-day	3.0E-04	mg/kg-day	3.0E+00
				Iron	8E+04	ug/L	7.2E-01	mg/kg-day	N/A	N/A	N/A	2.1E+00	mg/kg-day	7.0E-01	mg/kg-day	3.0E+00
				Lead	8E+01	ug/L	7.4E-04	mg/kg-day	N/A	N/A	N/A	2.2E-03	mg/kg-day	N/A	N/A	N/A
				Manganese (drinking water)	6E+03	ug/L	5.5E-02	mg/kg-day	N/A	N/A	N/A	1.6E-01	mg/kg-day	2.4E-02	mg/kg-day	6.7E+00
				Nickel	8E+01	ug/L	7.3E-04	mg/kg-day	N/A	N/A	N/A	2.1E-03	mg/kg-day	2.0E-02	mg/kg-day	1.1E-01
				Silver	1E+01	ug/L	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.8E-04	mg/kg-day	5.0E-03	mg/kg-day	7.5E-02
				Thallium	9E+00	ug/L	8.4E-05	mg/kg-day	N/A	N/A	N/A	2.4E-04	mg/kg-day	8.0E-05	mg/kg-day	3.0E+00
				Zinc	4E+03	ug/L	3.9E-02	mg/kg-day	N/A	N/A	N/A	1.1E-01	mg/kg-day	3.0E-01	mg/kg-day	3.7E-01
			Exp. Route Total									2E-03				4E+01
			Dermal	1,4-Dioxane	6E+01	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				2,4-Dimethylphenol	8E+00	ug/L	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.2E-05	mg/kg-day	2.0E-02	mg/kg-day	1.6E-03
				2-Chlorophenol	3E-01	ug/L	3.6E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	5.0E-03	mg/kg-day	2.1E-04
				4-Chloroaniline	1E+00	ug/L	N/A	N/A	2.0E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Atrazine	3E+00	ug/L	3.8E-06	mg/kg-day	2.3E-01	(mg/kg-day) ⁻¹	8.8E-07	1.1E-05	mg/kg-day	3.5E-02	mg/kg-day	3.2E-04
				Benzaldehyde	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				bis(2-Ethylhexyl)phthalate	5E+01	ug/L	7.2E-04	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.0E-05	2.1E-03	mg/kg-day	2.0E-02	mg/kg-day	1.0E-01
				Carbazole	5E-01	ug/L	4.4E-06	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.7E-08	1.3E-05	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	3E+00	ug/L	5.0E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	4.0E-03	mg/kg-day	3.6E-02
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E+01	ug/L	8.6E-05	mg/kg-day	N/A	N/A	N/A	2.5E-04	mg/kg-day	2.0E-02	mg/kg-day	1.3E-02
				Phenanthrene	6E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,2,4-Trichlorobenzene	2E-01	ug/L	3.0E-06	mg/kg-day	3.6E-03	(mg/kg-day) ⁻¹	1.1E-08	8.6E-06	mg/kg-day	1.0E-02	mg/kg-day	8.6E-04
				1,2-Dichlorobenzene	4E+00	ug/L	2.7E-05	mg/kg-day	N/A	N/A	N/A	7.9E-05	mg/kg-day	9.0E-02	mg/kg-day	8.8E-04
				1,3-Dichlorobenzene	7E-01	ug/L	5.9E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	2.0E-02	mg/kg-day	8.7E-04
				1,4-Dichlorobenzene	8E+00	ug/L	5.2E-05	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	2.8E-07	1.5E-04	mg/kg-day	7.0E-02	mg/kg-day	2.2E-03
				2-Butanone	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-01	mg/kg-day	N/A
				Benzene	1E+03	ug/L	1.6E-03	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	8.6E-05	4.6E-03	mg/kg-day	4.0E-03	mg/kg-day	1.1E+00
				Bromodichloromethane	3E-01	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A

TABLE 7.22.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chlorobenzene	9E+01	ug/L	3.1E-04	mg/kg-day	N/A	N/A	N/A	9.1E-04	mg/kg-day	2.0E-02	mg/kg-day	4.6E-02
				Chloroethane	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Chloroform	4E+00	ug/L	N/A	N/A	3.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Ethylbenzene	2E+01	ug/L	9.6E-05	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	1.1E-06	2.8E-04	mg/kg-day	1.0E-01	mg/kg-day	2.8E-03
				Isopropylbenzene	2E+02	ug/L	1.4E-03	mg/kg-day	N/A	N/A	N/A	4.1E-03	mg/kg-day	1.0E-01	mg/kg-day	4.1E-02
				Methyl tert-butyl ether	2E+01	ug/L	N/A	N/A	1.8E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Tetrachloroethene	3E+00	ug/L	1.4E-05	mg/kg-day	5.4E-01	(mg/kg-day) ⁻¹	7.6E-06	4.1E-05	mg/kg-day	1.0E-02	mg/kg-day	4.1E-03
				Toluene	5E+00	ug/L	1.6E-05	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	8.0E-02	mg/kg-day	5.8E-04
				Trichloroethene	4E+00	ug/L	6.4E-06	mg/kg-day	1.3E-02	(mg/kg-day) ⁻¹	8.4E-08	1.9E-05	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	1E+00	ug/L	N/A	N/A	7.2E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Xylene (Total)	5E+01	ug/L	2.9E-04	mg/kg-day	N/A	N/A	N/A	8.4E-04	mg/kg-day	2.0E-01	mg/kg-day	4.2E-03
				Aroclor-1242	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1248	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	7E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	6E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	6E-03	ug/L	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	1.6E-08	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	1.0E-07	4.8E-08	mg/kg-day	8.0E-03	mg/kg-day	6.0E-06
				Dieldrin	8E-03	ug/L	5.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.7E-07	1.6E-07	mg/kg-day	5.0E-05	mg/kg-day	3.2E-03
				Endosulfan Sulfate	8E-03	ug/L	1.3E-08	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	6.0E-03	mg/kg-day	6.3E-06
				Gamma-BHC (Lindane)	2E-02	ug/L	5.9E-08	mg/kg-day	1.1E+00	(mg/kg-day) ⁻¹	6.5E-08	1.7E-07	mg/kg-day	3.0E-04	mg/kg-day	5.7E-04
				Heptachlor	5E-03	ug/L	2.0E-08	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	9.2E-08	5.9E-08	mg/kg-day	5.0E-04	mg/kg-day	1.2E-04
				Aluminum	1E+04	ug/L	6.5E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E-02	mg/kg-day	1.9E-01
				Arsenic	1E+02	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (drinking water)	3E+01	ug/L	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	2.5E-05	mg/kg-day	1.5E-01
				Chromium	1E+01	ug/L	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	7.5E-05	mg/kg-day	5.1E-02
				Cobalt	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	8E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (drinking water)	6E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.6E-04	mg/kg-day	N/A
				Nickel	8E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Zinc	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Exp. Route Total							1E-04					2E+00
			Inhalation	1,4-Dioxane	6E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2,4-Dimethylphenol	8E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2-Chlorophenol	3E-01	ug/m ³	5.6E-02	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	N/A	N/A	N/A
				4-Chloroaniline	1E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Atrazine	3E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.22.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzaldehyde	1E+00	ug/m ³	1.8E-01	ug/m3	N/A	N/A	N/A	5.2E-01	ug/m3	N/A	N/A	N/A
				Benzo(a)anthracene	4E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(a)pyrene	3E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(b)fluoranthene	4E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(g,h,i)perylene	2E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				bis(2-Ethylhexyl)phthalate	5E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Carbazole	5E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dibenzofuran	3E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Naphthalene	1E+01	ug/m ³	2.3E+00	ug/m3	3.4E-05	(ug/m3) ⁻¹	7.8E-05	6.7E+00	ug/m3	3.0E+00	ug/m3	2.2E+00
				Phenanthrene	6E+00	ug/m ³	9.7E-01	ug/m3	N/A	N/A	N/A	2.8E+00	ug/m3	3.0E+00	ug/m3	9.4E-01
				1,2,4-Trichlorobenzene	2E-01	ug/m ³	3.9E-02	ug/m3	N/A	N/A	N/A	1.2E-01	ug/m3	4.0E+00	ug/m3	2.9E-02
				1,2-Dichlorobenzene	4E+00	ug/m ³	7.2E-01	ug/m3	N/A	N/A	N/A	2.1E+00	ug/m3	2.0E+02	ug/m3	1.1E-02
				1,3-Dichlorobenzene	7E-01	ug/m ³	1.1E-01	ug/m3	N/A	N/A	N/A	3.3E-01	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	8E+00	ug/m ³	1.4E+00	ug/m3	1.1E-05	(ug/m3) ⁻¹	1.5E-05	4.0E+00	ug/m3	8.0E+02	ug/m3	5.0E-03
				2-Butanone	1E+00	ug/m ³	2.1E-01	ug/m3	N/A	N/A	N/A	6.2E-01	ug/m3	5.0E+03	ug/m3	1.2E-04
				Benzene	1E+03	ug/m ³	1.8E+02	ug/m3	7.8E-06	(ug/m3) ⁻¹	1.4E-03	5.3E+02	ug/m3	3.0E+01	ug/m3	1.8E+01
				Bromodichloromethane	3E-01	ug/m ³	5.3E-02	ug/m3	N/A	N/A	N/A	1.5E-01	ug/m3	N/A	N/A	N/A
				Chlorobenzene	9E+01	ug/m ³	1.5E+01	ug/m3	N/A	N/A	N/A	4.5E+01	ug/m3	5.0E+01	ug/m3	8.9E-01
				Chloroethane	2E+00	ug/m ³	3.5E-01	ug/m3	N/A	N/A	N/A	1.0E+00	ug/m3	1.0E+04	ug/m3	1.0E-04
				Chloroform	4E+00	ug/m ³	6.4E-01	ug/m3	2.3E-05	(ug/m3) ⁻¹	1.5E-05	1.9E+00	ug/m3	1.0E+02	ug/m3	1.9E-02
				Ethylbenzene	2E+01	ug/m ³	2.8E+00	ug/m3	2.5E-06	(ug/m3) ⁻¹	7.0E-06	8.2E+00	ug/m3	1.0E+03	ug/m3	8.2E-03
				Isopropylbenzene	2E+02	ug/m ³	2.6E+01	ug/m3	N/A	N/A	N/A	7.7E+01	ug/m3	4.0E+02	ug/m3	1.9E-01
				Methyl tert-butyl ether	2E+01	ug/m ³	3.5E+00	ug/m3	2.6E-07	(ug/m3) ⁻¹	9.0E-07	1.0E+01	ug/m3	3.0E+03	ug/m3	3.4E-03
				Tetrachloroethene	3E+00	ug/m ³	4.1E-01	ug/m3	5.9E-06	(ug/m3) ⁻¹	2.4E-06	1.2E+00	ug/m3	2.7E+02	ug/m3	4.4E-03
				Toluene	5E+00	ug/m ³	8.1E-01	ug/m3	N/A	N/A	N/A	2.3E+00	ug/m3	5.0E+03	ug/m3	4.7E-04
				Trichloroethene	4E+00	ug/m ³	6.7E-01	ug/m3	2.0E-06	(ug/m3) ⁻¹	1.3E-06	2.0E+00	ug/m3	1.0E+01	ug/m3	2.0E-01
				Vinyl Chloride	1E+00	ug/m ³	2.0E-01	ug/m3	4.4E-06	(ug/m3) ⁻¹	8.7E-07	5.8E-01	ug/m3	1.0E+02	ug/m3	5.8E-03
				Xylene (Total)	5E+01	ug/m ³	8.4E+00	ug/m3	N/A	N/A	N/A	2.4E+01	ug/m3	1.0E+02	ug/m3	2.4E-01
				Aroclor-1242	3E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1248	2E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1254	6E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDD	7E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDE	6E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDT	4E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aldrin	6E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				alpha-BHC	4E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dieldrin	8E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Endosulfan Sulfate	8E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Gamma-BHC (Lindane)	2E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Heptachlor	5E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.22.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	1E+04	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Arsenic	1E+02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cadmium	3E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Chromium	1E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cobalt	3E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Iron	8E+04	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Lead	8E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Manganese	6E+03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Nickel	8E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Silver	1E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Thallium	9E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Zinc	4E+03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
					Exp. Route Total							2E-03				
			Exposure Point Total							4E-03					6E+01	
			Exposure Medium Total							N/A					N/A	
			Medium Total							N/A					N/A	

TABLE 7.22.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	On-site Monitoring Wells	Ingestion	1,4-Dioxane	5E+00	ug/L	9.1E-06	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	1.0E-07	9.1E-05	mg/kg-day	1.0E-01	mg/kg-day	9.1E-04
				2,4-Dimethylphenol	2E+00	ug/L	4.1E-06	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	2.0E-02	mg/kg-day	2.0E-03
				2-Chlorophenol	3E-01	ug/L	6.5E-07	mg/kg-day	N/A	N/A	N/A	6.5E-06	mg/kg-day	5.0E-03	mg/kg-day	1.3E-03
				4-Chloroaniline	1E+00	ug/L	2.7E-06	mg/kg-day	2.0E-01	(mg/kg-day) ⁻¹	5.4E-07	2.7E-05	mg/kg-day	4.0E-03	mg/kg-day	6.7E-03
				Atrazine	2E+00	ug/L	3.5E-06	mg/kg-day	2.3E-01	(mg/kg-day) ⁻¹	8.0E-07	3.5E-05	mg/kg-day	3.5E-02	mg/kg-day	9.9E-04
				Benzaldehyde	1E+00	ug/L	2.1E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	1.0E-01	mg/kg-day	2.1E-04
				Benzo(a)anthracene	4E-02	ug/L	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.1E-08	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	4E-02	ug/L	7.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.5E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-02	ug/L	8.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.8E-08	8.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	2.9E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-02	mg/kg-day	9.6E-05
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	4.6E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.4E-08	4.6E-05	mg/kg-day	2.0E-02	mg/kg-day	2.3E-03
				Carbazole	3E-01	ug/L	5.3E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.1E-08	5.3E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E+00	ug/L	3.5E-06	mg/kg-day	N/A	N/A	N/A	3.5E-05	mg/kg-day	4.0E-03	mg/kg-day	8.7E-03
				Indeno(1,2,3-cd)pyrene	4E-02	ug/L	7.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.3E-08	7.2E-07	mg/kg-day	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	4.1E-07	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	2.0E-02	mg/kg-day	2.1E-04
				Phenanthrene	1E-01	ug/L	2.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-02	mg/kg-day	7.4E-05
				1,2,4-Trichlorobenzene	2E-01	ug/L	4.6E-07	mg/kg-day	3.6E-03	(mg/kg-day) ⁻¹	1.7E-09	4.6E-06	mg/kg-day	1.0E-02	mg/kg-day	4.6E-04
				1,2-Dichlorobenzene	4E-01	ug/L	7.6E-07	mg/kg-day	N/A	N/A	N/A	7.6E-06	mg/kg-day	9.0E-02	mg/kg-day	8.5E-05
				1,3-Dichlorobenzene	3E-01	ug/L	5.3E-07	mg/kg-day	N/A	N/A	N/A	5.3E-06	mg/kg-day	2.0E-02	mg/kg-day	2.7E-04
				1,4-Dichlorobenzene	9E-01	ug/L	1.8E-06	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	9.5E-09	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	2.5E-04
				2-Butanone	1E+00	ug/L	2.5E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	6.0E-01	mg/kg-day	4.2E-05
				Benzene	2E+01	ug/L	4.3E-05	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	2.3E-06	4.3E-04	mg/kg-day	4.0E-03	mg/kg-day	1.1E-01
				Bromodichloromethane	3E-01	ug/L	5.2E-07	mg/kg-day	6.2E-02	(mg/kg-day) ⁻¹	3.3E-08	5.2E-06	mg/kg-day	2.0E-02	mg/kg-day	2.6E-04
				Chlorobenzene	6E+00	ug/L	1.1E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	2.0E-02	mg/kg-day	5.4E-03
				Chloroethane	4E-01	ug/L	7.7E-07	mg/kg-day	N/A	N/A	N/A	7.7E-06	mg/kg-day	1.0E-01	mg/kg-day	7.7E-05
				Chloroform	5E-01	ug/L	9.0E-07	mg/kg-day	3.1E-02	(mg/kg-day) ⁻¹	2.8E-08	9.0E-06	mg/kg-day	1.0E-02	mg/kg-day	9.0E-04
				Ethylbenzene	4E-01	ug/L	8.5E-07	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	9.3E-09	8.5E-06	mg/kg-day	1.0E-01	mg/kg-day	8.5E-05
				Isopropylbenzene	4E+00	ug/L	6.9E-06	mg/kg-day	N/A	N/A	N/A	6.9E-05	mg/kg-day	1.0E-01	mg/kg-day	6.9E-04
				Methyl tert-butyl ether	5E-01	ug/L	1.0E-06	mg/kg-day	1.8E-03	(mg/kg-day) ⁻¹	1.9E-09	1.0E-05	mg/kg-day	3.0E-01	mg/kg-day	3.5E-05
				Tetrachloroethene	3E-01	ug/L	5.8E-07	mg/kg-day	5.4E-01	(mg/kg-day) ⁻¹	3.1E-07	5.8E-06	mg/kg-day	1.0E-02	mg/kg-day	5.8E-04
				Toluene	3E-01	ug/L	6.4E-07	mg/kg-day	N/A	N/A	N/A	6.4E-06	mg/kg-day	8.0E-02	mg/kg-day	8.0E-05
				Trichloroethene	3E-01	ug/L	6.3E-07	mg/kg-day	1.3E-02	(mg/kg-day) ⁻¹	8.2E-09	6.3E-06	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	3E-01	ug/L	5.6E-07	mg/kg-day	7.2E-01	(mg/kg-day) ⁻¹	4.0E-07	5.6E-06	mg/kg-day	3.0E-03	mg/kg-day	1.9E-03
				Xylene (Total)	2E+00	ug/L	3.8E-06	mg/kg-day	N/A	N/A	N/A	3.8E-05	mg/kg-day	2.0E-01	mg/kg-day	1.9E-04
				Aroclor-1242	5E-02	ug/L	1.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.0E-07	1.0E-06	mg/kg-day	2.0E-05	mg/kg-day	5.0E-02
				Aroclor-1248	5E-02	ug/L	9.9E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	9.9E-08	9.9E-07	mg/kg-day	2.0E-05	mg/kg-day	4.9E-02
				Aroclor-1254	5E-02	ug/L	1.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.0E-07	1.0E-06	mg/kg-day	2.0E-05	mg/kg-day	5.2E-02
				4,4'-DDD	3E-03	ug/L	5.2E-09	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.3E-09	5.2E-08	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	3E-03	ug/L	5.1E-09	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.7E-09	5.1E-08	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	3E-03	ug/L	5.1E-09	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.7E-09	5.1E-08	mg/kg-day	5.0E-04	mg/kg-day	1.0E-04
				Aldrin	2E-03	ug/L	3.5E-09	mg/kg-day	1.7E+01	(mg/kg-day) ⁻¹	5.9E-08	3.5E-08	mg/kg-day	3.0E-05	mg/kg-day	1.2E-03

TABLE 7.22.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				alpha-BHC	2E-03	ug/L	3.4E-09	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	2.1E-08	3.4E-08	mg/kg-day	8.0E-03	mg/kg-day	4.3E-06	
				Dieldrin	3E-03	ug/L	5.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.4E-08	5.2E-08	mg/kg-day	5.0E-05	mg/kg-day	1.0E-03	
				Endosulfan Sulfate	3E-03	ug/L	5.1E-09	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	6.0E-03	mg/kg-day	8.6E-06	
				Gamma-BHC (Lindane)	2E-03	ug/L	3.7E-09	mg/kg-day	1.1E+00	(mg/kg-day) ⁻¹	4.1E-09	3.7E-08	mg/kg-day	3.0E-04	mg/kg-day	1.2E-04	
				Heptachlor	2E-03	ug/L	3.4E-09	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	1.5E-08	3.4E-08	mg/kg-day	5.0E-04	mg/kg-day	6.9E-05	
				Aluminum	3E+02	ug/L	5.2E-04	mg/kg-day	N/A	N/A	N/A	5.2E-03	mg/kg-day	1.0E+00	mg/kg-day	5.2E-03	
				Arsenic	2E+01	ug/L	3.0E-05	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.4E-05	3.0E-04	mg/kg-day	3.0E-04	mg/kg-day	9.8E-01	
				Cadmium (drinking water)	1E+00	ug/L	2.0E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	5.0E-04	mg/kg-day	4.1E-02	
				Chromium	1E+00	ug/L	2.7E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	3.0E-03	mg/kg-day	9.1E-03	
				Cobalt	2E+01	ug/L	3.3E-05	mg/kg-day	N/A	N/A	N/A	3.3E-04	mg/kg-day	3.0E-04	mg/kg-day	1.1E+00	
				Iron	1E+04	ug/L	2.8E-02	mg/kg-day	N/A	N/A	N/A	2.8E-01	mg/kg-day	7.0E-01	mg/kg-day	4.0E-01	
				Lead	2E+00	ug/L	4.2E-06	mg/kg-day	N/A	N/A	N/A	4.2E-05	mg/kg-day	N/A	N/A	N/A	
				Manganese (drinking water)	7E+02	ug/L	1.3E-03	mg/kg-day	N/A	N/A	N/A	1.3E-02	mg/kg-day	2.4E-02	mg/kg-day	5.4E-01	
				Nickel	1E+01	ug/L	2.8E-05	mg/kg-day	N/A	N/A	N/A	2.8E-04	mg/kg-day	2.0E-02	mg/kg-day	1.4E-02	
				Silver	3E+00	ug/L	5.7E-06	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	5.0E-03	mg/kg-day	1.1E-02	
				Thallium	1E+00	ug/L	2.8E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	8.0E-05	mg/kg-day	3.5E-01	
				Zinc	9E+01	ug/L	1.7E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	3.0E-01	mg/kg-day	5.7E-03	
			Exp. Route Total									5E-05					4E+00
			Dermal	1,4-Dioxane	5E+00	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A	
				2,4-Dimethylphenol	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				2-Chlorophenol	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A	
				4-Chloroaniline	1E+00	ug/L	N/A	N/A	2.0E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A	
				Atrazine	2E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A	
				Benzaldehyde	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A	
				Benzo(a)anthracene	4E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				Benzo(a)pyrene	4E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				Benzo(b)fluoranthene	4E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A	
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	6.6E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	9.2E-08	6.6E-05	mg/kg-day	2.0E-02	mg/kg-day	3.3E-03	
				Carbazole	3E-01	ug/L	4.8E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.6E-09	4.8E-06	mg/kg-day	N/A	N/A	N/A	
				Dibenzofuran	2E+00	ug/L	6.1E-06	mg/kg-day	N/A	N/A	N/A	6.1E-05	mg/kg-day	4.0E-03	mg/kg-day	1.5E-02	
				Indeno(1,2,3-cd)pyrene	4E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				Naphthalene	2E-01	ug/L	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	2.0E-02	mg/kg-day	1.3E-04	
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A	
				1,2,4-Trichlorobenzene	2E-01	ug/L	5.7E-07	mg/kg-day	3.6E-03	(mg/kg-day) ⁻¹	2.0E-09	5.7E-06	mg/kg-day	1.0E-02	mg/kg-day	5.7E-04	
				1,2-Dichlorobenzene	4E-01	ug/L	4.7E-07	mg/kg-day	N/A	N/A	N/A	4.7E-06	mg/kg-day	9.0E-02	mg/kg-day	5.2E-05	
				1,3-Dichlorobenzene	3E-01	ug/L	4.6E-07	mg/kg-day	N/A	N/A	N/A	4.6E-06	mg/kg-day	2.0E-02	mg/kg-day	2.3E-04	
				1,4-Dichlorobenzene	9E-01	ug/L	1.1E-06	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	6.0E-09	1.1E-05	mg/kg-day	7.0E-02	mg/kg-day	1.6E-04	
				2-Butanone	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-01	mg/kg-day	N/A	
				Benzene	2E+01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A	
				Bromodichloromethane	3E-01	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	

TABLE 7.22.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chlorobenzene	6E+00	ug/L	3.6E-06	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	2.0E-02	mg/kg-day	1.8E-03
				Chloroethane	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Chloroform	5E-01	ug/L	N/A	N/A	3.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Ethylbenzene	4E-01	ug/L	4.8E-07	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	5.2E-09	4.8E-06	mg/kg-day	1.0E-01	mg/kg-day	4.8E-05
				Isopropylbenzene	4E+00	ug/L	6.0E-06	mg/kg-day	N/A	N/A	N/A	6.0E-05	mg/kg-day	1.0E-01	mg/kg-day	6.0E-04
				Methyl tert-butyl ether	5E-01	ug/L	N/A	N/A	1.8E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Tetrachloroethene	3E-01	ug/L	3.3E-07	mg/kg-day	5.4E-01	(mg/kg-day) ⁻¹	1.8E-07	3.3E-06	mg/kg-day	1.0E-02	mg/kg-day	3.3E-04
				Toluene	3E-01	ug/L	2.1E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	8.0E-02	mg/kg-day	2.6E-05
				Trichloroethene	3E-01	ug/L	9.9E-08	mg/kg-day	1.3E-02	(mg/kg-day) ⁻¹	1.3E-09	9.9E-07	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	3E-01	ug/L	N/A	N/A	7.2E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Xylene (Total)	2E+00	ug/L	2.1E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	2.0E-01	mg/kg-day	1.1E-04
				Aroclor-1242	5E-02	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1248	5E-02	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	5E-02	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	3E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	3E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	2E-03	ug/L	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-BHC	2E-03	ug/L	1.6E-09	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	1.0E-08	1.6E-08	mg/kg-day	8.0E-03	mg/kg-day	2.0E-06
				Dieldrin	3E-03	ug/L	3.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.5E-08	3.4E-08	mg/kg-day	5.0E-05	mg/kg-day	6.9E-04
				Endosulfan Sulfate	3E-03	ug/L	8.1E-10	mg/kg-day	N/A	N/A	N/A	8.1E-09	mg/kg-day	6.0E-03	mg/kg-day	1.4E-06
				Gamma-BHC (Lindane)	2E-03	ug/L	1.4E-09	mg/kg-day	1.1E+00	(mg/kg-day) ⁻¹	1.5E-09	1.4E-08	mg/kg-day	3.0E-04	mg/kg-day	4.6E-05
				Heptachlor	2E-03	ug/L	1.5E-09	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	6.8E-09	1.5E-08	mg/kg-day	5.0E-04	mg/kg-day	3.0E-05
				Aluminum	3E+02	ug/L	1.7E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	1.0E-02	mg/kg-day	1.7E-03
				Arsenic	2E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (drinking water)	1E+00	ug/L	6.5E-09	mg/kg-day	N/A	N/A	N/A	6.5E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	1E+00	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	7.5E-05	mg/kg-day	2.4E-03
				Cobalt	2E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	1E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (drinking water)	7E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.6E-04	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Zinc	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Exp. Route Total							4E-07					3E-02
			Inhalation	1,4-Dioxane	5E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2,4-Dimethylphenol	2E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2-Chlorophenol	3E-01	ug/m ³	1.6E-02	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	N/A	N/A	N/A
				4-Chloroaniline	1E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Atrazine	2E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.22.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzaldehyde	1E+00	ug/m ³	5.2E-02	ug/m3	N/A	N/A	N/A	5.2E-01	ug/m3	N/A	N/A	N/A
				Benzo(a)anthracene	4E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(a)pyrene	4E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(b)fluoranthene	4E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(g,h,i)perylene	2E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Carbazole	3E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dibenzofuran	2E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Indeno(1,2,3-cd)pyrene	4E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Naphthalene	2E-01	ug/m ³	1.0E-02	ug/m3	3.4E-05	(ug/m3) ⁻¹	3.5E-07	1.0E-01	ug/m3	3.0E+00	ug/m3	3.5E-02
				Phenanthrene	1E-01	ug/m ³	5.6E-03	ug/m3	N/A	N/A	N/A	5.6E-02	ug/m3	3.0E+00	ug/m3	1.9E-02
				1,2,4-Trichlorobenzene	2E-01	ug/m ³	1.2E-02	ug/m3	N/A	N/A	N/A	1.2E-01	ug/m3	4.0E+00	ug/m3	2.9E-02
				1,2-Dichlorobenzene	4E-01	ug/m ³	1.9E-02	ug/m3	N/A	N/A	N/A	1.9E-01	ug/m3	2.0E+02	ug/m3	9.6E-04
				1,3-Dichlorobenzene	3E-01	ug/m ³	1.3E-02	ug/m3	N/A	N/A	N/A	1.3E-01	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	9E-01	ug/m ³	4.4E-02	ug/m3	1.1E-05	(ug/m3) ⁻¹	4.9E-07	4.4E-01	ug/m3	8.0E+02	ug/m3	5.5E-04
				2-Butanone	1E+00	ug/m ³	6.2E-02	ug/m3	N/A	N/A	N/A	6.2E-01	ug/m3	5.0E+03	ug/m3	1.2E-04
				Benzene	2E+01	ug/m ³	1.1E+00	ug/m3	7.8E-06	(ug/m3) ⁻¹	8.3E-06	1.1E+01	ug/m3	3.0E+01	ug/m3	3.5E-01
				Bromodichloromethane	3E-01	ug/m ³	1.3E-02	ug/m3	N/A	N/A	N/A	1.3E-01	ug/m3	N/A	N/A	N/A
				Chlorobenzene	6E+00	ug/m ³	2.7E-01	ug/m3	N/A	N/A	N/A	2.7E+00	ug/m3	5.0E+01	ug/m3	5.4E-02
				Chloroethane	4E-01	ug/m ³	1.9E-02	ug/m3	N/A	N/A	N/A	1.9E-01	ug/m3	1.0E+04	ug/m3	1.9E-05
				Chloroform	5E-01	ug/m ³	2.2E-02	ug/m3	2.3E-05	(ug/m3) ⁻¹	5.2E-07	2.2E-01	ug/m3	1.0E+02	ug/m3	2.2E-03
				Ethylbenzene	4E-01	ug/m ³	2.1E-02	ug/m3	2.5E-06	(ug/m3) ⁻¹	5.3E-08	2.1E-01	ug/m3	1.0E+03	ug/m3	2.1E-04
				Isopropylbenzene	4E+00	ug/m ³	1.7E-01	ug/m3	N/A	N/A	N/A	1.7E+00	ug/m3	4.0E+02	ug/m3	4.3E-03
				Methyl tert-butyl ether	5E-01	ug/m ³	2.6E-02	ug/m3	2.6E-07	(ug/m3) ⁻¹	6.8E-09	2.6E-01	ug/m3	3.0E+03	ug/m3	8.7E-05
				Tetrachloroethene	3E-01	ug/m ³	1.5E-02	ug/m3	5.9E-06	(ug/m3) ⁻¹	8.6E-08	1.5E-01	ug/m3	2.7E+02	ug/m3	5.4E-04
				Toluene	3E-01	ug/m ³	1.6E-02	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	5.0E+03	ug/m3	3.2E-05
				Trichloroethene	3E-01	ug/m ³	1.6E-02	ug/m3	2.0E-06	(ug/m3) ⁻¹	3.2E-08	1.6E-01	ug/m3	1.0E+01	ug/m3	1.6E-02
				Vinyl Chloride	3E-01	ug/m ³	1.4E-02	ug/m3	4.4E-06	(ug/m3) ⁻¹	6.2E-08	1.4E-01	ug/m3	1.0E+02	ug/m3	1.4E-03
				Xylene (Total)	2E+00	ug/m ³	9.4E-02	ug/m3	N/A	N/A	N/A	9.4E-01	ug/m3	1.0E+02	ug/m3	9.4E-03
				Aroclor-1242	5E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1248	5E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1254	5E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDD	3E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDE	3E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDT	3E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aldrin	2E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				alpha-BHC	2E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dieldrin	3E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Endosulfan Sulfate	3E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Gamma-BHC (Lindane)	2E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Heptachlor	2E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.22.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
				Aluminum	3E+02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A		
				Arsenic	2E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A		
				Cadmium	1E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A		
				Chromium	1E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A		
				Cobalt	2E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A		
				Iron	1E+04	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A		
				Lead	2E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A		
				Manganese	7E+02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A		
				Nickel	1E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A		
				Silver	3E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A		
				Thallium	1E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A		
				Zinc	9E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A		
				Exp. Route Total											1E-05			
			Exposure Point Total										6E-05				4E+00	
		Exposure Medium Total										N/A				N/A		
Medium Total											N/A				N/A			
						Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media			N/A			

TABLE 7.23.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	On-site Monitoring Wells	Ingestion	1,4-Dioxane	6E+01	ug/L	4.5E-04	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	5.0E-06	5.3E-03	mg/kg-day	1.0E-01	mg/kg-day	5.3E-02
				2,4-Dimethylphenol	8E+00	ug/L	6.6E-05	mg/kg-day	N/A	N/A	N/A	7.7E-04	mg/kg-day	2.0E-02	mg/kg-day	3.8E-02
				2-Chlorophenol	3E-01	ug/L	2.8E-06	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	5.0E-03	mg/kg-day	6.5E-03
				4-Chloroaniline	1E+00	ug/L	1.2E-05	mg/kg-day	2.0E-01	(mg/kg-day) ⁻¹	2.3E-06	1.3E-04	mg/kg-day	4.0E-03	mg/kg-day	3.4E-02
				Atrazine	3E+00	ug/L	2.6E-05	mg/kg-day	2.3E-01	(mg/kg-day) ⁻¹	6.0E-06	3.0E-04	mg/kg-day	3.5E-02	mg/kg-day	8.6E-03
				Benzaldehyde	1E+00	ug/L	9.0E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	1.0E-01	mg/kg-day	1.0E-03
				Benzo(a)anthracene	4E-01	ug/L	3.0E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-05	3.5E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	2.1E-06	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.3E-05	2.5E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	3.1E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-05	3.6E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	1.2E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	3.0E-02	mg/kg-day	4.8E-04
				bis(2-Ethylhexyl)phthalate	5E+01	ug/L	4.1E-04	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.8E-06	4.8E-03	mg/kg-day	2.0E-02	mg/kg-day	2.4E-01
				Carbazole	5E-01	ug/L	3.9E-06	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.9E-08	4.6E-05	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	3E+00	ug/L	2.3E-05	mg/kg-day	N/A	N/A	N/A	2.7E-04	mg/kg-day	4.0E-03	mg/kg-day	6.7E-02
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.5E-06	1.3E-05	mg/kg-day	N/A	N/A	N/A
				Naphthalene	1E+01	ug/L	1.2E-04	mg/kg-day	N/A	N/A	N/A	1.3E-03	mg/kg-day	2.0E-02	mg/kg-day	6.7E-02
				Phenanthrene	6E+00	ug/L	4.8E-05	mg/kg-day	N/A	N/A	N/A	5.7E-04	mg/kg-day	3.0E-02	mg/kg-day	1.9E-02
				1,2,4-Trichlorobenzene	2E-01	ug/L	2.0E-06	mg/kg-day	3.6E-03	(mg/kg-day) ⁻¹	7.1E-09	2.3E-05	mg/kg-day	1.0E-02	mg/kg-day	2.3E-03
				1,2-Dichlorobenzene	4E+00	ug/L	3.6E-05	mg/kg-day	N/A	N/A	N/A	4.2E-04	mg/kg-day	9.0E-02	mg/kg-day	4.7E-03
				1,3-Dichlorobenzene	7E-01	ug/L	5.7E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	2.0E-02	mg/kg-day	3.3E-03
				1,4-Dichlorobenzene	8E+00	ug/L	6.9E-05	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	3.7E-07	8.1E-04	mg/kg-day	7.0E-02	mg/kg-day	1.2E-02
				2-Butanone	1E+00	ug/L	1.1E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	6.0E-01	mg/kg-day	2.1E-04
				Benzene	1E+03	ug/L	9.0E-03	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	5.0E-04	1.1E-01	mg/kg-day	4.0E-03	mg/kg-day	2.6E+01
				Bromodichloromethane	3E-01	ug/L	2.6E-06	mg/kg-day	6.2E-02	(mg/kg-day) ⁻¹	1.6E-07	3.1E-05	mg/kg-day	2.0E-02	mg/kg-day	1.5E-03
				Chlorobenzene	9E+01	ug/L	7.6E-04	mg/kg-day	N/A	N/A	N/A	8.9E-03	mg/kg-day	2.0E-02	mg/kg-day	4.5E-01
				Chloroethane	2E+00	ug/L	1.7E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	1.0E-01	mg/kg-day	2.0E-03
				Chloroform	4E+00	ug/L	3.2E-05	mg/kg-day	3.1E-02	(mg/kg-day) ⁻¹	9.9E-07	3.7E-04	mg/kg-day	1.0E-02	mg/kg-day	3.7E-02
				Ethylbenzene	2E+01	ug/L	1.4E-04	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	1.5E-06	1.6E-03	mg/kg-day	1.0E-01	mg/kg-day	1.6E-02
				Isopropylbenzene	2E+02	ug/L	1.3E-03	mg/kg-day	N/A	N/A	N/A	1.5E-02	mg/kg-day	1.0E-01	mg/kg-day	1.5E-01
				Methyl tert-butyl ether	2E+01	ug/L	1.7E-04	mg/kg-day	1.8E-03	(mg/kg-day) ⁻¹	3.1E-07	2.0E-03	mg/kg-day	3.0E-01	mg/kg-day	6.7E-03
				Tetrachloroethene	3E+00	ug/L	2.1E-05	mg/kg-day	5.4E-01	(mg/kg-day) ⁻¹	1.1E-05	2.4E-04	mg/kg-day	1.0E-02	mg/kg-day	2.4E-02
				Toluene	5E+00	ug/L	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	8.0E-02	mg/kg-day	5.9E-03
				Trichloroethene	4E+00	ug/L	3.4E-05	mg/kg-day	1.3E-02	(mg/kg-day) ⁻¹	4.4E-07	3.9E-04	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	1E+00	ug/L	9.9E-06	mg/kg-day	7.2E-01	(mg/kg-day) ⁻¹	9.4E-05	1.2E-04	mg/kg-day	3.0E-03	mg/kg-day	3.8E-02
				Xylene (Total)	5E+01	ug/L	4.2E-04	mg/kg-day	N/A	N/A	N/A	4.9E-03	mg/kg-day	2.0E-01	mg/kg-day	2.4E-02
				Aroclor-1242	3E-01	ug/L	2.7E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.4E-06	3.2E-05	mg/kg-day	2.0E-05	mg/kg-day	1.6E+00
				Aroclor-1248	2E-01	ug/L	1.5E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.0E-06	1.7E-05	mg/kg-day	2.0E-05	mg/kg-day	8.6E-01
				Aroclor-1254	6E-01	ug/L	4.8E-06	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.5E-06	5.6E-05	mg/kg-day	2.0E-05	mg/kg-day	2.8E+00
				4,4'-DDD	7E-03	ug/L	5.5E-08	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.3E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	6E-03	ug/L	4.6E-08	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.6E-08	5.4E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	4E-03	ug/L	3.1E-08	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.1E-08	3.6E-07	mg/kg-day	5.0E-04	mg/kg-day	7.3E-04
				Aldrin	6E-03	ug/L	4.9E-08	mg/kg-day	1.7E+01	(mg/kg-day) ⁻¹	8.4E-07	5.8E-07	mg/kg-day	3.0E-05	mg/kg-day	1.9E-02

TABLE 7.23.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				alpha-BHC	4E-03	ug/L	2.9E-08	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	1.8E-07	3.4E-07	mg/kg-day	8.0E-03	mg/kg-day	4.2E-05
				Dieldrin	8E-03	ug/L	6.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.1E-06	8.0E-07	mg/kg-day	5.0E-05	mg/kg-day	1.6E-02
				Endosulfan Sulfate	8E-03	ug/L	6.7E-08	mg/kg-day	N/A	N/A	N/A	7.9E-07	mg/kg-day	6.0E-03	mg/kg-day	1.3E-04
				Gamma-BHC (Lindane)	2E-02	ug/L	1.3E-07	mg/kg-day	1.1E+00	(mg/kg-day) ⁻¹	1.4E-07	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.1E-03
				Heptachlor	5E-03	ug/L	3.8E-08	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	1.7E-07	4.4E-07	mg/kg-day	5.0E-04	mg/kg-day	8.8E-04
				Aluminum	1E+04	ug/L	1.1E-01	mg/kg-day	N/A	N/A	N/A	1.3E+00	mg/kg-day	1.0E+00	mg/kg-day	1.3E+00
				Arsenic	1E+02	ug/L	9.9E-04	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-03	1.2E-02	mg/kg-day	3.0E-04	mg/kg-day	3.8E+01
				Cadmium (drinking water)	3E+01	ug/L	2.2E-04	mg/kg-day	N/A	N/A	N/A	2.6E-03	mg/kg-day	5.0E-04	mg/kg-day	5.2E+00
				Chromium	1E+01	ug/L	1.1E-04	mg/kg-day	N/A	N/A	N/A	1.3E-03	mg/kg-day	3.0E-03	mg/kg-day	4.3E-01
				Cobalt	3E+01	ug/L	2.7E-04	mg/kg-day	N/A	N/A	N/A	3.2E-03	mg/kg-day	3.0E-04	mg/kg-day	1.1E+01
				Iron	8E+04	ug/L	6.3E-01	mg/kg-day	N/A	N/A	N/A	7.4E+00	mg/kg-day	7.0E-01	mg/kg-day	1.1E+01
				Lead	8E+01	ug/L	6.5E-04	mg/kg-day	N/A	N/A	N/A	7.6E-03	mg/kg-day	N/A	N/A	N/A
				Manganese (drinking water)	6E+03	ug/L	4.8E-02	mg/kg-day	N/A	N/A	N/A	5.6E-01	mg/kg-day	2.4E-02	mg/kg-day	2.3E+01
				Nickel	8E+01	ug/L	6.4E-04	mg/kg-day	N/A	N/A	N/A	7.5E-03	mg/kg-day	2.0E-02	mg/kg-day	3.7E-01
				Silver	1E+01	ug/L	1.1E-04	mg/kg-day	N/A	N/A	N/A	1.3E-03	mg/kg-day	5.0E-03	mg/kg-day	2.6E-01
				Thallium	9E+00	ug/L	7.3E-05	mg/kg-day	N/A	N/A	N/A	8.5E-04	mg/kg-day	8.0E-05	mg/kg-day	1.1E+01
				Zinc	4E+03	ug/L	3.4E-02	mg/kg-day	N/A	N/A	N/A	3.9E-01	mg/kg-day	3.0E-01	mg/kg-day	1.3E+00
			Exp. Route Total									2E-03				1E+02
			Dermal	1,4-Dioxane	6E+01	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				2,4-Dimethylphenol	8E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				2-Chlorophenol	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				4-Chloroaniline	1E+00	ug/L	N/A	N/A	2.0E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzaldehyde	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				bis(2-Ethylhexyl)phthalate	5E+01	ug/L	4.0E-04	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.6E-06	4.7E-03	mg/kg-day	2.0E-02	mg/kg-day	2.3E-01
				Carbazole	5E-01	ug/L	2.4E-06	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.9E-08	2.9E-05	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	3E+00	ug/L	2.8E-05	mg/kg-day	N/A	N/A	N/A	3.3E-04	mg/kg-day	4.0E-03	mg/kg-day	8.1E-02
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E+01	ug/L	4.8E-05	mg/kg-day	N/A	N/A	N/A	5.6E-04	mg/kg-day	2.0E-02	mg/kg-day	2.8E-02
				Phenanthrene	6E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,2,4-Trichlorobenzene	2E-01	ug/L	1.7E-06	mg/kg-day	3.6E-03	(mg/kg-day) ⁻¹	6.0E-09	1.9E-05	mg/kg-day	1.0E-02	mg/kg-day	1.9E-03
				1,2-Dichlorobenzene	4E+00	ug/L	1.5E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	9.0E-02	mg/kg-day	2.0E-03
				1,3-Dichlorobenzene	7E-01	ug/L	3.3E-06	mg/kg-day	N/A	N/A	N/A	3.9E-05	mg/kg-day	2.0E-02	mg/kg-day	1.9E-03
				1,4-Dichlorobenzene	8E+00	ug/L	2.9E-05	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	1.6E-07	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.9E-03
				2-Butanone	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-01	mg/kg-day	N/A
				Benzene	1E+03	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Bromodichloromethane	3E-01	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A

TABLE 7.23.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chlorobenzene	9E+01	ug/L	1.8E-04	mg/kg-day	N/A	N/A	N/A	2.1E-03	mg/kg-day	2.0E-02	mg/kg-day	1.0E-01
				Chloroethane	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Chloroform	4E+00	ug/L	N/A	N/A	3.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Ethylbenzene	2E+01	ug/L	5.5E-05	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	6.1E-07	6.4E-04	mg/kg-day	1.0E-01	mg/kg-day	6.4E-03
				Isopropylbenzene	2E+02	ug/L	7.9E-04	mg/kg-day	N/A	N/A	N/A	9.2E-03	mg/kg-day	1.0E-01	mg/kg-day	9.2E-02
				Methyl tert-butyl ether	2E+01	ug/L	N/A	N/A	1.8E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Tetrachloroethene	3E+00	ug/L	7.9E-06	mg/kg-day	5.4E-01	(mg/kg-day) ⁻¹	4.3E-06	9.2E-05	mg/kg-day	1.0E-02	mg/kg-day	9.2E-03
				Toluene	5E+00	ug/L	9.2E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	8.0E-02	mg/kg-day	1.3E-03
				Trichloroethene	4E+00	ug/L	N/A	N/A	1.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Vinyl Chloride	1E+00	ug/L	N/A	N/A	7.2E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Xylene (Total)	5E+01	ug/L	1.7E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	2.0E-01	mg/kg-day	9.7E-03
				Aroclor-1242	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1248	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	7E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	6E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	6E-03	ug/L	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	9.2E-09	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	5.8E-08	1.1E-07	mg/kg-day	8.0E-03	mg/kg-day	1.3E-05
				Dieldrin	8E-03	ug/L	3.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.9E-07	3.6E-07	mg/kg-day	5.0E-05	mg/kg-day	7.2E-03
				Endosulfan Sulfate	8E-03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Gamma-BHC (Lindane)	2E-02	ug/L	3.3E-08	mg/kg-day	1.1E+00	(mg/kg-day) ⁻¹	3.6E-08	3.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Heptachlor	5E-03	ug/L	1.1E-08	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	5.2E-08	1.3E-07	mg/kg-day	5.0E-04	mg/kg-day	2.7E-04
				Aluminum	1E+04	ug/L	4.8E-04	mg/kg-day	N/A	N/A	N/A	5.6E-03	mg/kg-day	1.0E-02	mg/kg-day	5.6E-01
				Arsenic	1E+02	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (drinking water)	3E+01	ug/L	9.8E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	2.5E-05	mg/kg-day	4.6E-01
				Chromium	1E+01	ug/L	9.7E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.5E-05	mg/kg-day	1.5E-01
				Cobalt	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	8E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (drinking water)	6E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.6E-04	mg/kg-day	N/A
				Nickel	8E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Zinc	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-05					2E+00
			Inhalation	1,4-Dioxane	6E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2,4-Dimethylphenol	8E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2-Chlorophenol	3E-01	ug/m ³	1.4E-02	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	N/A	N/A	N/A
				4-Chloroaniline	1E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Atrazine	3E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.23.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzaldehyde	1E+00	ug/m ³	4.5E-02	ug/m3	N/A	N/A	N/A	5.2E-01	ug/m3	N/A	N/A	N/A
				Benzo(a)anthracene	4E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(a)pyrene	3E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(b)fluoranthene	4E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(g,h,i)perylene	2E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				bis(2-Ethylhexyl)phthalate	5E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Carbazole	5E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dibenzofuran	3E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Naphthalene	1E+01	ug/m ³	5.8E-01	ug/m3	3.4E-05	(ug/m3) ⁻¹	2.0E-05	6.7E+00	ug/m3	3.0E+00	ug/m3	2.2E+00
				Phenanthrene	6E+00	ug/m ³	2.4E-01	ug/m3	N/A	N/A	N/A	2.8E+00	ug/m3	3.0E+00	ug/m3	9.4E-01
				1,2,4-Trichlorobenzene	2E-01	ug/m ³	9.9E-03	ug/m3	N/A	N/A	N/A	1.2E-01	ug/m3	4.0E+00	ug/m3	2.9E-02
				1,2-Dichlorobenzene	4E+00	ug/m ³	1.8E-01	ug/m3	N/A	N/A	N/A	2.1E+00	ug/m3	2.0E+02	ug/m3	1.1E-02
				1,3-Dichlorobenzene	7E-01	ug/m ³	2.8E-02	ug/m3	N/A	N/A	N/A	3.3E-01	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	8E+00	ug/m ³	3.5E-01	ug/m3	1.1E-05	(ug/m3) ⁻¹	3.8E-06	4.0E+00	ug/m3	8.0E+02	ug/m3	5.0E-03
				2-Butanone	1E+00	ug/m ³	5.3E-02	ug/m3	N/A	N/A	N/A	6.2E-01	ug/m3	5.0E+03	ug/m3	1.2E-04
				Benzene	1E+03	ug/m ³	4.5E+01	ug/m3	7.8E-06	(ug/m3) ⁻¹	3.5E-04	5.3E+02	ug/m3	3.0E+01	ug/m3	1.8E+01
				Bromodichloromethane	3E-01	ug/m ³	1.3E-02	ug/m3	N/A	N/A	N/A	1.5E-01	ug/m3	N/A	N/A	N/A
				Chlorobenzene	9E+01	ug/m ³	3.8E+00	ug/m3	N/A	N/A	N/A	4.5E+01	ug/m3	5.0E+01	ug/m3	8.9E-01
				Chloroethane	2E+00	ug/m ³	8.6E-02	ug/m3	N/A	N/A	N/A	1.0E+00	ug/m3	1.0E+04	ug/m3	1.0E-04
				Chloroform	4E+00	ug/m ³	1.6E-01	ug/m3	2.3E-05	(ug/m3) ⁻¹	3.7E-06	1.9E+00	ug/m3	1.0E+02	ug/m3	1.9E-02
				Ethylbenzene	2E+01	ug/m ³	7.0E-01	ug/m3	2.5E-06	(ug/m3) ⁻¹	1.7E-06	8.2E+00	ug/m3	1.0E+03	ug/m3	8.2E-03
				Isopropylbenzene	2E+02	ug/m ³	6.6E+00	ug/m3	N/A	N/A	N/A	7.7E+01	ug/m3	4.0E+02	ug/m3	1.9E-01
				Methyl tert-butyl ether	2E+01	ug/m ³	8.6E-01	ug/m3	2.6E-07	(ug/m3) ⁻¹	2.2E-07	1.0E+01	ug/m3	3.0E+03	ug/m3	3.4E-03
				Tetrachloroethene	3E+00	ug/m ³	1.0E-01	ug/m3	5.9E-06	(ug/m3) ⁻¹	6.1E-07	1.2E+00	ug/m3	2.7E+02	ug/m3	4.4E-03
				Toluene	5E+00	ug/m ³	2.0E-01	ug/m3	N/A	N/A	N/A	2.3E+00	ug/m3	5.0E+03	ug/m3	4.7E-04
				Trichloroethene	4E+00	ug/m ³	1.7E-01	ug/m3	2.0E-06	(ug/m3) ⁻¹	3.4E-07	2.0E+00	ug/m3	1.0E+01	ug/m3	2.0E-01
				Vinyl Chloride	1E+00	ug/m ³	4.9E-02	ug/m3	4.4E-06	(ug/m3) ⁻¹	4.4E-07	5.8E-01	ug/m3	1.0E+02	ug/m3	5.8E-03
				Xylene (Total)	5E+01	ug/m ³	2.1E+00	ug/m3	N/A	N/A	N/A	2.4E+01	ug/m3	1.0E+02	ug/m3	2.4E-01
				Aroclor-1242	3E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1248	2E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1254	6E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDD	7E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDE	6E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDT	4E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aldrin	6E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				alpha-BHC	4E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dieldrin	8E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Endosulfan Sulfate	8E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Gamma-BHC (Lindane)	2E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Heptachlor	5E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.23.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	1E+04	ug/m³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Arsenic	1E+02	ug/m³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cadmium	3E+01	ug/m³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Chromium	1E+01	ug/m³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cobalt	3E+01	ug/m³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Iron	8E+04	ug/m³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Lead	8E+01	ug/m³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Manganese	6E+03	ug/m³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Nickel	8E+01	ug/m³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Silver	1E+01	ug/m³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Thallium	9E+00	ug/m³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Zinc	4E+03	ug/m³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Exp. Route Total							4E-04					2E+01
			Exposure Point Total							3E-03					2E+02	
		Exposure Medium Total							N/A					N/A		
Medium Total										N/A				N/A		
					Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A

TABLE 7.23.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	On-site Monitoring Wells	Ingestion	1,4-Dioxane	5E+00	ug/L	7.5E-06	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	8.3E-08	2.6E-04	mg/kg-day	1.0E-01	mg/kg-day	2.6E-03
				2,4-Dimethylphenol	2E+00	ug/L	3.4E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	2.0E-02	mg/kg-day	5.9E-03
				2-Chlorophenol	3E-01	ug/L	5.4E-07	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	5.0E-03	mg/kg-day	3.8E-03
				4-Chloroaniline	1E+00	ug/L	2.2E-06	mg/kg-day	2.0E-01	(mg/kg-day) ⁻¹	4.4E-07	7.8E-05	mg/kg-day	4.0E-03	mg/kg-day	1.9E-02
				Atrazine	2E+00	ug/L	2.9E-06	mg/kg-day	2.3E-01	(mg/kg-day) ⁻¹	6.6E-07	1.0E-04	mg/kg-day	3.5E-02	mg/kg-day	2.9E-03
				Benzaldehyde	1E+00	ug/L	1.7E-06	mg/kg-day	N/A	N/A	N/A	6.1E-05	mg/kg-day	1.0E-01	mg/kg-day	6.1E-04
				Benzo(a)anthracene	4E-02	ug/L	6.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-07	2.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	4E-02	ug/L	6.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-06	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-02	ug/L	6.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-07	2.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	2.4E-07	mg/kg-day	N/A	N/A	N/A	8.3E-06	mg/kg-day	3.0E-02	mg/kg-day	2.8E-04
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	3.8E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.3E-08	1.3E-04	mg/kg-day	2.0E-02	mg/kg-day	6.6E-03
				Carbazole	3E-01	ug/L	4.4E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.8E-09	1.5E-05	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E+00	ug/L	2.9E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	4.0E-03	mg/kg-day	2.5E-02
				Indeno(1,2,3-cd)pyrene	4E-02	ug/L	6.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	3.4E-07	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	2.0E-02	mg/kg-day	6.0E-04
				Phenanthrene	1E-01	ug/L	1.8E-07	mg/kg-day	N/A	N/A	N/A	6.5E-06	mg/kg-day	3.0E-02	mg/kg-day	2.2E-04
				1,2,4-Trichlorobenzene	2E-01	ug/L	3.8E-07	mg/kg-day	3.6E-03	(mg/kg-day) ⁻¹	1.4E-09	1.3E-05	mg/kg-day	1.0E-02	mg/kg-day	1.3E-03
				1,2-Dichlorobenzene	4E-01	ug/L	6.3E-07	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	9.0E-02	mg/kg-day	2.5E-04
				1,3-Dichlorobenzene	3E-01	ug/L	4.4E-07	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	2.0E-02	mg/kg-day	7.7E-04
				1,4-Dichlorobenzene	9E-01	ug/L	1.5E-06	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	7.9E-09	5.1E-05	mg/kg-day	7.0E-02	mg/kg-day	7.3E-04
				2-Butanone	1E+00	ug/L	2.1E-06	mg/kg-day	N/A	N/A	N/A	7.2E-05	mg/kg-day	6.0E-01	mg/kg-day	1.2E-04
				Benzene	2E+01	ug/L	3.5E-05	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	1.9E-06	1.2E-03	mg/kg-day	4.0E-03	mg/kg-day	3.1E-01
				Bromodichloromethane	3E-01	ug/L	4.3E-07	mg/kg-day	6.2E-02	(mg/kg-day) ⁻¹	2.7E-08	1.5E-05	mg/kg-day	2.0E-02	mg/kg-day	7.6E-04
				Chlorobenzene	6E+00	ug/L	8.9E-06	mg/kg-day	N/A	N/A	N/A	3.1E-04	mg/kg-day	2.0E-02	mg/kg-day	1.6E-02
				Chloroethane	4E-01	ug/L	6.3E-07	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	1.0E-01	mg/kg-day	2.2E-04
				Chloroform	5E-01	ug/L	7.5E-07	mg/kg-day	3.1E-02	(mg/kg-day) ⁻¹	2.3E-08	2.6E-05	mg/kg-day	1.0E-02	mg/kg-day	2.6E-03
				Ethylbenzene	4E-01	ug/L	7.0E-07	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	7.7E-09	2.5E-05	mg/kg-day	1.0E-01	mg/kg-day	2.5E-04
				Isopropylbenzene	4E+00	ug/L	5.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	1.0E-01	mg/kg-day	2.0E-03
				Methyl tert-butyl ether	5E-01	ug/L	8.6E-07	mg/kg-day	1.8E-03	(mg/kg-day) ⁻¹	1.6E-09	3.0E-05	mg/kg-day	3.0E-01	mg/kg-day	1.0E-04
				Tetrachloroethene	3E-01	ug/L	4.8E-07	mg/kg-day	5.4E-01	(mg/kg-day) ⁻¹	2.6E-07	1.7E-05	mg/kg-day	1.0E-02	mg/kg-day	1.7E-03
				Toluene	3E-01	ug/L	5.3E-07	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	8.0E-02	mg/kg-day	2.3E-04
				Trichloroethene	3E-01	ug/L	5.3E-07	mg/kg-day	1.3E-02	(mg/kg-day) ⁻¹	6.8E-09	1.8E-05	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	3E-01	ug/L	4.6E-07	mg/kg-day	7.2E-01	(mg/kg-day) ⁻¹	1.3E-05	1.6E-05	mg/kg-day	3.0E-03	mg/kg-day	5.4E-03
				Xylene (Total)	2E+00	ug/L	3.1E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	2.0E-01	mg/kg-day	5.5E-04
				Aroclor-1242	5E-02	ug/L	8.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	8.3E-08	2.9E-06	mg/kg-day	2.0E-05	mg/kg-day	1.4E-01
				Aroclor-1248	5E-02	ug/L	8.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	8.2E-08	2.9E-06	mg/kg-day	2.0E-05	mg/kg-day	1.4E-01
				Aroclor-1254	5E-02	ug/L	8.6E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	8.6E-08	3.0E-06	mg/kg-day	2.0E-05	mg/kg-day	1.5E-01
				4,4'-DDD	3E-03	ug/L	4.3E-09	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.0E-09	1.5E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	3E-03	ug/L	4.2E-09	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.4E-09	1.5E-07	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	3E-03	ug/L	4.2E-09	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.4E-09	1.5E-07	mg/kg-day	5.0E-04	mg/kg-day	2.9E-04
				Aldrin	2E-03	ug/L	2.9E-09	mg/kg-day	1.7E+01	(mg/kg-day) ⁻¹	4.9E-08	1.0E-07	mg/kg-day	3.0E-05	mg/kg-day	3.4E-03

TABLE 7.23.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				alpha-BHC	2E-03	ug/L	2.8E-09	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	1.8E-08	9.9E-08	mg/kg-day	8.0E-03	mg/kg-day	1.2E-05
				Dieldrin	3E-03	ug/L	4.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.9E-08	1.5E-07	mg/kg-day	5.0E-05	mg/kg-day	3.0E-03
				Endosulfan Sulfate	3E-03	ug/L	4.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	6.0E-03	mg/kg-day	2.5E-05
				Gamma-BHC (Lindane)	2E-03	ug/L	3.1E-09	mg/kg-day	1.1E+00	(mg/kg-day) ⁻¹	3.4E-09	1.1E-07	mg/kg-day	3.0E-04	mg/kg-day	3.6E-04
				Heptachlor	2E-03	ug/L	2.8E-09	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	1.3E-08	1.0E-07	mg/kg-day	5.0E-04	mg/kg-day	2.0E-04
				Aluminum	3E+02	ug/L	4.3E-04	mg/kg-day	N/A	N/A	N/A	1.5E-02	mg/kg-day	1.0E+00	mg/kg-day	1.5E-02
				Arsenic	2E+01	ug/L	2.4E-05	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.7E-05	8.6E-04	mg/kg-day	3.0E-04	mg/kg-day	2.9E+00
				Cadmium (drinking water)	1E+00	ug/L	1.7E-06	mg/kg-day	N/A	N/A	N/A	5.9E-05	mg/kg-day	5.0E-04	mg/kg-day	1.2E-01
				Chromium	1E+00	ug/L	2.3E-06	mg/kg-day	N/A	N/A	N/A	8.0E-05	mg/kg-day	3.0E-03	mg/kg-day	2.7E-02
				Cobalt	2E+01	ug/L	2.7E-05	mg/kg-day	N/A	N/A	N/A	9.5E-04	mg/kg-day	3.0E-04	mg/kg-day	3.2E+00
				Iron	1E+04	ug/L	2.3E-02	mg/kg-day	N/A	N/A	N/A	8.2E-01	mg/kg-day	7.0E-01	mg/kg-day	1.2E+00
				Lead	2E+00	ug/L	3.4E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	N/A	N/A	N/A
				Manganese (drinking water)	7E+02	ug/L	1.1E-03	mg/kg-day	N/A	N/A	N/A	3.7E-02	mg/kg-day	2.4E-02	mg/kg-day	1.6E+00
				Nickel	1E+01	ug/L	2.3E-05	mg/kg-day	N/A	N/A	N/A	8.1E-04	mg/kg-day	2.0E-02	mg/kg-day	4.0E-02
				Silver	3E+00	ug/L	4.7E-06	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	5.0E-03	mg/kg-day	3.3E-02
				Thallium	1E+00	ug/L	2.3E-06	mg/kg-day	N/A	N/A	N/A	8.0E-05	mg/kg-day	8.0E-05	mg/kg-day	1.0E+00
				Zinc	9E+01	ug/L	1.4E-04	mg/kg-day	N/A	N/A	N/A	4.9E-03	mg/kg-day	3.0E-01	mg/kg-day	1.6E-02
			Exp. Route Total								6E-05					1E+01
			Dermal	1,4-Dioxane	5E+00	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				2,4-Dimethylphenol	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				2-Chlorophenol	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				4-Chloroaniline	1E+00	ug/L	N/A	N/A	2.0E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Atrazine	2E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzaldehyde	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	4E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	4E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	3.7E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.2E-08	1.3E-04	mg/kg-day	2.0E-02	mg/kg-day	6.4E-03
				Carbazole	3E-01	ug/L	2.7E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.4E-09	9.4E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E+00	ug/L	3.4E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	4.0E-03	mg/kg-day	3.0E-02
				Indeno(1,2,3-cd)pyrene	4E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-06	mg/kg-day	2.0E-02	mg/kg-day	2.5E-04
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,2,4-Trichlorobenzene	2E-01	ug/L	3.2E-07	mg/kg-day	3.6E-03	(mg/kg-day) ⁻¹	1.1E-09	1.1E-05	mg/kg-day	1.0E-02	mg/kg-day	1.1E-03
				1,2-Dichlorobenzene	4E-01	ug/L	2.6E-07	mg/kg-day	N/A	N/A	N/A	9.2E-06	mg/kg-day	9.0E-02	mg/kg-day	1.0E-04
				1,3-Dichlorobenzene	3E-01	ug/L	2.6E-07	mg/kg-day	N/A	N/A	N/A	9.0E-06	mg/kg-day	2.0E-02	mg/kg-day	4.5E-04
				1,4-Dichlorobenzene	9E-01	ug/L	6.2E-07	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	3.3E-09	2.2E-05	mg/kg-day	7.0E-02	mg/kg-day	3.1E-04
				2-Butanone	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-01	mg/kg-day	N/A
				Benzene	2E+01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Bromodichloromethane	3E-01	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A

TABLE 7.23.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chlorobenzene	6E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chloroethane	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Chloroform	5E-01	ug/L	N/A	N/A	3.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Ethylbenzene	4E-01	ug/L	2.7E-07	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	2.9E-09	9.4E-06	mg/kg-day	1.0E-01	mg/kg-day	9.4E-05
				Isopropylbenzene	4E+00	ug/L	3.4E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	1.0E-01	mg/kg-day	1.2E-03
				Methyl tert-butyl ether	5E-01	ug/L	N/A	N/A	1.8E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Tetrachloroethene	3E-01	ug/L	1.8E-07	mg/kg-day	5.4E-01	(mg/kg-day) ⁻¹	9.9E-08	6.4E-06	mg/kg-day	1.0E-02	mg/kg-day	6.4E-04
				Toluene	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-02	mg/kg-day	N/A
				Trichloroethene	3E-01	ug/L	N/A	N/A	1.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Vinyl Chloride	3E-01	ug/L	N/A	N/A	7.2E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Xylene (Total)	2E+00	ug/L	1.2E-06	mg/kg-day	N/A	N/A	N/A	4.2E-05	mg/kg-day	2.0E-01	mg/kg-day	2.1E-04
				Aroclor-1242	5E-02	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1248	5E-02	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	5E-02	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	3E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	3E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aldrin	2E-03	ug/L	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A
				alpha-BHC	2E-03	ug/L	9.0E-10	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	5.6E-09	3.1E-08	mg/kg-day	8.0E-03	mg/kg-day	3.9E-06
				Dieldrin	3E-03	ug/L	1.9E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.1E-08	6.8E-08	mg/kg-day	5.0E-05	mg/kg-day	1.4E-03
				Endosulfan Sulfate	3E-03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Gamma-BHC (Lindane)	2E-03	ug/L	7.7E-10	mg/kg-day	1.1E+00	(mg/kg-day) ⁻¹	8.5E-10	2.7E-08	mg/kg-day	3.0E-04	mg/kg-day	9.0E-05
				Heptachlor	2E-03	ug/L	8.5E-10	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	3.8E-09	3.0E-08	mg/kg-day	5.0E-04	mg/kg-day	6.0E-05
				Aluminum	3E+02	ug/L	1.1E-06	mg/kg-day	N/A	N/A	N/A	3.8E-05	mg/kg-day	1.0E-02	mg/kg-day	3.8E-03
				Arsenic	2E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (drinking water)	1E+00	ug/L	4.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	2.5E-05	mg/kg-day	5.9E-03
				Chromium	1E+00	ug/L	1.1E-08	mg/kg-day	N/A	N/A	N/A	4.0E-07	mg/kg-day	7.5E-05	mg/kg-day	5.3E-03
				Cobalt	2E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Iron	1E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (drinking water)	7E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.6E-04	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Zinc	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Exp. Route Total							2E-07					6E-02
			Inhalation	1,4-Dioxane	5E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2,4-Dimethylphenol	2E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				2-Chlorophenol	3E-01	ug/m ³	4.7E-03	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	N/A	N/A	N/A
				4-Chloroaniline	1E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Atrazine	2E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.23.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzaldehyde	1E+00	ug/m ³	1.5E-02	ug/m3	N/A	N/A	N/A	5.2E-01	ug/m3	N/A	N/A	N/A
				Benzo(a)anthracene	4E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(a)pyrene	4E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(b)fluoranthene	4E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Benzo(g,h,i)perylene	2E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Carbazole	3E-01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dibenzofuran	2E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Indeno(1,2,3-cd)pyrene	4E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Naphthalene	2E-01	ug/m ³	3.0E-03	ug/m3	3.4E-05	(ug/m3) ⁻¹	1.0E-07	1.0E-01	ug/m3	3.0E+00	ug/m3	3.5E-02
				Phenanthrene	1E-01	ug/m ³	1.6E-03	ug/m3	N/A	N/A	N/A	5.6E-02	ug/m3	3.0E+00	ug/m3	1.9E-02
				1,2,4-Trichlorobenzene	2E-01	ug/m ³	3.3E-03	ug/m3	N/A	N/A	N/A	1.2E-01	ug/m3	4.0E+00	ug/m3	2.9E-02
				1,2-Dichlorobenzene	4E-01	ug/m ³	5.5E-03	ug/m3	N/A	N/A	N/A	1.9E-01	ug/m3	2.0E+02	ug/m3	9.6E-04
				1,3-Dichlorobenzene	3E-01	ug/m ³	3.8E-03	ug/m3	N/A	N/A	N/A	1.3E-01	ug/m3	N/A	N/A	N/A
				1,4-Dichlorobenzene	9E-01	ug/m ³	1.3E-02	ug/m3	1.1E-05	(ug/m3) ⁻¹	1.4E-07	4.4E-01	ug/m3	8.0E+02	ug/m3	5.5E-04
				2-Butanone	1E+00	ug/m ³	1.8E-02	ug/m3	N/A	N/A	N/A	6.2E-01	ug/m3	5.0E+03	ug/m3	1.2E-04
				Benzene	2E+01	ug/m ³	3.0E-01	ug/m3	7.8E-06	(ug/m3) ⁻¹	2.4E-06	1.1E+01	ug/m3	3.0E+01	ug/m3	3.5E-01
				Bromodichloromethane	3E-01	ug/m ³	3.7E-03	ug/m3	N/A	N/A	N/A	1.3E-01	ug/m3	N/A	N/A	N/A
				Chlorobenzene	6E+00	ug/m ³	7.7E-02	ug/m3	N/A	N/A	N/A	2.7E+00	ug/m3	5.0E+01	ug/m3	5.4E-02
				Chloroethane	4E-01	ug/m ³	5.5E-03	ug/m3	N/A	N/A	N/A	1.9E-01	ug/m3	1.0E+04	ug/m3	1.9E-05
				Chloroform	5E-01	ug/m ³	6.4E-03	ug/m3	2.3E-05	(ug/m3) ⁻¹	1.5E-07	2.2E-01	ug/m3	1.0E+02	ug/m3	2.2E-03
				Ethylbenzene	4E-01	ug/m ³	6.0E-03	ug/m3	2.5E-06	(ug/m3) ⁻¹	1.5E-08	2.1E-01	ug/m3	1.0E+03	ug/m3	2.1E-04
				Isopropylbenzene	4E+00	ug/m ³	4.9E-02	ug/m3	N/A	N/A	N/A	1.7E+00	ug/m3	4.0E+02	ug/m3	4.3E-03
				Methyl tert-butyl ether	5E-01	ug/m ³	7.4E-03	ug/m3	2.6E-07	(ug/m3) ⁻¹	1.9E-09	2.6E-01	ug/m3	3.0E+03	ug/m3	8.7E-05
				Tetrachloroethene	3E-01	ug/m ³	4.2E-03	ug/m3	5.9E-06	(ug/m3) ⁻¹	2.5E-08	1.5E-01	ug/m3	2.7E+02	ug/m3	5.4E-04
				Toluene	3E-01	ug/m ³	4.6E-03	ug/m3	N/A	N/A	N/A	1.6E-01	ug/m3	5.0E+03	ug/m3	3.2E-05
				Trichloroethene	3E-01	ug/m ³	4.5E-03	ug/m3	2.0E-06	(ug/m3) ⁻¹	9.1E-09	1.6E-01	ug/m3	1.0E+01	ug/m3	1.6E-02
				Vinyl Chloride	3E-01	ug/m ³	4.0E-03	ug/m3	4.4E-06	(ug/m3) ⁻¹	3.5E-08	1.4E-01	ug/m3	1.0E+02	ug/m3	1.4E-03
				Xylene (Total)	2E+00	ug/m ³	2.7E-02	ug/m3	N/A	N/A	N/A	9.4E-01	ug/m3	1.0E+02	ug/m3	9.4E-03
				Aroclor-1242	5E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1248	5E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aroclor-1254	5E-02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDD	3E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDE	3E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				4,4'-DDT	3E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Aldrin	2E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				alpha-BHC	2E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Dieldrin	3E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Endosulfan Sulfate	3E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Gamma-BHC (Lindane)	2E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Heptachlor	2E-03	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.23.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	3E+02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Arsenic	2E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cadmium	1E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Chromium	1E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Cobalt	2E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Iron	1E+04	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Lead	2E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Manganese	7E+02	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Nickel	1E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Silver	3E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Thallium	1E+00	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A
				Zinc	9E+01	ug/m ³	NV	N/A	NV	NV	N/A	NV	N/A	NV	NV	N/A

TABLE 7.24.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Shallow Monitoring Wells	Ingestion	1,4-Dioxane	7E+00	ug/L	2.4E-08	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	2.7E-10	1.7E-06	mg/kg-day	1.0E-01	mg/kg-day	1.7E-05
				2,4-Dimethylphenol	3E+00	ug/L	1.1E-08	mg/kg-day	N/A	N/A	N/A	7.4E-07	mg/kg-day	2.0E-02	mg/kg-day	3.7E-05
				2-Chlorophenol	3E-01	ug/L	1.2E-09	mg/kg-day	N/A	N/A	N/A	8.3E-08	mg/kg-day	5.0E-03	mg/kg-day	1.7E-05
				4-Chloroaniline	1E+00	ug/L	4.9E-09	mg/kg-day	2.0E-01	(mg/kg-day) ⁻¹	9.8E-10	3.4E-07	mg/kg-day	4.0E-03	mg/kg-day	8.6E-05
				Atrazine	3E+00	ug/L	1.1E-08	mg/kg-day	2.3E-01	(mg/kg-day) ⁻¹	2.5E-09	7.7E-07	mg/kg-day	3.5E-02	mg/kg-day	2.2E-05
				Benzaldehyde	1E+00	ug/L	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	1.0E-01	mg/kg-day	2.7E-06
				Benzo(a)anthracene	3E-02	ug/L	1.1E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.8E-11	7.5E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	4.0E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.9E-09	2.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E-02	ug/L	9.9E-11	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.2E-11	6.9E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	5.2E-10	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	3.0E-02	mg/kg-day	1.2E-06
				bis(2-Ethylhexyl)phthalate	4E+00	ug/L	1.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.1E-10	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.4E-05
				Carbazole	5E-01	ug/L	1.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.4E-11	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	4.0E-03	mg/kg-day	2.6E-05
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	4.9E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.6E-10	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Naphthalene	9E-01	ug/L	3.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	2.0E-02	mg/kg-day	1.0E-05
				Phenanthrene	2E-01	ug/L	7.0E-10	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	3.0E-02	mg/kg-day	1.6E-06
				1,2,4-Trichlorobenzene	2E-01	ug/L	8.4E-10	mg/kg-day	3.6E-03	(mg/kg-day) ⁻¹	3.0E-12	5.9E-08	mg/kg-day	1.0E-02	mg/kg-day	5.9E-06
				1,2-Dichlorobenzene	8E-01	ug/L	2.6E-09	mg/kg-day	N/A	N/A	N/A	1.9E-07	mg/kg-day	9.0E-02	mg/kg-day	2.1E-06
				1,3-Dichlorobenzene	7E-01	ug/L	2.4E-09	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	2.0E-02	mg/kg-day	8.4E-06
				1,4-Dichlorobenzene	9E-01	ug/L	3.2E-09	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	1.7E-11	2.3E-07	mg/kg-day	7.0E-02	mg/kg-day	3.2E-06
				2-Butanone	1E+00	ug/L	4.5E-09	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	6.0E-01	mg/kg-day	5.3E-07
				Benzene	1E+02	ug/L	3.6E-07	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	2.0E-08	2.6E-05	mg/kg-day	4.0E-03	mg/kg-day	6.4E-03
				Bromodichloromethane	ND	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chlorobenzene	6E+00	ug/L	1.9E-08	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.7E-05
				Chloroethane	2E+00	ug/L	7.3E-09	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	1.0E-01	mg/kg-day	5.1E-06
				Chloroform	6E-01	ug/L	2.2E-09	mg/kg-day	3.1E-02	(mg/kg-day) ⁻¹	6.9E-11	1.6E-07	mg/kg-day	1.0E-02	mg/kg-day	1.6E-05
				Ethylbenzene	1E+00	ug/L	4.5E-09	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	5.0E-11	3.2E-07	mg/kg-day	1.0E-01	mg/kg-day	3.2E-06
				Isopropylbenzene	1E+01	ug/L	3.4E-08	mg/kg-day	N/A	N/A	N/A	2.4E-06	mg/kg-day	1.0E-01	mg/kg-day	2.4E-05
				Methyl tert-butyl ether	2E+00	ug/L	5.7E-09	mg/kg-day	1.8E-03	(mg/kg-day) ⁻¹	1.0E-11	4.0E-07	mg/kg-day	3.0E-01	mg/kg-day	1.3E-06
				Tetrachloroethene	ND	ug/L	N/A	N/A	5.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Toluene	6E-01	ug/L	2.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	8.0E-02	mg/kg-day	1.8E-06
				Trichloroethene	6E-01	ug/L	2.1E-09	mg/kg-day	1.3E-02	(mg/kg-day) ⁻¹	2.7E-11	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	6E-01	ug/L	2.2E-09	mg/kg-day	7.2E-01	(mg/kg-day) ⁻¹	1.6E-09	1.6E-07	mg/kg-day	3.0E-03	mg/kg-day	5.2E-05
				Xylene (Total)	2E+00	ug/L	7.1E-09	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	2.0E-01	mg/kg-day	2.5E-06
				Aroclor-1242	3E-01	ug/L	1.2E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.3E-09	8.1E-08	mg/kg-day	2.0E-05	mg/kg-day	4.0E-03
				Aroclor-1248	2E-01	ug/L	6.3E-10	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.3E-09	4.4E-08	mg/kg-day	2.0E-05	mg/kg-day	2.2E-03
				Aroclor-1254	6E-01	ug/L	2.0E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.1E-09	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.1E-03
				4,4'-DDD	5E-03	ug/L	1.7E-11	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	4.2E-12	1.2E-09	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	1.4E-11	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	4.7E-12	9.6E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	4E-03	ug/L	1.3E-11	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	4.5E-12	9.3E-10	mg/kg-day	5.0E-04	mg/kg-day	1.9E-06
				Aldrin	6E-03	ug/L	2.1E-11	mg/kg-day	1.7E+01	(mg/kg-day) ⁻¹	3.6E-10	1.5E-09	mg/kg-day	3.0E-05	mg/kg-day	4.9E-05

TABLE 7.24.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				alpha-BHC	4E-03	ug/L	1.2E-11	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	7.7E-11	8.6E-10	mg/kg-day	8.0E-03	mg/kg-day	1.1E-07
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Endosulfan Sulfate	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Gamma-BHC (Lindane)	9E-03	ug/L	3.0E-11	mg/kg-day	1.1E+00	(mg/kg-day) ⁻¹	3.3E-11	2.1E-09	mg/kg-day	3.0E-04	mg/kg-day	6.9E-06
				Heptachlor	5E-03	ug/L	1.6E-11	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	7.2E-11	1.1E-09	mg/kg-day	5.0E-04	mg/kg-day	2.3E-06
				Aluminum	1E+03	ug/L	4.5E-06	mg/kg-day	N/A	N/A	N/A	3.1E-04	mg/kg-day	1.0E+00	mg/kg-day	3.1E-04
				Arsenic	3E+01	ug/L	1.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-07	7.1E-06	mg/kg-day	3.0E-04	mg/kg-day	2.4E-02
				Cadmium (drinking water)	2E+00	ug/L	7.7E-09	mg/kg-day	N/A	N/A	N/A	5.4E-07	mg/kg-day	5.0E-04	mg/kg-day	1.1E-03
				Chromium	2E+00	ug/L	5.9E-09	mg/kg-day	N/A	N/A	N/A	4.1E-07	mg/kg-day	3.0E-03	mg/kg-day	1.4E-04
				Cobalt	8E+00	ug/L	2.7E-08	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	3.0E-04	mg/kg-day	6.2E-03
				Iron	2E+04	ug/L	8.4E-05	mg/kg-day	N/A	N/A	N/A	5.9E-03	mg/kg-day	7.0E-01	mg/kg-day	8.4E-03
				Lead	3E+00	ug/L	1.2E-08	mg/kg-day	N/A	N/A	N/A	8.1E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (drinking water)	1E+03	ug/L	3.5E-06	mg/kg-day	N/A	N/A	N/A	2.5E-04	mg/kg-day	2.4E-02	mg/kg-day	1.0E-02
				Nickel	9E+00	ug/L	3.1E-08	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	2.0E-02	mg/kg-day	1.1E-04
				Silver	2E+00	ug/L	6.9E-09	mg/kg-day	N/A	N/A	N/A	4.9E-07	mg/kg-day	5.0E-03	mg/kg-day	9.7E-05
				Thallium	3E+00	ug/L	9.2E-09	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	8.0E-05	mg/kg-day	8.1E-03
				Zinc	3E+02	ug/L	9.6E-07	mg/kg-day	N/A	N/A	N/A	6.7E-05	mg/kg-day	3.0E-01	mg/kg-day	2.2E-04
				Exp. Route Total							2E-07					8E-02
			Dermal	1,4-Dioxane	7E+00	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				2,4-Dimethylphenol	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				2-Chlorophenol	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				4-Chloroaniline	1E+00	ug/L	N/A	N/A	2.0E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzaldehyde	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				bis(2-Ethylhexyl)phthalate	4E+00	ug/L	6.4E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	9.0E-10	4.5E-06	mg/kg-day	2.0E-02	mg/kg-day	2.2E-04
				Carbazole	5E-01	ug/L	N/A	N/A	2.0E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	7.6E-09	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	4.0E-03	mg/kg-day	1.3E-04
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	9E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,2,4-Trichlorobenzene	2E-01	ug/L	N/A	N/A	3.6E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				1,2-Dichlorobenzene	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.0E-02	mg/kg-day	N/A
				1,3-Dichlorobenzene	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	9E-01	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				2-Butanone	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-01	mg/kg-day	N/A
				Benzene	1E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Bromodichloromethane	ND	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A

TABLE 7.24.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
				Chlorobenzene	6E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
				Chloroethane	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A				
				Chloroform	6E-01	ug/L	N/A	N/A	3.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A				
				Ethylbenzene	1E+00	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A				
				Isopropylbenzene	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A				
				Methyl tert-butyl ether	2E+00	ug/L	N/A	N/A	1.8E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A				
				Tetrachloroethene	ND	ug/L	N/A	N/A	5.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A				
				Toluene	6E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-02	mg/kg-day	N/A				
				Trichloroethene	6E-01	ug/L	N/A	N/A	1.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A				
				Vinyl Chloride	6E-01	ug/L	N/A	N/A	7.2E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A				
				Xylene (Total)	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-01	mg/kg-day	N/A				
				Aroclor-1242	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1248	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1254	6E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				4,4'-DDT	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A			
				Aldrin	6E-03	ug/L	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A			
				alpha-BHC	4E-03	ug/L	N/A	N/A	6.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	8.0E-03	mg/kg-day	N/A			
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A			
				Endosulfan Sulfate	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A			
				Gamma-BHC (Lindane)	9E-03	ug/L	N/A	N/A	1.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Heptachlor	5E-03	ug/L	N/A	N/A	4.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A			
				Aluminum	1E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A		
				Arsenic	3E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A		
				Cadmium (drinking water)	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A		
				Chromium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A		
				Cobalt	8E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A		
				Iron	2E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A		
				Lead	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
				Manganese (drinking water)	1E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.6E-04	mg/kg-day	N/A		
				Nickel	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A		
				Silver	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A		
				Thallium	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A		
				Zinc	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A		
								Exp. Route Total							9E-10					4E-04
								Exposure Point Total							2E-07					8E-02
								Exposure Medium Total							N/A					N/A
								Medium Total							N/A					N/A
										Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media				

TABLE 7.24.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		

TABLE 7.24.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Shallow Monitoring Wells	Ingestion	1,4-Dioxane	7E+00	ug/L	1.2E-08	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	1.3E-10	8.5E-07	mg/kg-day	1.0E-01	mg/kg-day	8.5E-06
				2,4-Dimethylphenol	3E+00	ug/L	5.2E-09	mg/kg-day	N/A	N/A	N/A	3.6E-07	mg/kg-day	2.0E-02	mg/kg-day	1.8E-05
				2-Chlorophenol	3E-01	ug/L	5.9E-10	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	5.0E-03	mg/kg-day	8.3E-06
				4-Chloroaniline	1E+00	ug/L	2.4E-09	mg/kg-day	2.0E-01	(mg/kg-day) ⁻¹	4.9E-10	1.7E-07	mg/kg-day	4.0E-03	mg/kg-day	4.2E-05
				Atrazine	2E+00	ug/L	3.1E-09	mg/kg-day	2.3E-01	(mg/kg-day) ⁻¹	7.2E-10	2.2E-07	mg/kg-day	3.5E-02	mg/kg-day	6.3E-06
				Benzaldehyde	1E+00	ug/L	1.9E-09	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	1.0E-01	mg/kg-day	1.3E-06
				Benzo(a)anthracene	3E-02	ug/L	5.3E-11	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.9E-11	3.7E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	2.0E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.5E-09	1.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E-02	ug/L	4.9E-11	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.6E-11	3.4E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	2.6E-10	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	3.0E-02	mg/kg-day	6.1E-07
				bis(2-Ethylhexyl)phthalate	4E+00	ug/L	7.6E-09	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.1E-10	5.3E-07	mg/kg-day	2.0E-02	mg/kg-day	2.7E-05
				Carbazole	3E-01	ug/L	5.0E-10	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.9E-12	3.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	7.3E-10	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.3E-05
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	2.4E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-10	1.7E-08	mg/kg-day	N/A	N/A	N/A
				Naphthalene	9E-01	ug/L	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	2.0E-02	mg/kg-day	5.2E-06
				Phenanthrene	2E-01	ug/L	3.4E-10	mg/kg-day	N/A	N/A	N/A	2.4E-08	mg/kg-day	3.0E-02	mg/kg-day	8.0E-07
				1,2,4-Trichlorobenzene	2E-01	ug/L	4.2E-10	mg/kg-day	3.6E-03	(mg/kg-day) ⁻¹	1.5E-12	2.9E-08	mg/kg-day	1.0E-02	mg/kg-day	2.9E-06
				1,2-Dichlorobenzene	8E-01	ug/L	1.3E-09	mg/kg-day	N/A	N/A	N/A	9.2E-08	mg/kg-day	9.0E-02	mg/kg-day	1.0E-06
				1,3-Dichlorobenzene	3E-01	ug/L	5.2E-10	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	2.0E-02	mg/kg-day	1.8E-06
				1,4-Dichlorobenzene	9E-01	ug/L	1.6E-09	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	8.7E-12	1.1E-07	mg/kg-day	7.0E-02	mg/kg-day	1.6E-06
				2-Butanone	1E+00	ug/L	2.3E-09	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	6.0E-01	mg/kg-day	2.6E-07
				Benzene	1E+02	ug/L	1.8E-07	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	9.9E-09	1.3E-05	mg/kg-day	4.0E-03	mg/kg-day	3.2E-03
				Bromodichloromethane	ND	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chlorobenzene	6E+00	ug/L	9.6E-09	mg/kg-day	N/A	N/A	N/A	6.7E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Chloroethane	5E-01	ug/L	8.1E-10	mg/kg-day	N/A	N/A	N/A	5.7E-08	mg/kg-day	1.0E-01	mg/kg-day	5.7E-07
				Chloroform	6E-01	ug/L	1.1E-09	mg/kg-day	3.1E-02	(mg/kg-day) ⁻¹	3.4E-11	7.8E-08	mg/kg-day	1.0E-02	mg/kg-day	7.8E-06
				Ethylbenzene	1E+00	ug/L	2.2E-09	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	2.5E-11	1.6E-07	mg/kg-day	1.0E-01	mg/kg-day	1.6E-06
				Isopropylbenzene	1E+01	ug/L	1.7E-08	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	1.0E-01	mg/kg-day	1.2E-05
				Methyl tert-butyl ether	2E+00	ug/L	2.8E-09	mg/kg-day	1.8E-03	(mg/kg-day) ⁻¹	5.1E-12	2.0E-07	mg/kg-day	3.0E-01	mg/kg-day	6.6E-07
				Tetrachloroethene	ND	ug/L	N/A	N/A	5.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Toluene	6E-01	ug/L	1.0E-09	mg/kg-day	N/A	N/A	N/A	7.1E-08	mg/kg-day	8.0E-02	mg/kg-day	8.8E-07
				Trichloroethene	6E-01	ug/L	1.0E-09	mg/kg-day	1.3E-02	(mg/kg-day) ⁻¹	1.3E-11	7.2E-08	mg/kg-day	N/A	N/A	N/A
				Vinyl Chloride	6E-01	ug/L	1.1E-09	mg/kg-day	7.2E-01	(mg/kg-day) ⁻¹	7.9E-10	7.7E-08	mg/kg-day	3.0E-03	mg/kg-day	2.6E-05
				Xylene (Total)	2E+00	ug/L	3.5E-09	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	2.0E-01	mg/kg-day	1.2E-06
				Aroclor-1242	3E-01	ug/L	5.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.7E-10	4.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Aroclor-1248	5E-02	ug/L	9.2E-11	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	9.2E-11	6.4E-09	mg/kg-day	2.0E-05	mg/kg-day	3.2E-04
				Aroclor-1254	6E-01	ug/L	1.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.0E-09	7.0E-08	mg/kg-day	2.0E-05	mg/kg-day	3.5E-03
				4,4'-DDD	3E-03	ug/L	4.8E-12	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.1E-12	3.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	6.8E-12	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	2.3E-12	4.8E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	3E-03	ug/L	4.7E-12	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.6E-12	3.3E-10	mg/kg-day	5.0E-04	mg/kg-day	6.6E-07
				Aldrin	2E-03	ug/L	3.3E-12	mg/kg-day	1.7E+01	(mg/kg-day) ⁻¹	5.6E-11	2.3E-10	mg/kg-day	3.0E-05	mg/kg-day	7.7E-06

TABLE 7.24.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				alpha-BHC	2E-03	ug/L	3.2E-12	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	2.0E-11	2.3E-10	mg/kg-day	8.0E-03	mg/kg-day	2.8E-08
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Endosulfan Sulfate	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A
				Gamma-BHC (Lindane)	9E-03	ug/L	1.5E-11	mg/kg-day	1.1E+00	(mg/kg-day) ⁻¹	1.6E-11	1.0E-09	mg/kg-day	3.0E-04	mg/kg-day	3.4E-06
				Heptachlor	2E-03	ug/L	3.3E-12	mg/kg-day	4.5E+00	(mg/kg-day) ⁻¹	1.5E-11	2.3E-10	mg/kg-day	5.0E-04	mg/kg-day	4.6E-07
				Aluminum	1E+03	ug/L	2.2E-06	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	1.0E+00	mg/kg-day	1.6E-04
				Arsenic	3E+01	ug/L	5.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.6E-08	3.5E-06	mg/kg-day	3.0E-04	mg/kg-day	1.2E-02
				Cadmium (drinking water)	2E+00	ug/L	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	5.0E-04	mg/kg-day	5.3E-04
				Chromium	2E+00	ug/L	2.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-03	mg/kg-day	6.8E-05
				Cobalt	8E+00	ug/L	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.2E-07	mg/kg-day	3.0E-04	mg/kg-day	3.1E-03
				Iron	2E+04	ug/L	4.2E-05	mg/kg-day	N/A	N/A	N/A	2.9E-03	mg/kg-day	7.0E-01	mg/kg-day	4.2E-03
				Lead	3E+00	ug/L	5.7E-09	mg/kg-day	N/A	N/A	N/A	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (drinking water)	1E+03	ug/L	1.8E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	2.4E-02	mg/kg-day	5.1E-03
				Nickel	9E+00	ug/L	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.4E-05
				Silver	2E+00	ug/L	3.4E-09	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	5.0E-03	mg/kg-day	4.8E-05
				Thallium	3E+00	ug/L	4.6E-09	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	8.0E-05	mg/kg-day	4.0E-03
				Zinc	3E+02	ug/L	4.7E-07	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	3.0E-01	mg/kg-day	1.1E-04
				Exp. Route Total							9E-08					4E-02
			Dermal	1,4-Dioxane	7E+00	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				2,4-Dimethylphenol	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				2-Chlorophenol	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				4-Chloroaniline	1E+00	ug/L	N/A	N/A	2.0E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Atrazine	2E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzaldehyde	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				bis(2-Ethylhexyl)phthalate	4E+00	ug/L	3.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.4E-10	2.2E-06	mg/kg-day	2.0E-02	mg/kg-day	1.1E-04
				Carbazole	3E-01	ug/L	N/A	N/A	2.0E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	4.0E-03	mg/kg-day	6.6E-05
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	9E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,2,4-Trichlorobenzene	2E-01	ug/L	N/A	N/A	3.6E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				1,2-Dichlorobenzene	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.0E-02	mg/kg-day	N/A
				1,3-Dichlorobenzene	3E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	9E-01	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				2-Butanone	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-01	mg/kg-day	N/A
				Benzene	1E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Bromodichloromethane	ND	ug/L	N/A	N/A	6.2E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A

TABLE 7.24.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Chlorobenzene	6E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A		
				Chloroethane	5E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A	
				Chloroform	6E-01	ug/L	N/A	N/A	3.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A	
				Ethylbenzene	1E+00	ug/L	N/A	N/A	1.1E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A	
				Isopropylbenzene	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-01	mg/kg-day	N/A	
				Methyl tert-butyl ether	2E+00	ug/L	N/A	N/A	1.8E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A	
				Tetrachloroethene	ND	ug/L	N/A	N/A	5.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A	
				Toluene	6E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-02	mg/kg-day	N/A	
				Trichloroethene	6E-01	ug/L	N/A	N/A	1.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Vinyl Chloride	6E-01	ug/L	N/A	N/A	7.2E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A	
				Xylene (Total)	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-01	mg/kg-day	N/A	
				Aroclor-1242	3E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				Aroclor-1248	5E-02	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				Aroclor-1254	6E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				4,4'-DDD	3E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				4,4'-DDT	3E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Aldrin	2E-03	ug/L	N/A	N/A	1.7E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	3.0E-05	mg/kg-day	N/A	
				alpha-BHC	2E-03	ug/L	N/A	N/A	6.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	8.0E-03	mg/kg-day	N/A	
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A	
				Endosulfan Sulfate	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-03	mg/kg-day	N/A	
				Gamma-BHC (Lindane)	9E-03	ug/L	N/A	N/A	1.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Heptachlor	2E-03	ug/L	N/A	N/A	4.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Aluminum	1E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A	
				Arsenic	3E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Cadmium (drinking water)	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A	
				Chromium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A	
				Cobalt	8E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Iron	2E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	
				Lead	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Manganese (drinking water)	1E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.6E-04	mg/kg-day	N/A	
				Nickel	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A	
				Silver	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A	
				Thallium	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A	
				Zinc	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A	
							Exp. Route Total						4E-10						2E-04
							Exposure Point Total						9E-08						4E-02
							Exposure Medium Total						N/A						N/A
				Medium Total								N/A						N/A	
							Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A	

TABLE 7.24.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		

TABLE 7.25.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-07	9.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-06	9.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	4.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.0E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	1.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-08	3.7E-06	mg/kg-day	2.0E-02	mg/kg-day	1.8E-04
				Carbazole	3E-01	mg/kg	3.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.7E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	9.0E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	6.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.3E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	7.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.5E-07	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	7.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.1E-06	2.0E-07	mg/kg-day	5.0E-05	mg/kg-day	4.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-06	5.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02
				Cadmium (other media)	9E+00	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.7E-06	mg/kg-day	1.0E-03	mg/kg-day	3.7E-03
				Chromium	2E+02	mg/kg	2.2E-05	mg/kg-day	N/A	N/A	N/A	6.3E-05	mg/kg-day	3.0E-03	mg/kg-day	2.1E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	2.8E-05	mg/kg-day	N/A	N/A	N/A	8.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.0E-03
				Iron	2E+04	mg/kg	2.9E-03	mg/kg-day	N/A	N/A	N/A	8.4E-03	mg/kg-day	7.0E-01	mg/kg-day	1.2E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	4.0E-04	mg/kg-day	7.0E-02	mg/kg-day	5.7E-03
				Mercury (other media)	5E-01	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	2E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	8.0E-05	mg/kg-day	7.6E-03
				Vanadium	2E+01	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	9.9E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03
				Zinc	3E+02	mg/kg	3.9E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.8E-04
				Exp. Route Total											8E-06	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-06	5.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.4E-09	2.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	5.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.0E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05
				Carbazole	3E-01	mg/kg	2.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.0E-10	5.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.6E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	4.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	4.0E-03	mg/kg-day	3.6E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.9E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.25.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	4.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.6E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.3E-03
				Dieldrin	5E-01	mg/kg	2.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.5E-07	8.1E-08	mg/kg-day	5.0E-05	mg/kg-day	1.6E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.3E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03
				Cadmium (other media)	9E+00	mg/kg	5.1E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-06					1E-02
		Exposure Point Total									1E-05					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal (wading)	Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.25.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A	
				Dieldrin	2E-03	ug/L	1.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.0E-08	3.7E-09	mg/kg-day	5.0E-05	mg/kg-day	7.3E-05	
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A	
				Aluminum	6E+02	ug/L	3.3E-06	mg/kg-day	N/A	N/A	N/A	9.6E-06	mg/kg-day	1.0E-02	mg/kg-day	9.6E-04	
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Cadmium (other media)	7E-01	ug/L	3.4E-09	mg/kg-day	N/A	N/A	N/A	1.0E-08	mg/kg-day	2.5E-05	mg/kg-day	4.0E-04	
				Chromium	3E+00	ug/L	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	7.5E-05	mg/kg-day	1.3E-03	
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	
				Vanadium	1E+00	ug/L	6.9E-09	mg/kg-day	N/A	N/A	N/A	2.0E-08	mg/kg-day	1.8E-04	mg/kg-day	1.1E-04	
						Exp. Route Total							2E-08				
				Exposure Point Total							2E-08						3E-03
			Exposure Medium Total							N/A						N/A	
Medium Total										N/A					N/A		
Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.9E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	8E-01	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.3E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	1E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.7E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(k)fluoranthene	5E-01	mg/kg	3.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.5E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.8E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.5E-09	5.3E-07	mg/kg-day	2.0E-02	mg/kg-day	2.6E-05	
				Carbazole	3E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.1E-10	6.0E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	1E-01	mg/kg	8.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.5E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.3E-08	mg/kg-day	4.0E-03	mg/kg-day	8.2E-06	
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A	
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05	
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				Aroclor-1254	8E-02	mg/kg	5.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.1E-08	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	7.8E-04	
				Aroclor-1260	2E-01	mg/kg	1.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.2E-08	3.3E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03	
				Dieldrin	1E-02	mg/kg	9.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-08	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05	
				Aluminum	5E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	9.4E-04	mg/kg-day	1.0E+00	mg/kg-day	9.4E-04	
Antimony	5E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	9.9E-08	mg/kg-day	4.0E-04	mg/kg-day	2.5E-04					
Arsenic	5E+00	mg/kg	3.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.3E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03					

TABLE 7.25.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	2.4E-07	mg/kg-day	N/A	N/A	N/A	6.9E-07	mg/kg-day	1.0E-03	mg/kg-day	6.9E-04
				Chromium	4E+01	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	3.0E-03	mg/kg-day	2.9E-03
				Cobalt	5E+00	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.6E-03
				Copper	5E+01	mg/kg	3.8E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.8E-04
				Iron	9E+03	mg/kg	6.0E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.5E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	7.0E-02	mg/kg-day	5.2E-04
				Mercury (other media)	1E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	1.0E-04	mg/kg-day	3.0E-04
				Thallium	3E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	8.0E-05	mg/kg-day	7.4E-04
				Vanadium	1E+01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.2E-04
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	7.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	6.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	9.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	7.1E-09	2.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.6E-09	1.2E-06	mg/kg-day	2.0E-02	mg/kg-day	5.8E-05
				Carbazole	3E-01	mg/kg	5.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.2E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	2.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-07	7.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	9.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.7E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.3E-08	4.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.4E-03
				Aroclor-1260	2E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.9E-08	1.0E-07	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03
				Dieldrin	1E-02	mg/kg	2.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.3E-08	6.0E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	2.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.5E-07	6.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03
				Cadmium (other media)	3E+00	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									4E-06					3E-02

TABLE 7.25.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
	Exposure Medium Total										N/A					N/A	
Medium Total											N/A					N/A	
							Total of Receptor Risks Across All Media				N/A	Total of Receptor Hazards Across All Media				N/A	

TABLE 7.25.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.8E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.2E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.8E-10	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	9.8E-06
				Carbazole	3E-01	mg/kg	8.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.6E-10	2.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.6E-08	3.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.6E-09	mg/kg-day	N/A	N/A	N/A	9.0E-09	mg/kg-day	4.0E-03	mg/kg-day	2.2E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.6E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	9.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	9.0E-09	3.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Dieldrin	1E-01	mg/kg	4.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.8E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	7.6E-04	mg/kg-day	1.0E+00	mg/kg-day	7.6E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.3E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	1.0E-03	mg/kg-day	5.0E-04
				Chromium	1E+02	mg/kg	3.2E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.8E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	4.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	4.0E-02	mg/kg-day	3.8E-04
				Iron	2E+04	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.4E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	7.0E-02	mg/kg-day	7.2E-04
				Mercury (other media)	4E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	1.0E-04	mg/kg-day	3.8E-04
				Thallium	1E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	2E+01	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	7.0E-03	mg/kg-day	2.9E-04
				Zinc	2E+02	mg/kg	4.8E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-01	mg/kg-day	5.6E-05
				Exp. Route Total										1E-06		
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-07	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.2E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.2E-09	1.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.2E-10	1.6E-07	mg/kg-day	2.0E-02	mg/kg-day	7.8E-06
				Carbazole	3E-01	mg/kg	8.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	2.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.9E-08	3.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	7.2E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.25.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	5.9E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.0E-08	3.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Dieldrin	1E-01	mg/kg	3.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.5E-08	1.2E-08	mg/kg-day	5.0E-05	mg/kg-day	2.4E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	6.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.0E-07	2.4E-07	mg/kg-day	3.0E-04	mg/kg-day	8.0E-04
				Cadmium (other media)	5E+00	mg/kg	1.1E-09	mg/kg-day	N/A	N/A	N/A	4.0E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								8E-07					3E-03
		Exposure Point Total									2E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal (wading)	Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.25.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	5.2E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.3E-09	1.8E-09	mg/kg-day	5.0E-05	mg/kg-day	3.7E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	1.4E-06	mg/kg-day	N/A	N/A	N/A	4.8E-06	mg/kg-day	1.0E-02	mg/kg-day	4.8E-04
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	1.4E-09	mg/kg-day	N/A	N/A	N/A	5.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.0E-04
				Chromium	3E+00	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	5.0E-08	mg/kg-day	7.5E-05	mg/kg-day	6.7E-04
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	2.9E-09	mg/kg-day	N/A	N/A	N/A	1.0E-08	mg/kg-day	1.8E-04	mg/kg-day	5.5E-05
			Exp. Route Total								8E-09					1E-03
		Exposure Point Total									8E-09					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-08	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.0E-08	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-08	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	7.1E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.2E-10	2.5E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	3.8E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.3E-10	1.3E-07	mg/kg-day	2.0E-02	mg/kg-day	6.6E-06
				Carbazole	3E-01	mg/kg	4.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.6E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-08	6.5E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	8.2E-09	mg/kg-day	4.0E-03	mg/kg-day	2.0E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.9E-09	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-09	3.9E-09	mg/kg-day	2.0E-05	mg/kg-day	2.0E-04
				Aroclor-1260	2E-01	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.3E-09	8.2E-09	mg/kg-day	2.0E-05	mg/kg-day	4.1E-04
				Dieldrin	1E-02	mg/kg	1.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.1E-09	6.8E-10	mg/kg-day	5.0E-05	mg/kg-day	1.4E-05
				Aluminum	5E+03	mg/kg	6.7E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	1.0E+00	mg/kg-day	2.3E-04
				Antimony	5E-01	mg/kg	7.1E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	4.0E-04	mg/kg-day	6.2E-05
				Arsenic	5E+00	mg/kg	7.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.1E-07	2.6E-07	mg/kg-day	3.0E-04	mg/kg-day	8.6E-04

TABLE 7.25.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	4.9E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	1.0E-03	mg/kg-day	1.7E-04
				Chromium	4E+01	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-03	mg/kg-day	7.3E-04
				Cobalt	5E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	3.0E-04	mg/kg-day	9.1E-04
				Copper	5E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	4.0E-02	mg/kg-day	7.0E-05
				Iron	9E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	7.0E-01	mg/kg-day	6.2E-04
				Lead												
				Manganese (other media)	2E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	9.0E-06	mg/kg-day	7.0E-02	mg/kg-day	1.3E-04
				Mercury (other media)	1E-01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.6E-09	mg/kg-day	1.0E-04	mg/kg-day	7.6E-05
				Thallium	3E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	8.0E-05	mg/kg-day	1.8E-04
				Vanadium	1E+01	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	7.0E-03	mg/kg-day	7.9E-05
				Exp. Route Total						3E-07						
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.1E-08	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	7.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.1E-07	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.8E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	4.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.0E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.3E-09	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Carbazole	3E-01	mg/kg	2.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.9E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.7E-08	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	9.0E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	6.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.9E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aroclor-1260	2E-01	mg/kg	1.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.4E-08	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Dieldrin	1E-02	mg/kg	8.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.4E-08	3.0E-09	mg/kg-day	5.0E-05	mg/kg-day	6.0E-05
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	9.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-07	3.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Cadmium (other media)	3E+00	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.5E-09	mg/kg-day	2.5E-05	mg/kg-day	3.0E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Exp. Route Total						1E-06						
			Exposure Point Total						1E-06							1E-02

TABLE 7.25.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
	Exposure Medium Total												N/A							N/A
Medium Total													N/A							N/A
							Total of Receptor Risks Across All Media						N/A	Total of Receptor Hazards Across All Media						N/A

TABLE 7.26.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-07	9.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-06	9.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	4.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.0E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	1.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-08	3.7E-06	mg/kg-day	2.0E-02	mg/kg-day	1.8E-04
				Carbazole	3E-01	mg/kg	3.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.7E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	9.0E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	6.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.3E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	7.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.5E-07	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	7.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.1E-06	2.0E-07	mg/kg-day	5.0E-05	mg/kg-day	4.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-06	5.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02
				Cadmium (other media)	9E+00	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.7E-06	mg/kg-day	1.0E-03	mg/kg-day	3.7E-03
				Chromium	2E+02	mg/kg	2.2E-05	mg/kg-day	N/A	N/A	N/A	6.3E-05	mg/kg-day	3.0E-03	mg/kg-day	2.1E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	2.8E-05	mg/kg-day	N/A	N/A	N/A	8.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.0E-03
				Iron	2E+04	mg/kg	2.9E-03	mg/kg-day	N/A	N/A	N/A	8.4E-03	mg/kg-day	7.0E-01	mg/kg-day	1.2E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	4.0E-04	mg/kg-day	7.0E-02	mg/kg-day	5.7E-03
				Mercury (other media)	5E-01	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	2E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	8.0E-05	mg/kg-day	7.6E-03
				Vanadium	2E+01	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	9.9E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03
				Zinc	3E+02	mg/kg	3.9E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.8E-04
				Exp. Route Total										8E-06	9E-02	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-06	5.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.4E-09	2.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	5.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.0E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05
				Carbazole	3E-01	mg/kg	2.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.0E-10	5.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.6E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	4.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	4.0E-03	mg/kg-day	3.6E-06
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.9E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.26.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05		
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A		
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A		
				Aroclor-1260	6E-01	mg/kg	4.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.6E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.3E-03		
				Dieldrin	5E-01	mg/kg	2.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.5E-07	8.1E-08	mg/kg-day	5.0E-05	mg/kg-day	1.6E-03		
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A		
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A		
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A		
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.3E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03		
				Cadmium (other media)	9E+00	mg/kg	5.1E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04		
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A		
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A		
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A		
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A		
				Lead														
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A		
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A		
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A		
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A		
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A		
						Exp. Route Total							3E-06					1E-02
						Exposure Point Total							1E-05					
		Exposure Medium Total									N/A					N/A		
Medium Total										N/A					N/A			
Surface Water	Surface Water	Southern Bank	Dermal (swimming)	Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A		
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A		
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A		
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A		
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A		
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A		
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A		
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A		
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A		
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A		
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A		

TABLE 7.26.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	1.9E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.0E-08	5.5E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	5.0E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	1.0E-02	mg/kg-day	1.5E-03
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	5.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04
				Chromium	3E+00	ug/L	5.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	7.5E-05	mg/kg-day	2.0E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	3.7E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-02	mg/kg-day	1.5E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.1E-08	mg/kg-day	1.8E-04	mg/kg-day	1.7E-04
			Exp. Route Total								3E-08					5E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.7E-08	1.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	3.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-09	9.1E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	3.0E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	2.2E-11	8.8E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	2.5E-09	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	3.0E-02	mg/kg-day	2.4E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.26.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	2E-03	ug/L	5.2E-11	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.2E-10	1.5E-10	mg/kg-day	5.0E-05	mg/kg-day	3.0E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	1.4E-05	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	1.0E-02	mg/kg-day	4.1E-03
				Arsenic	2E+00	ug/L	3.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.5E-08	1.1E-07	mg/kg-day	3.0E-04	mg/kg-day	3.6E-04
				Cadmium (other media)	7E-01	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	2.5E-05	mg/kg-day	1.7E-03
				Chromium	3E+00	ug/L	7.3E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	7.5E-05	mg/kg-day	2.8E-03
				Cobalt	8E-01	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	5.2E-08	mg/kg-day	3.0E-04	mg/kg-day	1.7E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	1.0E-07	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Iron	2E+03	ug/L	4.2E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	7.0E-01	mg/kg-day	1.8E-04
				Lead	7E+00	ug/L	1.4E-07	mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	1.0E-05	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	7.0E-02	mg/kg-day	4.2E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	2.9E-08	mg/kg-day	N/A	N/A	N/A	8.5E-08	mg/kg-day	1.8E-04	mg/kg-day	4.7E-04
			Exp. Route Total								8E-08					1E-02
		Exposure Point Total									1E-07					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.9E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.3E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.7E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	3.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.5E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.8E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.5E-09	5.3E-07	mg/kg-day	2.0E-02	mg/kg-day	2.6E-05
				Carbazole	3E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.1E-10	6.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	8.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.5E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.3E-08	mg/kg-day	4.0E-03	mg/kg-day	8.2E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	5.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.1E-08	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	7.8E-04
				Aroclor-1260	2E-01	mg/kg	1.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.2E-08	3.3E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Dieldrin	1E-02	mg/kg	9.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-08	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05
				Aluminum	5E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	9.4E-04	mg/kg-day	1.0E+00	mg/kg-day	9.4E-04
				Antimony	5E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	9.9E-08	mg/kg-day	4.0E-04	mg/kg-day	2.5E-04
				Arsenic	5E+00	mg/kg	3.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.3E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03
				Cadmium (other media)	3E+00	mg/kg	2.4E-07	mg/kg-day	N/A	N/A	N/A	6.9E-07	mg/kg-day	1.0E-03	mg/kg-day	6.9E-04
				Chromium	4E+01	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	3.0E-03	mg/kg-day	2.9E-03
				Cobalt	5E+00	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.6E-03
				Copper	5E+01	mg/kg	3.8E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.8E-04

TABLE 7.26.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Iron	9E+03	mg/kg	6.0E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.5E-03			
				Lead															
				Manganese (other media)	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	7.0E-02	mg/kg-day	5.2E-04			
				Mercury (other media)	1E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	1.0E-04	mg/kg-day	3.0E-04			
				Thallium	3E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	8.0E-05	mg/kg-day	7.4E-04			
				Vanadium	1E+01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.2E-04			
				Exp. Route Total						1E-06					2E-02				
				Dermal															
				Benzo(a)anthracene	1E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	7.8E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(a)pyrene	8E-01	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	4.9E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(b)fluoranthene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	6.5E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(k)fluoranthene	5E-01	mg/kg	9.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	7.1E-09	2.8E-07	mg/kg-day	N/A	N/A	N/A			
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.6E-09	1.2E-06	mg/kg-day	2.0E-02	mg/kg-day	5.8E-05			
				Carbazole	3E-01	mg/kg	5.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.2E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A			
				Dibenz(a,h)anthracene	1E-01	mg/kg	2.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-07	7.4E-08	mg/kg-day	N/A	N/A	N/A			
				Dibenzofuran	2E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05			
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	9.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.7E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	2E+00	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.7E-05			
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1254	8E-02	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.3E-08	4.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.4E-03			
				Aroclor-1260	2E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.9E-08	1.0E-07	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03			
				Dieldrin	1E-02	mg/kg	2.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.3E-08	6.0E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04			
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	5E+00	mg/kg	2.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.5E-07	6.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03			
				Cadmium (other media)	3E+00	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.0E-04			
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Exp. Route Total						2E-06					1E-02				
				Exposure Point Total						4E-06					3E-02				
				Exposure Medium Total						N/A					N/A				
				Medium Total						N/A					N/A				
				Total of Receptor Risks Across All Media															
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media					N/A		

TABLE 7.26.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.8E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	2E+00	mg/kg	5.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(k)fluoranthene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.2E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.8E-10	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	9.8E-06	
				Carbazole	3E-01	mg/kg	8.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.6E-10	2.8E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.6E-08	3.6E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenzofuran	9E-02	mg/kg	2.6E-09	mg/kg-day	N/A	N/A	N/A	9.0E-09	mg/kg-day	4.0E-03	mg/kg-day	2.2E-06	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A	
				Phenanthrene	2E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.6E-06	
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				Aroclor-1260	3E-01	mg/kg	9.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	9.0E-09	3.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03	
				Dieldrin	1E-01	mg/kg	4.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.8E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04	
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				Aluminum	8E+03	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	7.6E-04	mg/kg-day	1.0E+00	mg/kg-day	7.6E-04	
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A	
				Arsenic	1E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.3E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03	
				Cadmium (other media)	5E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	1.0E-03	mg/kg-day	5.0E-04	
				Chromium	1E+02	mg/kg	3.2E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.8E-03	
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Copper	1E+02	mg/kg	4.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	4.0E-02	mg/kg-day	3.8E-04	
				Iron	2E+04	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	1.7E-03	mg/kg-day	7.0E-01	mg/kg-day	2.4E-03	
				Lead													
				Manganese (other media)	5E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	7.0E-02	mg/kg-day	7.2E-04	
				Mercury (other media)	4E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	1.0E-04	mg/kg-day	3.8E-04	
				Thallium	1E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03	
				Vanadium	2E+01	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	7.0E-03	mg/kg-day	2.9E-04	
				Zinc	2E+02	mg/kg	4.8E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-01	mg/kg-day	5.6E-05	
				Exp. Route Total										1E-06			
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	2E+00	mg/kg	5.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-07	1.9E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	2E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.2E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(k)fluoranthene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.2E-09	1.1E-07	mg/kg-day	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.2E-10	1.6E-07	mg/kg-day	2.0E-02	mg/kg-day	7.8E-06	
				Carbazole	3E-01	mg/kg	8.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	2.9E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.9E-08	3.8E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenzofuran	9E-02	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	7.2E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A	
															2E-02		

TABLE 7.26.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	5.9E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.0E-08	3.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Dieldrin	1E-01	mg/kg	3.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.5E-08	1.2E-08	mg/kg-day	5.0E-05	mg/kg-day	2.4E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	6.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.0E-07	2.4E-07	mg/kg-day	3.0E-04	mg/kg-day	8.0E-04
				Cadmium (other media)	5E+00	mg/kg	1.1E-09	mg/kg-day	N/A	N/A	N/A	4.0E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								8E-07					3E-03
		Exposure Point Total									2E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal (swimming)	Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.26.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	7.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.3E-08	2.8E-09	mg/kg-day	5.0E-05	mg/kg-day	5.5E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	2.1E-06	mg/kg-day	N/A	N/A	N/A	7.3E-06	mg/kg-day	1.0E-02	mg/kg-day	7.3E-04
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.6E-09	mg/kg-day	2.5E-05	mg/kg-day	3.0E-04
				Chromium	3E+00	ug/L	2.2E-08	mg/kg-day	N/A	N/A	N/A	7.7E-08	mg/kg-day	7.5E-05	mg/kg-day	1.0E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	1.5E-06	mg/kg-day	N/A	N/A	N/A	5.3E-06	mg/kg-day	7.0E-02	mg/kg-day	7.6E-05
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	4.4E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.8E-04	mg/kg-day	8.4E-05
			Exp. Route Total								1E-08					2E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	1.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-08	5.3E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	1.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.5E-10	4.5E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	1.3E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	9.1E-12	4.4E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	1.0E-09	mg/kg-day	N/A	N/A	N/A	3.6E-09	mg/kg-day	3.0E-02	mg/kg-day	1.2E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.26.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	2E-03	ug/L	2.1E-11	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.4E-10	7.5E-11	mg/kg-day	5.0E-05	mg/kg-day	1.5E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	5.8E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	1.0E-02	mg/kg-day	2.0E-03
				Arsenic	2E+00	ug/L	1.5E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.3E-08	5.4E-08	mg/kg-day	3.0E-04	mg/kg-day	1.8E-04
				Cadmium (other media)	7E-01	ug/L	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	2.5E-05	mg/kg-day	8.4E-04
				Chromium	3E+00	ug/L	3.0E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	7.5E-05	mg/kg-day	1.4E-03
				Cobalt	8E-01	ug/L	7.4E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	3.0E-04	mg/kg-day	8.7E-05
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	2.0E-02	mg/kg-day	7.4E-06
				Iron	2E+03	ug/L	1.8E-05	mg/kg-day	N/A	N/A	N/A	6.1E-05	mg/kg-day	7.0E-01	mg/kg-day	8.8E-05
				Lead	7E+00	ug/L	6.0E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	4.2E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	7.0E-02	mg/kg-day	2.1E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	1.2E-08	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	1.8E-04	mg/kg-day	2.3E-04
			Exp. Route Total								4E-08					5E-03
		Exposure Point Total									5E-08					7E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-08	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.0E-08	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-08	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	7.1E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.2E-10	2.5E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	3.8E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.3E-10	1.3E-07	mg/kg-day	2.0E-02	mg/kg-day	6.6E-06
				Carbazole	3E-01	mg/kg	4.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.6E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-08	6.5E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	8.2E-09	mg/kg-day	4.0E-03	mg/kg-day	2.0E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.9E-09	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-09	3.9E-09	mg/kg-day	2.0E-05	mg/kg-day	2.0E-04
				Aroclor-1260	2E-01	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.3E-09	8.2E-09	mg/kg-day	2.0E-05	mg/kg-day	4.1E-04
				Dieldrin	1E-02	mg/kg	1.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.1E-09	6.8E-10	mg/kg-day	5.0E-05	mg/kg-day	1.4E-05
				Aluminum	5E+03	mg/kg	6.7E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	1.0E+00	mg/kg-day	2.3E-04
				Antimony	5E-01	mg/kg	7.1E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	4.0E-04	mg/kg-day	6.2E-05
				Arsenic	5E+00	mg/kg	7.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.1E-07	2.6E-07	mg/kg-day	3.0E-04	mg/kg-day	8.6E-04
				Cadmium (other media)	3E+00	mg/kg	4.9E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	1.0E-03	mg/kg-day	1.7E-04
				Chromium	4E+01	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-03	mg/kg-day	7.3E-04
				Cobalt	5E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	2.7E-07	mg/kg-day	3.0E-04	mg/kg-day	9.1E-04
				Copper	5E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	4.0E-02	mg/kg-day	7.0E-05

TABLE 7.26.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Iron	9E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	7.0E-01	mg/kg-day	6.2E-04			
				Lead															
				Manganese (other media)	2E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	9.0E-06	mg/kg-day	7.0E-02	mg/kg-day	1.3E-04			
				Mercury (other media)	1E-01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.6E-09	mg/kg-day	1.0E-04	mg/kg-day	7.6E-05			
				Thallium	3E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	8.0E-05	mg/kg-day	1.8E-04			
				Vanadium	1E+01	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	7.0E-03	mg/kg-day	7.9E-05			
				Exp. Route Total						3E-07					5E-03				
				Dermal															
				Benzo(a)anthracene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.1E-08	3.9E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(a)pyrene	8E-01	mg/kg	7.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.1E-07	2.5E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(b)fluoranthene	1E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.8E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(k)fluoranthene	5E-01	mg/kg	4.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.0E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A			
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.3E-09	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05			
				Carbazole	3E-01	mg/kg	2.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.9E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A			
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.7E-08	3.7E-08	mg/kg-day	N/A	N/A	N/A			
				Dibenzofuran	2E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	9.0E-06			
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	2E+00	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05			
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1254	8E-02	mg/kg	6.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.9E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03			
				Aroclor-1260	2E-01	mg/kg	1.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.4E-08	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03			
				Dieldrin	1E-02	mg/kg	8.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.4E-08	3.0E-09	mg/kg-day	5.0E-05	mg/kg-day	6.0E-05			
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	5E+00	mg/kg	9.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-07	3.4E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03			
				Cadmium (other media)	3E+00	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.5E-09	mg/kg-day	2.5E-05	mg/kg-day	3.0E-04			
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Exp. Route Total						1E-06					5E-03				
				Exposure Point Total						1E-06					1E-02				
				Exposure Medium Total						N/A					N/A				
				Medium Total						N/A					N/A				
				Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media			

TABLE 7.27.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.5E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.7E-06	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-07	2.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.6E-08	8.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	6.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.8E-09	7.3E-06	mg/kg-day	2.0E-02	mg/kg-day	3.7E-04
				Carbazole	3E-01	mg/kg	1.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.8E-10	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.2E-09	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	3.0E-02	mg/kg-day	6.5E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.7E-08	4.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.2E-02
				Dieldrin	5E-01	mg/kg	3.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.6E-07	4.1E-07	mg/kg-day	5.0E-05	mg/kg-day	8.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	7.4E-03	mg/kg-day	1.0E+00	mg/kg-day	7.4E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.5E-02
				Cadmium (other media)	9E+00	mg/kg	6.4E-07	mg/kg-day	N/A	N/A	N/A	7.5E-06	mg/kg-day	1.0E-03	mg/kg-day	7.5E-03
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	4.2E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	4.0E-02	mg/kg-day	4.0E-03
				Iron	2E+04	mg/kg	1.4E-03	mg/kg-day	N/A	N/A	N/A	1.7E-02	mg/kg-day	7.0E-01	mg/kg-day	2.4E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	6.9E-05	mg/kg-day	N/A	N/A	N/A	8.0E-04	mg/kg-day	7.0E-02	mg/kg-day	1.1E-02
				Mercury (other media)	5E-01	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	4.1E-07	mg/kg-day	1.0E-04	mg/kg-day	4.1E-03
				Thallium	2E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	8.0E-05	mg/kg-day	1.5E-02
				Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-03	mg/kg-day	2.8E-03
				Zinc	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	3.0E-01	mg/kg-day	7.5E-04
				Exp. Route Total											8E-06	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.2E-06	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.8E-07	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.8E-08	9.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	5.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.7E-09	6.4E-06	mg/kg-day	2.0E-02	mg/kg-day	3.2E-04
				Carbazole	3E-01	mg/kg	2.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.4E-10	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.6E-07	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	4.0E-03	mg/kg-day	1.6E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A

TABLE 7.27.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-02	mg/kg-day	7.5E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	4.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.5E-08	5.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.8E-02
				Dieldrin	5E-01	mg/kg	3.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.9E-07	3.6E-07	mg/kg-day	5.0E-05	mg/kg-day	7.2E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.6E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.3E-03
				Cadmium (other media)	9E+00	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								7E-06					5E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal (wading)	Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.27.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	3.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.7E-09	4.2E-09	mg/kg-day	5.0E-05	mg/kg-day	8.3E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	9.4E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	1.0E-02	mg/kg-day	1.1E-03
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	3E+00	ug/L	9.9E-09	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	7.5E-05	mg/kg-day	1.5E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								6E-09					3E-03
		Exposure Point Total									6E-09					3E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	4.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	5.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	3.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.5E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.6E-08	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.7E-09	2.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	9.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.3E-09	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.3E-05
				Carbazole	3E-01	mg/kg	1.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.8E-08	5.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.6E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.5E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	9.9E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.4E-09	3.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Aroclor-1260	2E-01	mg/kg	5.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.1E-08	6.5E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03
				Dieldrin	1E-02	mg/kg	4.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.5E-09	5.4E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Aluminum	5E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03
				Antimony	5E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	4.0E-04	mg/kg-day	4.9E-04
				Arsenic	5E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-07	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	6.9E-03

TABLE 7.27.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Cadmium (other media)	3E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	1.0E-03	mg/kg-day	1.4E-03			
				Chromium	4E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-03	mg/kg-day	5.8E-03			
				Cobalt	5E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.3E-03			
				Copper	5E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	4.0E-02	mg/kg-day	5.6E-04			
				Iron	9E+03	mg/kg	3.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03			
				Lead															
				Manganese (other media)	2E+02	mg/kg	6.2E-06	mg/kg-day	N/A	N/A	N/A	7.2E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03			
				Mercury (other media)	1E-01	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	6.1E-08	mg/kg-day	1.0E-04	mg/kg-day	6.1E-04			
				Thallium	3E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03			
				Vanadium	1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	7.0E-03	mg/kg-day	6.3E-04			
				Exp. Route Total						1E-06					4E-02				
				Dermal															
				Benzo(a)anthracene	1E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	8.9E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(a)pyrene	8E-01	mg/kg	4.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-06	5.6E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(b)fluoranthene	1E+00	mg/kg	6.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(k)fluoranthene	5E-01	mg/kg	2.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.1E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A			
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.6E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.6E-05			
				Carbazole	3E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A			
				Dibenz(a,h)anthracene	1E-01	mg/kg	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	8.5E-08	mg/kg-day	N/A	N/A	N/A			
				Dibenzofuran	2E-01	mg/kg	7.0E-09	mg/kg-day	N/A	N/A	N/A	8.2E-08	mg/kg-day	4.0E-03	mg/kg-day	2.0E-05			
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.8E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	2E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	3.0E-02	mg/kg-day	5.4E-05			
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1254	8E-02	mg/kg	4.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.4E-09	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03			
				Aroclor-1260	2E-01	mg/kg	9.8E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.0E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.7E-03			
				Dieldrin	1E-02	mg/kg	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.3E-09	6.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04			
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	5E+00	mg/kg	6.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.0E-07	7.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.6E-03			
				Cadmium (other media)	3E+00	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	2.5E-05	mg/kg-day	6.9E-04			
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Exp. Route Total						2E-06					1E-02				
Exposure Point Total							3E-06					5E-02							

TABLE 7.27.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RID/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
	Exposure Medium Total											N/A						N/A
Medium Total												N/A						N/A
							Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.27.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.9E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.8E-07	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.9E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.9E-09	2.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.7E-10	3.9E-07	mg/kg-day	2.0E-02	mg/kg-day	2.0E-05
				Carbazole	3E-01	mg/kg	4.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.6E-11	5.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-07	7.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.5E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	3.0E-02	mg/kg-day	1.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	5.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.4E-09	6.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.1E-03
				Dieldrin	1E-01	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.1E-08	3.0E-08	mg/kg-day	5.0E-05	mg/kg-day	6.0E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	1.5E-03	mg/kg-day	1.0E+00	mg/kg-day	1.5E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.6E-07	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.7E-03
				Cadmium (other media)	5E+00	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	1.0E-03	mg/kg-day	1.0E-03
				Chromium	1E+02	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.3E-05	mg/kg-day	3.0E-03	mg/kg-day	7.5E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	4.0E-02	mg/kg-day	7.5E-04
				Iron	2E+04	mg/kg	2.9E-04	mg/kg-day	N/A	N/A	N/A	3.4E-03	mg/kg-day	7.0E-01	mg/kg-day	4.8E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	8.7E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	7.0E-02	mg/kg-day	1.4E-03
				Mercury (other media)	4E-01	mg/kg	6.5E-09	mg/kg-day	N/A	N/A	N/A	7.5E-08	mg/kg-day	1.0E-04	mg/kg-day	7.5E-04
				Thallium	1E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	3.1E-03
				Vanadium	2E+01	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	7.0E-03	mg/kg-day	5.8E-04
				Zinc	2E+02	mg/kg	2.9E-06	mg/kg-day	N/A	N/A	N/A	3.4E-05	mg/kg-day	3.0E-01	mg/kg-day	1.1E-04
				Exp. Route Total										1E-06	3E-02	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	7.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	8.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	7.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-06	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	8.9E-09	4.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.3E-10	6.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.4E-05
				Carbazole	3E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.2E-10	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	7.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.27.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	9.0E-07	mg/kg-day	3.0E-02	mg/kg-day	3.0E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	1.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.3E-08	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.7E-03
				Dieldrin	1E-01	mg/kg	4.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.2E-08	5.3E-08	mg/kg-day	5.0E-05	mg/kg-day	1.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-07	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.5E-03
				Cadmium (other media)	5E+00	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.0E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-06					1E-02
		Exposure Point Total									4E-06					5E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Southern Bank	Dermal (wading)	Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.27.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations									
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient					
							Value	Units	Value	Units		Value	Units	Value	Units						
Sediment	Sediment	Southern Bank	Ingestion	4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A			
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A			
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A	N/A			
				Dieldrin	2E-03	ug/L	1.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.9E-09	2.1E-09	mg/kg-day	5.0E-05	mg/kg-day	4.2E-05	N/A				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A				
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A	N/A				
				Aluminum	6E+02	ug/L	4.7E-07	mg/kg-day	N/A	N/A	N/A	5.5E-06	mg/kg-day	1.0E-02	mg/kg-day	5.5E-04	N/A				
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A				
				Cadmium (other media)	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A	N/A				
				Chromium	3E+00	ug/L	4.9E-09	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	7.5E-05	mg/kg-day	7.7E-04	N/A				
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A				
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	N/A				
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	N/A				
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	N/A				
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	N/A				
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	N/A				
				Vanadium	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A	N/A				
						Exp. Route Total							3E-09					1E-03			
						Exposure Point Total							3E-09					1E-03			
						Exposure Medium Total							N/A					N/A			
				Medium Total												N/A					N/A
				Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A	
								Benzo(a)pyrene	8E-01	mg/kg	7.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	8.6E-08	mg/kg-day	N/A	N/A	N/A	
								Benzo(b)fluoranthene	1E+00	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A	
								Benzo(k)fluoranthene	5E-01	mg/kg	4.3E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.4E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A	
		bis(2-Ethylhexyl)phthalate	3E+00					mg/kg	2.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.2E-10	2.6E-07	mg/kg-day	2.0E-02	mg/kg-day	1.3E-05			
		Carbazole	3E-01					mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.2E-11	3.0E-08	mg/kg-day	N/A	N/A	N/A			
		Dibenz(a,h)anthracene	1E-01					mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-08	1.3E-08	mg/kg-day	N/A	N/A	N/A			
		Dibenzofuran	2E-01					mg/kg	1.4E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.1E-06			
		Indeno(1,2,3-cd)pyrene	5E-01					mg/kg	4.0E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.9E-09	4.7E-08	mg/kg-day	N/A	N/A	N/A			
		Phenanthrene	2E+00					mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-02	mg/kg-day	8.3E-06			
Aroclor-1242	ND	mg/kg	N/A					N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A					
Aroclor-1254	8E-02	mg/kg	6.7E-10					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04					
Aroclor-1260	2E-01	mg/kg	1.4E-09					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.4E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	8.2E-04					
Dieldrin	1E-02	mg/kg	1.2E-10					mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.9E-09	1.4E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05					
Aluminum	5E+03	mg/kg	4.0E-05					mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	1.0E+00	mg/kg-day	4.7E-04					
Antimony	5E-01	mg/kg	4.2E-09					mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	4.0E-04	mg/kg-day	1.2E-04					
Arsenic	5E+00	mg/kg	4.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.6E-08	5.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03									

TABLE 7.27.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	3E+00	mg/kg	2.9E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	1.0E-03	mg/kg-day	3.4E-04
				Chromium	4E+01	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	3.0E-03	mg/kg-day	1.5E-03
				Cobalt	5E+00	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				Copper	5E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	4.0E-02	mg/kg-day	1.4E-04
				Iron	9E+03	mg/kg	7.5E-05	mg/kg-day	N/A	N/A	N/A	8.7E-04	mg/kg-day	7.0E-01	mg/kg-day	1.2E-03
				Lead												
				Manganese (other media)	2E+02	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	2.6E-04
				Mercury (other media)	1E-01	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04
				Thallium	3E-01	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	8.0E-05	mg/kg-day	3.7E-04
				Vanadium	1E+01	mg/kg	9.5E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.0E-03	mg/kg-day	1.6E-04
			Exp. Route Total								3E-07					1E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.3E-07	2.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.0E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.0E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	5.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.9E-10	6.6E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Carbazole	3E-01	mg/kg	8.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	9.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.9E-08	4.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.0E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.9E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	6.9E-08	mg/kg-day	N/A	N/A	N/A	8.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.4E-09	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.4E-03
				Aroclor-1260	2E-01	mg/kg	4.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	4.9E-09	5.7E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Dieldrin	1E-02	mg/kg	2.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.7E-09	3.4E-09	mg/kg-day	5.0E-05	mg/kg-day	6.8E-05
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	5E+00	mg/kg	3.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.0E-08	3.9E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Cadmium (other media)	3E+00	mg/kg	7.4E-10	mg/kg-day	N/A	N/A	N/A	8.6E-09	mg/kg-day	2.5E-05	mg/kg-day	3.4E-04
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								9E-07					6E-03
		Exposure Point Total									1E-06					2E-02

TABLE 7.27.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RID/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
	Exposure Medium Total											N/A						N/A
Medium Total												N/A						N/A
							Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.28.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.5E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.7E-06	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-07	2.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.6E-08	8.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	6.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.8E-09	7.3E-06	mg/kg-day	2.0E-02	mg/kg-day	3.7E-04
				Carbazole	3E-01	mg/kg	1.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.8E-10	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.2E-09	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	3.0E-02	mg/kg-day	6.5E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.7E-08	4.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.2E-02
				Dieldrin	5E-01	mg/kg	3.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.6E-07	4.1E-07	mg/kg-day	5.0E-05	mg/kg-day	8.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	7.4E-03	mg/kg-day	1.0E+00	mg/kg-day	7.4E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.5E-02
				Cadmium (other media)	9E+00	mg/kg	6.4E-07	mg/kg-day	N/A	N/A	N/A	7.5E-06	mg/kg-day	1.0E-03	mg/kg-day	7.5E-03
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	4.2E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	4.0E-02	mg/kg-day	4.0E-03
				Iron	2E+04	mg/kg	1.4E-03	mg/kg-day	N/A	N/A	N/A	1.7E-02	mg/kg-day	7.0E-01	mg/kg-day	2.4E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	6.9E-05	mg/kg-day	N/A	N/A	N/A	8.0E-04	mg/kg-day	7.0E-02	mg/kg-day	1.1E-02
				Mercury (other media)	5E-01	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	4.1E-07	mg/kg-day	1.0E-04	mg/kg-day	4.1E-03
				Thallium	2E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	8.0E-05	mg/kg-day	1.5E-02
				Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-03	mg/kg-day	2.8E-03
				Zinc	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	3.0E-01	mg/kg-day	7.5E-04
				Exp. Route Total											8E-06	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.2E-06	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.8E-07	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.8E-08	9.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	5.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.7E-09	6.4E-06	mg/kg-day	2.0E-02	mg/kg-day	3.2E-04
				Carbazole	3E-01	mg/kg	2.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.4E-10	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.6E-07	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	4.0E-03	mg/kg-day	1.6E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A

TABLE 7.28.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations									
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient					
							Value	Units	Value	Units		Value	Units	Value	Units						
				Phenanthrene	2E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-02	mg/kg-day	7.5E-05					
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A					
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A					
				Aroclor-1260	6E-01	mg/kg	4.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.5E-08	5.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.8E-02					
				Dieldrin	5E-01	mg/kg	3.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.9E-07	3.6E-07	mg/kg-day	5.0E-05	mg/kg-day	7.2E-03					
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A					
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A					
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A					
				Arsenic	1E+01	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.6E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.3E-03					
				Cadmium (other media)	9E+00	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03					
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A					
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A					
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A					
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A					
				Lead																	
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A					
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A					
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A					
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A					
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A					
				Exp. Route Total											7E-06					5E-02	
				Exposure Point Total											1E-05					2E-01	
				Exposure Medium Total											N/A					N/A	
				Medium Total											N/A					N/A	
				Surface Water	Surface Water	Southern Bank	Dermal (swimming)	Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A
								Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
								Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
	Benzo(g,h,i)perylene	ND	ug/L					N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A					
Benzo(k)fluoranthene	ND	ug/L	N/A					N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A						
bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A					N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	2.0E-02	mg/kg-day	N/A						
Chrysene	1E-01	ug/L	N/A					N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A						
Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A					N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A						
Naphthalene	ND	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A						
Phenanthrene	1E-01	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A						
1,4-Dichlorobenzene	ND	ug/L	N/A					N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	7.0E-02	mg/kg-day	N/A						
Benzene	ND	ug/L	N/A					N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	4.0E-03	mg/kg-day	N/A						
Aroclor-1260	ND	ug/L	N/A					N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	2.0E-05	mg/kg-day	N/A						

TABLE 7.28.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.3E-09	6.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	1.0E-02	mg/kg-day	1.8E-03
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.4E-04
				Chromium	3E+00	ug/L	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.9E-07	mg/kg-day	7.5E-05	mg/kg-day	2.5E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	3.2E-09	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	1.8E-04	mg/kg-day	2.1E-04
			Exp. Route Total								9E-09					5E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	1.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.0E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	1.6E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.4E-09	1.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	1.5E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	3.3E-11	1.8E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	3.0E-02	mg/kg-day	4.8E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.28.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	2E-03	ug/L	2.6E-11	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.1E-10	3.0E-10	mg/kg-day	5.0E-05	mg/kg-day	6.0E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	7.0E-06	mg/kg-day	N/A	N/A	N/A	8.1E-05	mg/kg-day	1.0E-02	mg/kg-day	8.1E-03
				Arsenic	2E+00	ug/L	1.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.8E-08	2.1E-07	mg/kg-day	3.0E-04	mg/kg-day	7.1E-04
				Cadmium (other media)	7E-01	ug/L	7.2E-09	mg/kg-day	N/A	N/A	N/A	8.4E-08	mg/kg-day	2.5E-05	mg/kg-day	3.4E-03
				Chromium	3E+00	ug/L	3.6E-08	mg/kg-day	N/A	N/A	N/A	4.3E-07	mg/kg-day	7.5E-05	mg/kg-day	5.7E-03
				Cobalt	8E-01	ug/L	8.9E-09	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	3.0E-04	mg/kg-day	3.5E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	5.0E-08	mg/kg-day	N/A	N/A	N/A	5.9E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Iron	2E+03	ug/L	2.1E-05	mg/kg-day	N/A	N/A	N/A	2.5E-04	mg/kg-day	7.0E-01	mg/kg-day	3.5E-04
				Lead	7E+00	ug/L	7.2E-08	mg/kg-day	N/A	N/A	N/A	8.4E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	5.1E-06	mg/kg-day	N/A	N/A	N/A	5.9E-05	mg/kg-day	7.0E-02	mg/kg-day	8.5E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	1.8E-04	mg/kg-day	9.3E-04
			Exp. Route Total								7E-08					2E-02
		Exposure Point Total									8E-08					3E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	4.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	5.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	3.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.5E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.6E-08	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.7E-09	2.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	9.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.3E-09	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.3E-05
				Carbazole	3E-01	mg/kg	1.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.8E-08	5.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.6E-05
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.5E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	9.9E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.4E-09	3.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Aroclor-1260	2E-01	mg/kg	5.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.1E-08	6.5E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03
				Dieldrin	1E-02	mg/kg	4.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.5E-09	5.4E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Aluminum	5E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03
				Antimony	5E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	4.0E-04	mg/kg-day	4.9E-04
				Arsenic	5E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-07	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	6.9E-03
				Cadmium (other media)	3E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	1.0E-03	mg/kg-day	1.4E-03
				Chromium	4E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	3.0E-03	mg/kg-day	5.8E-03
				Cobalt	5E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.3E-03
				Copper	5E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	4.0E-02	mg/kg-day	5.6E-04

TABLE 7.28.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations													
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient									
							Value	Units	Value	Units		Value	Units	Value	Units										
				Iron	9E+03	mg/kg	3.0E-04	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	7.0E-01	mg/kg-day	5.0E-03									
				Lead																					
				Manganese (other media)	2E+02	mg/kg	6.2E-06	mg/kg-day	N/A	N/A	N/A	7.2E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03									
				Mercury (other media)	1E-01	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	6.1E-08	mg/kg-day	1.0E-04	mg/kg-day	6.1E-04									
				Thallium	3E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03									
			Vanadium	1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	7.0E-03	mg/kg-day	6.3E-04										
			Exp. Route Total						1E-06					4E-02											
			Dermal																						
			Benzo(a)anthracene	1E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	8.9E-07	mg/kg-day	N/A	N/A	N/A										
			Benzo(a)pyrene	8E-01	mg/kg	4.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-06	5.6E-07	mg/kg-day	N/A	N/A	N/A										
			Benzo(b)fluoranthene	1E+00	mg/kg	6.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A										
			Benzo(k)fluoranthene	5E-01	mg/kg	2.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.1E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A										
			bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.6E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.6E-05										
			Carbazole	3E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A										
			Dibenz(a,h)anthracene	1E-01	mg/kg	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	8.5E-08	mg/kg-day	N/A	N/A	N/A										
			Dibenzofuran	2E-01	mg/kg	7.0E-09	mg/kg-day	N/A	N/A	N/A	8.2E-08	mg/kg-day	4.0E-03	mg/kg-day	2.0E-05										
			Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.8E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A										
			Phenanthrene	2E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	3.0E-02	mg/kg-day	5.4E-05										
			Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A										
			Aroclor-1254	8E-02	mg/kg	4.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.4E-09	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03										
			Aroclor-1260	2E-01	mg/kg	9.8E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.0E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.7E-03										
			Dieldrin	1E-02	mg/kg	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.3E-09	6.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04										
			Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A										
			Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A										
			Arsenic	5E+00	mg/kg	6.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.0E-07	7.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.6E-03										
			Cadmium (other media)	3E+00	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	2.5E-05	mg/kg-day	6.9E-04										
			Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A										
			Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A										
			Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A										
			Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A										
			Lead																						
			Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A										
			Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A										
			Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A										
			Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A										
			Exp. Route Total						2E-06					1E-02											
			Exposure Point Total						3E-06					5E-02											
			Exposure Medium Total						N/A					N/A											
			Medium Total						N/A					N/A											
			Total of Receptor Risks Across All Media											N/A		Total of Receptor Hazards Across All Media									

Notes

TABLE 7.28.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.28.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.9E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.8E-07	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.9E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.9E-09	2.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.7E-10	3.9E-07	mg/kg-day	2.0E-02	mg/kg-day	2.0E-05
				Carbazole	3E-01	mg/kg	4.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.6E-11	5.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-07	7.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.5E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	3.0E-02	mg/kg-day	1.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	5.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.4E-09	6.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.1E-03
				Dieldrin	1E-01	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.1E-08	3.0E-08	mg/kg-day	5.0E-05	mg/kg-day	6.0E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	1.5E-03	mg/kg-day	1.0E+00	mg/kg-day	1.5E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.6E-07	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.7E-03
				Cadmium (other media)	5E+00	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	1.0E-03	mg/kg-day	1.0E-03
				Chromium	1E+02	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.3E-05	mg/kg-day	3.0E-03	mg/kg-day	7.5E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	4.0E-02	mg/kg-day	7.5E-04
				Iron	2E+04	mg/kg	2.9E-04	mg/kg-day	N/A	N/A	N/A	3.4E-03	mg/kg-day	7.0E-01	mg/kg-day	4.8E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	8.7E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	7.0E-02	mg/kg-day	1.4E-03
				Mercury (other media)	4E-01	mg/kg	6.5E-09	mg/kg-day	N/A	N/A	N/A	7.5E-08	mg/kg-day	1.0E-04	mg/kg-day	7.5E-04
				Thallium	1E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	3.1E-03
				Vanadium	2E+01	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	7.0E-03	mg/kg-day	5.8E-04
				Zinc	2E+02	mg/kg	2.9E-06	mg/kg-day	N/A	N/A	N/A	3.4E-05	mg/kg-day	3.0E-01	mg/kg-day	1.1E-04
				Exp. Route Total										1E-06	3E-02	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	7.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	8.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	7.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-06	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	8.9E-09	4.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.3E-10	6.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.4E-05
				Carbazole	3E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.2E-10	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	7.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.28.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Phenanthrene	2E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	9.0E-07	mg/kg-day	3.0E-02	mg/kg-day	3.0E-05			
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1260	3E-01	mg/kg	1.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.3E-08	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.7E-03			
				Dieldrin	1E-01	mg/kg	4.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.2E-08	5.3E-08	mg/kg-day	5.0E-05	mg/kg-day	1.1E-03			
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	1E+01	mg/kg	9.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-07	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	3.5E-03			
				Cadmium (other media)	5E+00	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.0E-04			
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A			
				Exp. Route Total											3E-06				1E-02
				Exposure Point Total											4E-06				5E-02
				Exposure Medium Total											N/A				N/A
				Medium Total											N/A				N/A
Surface Water	Surface Water	Southern Bank	Dermal (swimming)	Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Benzo(a)pyrene	2E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A				
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A			
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A				
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A			
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			

TABLE 7.28.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	2E-03	ug/L	2.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.6E-09	3.4E-09	mg/kg-day	5.0E-05	mg/kg-day	6.8E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	7.7E-07	mg/kg-day	N/A	N/A	N/A	8.9E-06	mg/kg-day	1.0E-02	mg/kg-day	8.9E-04
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	7E-01	ug/L	7.9E-10	mg/kg-day	N/A	N/A	N/A	9.2E-09	mg/kg-day	2.5E-05	mg/kg-day	3.7E-04
				Chromium	3E+00	ug/L	8.0E-09	mg/kg-day	N/A	N/A	N/A	9.4E-08	mg/kg-day	7.5E-05	mg/kg-day	1.2E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	1.8E-04	mg/kg-day	1.0E-04
			Exp. Route Total								5E-09					3E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	2E-01	ug/L	9.1E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.0E-08	1.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	7.8E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-09	9.1E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	7.5E-10	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	1.6E-11	8.8E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	1E-01	ug/L	6.2E-10	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	3.0E-02	mg/kg-day	2.4E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	ND	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.28.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	2E-03	ug/L	1.3E-11	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.1E-10	1.5E-10	mg/kg-day	5.0E-05	mg/kg-day	3.0E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	6E+02	ug/L	3.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	1.0E-02	mg/kg-day	4.1E-03
				Arsenic	2E+00	ug/L	9.2E-09	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-08	1.1E-07	mg/kg-day	3.0E-04	mg/kg-day	3.6E-04
				Cadmium (other media)	7E-01	ug/L	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	2.5E-05	mg/kg-day	1.7E-03
				Chromium	3E+00	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	7.5E-05	mg/kg-day	2.8E-03
				Cobalt	8E-01	ug/L	4.4E-09	mg/kg-day	N/A	N/A	N/A	5.2E-08	mg/kg-day	3.0E-04	mg/kg-day	1.7E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	5E+00	ug/L	2.5E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Iron	2E+03	ug/L	1.1E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	7.0E-01	mg/kg-day	1.8E-04
				Lead	7E+00	ug/L	3.6E-08	mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	5E+02	ug/L	2.5E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	7.0E-02	mg/kg-day	4.2E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	1E+00	ug/L	7.3E-09	mg/kg-day	N/A	N/A	N/A	8.5E-08	mg/kg-day	1.8E-04	mg/kg-day	4.7E-04
			Exp. Route Total								4E-08					1E-02
		Exposure Point Total									4E-08					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Southern Bank	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-01	mg/kg	7.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	5E-01	mg/kg	4.3E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.4E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.2E-10	2.6E-07	mg/kg-day	2.0E-02	mg/kg-day	1.3E-05
				Carbazole	3E-01	mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.2E-11	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-08	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.4E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.1E-06
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	4.0E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.9E-09	4.7E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-02	mg/kg-day	8.3E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	6.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04
				Aroclor-1260	2E-01	mg/kg	1.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.4E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	8.2E-04
				Dieldrin	1E-02	mg/kg	1.2E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.9E-09	1.4E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05
				Aluminum	5E+03	mg/kg	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	1.0E+00	mg/kg-day	4.7E-04
				Antimony	5E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	4.0E-04	mg/kg-day	1.2E-04
				Arsenic	5E+00	mg/kg	4.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.6E-08	5.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03
				Cadmium (other media)	3E+00	mg/kg	2.9E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	1.0E-03	mg/kg-day	3.4E-04
				Chromium	4E+01	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	3.0E-03	mg/kg-day	1.5E-03
				Cobalt	5E+00	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				Copper	5E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	4.0E-02	mg/kg-day	1.4E-04

TABLE 7.28.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Iron	9E+03	mg/kg	7.5E-05	mg/kg-day	N/A	N/A	N/A	8.7E-04	mg/kg-day	7.0E-01	mg/kg-day	1.2E-03			
				Lead															
				Manganese (other media)	2E+02	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	2.6E-04			
				Mercury (other media)	1E-01	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04			
				Thallium	3E-01	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	8.0E-05	mg/kg-day	3.7E-04			
				Vanadium	1E+01	mg/kg	9.5E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.0E-03	mg/kg-day	1.6E-04			
				Exp. Route Total						3E-07					1E-02				
				Dermal															
				Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(a)pyrene	8E-01	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.3E-07	2.8E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(b)fluoranthene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.0E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(k)fluoranthene	5E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.0E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A			
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	5.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.9E-10	6.6E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05			
				Carbazole	3E-01	mg/kg	8.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	9.8E-08	mg/kg-day	N/A	N/A	N/A			
				Dibenz(a,h)anthracene	1E-01	mg/kg	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.9E-08	4.2E-08	mg/kg-day	N/A	N/A	N/A			
				Dibenzofuran	2E-01	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.0E-05			
				Indeno(1,2,3-cd)pyrene	5E-01	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.9E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	2E+00	mg/kg	6.9E-08	mg/kg-day	N/A	N/A	N/A	8.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.7E-05			
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1254	8E-02	mg/kg	2.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.4E-09	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.4E-03			
				Aroclor-1260	2E-01	mg/kg	4.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	4.9E-09	5.7E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03			
				Dieldrin	1E-02	mg/kg	2.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.7E-09	3.4E-09	mg/kg-day	5.0E-05	mg/kg-day	6.8E-05			
				Aluminum	5E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	5E+00	mg/kg	3.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.0E-08	3.9E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03			
				Cadmium (other media)	3E+00	mg/kg	7.4E-10	mg/kg-day	N/A	N/A	N/A	8.6E-09	mg/kg-day	2.5E-05	mg/kg-day	3.4E-04			
				Chromium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	1E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Exp. Route Total						9E-07					6E-03				
				Exposure Point Total						1E-06					2E-02				
				Exposure Medium Total						N/A					N/A				
				Medium Total						N/A					N/A				
				Total of Receptor Risks Across All Media															
N/A											Total of Receptor Hazards Across All Media					N/A			

Notes

TABLE 7.28.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.29.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-07	7.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	4.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.4E-06	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-07	9.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.1E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	8.0E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.4E-09	9.2E-07	mg/kg-day	2.0E-02	mg/kg-day	4.6E-05
				Carbazole	2E-01	mg/kg	3.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.1E-10	8.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	4.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.4E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	1.9E-08	mg/kg-day	N/A	N/A	N/A	5.5E-08	mg/kg-day	4.0E-03	mg/kg-day	1.4E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	4.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	9.5E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	3.0E-02	mg/kg-day	9.3E-05
				Aroclor-1248	6E+00	mg/kg	8.7E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.7E-06	2.5E-06	mg/kg-day	2.0E-05	mg/kg-day	1.3E-01
				Aroclor-1254	5E-01	mg/kg	7.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.5E-07	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Aroclor-1260	2E-01	mg/kg	2.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.1E-08	7.4E-08	mg/kg-day	2.0E-05	mg/kg-day	3.7E-03
				Dieldrin	2E-02	mg/kg	2.8E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.4E-08	8.1E-09	mg/kg-day	5.0E-05	mg/kg-day	1.6E-04
				Dioxin TEQ	6E-05	mg/kg	8.2E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.1E-06	2.4E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.2E-03	mg/kg-day	N/A	N/A	N/A	3.6E-03	mg/kg-day	1.0E+00	mg/kg-day	3.6E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.2E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.3E-06	6.4E-06	mg/kg-day	3.0E-04	mg/kg-day	2.1E-02
				Cadmium (other media)	1E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	1.0E-03	mg/kg-day	4.4E-03
				Chromium	1E+02	mg/kg	1.7E-05	mg/kg-day	N/A	N/A	N/A	5.0E-05	mg/kg-day	3.0E-03	mg/kg-day	1.7E-02
				Cobalt	4E+00	mg/kg	5.0E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	4.9E-03
				Copper	2E+02	mg/kg	2.8E-05	mg/kg-day	N/A	N/A	N/A	8.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.0E-03
				Iron	3E+04	mg/kg	3.8E-03	mg/kg-day	N/A	N/A	N/A	1.1E-02	mg/kg-day	7.0E-01	mg/kg-day	1.6E-02
				Lead												
				Manganese (other media)	7E+02	mg/kg	9.6E-05	mg/kg-day	N/A	N/A	N/A	2.8E-04	mg/kg-day	7.0E-02	mg/kg-day	4.0E-03
				Mercury (other media)	5E-01	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	1E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	8.0E-05	mg/kg-day	5.7E-03
				Vanadium	3E+01	mg/kg	4.1E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	7.0E-03	mg/kg-day	1.7E-03
				Zinc	9E+02	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.7E-04	mg/kg-day	3.0E-01	mg/kg-day	1.2E-03
				Exp. Route Total											1E-05	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.8E-06	7.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	5.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.1E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-09	3.7E-07	mg/kg-day	2.0E-02	mg/kg-day	1.8E-05
				Carbazole	2E-01	mg/kg	1.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.2E-10	4.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.8E-07	7.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	7.5E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	4.0E-03	mg/kg-day	5.4E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.3E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.29.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RID/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
				Phenanthrene	7E+00	mg/kg	5.0E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.8E-05		
				Aroclor-1248	6E+00	mg/kg	4.8E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.7E-07	1.4E-06	mg/kg-day	2.0E-05	mg/kg-day	7.0E-02		
				Aroclor-1254	5E-01	mg/kg	4.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.5E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.2E-03		
				Aroclor-1260	2E-01	mg/kg	1.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.8E-08	4.1E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03		
				Dieldrin	2E-02	mg/kg	1.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.8E-08	3.2E-09	mg/kg-day	5.0E-05	mg/kg-day	6.5E-05		
				Dioxin TEQ	6E-05	mg/kg	9.9E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.3E-07	2.9E-12	mg/kg-day	N/A	N/A	N/A		
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A		
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A		
				Arsenic	2E+01	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.9E-07	7.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03		
				Cadmium (other media)	1E+01	mg/kg	6.1E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.1E-04		
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A		
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A		
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A		
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A		
				Lead														
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A		
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A		
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A		
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A		
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A		
							Exp. Route Total							4E-06				8E-02
						Exposure Point Total							1E-05				3E-01	
		Exposure Medium Total							N/A				N/A					
Medium Total								N/A				N/A						
Surface Water	Surface Water	Adjacent to Landfill	Dermal (swimming)	Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A			
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A			
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A			
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A			
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A		
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A			
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A			
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A			
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
				1,4-Dichlorobenzene	5E-01	ug/L	4.1E-07	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	2.2E-09	1.2E-06	mg/kg-day	7.0E-02	mg/kg-day	1.7E-05		
				Benzene	8E-01	ug/L	1.4E-07	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	7.9E-09	4.2E-07	mg/kg-day	4.0E-03	mg/kg-day	1.0E-04		
				Aroclor-1260	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A		

TABLE 7.29.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	3E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.8E-07	3.2E-08	mg/kg-day	5.0E-05	mg/kg-day	6.5E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	6.6E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	6.0E-08	1.9E-08	mg/kg-day	1.3E-05	mg/kg-day	1.5E-03
				Aluminum	2E+04	ug/L	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.8E-04	mg/kg-day	1.0E-02	mg/kg-day	3.8E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	1.3E-07	mg/kg-day	N/A	N/A	N/A	3.6E-07	mg/kg-day	2.5E-05	mg/kg-day	1.5E-02
				Chromium	2E+02	ug/L	3.3E-06	mg/kg-day	N/A	N/A	N/A	9.7E-06	mg/kg-day	7.5E-05	mg/kg-day	1.3E-01
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	5.8E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	7.0E-02	mg/kg-day	2.4E-04
				Mercury (water)	4E-01	ug/L	2.8E-09	mg/kg-day	N/A	N/A	N/A	8.3E-09	mg/kg-day	2.1E-05	mg/kg-day	4.0E-04
				Vanadium	5E+01	ug/L	3.8E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	1.8E-04	mg/kg-day	6.1E-03
			Exp. Route Total								2E-07					2E-01
			Ingestion (swimming)													
				Benzo(a)anthracene	2E-01	ug/L	4.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.3E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	7.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.6E-09	2.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	4.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	3.0E-02	mg/kg-day	4.8E-07
				Benzo(k)fluoranthene	3E-01	ug/L	5.6E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.1E-10	1.6E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	6.4E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	4.7E-11	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	4.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.0E-09	1.2E-08	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	4.3E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	3.0E-02	mg/kg-day	4.2E-07
				1,4-Dichlorobenzene	5E-01	ug/L	1.2E-08	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	6.3E-11	3.4E-08	mg/kg-day	7.0E-02	mg/kg-day	4.8E-07
				Benzene	8E-01	ug/L	1.7E-08	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	9.4E-10	5.0E-08	mg/kg-day	4.0E-03	mg/kg-day	1.3E-05
				Aroclor-1260	3E-01	ug/L	6.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.3E-08	1.9E-08	mg/kg-day	2.0E-05	mg/kg-day	9.4E-04
				4,4'-DDD	3E-02	ug/L	5.4E-10	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.3E-10	1.6E-09	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	3.2E-10	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.1E-10	9.4E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.29.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	1E-02	ug/L	3.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.8E-09	8.8E-10	mg/kg-day	5.0E-05	mg/kg-day	1.8E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	7.9E-11	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	7.2E-10	2.3E-10	mg/kg-day	1.3E-05	mg/kg-day	1.8E-05
				Aluminum	2E+04	ug/L	3.6E-04	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	1.0E-02	mg/kg-day	1.1E-01
				Arsenic	1E+01	ug/L	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.6E-07	7.0E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03
				Cadmium (other media)	2E+01	ug/L	3.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	2.5E-05	mg/kg-day	4.1E-02
				Chromium	2E+02	ug/L	4.6E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	7.5E-05	mg/kg-day	1.8E-01
				Cobalt	9E+00	ug/L	2.0E-07	mg/kg-day	N/A	N/A	N/A	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Copper	4E+02	ug/L	9.2E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	4.0E-02	mg/kg-day	6.7E-04
				Cyanide	1E+01	ug/L	2.3E-07	mg/kg-day	N/A	N/A	N/A	6.6E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Iron	5E+04	ug/L	9.7E-04	mg/kg-day	N/A	N/A	N/A	2.8E-03	mg/kg-day	7.0E-01	mg/kg-day	4.1E-03
				Lead	3E+02	ug/L	5.9E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	1.6E-05	mg/kg-day	N/A	N/A	N/A	4.7E-05	mg/kg-day	7.0E-02	mg/kg-day	6.8E-04
				Mercury (water)	4E-01	ug/L	7.9E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	2.1E-05	mg/kg-day	1.1E-03
				Vanadium	5E+01	ug/L	1.1E-06	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	1.8E-04	mg/kg-day	1.7E-02
			Exp. Route Total								4E-07					4E-01
		Exposure Point Total									7E-07					5E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Adjacent to Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	9.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.6E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.0E-07	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.6E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.9E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	1.5E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.2E-08	4.5E-06	mg/kg-day	2.0E-02	mg/kg-day	2.3E-04
				Carbazole	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.4E-10	4.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.0E-07	4.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	4.0E-03	mg/kg-day	8.6E-06
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	3.0E-02	mg/kg-day	1.4E-05
				Aroclor-1242	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.4E-08	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Aroclor-1254	3E-01	mg/kg	2.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.3E-08	6.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.2E-03
				Aroclor-1260	1E-01	mg/kg	8.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.7E-08	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Dieldrin	2E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.9E-08	3.4E-09	mg/kg-day	5.0E-05	mg/kg-day	6.8E-05
				Aluminum	9E+03	mg/kg	6.1E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03
				Antimony	2E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	3.8E-07	mg/kg-day	4.0E-04	mg/kg-day	9.4E-04
				Arsenic	4E+01	mg/kg	2.7E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.1E-06	7.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.6E-02
				Cadmium (other media)	1E+01	mg/kg	6.9E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	1.0E-03	mg/kg-day	2.0E-03
				Chromium	1E+02	mg/kg	9.9E-06	mg/kg-day	N/A	N/A	N/A	2.9E-05	mg/kg-day	3.0E-03	mg/kg-day	9.6E-03
				Cobalt	5E+00	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	4.2E-05	mg/kg-day	4.0E-02	mg/kg-day	1.0E-03

TABLE 7.29.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Iron	2E+04	mg/kg	1.5E-03	mg/kg-day	N/A	N/A	N/A	4.5E-03	mg/kg-day	7.0E-01	mg/kg-day	6.4E-03			
				Lead															
				Manganese (other media)	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	7.0E-02	mg/kg-day	7.8E-04			
				Mercury (other media)	3E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	6.0E-08	mg/kg-day	1.0E-04	mg/kg-day	6.0E-04			
				Thallium	7E-01	mg/kg	5.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	8.0E-05	mg/kg-day	1.8E-03			
				Vanadium	2E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	7.0E-03	mg/kg-day	6.2E-04			
				Exp. Route Total						5E-06					6E-02				
				Dermal															
				Benzo(a)anthracene	1E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(a)pyrene	2E+00	mg/kg	3.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.3E-06	9.1E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(b)fluoranthene	1E+00	mg/kg	3.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-07	8.6E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(k)fluoranthene	8E-01	mg/kg	1.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.1E-08	4.4E-07	mg/kg-day	N/A	N/A	N/A			
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	3.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.8E-08	9.9E-06	mg/kg-day	2.0E-02	mg/kg-day	5.0E-04			
				Carbazole	2E-01	mg/kg	4.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.6E-10	1.4E-07	mg/kg-day	N/A	N/A	N/A			
				Dibenz(a,h)anthracene	2E-01	mg/kg	4.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.9E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A			
				Dibenzofuran	2E-01	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	7.5E-08	mg/kg-day	4.0E-03	mg/kg-day	1.9E-05			
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.3E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	2E+00	mg/kg	4.2E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	3.0E-02	mg/kg-day	4.0E-05			
				Aroclor-1242	2E-01	mg/kg	5.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.0E-07	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.6E-03			
				Aroclor-1254	3E-01	mg/kg	6.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.3E-07	1.9E-07	mg/kg-day	2.0E-05	mg/kg-day	9.7E-03			
				Aroclor-1260	1E-01	mg/kg	2.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.2E-08	7.5E-08	mg/kg-day	2.0E-05	mg/kg-day	3.8E-03			
				Dieldrin	2E-02	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.1E-08	7.4E-09	mg/kg-day	5.0E-05	mg/kg-day	1.5E-04			
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	4E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-06	5.2E-06	mg/kg-day	3.0E-04	mg/kg-day	1.7E-02			
				Cadmium (other media)	1E+01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	4.4E-08	mg/kg-day	2.5E-05	mg/kg-day	1.8E-03			
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Exp. Route Total						6E-06					4E-02				
				Exposure Point Total						1E-05					1E-01				
				Exposure Medium Total						N/A					N/A				
				Medium Total						N/A					N/A				
				Total of Receptor Risks Across All Media															
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A			

TABLE 7.29.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	9.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.2E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.7E-09	8.0E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	6.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	9.2E-10	2.3E-07	mg/kg-day	2.0E-02	mg/kg-day	1.2E-05
				Carbazole	2E-01	mg/kg	6.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.3E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	9.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.1E-08	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	3.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	4.0E-03	mg/kg-day	3.4E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	3.0E-02	mg/kg-day	2.3E-05
				Aroclor-1248	6E+00	mg/kg	1.8E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.8E-07	6.3E-07	mg/kg-day	2.0E-05	mg/kg-day	3.2E-02
				Aroclor-1254	5E-01	mg/kg	1.6E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.6E-08	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.8E-03
				Aroclor-1260	2E-01	mg/kg	5.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.3E-09	1.8E-08	mg/kg-day	2.0E-05	mg/kg-day	9.2E-04
				Dieldrin	2E-02	mg/kg	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.3E-09	2.0E-09	mg/kg-day	5.0E-05	mg/kg-day	4.1E-05
				Dioxin TEQ	3E-05	mg/kg	9.2E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.2E-07	3.2E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	2.6E-04	mg/kg-day	N/A	N/A	N/A	9.1E-04	mg/kg-day	1.0E+00	mg/kg-day	9.1E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	4.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.8E-07	1.6E-06	mg/kg-day	3.0E-04	mg/kg-day	5.3E-03
				Cadmium (other media)	1E+01	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	1.0E-03	mg/kg-day	1.1E-03
				Chromium	1E+02	mg/kg	3.6E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	4.2E-03
				Cobalt	4E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Copper	2E+02	mg/kg	5.8E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	4.0E-02	mg/kg-day	5.1E-04
				Iron	3E+04	mg/kg	7.9E-04	mg/kg-day	N/A	N/A	N/A	2.8E-03	mg/kg-day	7.0E-01	mg/kg-day	4.0E-03
				Lead												
				Manganese (other media)	7E+02	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	7.0E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03
				Mercury (other media)	5E-01	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	1.0E-04	mg/kg-day	5.1E-04
				Thallium	1E+00	mg/kg	3.2E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	8.0E-05	mg/kg-day	1.4E-03
				Vanadium	3E+01	mg/kg	8.5E-07	mg/kg-day	N/A	N/A	N/A	3.0E-06	mg/kg-day	7.0E-03	mg/kg-day	4.2E-04
				Zinc	9E+02	mg/kg	2.7E-05	mg/kg-day	N/A	N/A	N/A	9.3E-05	mg/kg-day	3.0E-01	mg/kg-day	3.1E-04
				Exp. Route Total											2E-06	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.2E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.4E-07	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.1E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.7E-09	8.3E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.4E-10	1.8E-07	mg/kg-day	2.0E-02	mg/kg-day	9.2E-06
				Carbazole	2E-01	mg/kg	6.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.3E-10	2.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.3E-08	3.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	4.0E-03	mg/kg-day	2.7E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.29.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
				Phenanthrene	7E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	7.2E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05				
				Aroclor-1248	6E+00	mg/kg	2.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.0E-07	7.0E-07	mg/kg-day	2.0E-05	mg/kg-day	3.5E-02				
				Aroclor-1254	5E-01	mg/kg	1.8E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.8E-08	6.2E-08	mg/kg-day	2.0E-05	mg/kg-day	3.1E-03				
				Aroclor-1260	2E-01	mg/kg	5.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.9E-09	2.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.0E-03				
				Dieldrin	2E-02	mg/kg	4.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.4E-09	1.6E-09	mg/kg-day	5.0E-05	mg/kg-day	3.2E-05				
				Dioxin TEQ	3E-05	mg/kg	2.2E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	2.9E-08	7.7E-13	mg/kg-day	N/A	N/A	N/A				
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A				
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A				
				Arsenic	2E+01	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-07	3.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03				
				Cadmium (other media)	1E+01	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	8.8E-09	mg/kg-day	2.5E-05	mg/kg-day	3.5E-04				
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A				
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A				
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
				Lead																
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A				
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A				
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A				
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A				
				Exp. Route Total											1E-06				4E-02	
				Exposure Point Total											3E-06				1E-01	
				Exposure Medium Total											N/A				N/A	
				Medium Total											N/A				N/A	
				Surface Water	Surface Water	Adjacent to Landfill	Dermal (swimming)	Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
								Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(b)fluoranthene	4E-01	ug/L	N/A					N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A				
Benzo(g,h,i)perylene	7E-02	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A				
Benzo(k)fluoranthene	3E-01	ug/L	N/A					N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A				
bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A					N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
Chrysene	3E-01	ug/L	N/A					N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A				
Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A					N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A				
Naphthalene	ND	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
Phenanthrene	7E-02	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A				
1,4-Dichlorobenzene	3E-01	ug/L	8.8E-08					mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	4.8E-10	3.1E-07	mg/kg-day	7.0E-02	mg/kg-day	4.4E-06				
Benzene	6E-01	ug/L	4.2E-08					mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	2.3E-09	1.5E-07	mg/kg-day	4.0E-03	mg/kg-day	3.7E-05				
Aroclor-1260	3E-01	ug/L	N/A					N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				

TABLE 7.29.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	1E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	4.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.4E-08	1.6E-08	mg/kg-day	5.0E-05	mg/kg-day	3.2E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	2.7E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	2.5E-08	9.6E-09	mg/kg-day	1.3E-05	mg/kg-day	7.4E-04
				Aluminum	2E+04	ug/L	5.4E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	1.0E-02	mg/kg-day	1.9E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	5.2E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	2.5E-05	mg/kg-day	7.3E-03
				Chromium	2E+02	ug/L	1.4E-06	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	7.5E-05	mg/kg-day	6.5E-02
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	2.4E-06	mg/kg-day	N/A	N/A	N/A	8.5E-06	mg/kg-day	7.0E-02	mg/kg-day	1.2E-04
				Mercury (water)	4E-01	ug/L	1.2E-09	mg/kg-day	N/A	N/A	N/A	4.1E-09	mg/kg-day	2.1E-05	mg/kg-day	2.0E-04
				Vanadium	5E+01	ug/L	1.6E-07	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	1.8E-04	mg/kg-day	3.0E-03
			Exp. Route Total								1E-07					1E-01
			Ingestion (swimming)													
				Benzo(a)anthracene	2E-01	ug/L	1.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	3.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.2E-08	1.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	3.2E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-09	1.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	6.3E-10	mg/kg-day	N/A	N/A	N/A	2.2E-09	mg/kg-day	3.0E-02	mg/kg-day	7.3E-08
				Benzo(k)fluoranthene	3E-01	ug/L	2.3E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.7E-10	8.1E-09	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	2.7E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	2.0E-11	9.4E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	1.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-09	5.9E-09	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	7E-02	ug/L	6.0E-10	mg/kg-day	N/A	N/A	N/A	2.1E-09	mg/kg-day	3.0E-02	mg/kg-day	7.0E-08
				1,4-Dichlorobenzene	3E-01	ug/L	2.5E-09	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	1.4E-11	8.8E-09	mg/kg-day	7.0E-02	mg/kg-day	1.3E-07
				Benzene	6E-01	ug/L	5.1E-09	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	2.8E-10	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.5E-06
				Aroclor-1260	3E-01	ug/L	2.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.7E-09	9.4E-09	mg/kg-day	2.0E-05	mg/kg-day	4.7E-04
				4,4'-DDD	1E-02	ug/L	1.3E-10	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	3.2E-11	4.7E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	1.3E-10	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	4.6E-11	4.7E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.29.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
				Dieldrin	1E-02	ug/L	1.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.0E-09	4.4E-10	mg/kg-day	5.0E-05	mg/kg-day	8.8E-06		
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A		
				Heptachlor Epoxide	4E-03	ug/L	3.3E-11	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	3.0E-10	1.2E-10	mg/kg-day	1.3E-05	mg/kg-day	8.9E-06		
				Aluminum	2E+04	ug/L	1.5E-04	mg/kg-day	N/A	N/A	N/A	5.3E-04	mg/kg-day	1.0E-02	mg/kg-day	5.3E-02		
				Arsenic	1E+01	ug/L	1.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-07	3.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03		
				Cadmium (other media)	2E+01	ug/L	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	2.5E-05	mg/kg-day	2.0E-02		
				Chromium	2E+02	ug/L	1.9E-06	mg/kg-day	N/A	N/A	N/A	6.7E-06	mg/kg-day	7.5E-05	mg/kg-day	9.0E-02		
				Cobalt	9E+00	ug/L	8.2E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	3.0E-04	mg/kg-day	9.6E-04		
				Copper	4E+02	ug/L	3.8E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	4.0E-02	mg/kg-day	3.4E-04		
				Cyanide	1E+01	ug/L	9.5E-08	mg/kg-day	N/A	N/A	N/A	3.3E-07	mg/kg-day	2.0E-02	mg/kg-day	1.7E-05		
				Iron	5E+04	ug/L	4.1E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	7.0E-01	mg/kg-day	2.0E-03		
				Lead	3E+02	ug/L	2.4E-06	mg/kg-day	N/A	N/A	N/A	8.6E-06	mg/kg-day	N/A	N/A	N/A		
				Manganese (other media)	8E+02	ug/L	6.8E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	7.0E-02	mg/kg-day	3.4E-04		
				Mercury (water)	4E-01	ug/L	3.3E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.1E-05	mg/kg-day	5.5E-04		
				Vanadium	5E+01	ug/L	4.4E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	1.8E-04	mg/kg-day	8.4E-03		
			Exp. Route Total									2E-07					2E-01	
			Exposure Point Total									3E-07					3E-01	
			Exposure Medium Total									N/A					N/A	
		Medium Total											N/A					N/A
		Sediment	Sediment	Adjacent to Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-08	6.6E-08	mg/kg-day	N/A	N/A	N/A
						Benzo(a)pyrene	2E+00	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.7E-07	8.0E-08	mg/kg-day	N/A	N/A	N/A
Benzo(b)fluoranthene	1E+00					mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-08	7.5E-08	mg/kg-day	N/A	N/A	N/A		
Benzo(k)fluoranthene	8E-01					mg/kg	1.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	8.1E-10	3.9E-08	mg/kg-day	N/A	N/A	N/A		
bis(2-Ethylhexyl)phthalate	2E+01					mg/kg	3.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.5E-09	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.6E-05		
Carbazole	2E-01					mg/kg	3.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.0E-11	1.2E-08	mg/kg-day	N/A	N/A	N/A		
Dibenz(a,h)anthracene	2E-01					mg/kg	2.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.1E-08	1.0E-08	mg/kg-day	N/A	N/A	N/A		
Dibenzofuran	2E-01					mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	8.6E-09	mg/kg-day	4.0E-03	mg/kg-day	2.1E-06		
Indeno(1,2,3-cd)pyrene	6E-01					mg/kg	9.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.8E-09	3.3E-08	mg/kg-day	N/A	N/A	N/A		
Phenanthrene	2E+00					mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	3.0E-02	mg/kg-day	3.5E-06		
Aroclor-1242	2E-01					mg/kg	3.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.5E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.2E-04		
Aroclor-1254	3E-01					mg/kg	4.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	4.5E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	7.9E-04		
Aroclor-1260	1E-01					mg/kg	1.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.8E-09	6.1E-09	mg/kg-day	2.0E-05	mg/kg-day	3.1E-04		
Dieldrin	2E-02					mg/kg	2.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.9E-09	8.5E-10	mg/kg-day	5.0E-05	mg/kg-day	1.7E-05		
Aluminum	9E+03					mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	1.0E+00	mg/kg-day	4.4E-04		
Antimony	2E+00					mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	9.4E-08	mg/kg-day	4.0E-04	mg/kg-day	2.4E-04		
Arsenic	4E+01					mg/kg	5.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	8.5E-07	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.6E-03		
Cadmium (other media)	1E+01					mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	1.0E-03	mg/kg-day	5.0E-04		
Chromium	1E+02					mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	3.0E-03	mg/kg-day	2.4E-03		
Cobalt	5E+00					mg/kg	7.2E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-04	mg/kg-day	8.4E-04		
Copper	2E+02					mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	4.0E-02	mg/kg-day	2.6E-04		

TABLE 7.29.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations													
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient									
							Value	Units	Value	Units		Value	Units	Value	Units										
				Iron	2E+04	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.6E-03									
				Lead																					
				Manganese (other media)	3E+02	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	7.0E-02	mg/kg-day	1.9E-04									
				Mercury (other media)	3E-01	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04									
				Thallium	7E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	8.0E-05	mg/kg-day	4.5E-04									
				Vanadium	2E+01	mg/kg	3.1E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.0E-03	mg/kg-day	1.5E-04									
				Exp. Route Total						1E-06					2E-02										
				Dermal																					
				Benzo(a)anthracene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.8E-08	3.8E-07	mg/kg-day	N/A	N/A	N/A									
				Benzo(a)pyrene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.5E-07	4.5E-07	mg/kg-day	N/A	N/A	N/A									
				Benzo(b)fluoranthene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.0E-08	4.3E-07	mg/kg-day	N/A	N/A	N/A									
				Benzo(k)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.6E-09	2.2E-07	mg/kg-day	N/A	N/A	N/A									
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	1.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.0E-08	5.0E-06	mg/kg-day	2.0E-02	mg/kg-day	2.5E-04									
				Carbazole	2E-01	mg/kg	2.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.0E-10	7.0E-08	mg/kg-day	N/A	N/A	N/A									
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-07	5.8E-08	mg/kg-day	N/A	N/A	N/A									
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	4.0E-03	mg/kg-day	9.4E-06									
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.9E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A									
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.0E-05									
				Aroclor-1242	2E-01	mg/kg	2.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.2E-08	7.6E-08	mg/kg-day	2.0E-05	mg/kg-day	3.8E-03									
				Aroclor-1254	3E-01	mg/kg	2.8E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.8E-08	9.7E-08	mg/kg-day	2.0E-05	mg/kg-day	4.9E-03									
				Aroclor-1260	1E-01	mg/kg	1.1E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-08	3.8E-08	mg/kg-day	2.0E-05	mg/kg-day	1.9E-03									
				Dieldrin	2E-02	mg/kg	1.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.7E-08	3.7E-09	mg/kg-day	5.0E-05	mg/kg-day	7.4E-05									
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A									
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A									
				Arsenic	4E+01	mg/kg	7.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.1E-06	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.6E-03									
				Cadmium (other media)	1E+01	mg/kg	6.3E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	2.5E-05	mg/kg-day	8.8E-04									
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A									
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A									
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A									
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A									
				Lead																					
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A									
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A									
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A									
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A									
							Exp. Route Total						2E-06					2E-02							
							Exposure Point Total					4E-06					4E-02								
					Exposure Medium Total										N/A					N/A					
				Medium Total										N/A					N/A						
Total of Receptor Risks Across All Media											N/A		Total of Receptor Hazards Across All Media											N/A	

TABLE 7.30.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-07	7.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	4.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.4E-06	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-07	9.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.1E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	8.0E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.4E-09	9.2E-07	mg/kg-day	2.0E-02	mg/kg-day	4.6E-05
				Carbazole	2E-01	mg/kg	3.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.1E-10	8.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	4.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.4E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	1.9E-08	mg/kg-day	N/A	N/A	N/A	5.5E-08	mg/kg-day	4.0E-03	mg/kg-day	1.4E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	4.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	9.5E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	3.0E-02	mg/kg-day	9.3E-05
				Aroclor-1248	6E+00	mg/kg	8.7E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.7E-06	2.5E-06	mg/kg-day	2.0E-05	mg/kg-day	1.3E-01
				Aroclor-1254	5E-01	mg/kg	7.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.5E-07	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Aroclor-1260	2E-01	mg/kg	2.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.1E-08	7.4E-08	mg/kg-day	2.0E-05	mg/kg-day	3.7E-03
				Dieldrin	2E-02	mg/kg	2.8E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.4E-08	8.1E-09	mg/kg-day	5.0E-05	mg/kg-day	1.6E-04
				Dioxin TEQ	6E-05	mg/kg	8.2E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.1E-06	2.4E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.2E-03	mg/kg-day	N/A	N/A	N/A	3.6E-03	mg/kg-day	1.0E+00	mg/kg-day	3.6E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.2E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.3E-06	6.4E-06	mg/kg-day	3.0E-04	mg/kg-day	2.1E-02
				Cadmium (other media)	1E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	1.0E-03	mg/kg-day	4.4E-03
				Chromium	1E+02	mg/kg	1.7E-05	mg/kg-day	N/A	N/A	N/A	5.0E-05	mg/kg-day	3.0E-03	mg/kg-day	1.7E-02
				Cobalt	4E+00	mg/kg	5.0E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	4.9E-03
				Copper	2E+02	mg/kg	2.8E-05	mg/kg-day	N/A	N/A	N/A	8.1E-05	mg/kg-day	4.0E-02	mg/kg-day	2.0E-03
				Iron	3E+04	mg/kg	3.8E-03	mg/kg-day	N/A	N/A	N/A	1.1E-02	mg/kg-day	7.0E-01	mg/kg-day	1.6E-02
				Lead												
				Manganese (other media)	7E+02	mg/kg	9.6E-05	mg/kg-day	N/A	N/A	N/A	2.8E-04	mg/kg-day	7.0E-02	mg/kg-day	4.0E-03
				Mercury (other media)	5E-01	mg/kg	7.0E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	1E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	8.0E-05	mg/kg-day	5.7E-03
				Vanadium	3E+01	mg/kg	4.1E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	7.0E-03	mg/kg-day	1.7E-03
				Zinc	9E+02	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.7E-04	mg/kg-day	3.0E-01	mg/kg-day	1.2E-03
				Exp. Route Total											1E-05	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.8E-06	7.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	5.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.1E-09	1.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-09	3.7E-07	mg/kg-day	2.0E-02	mg/kg-day	1.8E-05
				Carbazole	2E-01	mg/kg	1.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.2E-10	4.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	2.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.8E-07	7.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	7.5E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	4.0E-03	mg/kg-day	5.4E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.3E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.30.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	5.0E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.8E-05
				Aroclor-1248	6E+00	mg/kg	4.8E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.7E-07	1.4E-06	mg/kg-day	2.0E-05	mg/kg-day	7.0E-02
				Aroclor-1254	5E-01	mg/kg	4.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.5E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.2E-03
				Aroclor-1260	2E-01	mg/kg	1.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.8E-08	4.1E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03
				Dieldrin	2E-02	mg/kg	1.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.8E-08	3.2E-09	mg/kg-day	5.0E-05	mg/kg-day	6.5E-05
				Dioxin TEQ	6E-05	mg/kg	9.9E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.3E-07	2.9E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.9E-07	7.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03
				Cadmium (other media)	1E+01	mg/kg	6.1E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	7.1E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-06					8E-02
		Exposure Point Total									1E-05					3E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal (wading)	Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	5E-01	ug/L	2.7E-07	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	1.4E-09	7.8E-07	mg/kg-day	7.0E-02	mg/kg-day	1.1E-05
				Benzene	8E-01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.30.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations									
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient					
							Value	Units	Value	Units		Value	Units	Value	Units						
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A				
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A				
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A	N/A				
				Dieldrin	1E-02	ug/L	7.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.2E-07	2.1E-08	mg/kg-day	5.0E-05	mg/kg-day	4.3E-04	N/A				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A				
				Heptachlor Epoxide	4E-03	ug/L	4.3E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	4.0E-08	1.3E-08	mg/kg-day	1.3E-05	mg/kg-day	9.8E-04	N/A				
				Aluminum	2E+04	ug/L	8.6E-05	mg/kg-day	N/A	N/A	N/A	2.5E-04	mg/kg-day	1.0E-02	mg/kg-day	2.5E-02	N/A				
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A				
				Cadmium (other media)	2E+01	ug/L	8.3E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	2.5E-05	mg/kg-day	9.6E-03	N/A				
				Chromium	2E+02	ug/L	2.2E-06	mg/kg-day	N/A	N/A	N/A	6.4E-06	mg/kg-day	7.5E-05	mg/kg-day	8.5E-02	N/A				
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A				
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	N/A				
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	N/A				
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	N/A				
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	N/A	N/A			
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	N/A	N/A			
				Vanadium	5E+01	ug/L	2.5E-07	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	1.8E-04	mg/kg-day	4.0E-03	N/A	N/A			
						Exp. Route Total								2E-07					1E-01		
						Exposure Point Total								2E-07						1E-01	
					Exposure Medium Total									N/A						N/A	
				Medium Total										N/A						N/A	
				Sediment	Sediment	Adjacent to Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	9.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.6E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A	N/A
								Benzo(a)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.0E-07	3.2E-07	mg/kg-day	N/A	N/A	N/A	N/A
								Benzo(b)fluoranthene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.6E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A	N/A
								Benzo(k)fluoranthene	8E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.9E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A	N/A
								bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	1.5E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.2E-08	4.5E-06	mg/kg-day	2.0E-02	mg/kg-day	2.3E-04	N/A
	Carbazole	2E-01	mg/kg					1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.4E-10	4.9E-08	mg/kg-day	N/A	N/A	N/A	N/A			
	Dibenz(a,h)anthracene	2E-01	mg/kg					1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.0E-07	4.1E-08	mg/kg-day	N/A	N/A	N/A	N/A			
	Dibenzofuran	2E-01	mg/kg					1.2E-08	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	4.0E-03	mg/kg-day	8.6E-06	N/A			
	Indeno(1,2,3-cd)pyrene	6E-01	mg/kg					4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A	N/A			
Phenanthrene	2E+00	mg/kg	1.5E-07					mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	3.0E-02	mg/kg-day	1.4E-05	N/A				
Aroclor-1242	2E-01	mg/kg	1.7E-08					mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.4E-08	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03	N/A				
Aroclor-1254	3E-01	mg/kg	2.2E-08					mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.3E-08	6.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.2E-03	N/A				
Aroclor-1260	1E-01	mg/kg	8.4E-09					mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.7E-08	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03	N/A				
Dieldrin	2E-02	mg/kg	1.2E-09					mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.9E-08	3.4E-09	mg/kg-day	5.0E-05	mg/kg-day	6.8E-05	N/A				
Aluminum	9E+03	mg/kg	6.1E-04					mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03	N/A				
Antimony	2E+00	mg/kg	1.3E-07					mg/kg-day	N/A	N/A	N/A	3.8E-07	mg/kg-day	4.0E-04	mg/kg-day	9.4E-04	N/A				
Arsenic	4E+01	mg/kg	2.7E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.1E-06	7.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.6E-02	N/A								

TABLE 7.30.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	6.9E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	1.0E-03	mg/kg-day	2.0E-03
				Chromium	1E+02	mg/kg	9.9E-06	mg/kg-day	N/A	N/A	N/A	2.9E-05	mg/kg-day	3.0E-03	mg/kg-day	9.6E-03
				Cobalt	5E+00	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	4.2E-05	mg/kg-day	4.0E-02	mg/kg-day	1.0E-03
				Iron	2E+04	mg/kg	1.5E-03	mg/kg-day	N/A	N/A	N/A	4.5E-03	mg/kg-day	7.0E-01	mg/kg-day	6.4E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	7.0E-02	mg/kg-day	7.8E-04
				Mercury (other media)	3E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	6.0E-08	mg/kg-day	1.0E-04	mg/kg-day	6.0E-04
				Thallium	7E-01	mg/kg	5.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	8.0E-05	mg/kg-day	1.8E-03
				Vanadium	2E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	7.0E-03	mg/kg-day	6.2E-04
			Exp. Route Total								5E-06					6E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	3.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.3E-06	9.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	3.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-07	8.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.1E-08	4.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	3.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.8E-08	9.9E-06	mg/kg-day	2.0E-02	mg/kg-day	5.0E-04
				Carbazole	2E-01	mg/kg	4.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.6E-10	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	4.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.9E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	7.5E-08	mg/kg-day	4.0E-03	mg/kg-day	1.9E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.3E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	4.2E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	3.0E-02	mg/kg-day	4.0E-05
				Aroclor-1242	2E-01	mg/kg	5.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.0E-07	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.6E-03
				Aroclor-1254	3E-01	mg/kg	6.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.3E-07	1.9E-07	mg/kg-day	2.0E-05	mg/kg-day	9.7E-03
				Aroclor-1260	1E-01	mg/kg	2.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.2E-08	7.5E-08	mg/kg-day	2.0E-05	mg/kg-day	3.8E-03
				Dieldrin	2E-02	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.1E-08	7.4E-09	mg/kg-day	5.0E-05	mg/kg-day	1.5E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-06	5.2E-06	mg/kg-day	3.0E-04	mg/kg-day	1.7E-02
				Cadmium (other media)	1E+01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	4.4E-08	mg/kg-day	2.5E-05	mg/kg-day	1.8E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								6E-06					4E-02
		Exposure Point Total									1E-05					1E-01

TABLE 7.30.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
	Exposure Medium Total											N/A						N/A
Medium Total												N/A						N/A
							Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A

TABLE 7.30.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	9.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.2E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.7E-09	8.0E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	6.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	9.2E-10	2.3E-07	mg/kg-day	2.0E-02	mg/kg-day	1.2E-05
				Carbazole	2E-01	mg/kg	6.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.3E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	9.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.1E-08	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	3.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	4.0E-03	mg/kg-day	3.4E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	3.0E-02	mg/kg-day	2.3E-05
				Aroclor-1248	6E+00	mg/kg	1.8E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.8E-07	6.3E-07	mg/kg-day	2.0E-05	mg/kg-day	3.2E-02
				Aroclor-1254	5E-01	mg/kg	1.6E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.6E-08	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.8E-03
				Aroclor-1260	2E-01	mg/kg	5.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.3E-09	1.8E-08	mg/kg-day	2.0E-05	mg/kg-day	9.2E-04
				Dieldrin	2E-02	mg/kg	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.3E-09	2.0E-09	mg/kg-day	5.0E-05	mg/kg-day	4.1E-05
				Dioxin TEQ	3E-05	mg/kg	9.2E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.2E-07	3.2E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	2.6E-04	mg/kg-day	N/A	N/A	N/A	9.1E-04	mg/kg-day	1.0E+00	mg/kg-day	9.1E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	4.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.8E-07	1.6E-06	mg/kg-day	3.0E-04	mg/kg-day	5.3E-03
				Cadmium (other media)	1E+01	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	1.0E-03	mg/kg-day	1.1E-03
				Chromium	1E+02	mg/kg	3.6E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	4.2E-03
				Cobalt	4E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Copper	2E+02	mg/kg	5.8E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	4.0E-02	mg/kg-day	5.1E-04
				Iron	3E+04	mg/kg	7.9E-04	mg/kg-day	N/A	N/A	N/A	2.8E-03	mg/kg-day	7.0E-01	mg/kg-day	4.0E-03
				Lead												
				Manganese (other media)	7E+02	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	7.0E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03
				Mercury (other media)	5E-01	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	1.0E-04	mg/kg-day	5.1E-04
				Thallium	1E+00	mg/kg	3.2E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	8.0E-05	mg/kg-day	1.4E-03
				Vanadium	3E+01	mg/kg	8.5E-07	mg/kg-day	N/A	N/A	N/A	3.0E-06	mg/kg-day	7.0E-03	mg/kg-day	4.2E-04
				Zinc	9E+02	mg/kg	2.7E-05	mg/kg-day	N/A	N/A	N/A	9.3E-05	mg/kg-day	3.0E-01	mg/kg-day	3.1E-04
				Exp. Route Total										2E-06	6E-02	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.2E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.4E-07	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.1E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.7E-09	8.3E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	5.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.4E-10	1.8E-07	mg/kg-day	2.0E-02	mg/kg-day	9.2E-06
				Carbazole	2E-01	mg/kg	6.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.3E-10	2.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.3E-08	3.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	4.0E-03	mg/kg-day	2.7E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.30.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	7.2E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1248	6E+00	mg/kg	2.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.0E-07	7.0E-07	mg/kg-day	2.0E-05	mg/kg-day	3.5E-02
				Aroclor-1254	5E-01	mg/kg	1.8E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.8E-08	6.2E-08	mg/kg-day	2.0E-05	mg/kg-day	3.1E-03
				Aroclor-1260	2E-01	mg/kg	5.9E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.9E-09	2.1E-08	mg/kg-day	2.0E-05	mg/kg-day	1.0E-03
				Dieldrin	2E-02	mg/kg	4.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.4E-09	1.6E-09	mg/kg-day	5.0E-05	mg/kg-day	3.2E-05
				Dioxin TEQ	3E-05	mg/kg	2.2E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	2.9E-08	7.7E-13	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-07	3.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				Cadmium (other media)	1E+01	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	8.8E-09	mg/kg-day	2.5E-05	mg/kg-day	3.5E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
						Exp. Route Total							1E-06			
				Exposure Point Total								3E-06				
		Exposure Medium Total									N/A					N/A
Medium Total										N/A					N/A	
Surface Water	Surface Water	Adjacent to Landfill	Dermal (wading)	Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	3E-01	ug/L	5.8E-08	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	3.1E-10	2.0E-07	mg/kg-day	7.0E-02	mg/kg-day	2.9E-06
				Benzene	6E-01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	3E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	1E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.30.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
Sediment	Sediment	Adjacent to Landfill	Ingestion	4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A				
				Dieldrin	1E-02	ug/L	3.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.9E-08	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	2.1E-04				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				Heptachlor Epoxide	4E-03	ug/L	1.8E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.6E-08	6.3E-09	mg/kg-day	1.3E-05	mg/kg-day	4.9E-04				
				Aluminum	2E+04	ug/L	3.6E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	1.0E-02	mg/kg-day	1.3E-02				
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Cadmium (other media)	2E+01	ug/L	3.4E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	2.5E-05	mg/kg-day	4.8E-03				
				Chromium	2E+02	ug/L	9.2E-07	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	7.5E-05	mg/kg-day	4.3E-02				
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A				
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A				
				Vanadium	5E+01	ug/L	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.7E-07	mg/kg-day	1.8E-04	mg/kg-day	2.0E-03				
						Exp. Route Total							7E-08				6E-02			
						Exposure Point Total							7E-08				6E-02			
						Exposure Medium Total							N/A				N/A			
				Medium Total												N/A				N/A
				Sediment	Sediment	Adjacent to Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-08	6.6E-08	mg/kg-day	N/A	N/A	N/A
								Benzo(a)pyrene	2E+00	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.7E-07	8.0E-08	mg/kg-day	N/A	N/A	N/A
								Benzo(b)fluoranthene	1E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-08	7.5E-08	mg/kg-day	N/A	N/A	N/A
								Benzo(k)fluoranthene	8E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	8.1E-10	3.9E-08	mg/kg-day	N/A	N/A	N/A
								bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	3.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.5E-09	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.6E-05
								Carbazole	2E-01	mg/kg	3.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.0E-11	1.2E-08	mg/kg-day	N/A	N/A	N/A
								Dibenz(a,h)anthracene	2E-01	mg/kg	2.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.1E-08	1.0E-08	mg/kg-day	N/A	N/A	N/A
								Dibenzofuran	2E-01	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	8.6E-09	mg/kg-day	4.0E-03	mg/kg-day	2.1E-06
								Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	9.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.8E-09	3.3E-08	mg/kg-day	N/A	N/A	N/A
								Phenanthrene	2E+00	mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	3.0E-02	mg/kg-day	3.5E-06
Aroclor-1242	2E-01	mg/kg	3.5E-09					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.5E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.2E-04				
Aroclor-1254	3E-01	mg/kg	4.5E-09					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	4.5E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	7.9E-04				
Aroclor-1260	1E-01	mg/kg	1.8E-09					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.8E-09	6.1E-09	mg/kg-day	2.0E-05	mg/kg-day	3.1E-04				
Dieldrin	2E-02	mg/kg	2.4E-10					mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.9E-09	8.5E-10	mg/kg-day	5.0E-05	mg/kg-day	1.7E-05				
Aluminum	9E+03	mg/kg	1.3E-04					mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	1.0E+00	mg/kg-day	4.4E-04				
Antimony	2E+00	mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	9.4E-08	mg/kg-day	4.0E-04	mg/kg-day	2.4E-04								
Arsenic	4E+01	mg/kg	5.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	8.5E-07	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.6E-03								

TABLE 7.30.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	1.0E-03	mg/kg-day	5.0E-04
				Chromium	1E+02	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	3.0E-03	mg/kg-day	2.4E-03
				Cobalt	5E+00	mg/kg	7.2E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-04	mg/kg-day	8.4E-04
				Copper	2E+02	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	4.0E-02	mg/kg-day	2.6E-04
				Iron	2E+04	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.6E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	7.0E-02	mg/kg-day	1.9E-04
				Mercury (other media)	3E-01	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	1.0E-04	mg/kg-day	1.5E-04
				Thallium	7E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	8.0E-05	mg/kg-day	4.5E-04
				Vanadium	2E+01	mg/kg	3.1E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.0E-03	mg/kg-day	1.5E-04
			Exp. Route Total								1E-06					2E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.8E-08	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.5E-07	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.0E-08	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.6E-09	2.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	1.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.0E-08	5.0E-06	mg/kg-day	2.0E-02	mg/kg-day	2.5E-04
				Carbazole	2E-01	mg/kg	2.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.0E-10	7.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-07	5.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	4.0E-03	mg/kg-day	9.4E-06
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.9E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-02	mg/kg-day	2.0E-05
				Aroclor-1242	2E-01	mg/kg	2.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.2E-08	7.6E-08	mg/kg-day	2.0E-05	mg/kg-day	3.8E-03
				Aroclor-1254	3E-01	mg/kg	2.8E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.8E-08	9.7E-08	mg/kg-day	2.0E-05	mg/kg-day	4.9E-03
				Aroclor-1260	1E-01	mg/kg	1.1E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-08	3.8E-08	mg/kg-day	2.0E-05	mg/kg-day	1.9E-03
				Dieldrin	2E-02	mg/kg	1.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.7E-08	3.7E-09	mg/kg-day	5.0E-05	mg/kg-day	7.4E-05
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	7.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.1E-06	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.6E-03
				Cadmium (other media)	1E+01	mg/kg	6.3E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	2.5E-05	mg/kg-day	8.8E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					2E-02
		Exposure Point Total									4E-06					4E-02

TABLE 7.30.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
	Exposure Medium Total										N/A					N/A	
Medium Total											N/A					N/A	
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media					N/A

TABLE 7.31.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
Soil	Surface Soil	Landfill	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.9E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A				
				Benzo(a)pyrene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.2E-06	2.7E-06	mg/kg-day	N/A	N/A	N/A				
				Benzo(b)fluoranthene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.6E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A				
				Benzo(k)fluoranthene	8E-01	mg/kg	5.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.2E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A				
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.6E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.2E-09	1.8E-06	mg/kg-day	2.0E-02	mg/kg-day	9.2E-05				
				Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.0E-10	1.8E-07	mg/kg-day	N/A	N/A	N/A				
				Dibenz(a,h)anthracene	3E-01	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.1E-07	2.7E-07	mg/kg-day	N/A	N/A	N/A				
				Dibenzofuran	1E-01	mg/kg	9.4E-09	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-03	mg/kg-day	2.7E-05				
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	8.2E-07	mg/kg-day	N/A	N/A	N/A				
				Phenanthrene	7E+00	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	3.0E-02	mg/kg-day	1.9E-04				
				Aroclor-1248	6E+00	mg/kg	4.3E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.7E-07	5.0E-06	mg/kg-day	2.0E-05	mg/kg-day	2.5E-01				
				Aroclor-1254	5E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.6E-08	4.4E-07	mg/kg-day	2.0E-05	mg/kg-day	2.2E-02				
				Aroclor-1260	2E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.5E-08	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.4E-03				
				Dieldrin	2E-02	mg/kg	1.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.2E-08	1.6E-08	mg/kg-day	5.0E-05	mg/kg-day	3.2E-04				
				Dioxin TEQ	6E-05	mg/kg	4.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	5.4E-07	4.8E-11	mg/kg-day	N/A	N/A	N/A				
				Aluminum	9E+03	mg/kg	6.2E-04	mg/kg-day	N/A	N/A	N/A	7.2E-03	mg/kg-day	1.0E+00	mg/kg-day	7.2E-03				
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A				
				Arsenic	2E+01	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-06	1.3E-05	mg/kg-day	3.0E-04	mg/kg-day	4.2E-02				
				Cadmium (other media)	1E+01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	8.9E-06	mg/kg-day	1.0E-03	mg/kg-day	8.9E-03				
				Chromium	1E+02	mg/kg	8.6E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	3.0E-03	mg/kg-day	3.4E-02				
				Cobalt	4E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	9.8E-03				
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	4.0E-02	mg/kg-day	4.1E-03				
				Iron	3E+04	mg/kg	1.9E-03	mg/kg-day	N/A	N/A	N/A	2.2E-02	mg/kg-day	7.0E-01	mg/kg-day	3.2E-02				
				Lead																
				Manganese (other media)	7E+02	mg/kg	4.8E-05	mg/kg-day	N/A	N/A	N/A	5.6E-04	mg/kg-day	7.0E-02	mg/kg-day	8.0E-03				
				Mercury (other media)	5E-01	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	4.1E-07	mg/kg-day	1.0E-04	mg/kg-day	4.1E-03				
				Thallium	1E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	8.0E-05	mg/kg-day	1.1E-02				
				Vanadium	3E+01	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	7.0E-03	mg/kg-day	3.4E-03				
				Zinc	9E+02	mg/kg	6.4E-05	mg/kg-day	N/A	N/A	N/A	7.4E-04	mg/kg-day	3.0E-01	mg/kg-day	2.5E-03				
				Exp. Route Total									1E-05					4E-01		
							Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-07	1.8E-06	mg/kg-day	N/A	N/A	N/A
								Benzo(a)pyrene	3E+00	mg/kg	2.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.9E-06	3.1E-06	mg/kg-day	N/A	N/A	N/A
Benzo(b)fluoranthene	2E+00	mg/kg	1.9E-07					mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.1E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A				
Benzo(k)fluoranthene	8E-01	mg/kg	6.3E-08					mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.4E-08	7.3E-07	mg/kg-day	N/A	N/A	N/A				
bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.4E-07					mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.0E-09	1.6E-06	mg/kg-day	2.0E-02	mg/kg-day	8.1E-05				
Carbazole	2E-01	mg/kg	1.7E-08					mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.5E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A				
Dibenz(a,h)anthracene	3E-01	mg/kg	2.7E-08					mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.8E-07	3.1E-07	mg/kg-day	N/A	N/A	N/A				
Dibenzofuran	1E-01	mg/kg	8.2E-09					mg/kg-day	N/A	N/A	N/A	9.6E-08	mg/kg-day	4.0E-03	mg/kg-day	2.4E-05				
Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.0E-08					mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	9.4E-07	mg/kg-day	N/A	N/A	N/A				

TABLE 7.31.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Phenanthrene	7E+00	mg/kg	5.5E-07	mg/kg-day	N/A	N/A	N/A	6.4E-06	mg/kg-day	3.0E-02	mg/kg-day	2.1E-04			
				Aroclor-1248	6E+00	mg/kg	5.3E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.1E-06	6.2E-06	mg/kg-day	2.0E-05	mg/kg-day	3.1E-01			
				Aroclor-1254	5E-01	mg/kg	4.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.4E-08	5.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.7E-02			
				Aroclor-1260	2E-01	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.1E-08	1.8E-07	mg/kg-day	2.0E-05	mg/kg-day	9.1E-03			
				Dieldrin	2E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.0E-08	1.4E-08	mg/kg-day	5.0E-05	mg/kg-day	2.9E-04			
				Dioxin TEQ	6E-05	mg/kg	1.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.4E-07	1.3E-11	mg/kg-day	N/A	N/A	N/A			
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	2E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.3E-07	3.4E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02			
				Cadmium (other media)	1E+01	mg/kg	6.7E-09	mg/kg-day	N/A	N/A	N/A	7.8E-08	mg/kg-day	2.5E-05	mg/kg-day	3.1E-03			
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A			
				Exp. Route Total											9E-06				4E-01
				Exposure Point Total											2E-05				8E-01
				Exposure Medium Total											N/A				N/A
				Medium Total											N/A				N/A
				Surface Water	Surface Water	Adjacent to Landfill	Dermal (swimming)	Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A			
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A			
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
				1,4-Dichlorobenzene	5E-01	ug/L	1.2E-07	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	6.7E-10	1.4E-06	mg/kg-day	7.0E-02	mg/kg-day	2.1E-05			
				Benzene	8E-01	ug/L	4.4E-08	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	2.4E-09	5.1E-07	mg/kg-day	4.0E-03	mg/kg-day	1.3E-04			
				Aroclor-1260	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			

TABLE 7.31.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	3E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	3.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.4E-08	3.9E-08	mg/kg-day	5.0E-05	mg/kg-day	7.9E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	2.0E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.8E-08	2.3E-08	mg/kg-day	1.3E-05	mg/kg-day	1.8E-03
				Aluminum	2E+04	ug/L	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.6E-04	mg/kg-day	1.0E-02	mg/kg-day	4.6E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	3.8E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	2.5E-05	mg/kg-day	1.8E-02
				Chromium	2E+02	ug/L	1.0E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	7.5E-05	mg/kg-day	1.6E-01
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	5E+01	ug/L	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	1.8E-04	mg/kg-day	7.4E-03
			Exp. Route Total								8E-08					2E-01
			Ingestion (swimming)													
				Benzo(a)anthracene	2E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.7E-09	2.5E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.0E-08	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	3.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.5E-09	4.5E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	2.5E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	3.0E-02	mg/kg-day	9.6E-07
				Benzo(k)fluoranthene	3E-01	ug/L	2.8E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.1E-10	3.3E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	3.2E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	7.1E-11	3.8E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	2.0E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.5E-09	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	2.1E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	3.0E-02	mg/kg-day	8.3E-07
				1,4-Dichlorobenzene	5E-01	ug/L	5.8E-09	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	3.1E-11	6.8E-08	mg/kg-day	7.0E-02	mg/kg-day	9.7E-07
				Benzene	8E-01	ug/L	8.6E-09	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	4.7E-10	1.0E-07	mg/kg-day	4.0E-03	mg/kg-day	2.5E-05
				Aroclor-1260	3E-01	ug/L	3.2E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.4E-09	3.8E-08	mg/kg-day	2.0E-05	mg/kg-day	1.9E-03
				4,4'-DDD	3E-02	ug/L	2.7E-10	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	6.4E-11	3.1E-09	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	1.6E-10	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	5.5E-11	1.9E-09	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.31.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
				Dieldrin	1E-02	ug/L	1.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.4E-09	1.8E-09	mg/kg-day	5.0E-05	mg/kg-day	3.5E-05				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				Heptachlor Epoxide	4E-03	ug/L	4.0E-11	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	3.6E-10	4.6E-10	mg/kg-day	1.3E-05	mg/kg-day	3.6E-05				
				Aluminum	2E+04	ug/L	1.8E-04	mg/kg-day	N/A	N/A	N/A	2.1E-03	mg/kg-day	1.0E-02	mg/kg-day	2.1E-01				
				Arsenic	1E+01	ug/L	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.7E-03				
				Cadmium (other media)	2E+01	ug/L	1.7E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	2.5E-05	mg/kg-day	8.1E-02				
				Chromium	2E+02	ug/L	2.3E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	7.5E-05	mg/kg-day	3.6E-01				
				Cobalt	9E+00	ug/L	9.9E-08	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	3.8E-03				
				Copper	4E+02	ug/L	4.6E-06	mg/kg-day	N/A	N/A	N/A	5.4E-05	mg/kg-day	4.0E-02	mg/kg-day	1.3E-03				
				Cyanide	1E+01	ug/L	1.1E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.6E-05				
				Iron	5E+04	ug/L	4.9E-04	mg/kg-day	N/A	N/A	N/A	5.7E-03	mg/kg-day	7.0E-01	mg/kg-day	8.1E-03				
				Lead	3E+02	ug/L	2.9E-06	mg/kg-day	N/A	N/A	N/A	3.4E-05	mg/kg-day	N/A	N/A	N/A				
				Manganese (other media)	8E+02	ug/L	8.1E-06	mg/kg-day	N/A	N/A	N/A	9.5E-05	mg/kg-day	7.0E-02	mg/kg-day	1.4E-03				
				Mercury (water)	4E-01	ug/L	4.0E-09	mg/kg-day	N/A	N/A	N/A	4.6E-08	mg/kg-day	2.1E-05	mg/kg-day	2.2E-03				
				Vanadium	5E+01	ug/L	5.3E-07	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	1.8E-04	mg/kg-day	3.4E-02				
				Exp. Route Total									3E-07					7E-01		
				Exposure Point Total									4E-07					9E-01		
				Exposure Medium Total									N/A					N/A		
		Medium Total													N/A					N/A
		Sediment	Sediment	Adjacent to Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.9E-08	5.3E-07	mg/kg-day	N/A	N/A	N/A		
						Benzo(a)pyrene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	6.4E-07	mg/kg-day	N/A	N/A	N/A		
Benzo(b)fluoranthene	1E+00					mg/kg	5.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	6.0E-07	mg/kg-day	N/A	N/A	N/A				
Benzo(k)fluoranthene	8E-01					mg/kg	2.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.8E-09	3.1E-07	mg/kg-day	N/A	N/A	N/A				
bis(2-Ethylhexyl)phthalate	2E+01					mg/kg	7.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.1E-08	9.0E-06	mg/kg-day	2.0E-02	mg/kg-day	4.5E-04				
Carbazole	2E-01					mg/kg	8.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	9.9E-08	mg/kg-day	N/A	N/A	N/A				
Dibenz(a,h)anthracene	2E-01					mg/kg	7.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.5E-07	8.1E-08	mg/kg-day	N/A	N/A	N/A				
Dibenzofuran	2E-01					mg/kg	5.9E-09	mg/kg-day	N/A	N/A	N/A	6.9E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05				
Indeno(1,2,3-cd)pyrene	6E-01					mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.9E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A				
Phenanthrene	2E+00					mg/kg	7.3E-08	mg/kg-day	N/A	N/A	N/A	8.5E-07	mg/kg-day	3.0E-02	mg/kg-day	2.8E-05				
Aroclor-1242	2E-01					mg/kg	8.5E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.7E-08	9.9E-08	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03				
Aroclor-1254	3E-01					mg/kg	1.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.2E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.3E-03				
Aroclor-1260	1E-01					mg/kg	4.2E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.4E-09	4.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03				
Dieldrin	2E-02					mg/kg	5.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.3E-09	6.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04				
Aluminum	9E+03					mg/kg	3.0E-04	mg/kg-day	N/A	N/A	N/A	3.6E-03	mg/kg-day	1.0E+00	mg/kg-day	3.6E-03				
Antimony	2E+00					mg/kg	6.5E-08	mg/kg-day	N/A	N/A	N/A	7.5E-07	mg/kg-day	4.0E-04	mg/kg-day	1.9E-03				
Arsenic	4E+01					mg/kg	1.4E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.0E-06	1.6E-05	mg/kg-day	3.0E-04	mg/kg-day	5.3E-02				
Cadmium (other media)	1E+01					mg/kg	3.4E-07	mg/kg-day	N/A	N/A	N/A	4.0E-06	mg/kg-day	1.0E-03	mg/kg-day	4.0E-03				
Chromium	1E+02					mg/kg	5.0E-06	mg/kg-day	N/A	N/A	N/A	5.8E-05	mg/kg-day	3.0E-03	mg/kg-day	1.9E-02				
Cobalt	5E+00					mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.7E-03				
Copper	2E+02					mg/kg	7.2E-06	mg/kg-day	N/A	N/A	N/A	8.4E-05	mg/kg-day	4.0E-02	mg/kg-day	2.1E-03				

TABLE 7.31.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations																							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient																			
							Value	Units	Value	Units		Value	Units	Value	Units																				
				Iron	2E+04	mg/kg	7.7E-04	mg/kg-day	N/A	N/A	N/A	9.0E-03	mg/kg-day	7.0E-01	mg/kg-day	1.3E-02																			
				Lead																															
				Manganese (other media)	3E+02	mg/kg	9.4E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	7.0E-02	mg/kg-day	1.6E-03																			
				Mercury (other media)	3E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.0E-04	mg/kg-day	1.2E-03																			
				Thallium	7E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	8.0E-05	mg/kg-day	3.6E-03																			
				Vanadium	2E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	8.6E-06	mg/kg-day	7.0E-03	mg/kg-day	1.2E-03																			
				Exp. Route Total						4E-06					1E-01																				
				Dermal																															
				Benzo(a)anthracene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	8.6E-07	mg/kg-day	N/A	N/A	N/A																			
				Benzo(a)pyrene	2E+00	mg/kg	8.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A																			
				Benzo(b)fluoranthene	1E+00	mg/kg	8.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	9.8E-07	mg/kg-day	N/A	N/A	N/A																			
				Benzo(k)fluoranthene	8E-01	mg/kg	4.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.5E-09	5.0E-07	mg/kg-day	N/A	N/A	N/A																			
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	9.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.4E-08	1.1E-05	mg/kg-day	2.0E-02	mg/kg-day	5.6E-04																			
				Carbazole	2E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.7E-10	1.6E-07	mg/kg-day	N/A	N/A	N/A																			
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.5E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A																			
				Dibenzofuran	2E-01	mg/kg	7.4E-09	mg/kg-day	N/A	N/A	N/A	8.6E-08	mg/kg-day	4.0E-03	mg/kg-day	2.2E-05																			
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.0E-08	4.3E-07	mg/kg-day	N/A	N/A	N/A																			
				Phenanthrene	2E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.6E-05																			
				Aroclor-1242	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.0E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.7E-03																			
				Aroclor-1254	3E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.8E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02																			
				Aroclor-1260	1E-01	mg/kg	7.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.5E-08	8.6E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03																			
				Dieldrin	2E-02	mg/kg	7.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.2E-08	8.5E-09	mg/kg-day	5.0E-05	mg/kg-day	1.7E-04																			
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A																			
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A																			
				Arsenic	4E+01	mg/kg	5.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.6E-07	5.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02																			
				Cadmium (other media)	1E+01	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	5.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.0E-03																			
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A																			
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A																			
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A																			
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A																			
				Lead																															
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A																			
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A																			
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A																			
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A																			
							Exp. Route Total						4E-06					5E-02																	
						Exposure Point Total						7E-06					2E-01																		
					Exposure Medium Total						N/A					N/A																			
				Medium Total						N/A					N/A																				
				Total of Receptor Risks Across All Media																	N/A	Total of Receptor Hazards Across All Media													

Notes

TABLE 7.31.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.31.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	3.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.3E-08	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-06	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.9E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.0E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.5E-10	4.6E-07	mg/kg-day	2.0E-02	mg/kg-day	2.3E-05
				Carbazole	2E-01	mg/kg	3.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.6E-11	4.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	5.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-07	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	2.7E-08	mg/kg-day	4.0E-03	mg/kg-day	6.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.8E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.6E-05
				Aroclor-1248	6E+00	mg/kg	1.1E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-07	1.3E-06	mg/kg-day	2.0E-05	mg/kg-day	6.3E-02
				Aroclor-1254	5E-01	mg/kg	9.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	9.5E-09	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03
				Aroclor-1260	2E-01	mg/kg	3.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.2E-09	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Dieldrin	2E-02	mg/kg	3.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.6E-09	4.1E-09	mg/kg-day	5.0E-05	mg/kg-day	8.1E-05
				Dioxin TEQ	3E-05	mg/kg	5.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	7.2E-08	6.5E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.1E-07	3.2E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Cadmium (other media)	1E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	1.0E-03	mg/kg-day	2.2E-03
				Chromium	1E+02	mg/kg	2.2E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	3.0E-03	mg/kg-day	8.4E-03
				Cobalt	4E+00	mg/kg	6.3E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.4E-03
				Copper	2E+02	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	4.0E-02	mg/kg-day	1.0E-03
				Iron	3E+04	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	5.5E-03	mg/kg-day	7.0E-01	mg/kg-day	7.9E-03
				Lead												
				Manganese (other media)	7E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	7.0E-02	mg/kg-day	2.0E-03
				Mercury (other media)	5E-01	mg/kg	8.7E-09	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	1.0E-04	mg/kg-day	1.0E-03
				Thallium	1E+00	mg/kg	1.9E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	8.0E-05	mg/kg-day	2.8E-03
				Vanadium	3E+01	mg/kg	5.1E-07	mg/kg-day	N/A	N/A	N/A	5.9E-06	mg/kg-day	7.0E-03	mg/kg-day	8.5E-04
				Zinc	9E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	3.0E-01	mg/kg-day	6.2E-04
				Exp. Route Total										2E-06		
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	8.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.0E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	3.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.9E-09	3.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	7.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	9.8E-10	8.1E-07	mg/kg-day	2.0E-02	mg/kg-day	4.1E-05
				Carbazole	2E-01	mg/kg	8.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.9E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	4.1E-09	mg/kg-day	N/A	N/A	N/A	4.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.8E-08	4.7E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.31.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	3.0E-02	mg/kg-day	1.1E-04
				Aroclor-1248	6E+00	mg/kg	2.7E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.7E-07	3.1E-06	mg/kg-day	2.0E-05	mg/kg-day	1.6E-01
				Aroclor-1254	5E-01	mg/kg	2.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.3E-08	2.7E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Aroclor-1260	2E-01	mg/kg	7.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.8E-09	9.1E-08	mg/kg-day	2.0E-05	mg/kg-day	4.6E-03
				Dieldrin	2E-02	mg/kg	6.1E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.8E-09	7.1E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Dioxin TEQ	3E-05	mg/kg	2.9E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	3.8E-08	3.4E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.2E-07	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.6E-03
				Cadmium (other media)	1E+01	mg/kg	3.3E-09	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	2.5E-05	mg/kg-day	1.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-06					2E-01
		Exposure Point Total									6E-06					3E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal (swimming)	Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	3E-01	ug/L	3.2E-08	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	1.7E-10	3.8E-07	mg/kg-day	7.0E-02	mg/kg-day	5.4E-06
				Benzene	6E-01	ug/L	1.6E-08	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	8.6E-10	1.8E-07	mg/kg-day	4.0E-03	mg/kg-day	4.5E-05
				Aroclor-1260	3E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.31.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	1E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	1E-02	ug/L	1.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.7E-08	2.0E-08	mg/kg-day	5.0E-05	mg/kg-day	3.9E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	1.0E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	9.2E-09	1.2E-08	mg/kg-day	1.3E-05	mg/kg-day	9.0E-04
				Aluminum	2E+04	ug/L	2.0E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	1.0E-02	mg/kg-day	2.3E-02
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	2E+01	ug/L	1.9E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	2.5E-05	mg/kg-day	8.9E-03
				Chromium	2E+02	ug/L	5.1E-07	mg/kg-day	N/A	N/A	N/A	5.9E-06	mg/kg-day	7.5E-05	mg/kg-day	7.9E-02
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	5E+01	ug/L	5.8E-08	mg/kg-day	N/A	N/A	N/A	6.8E-07	mg/kg-day	1.8E-04	mg/kg-day	3.7E-03
			Exp. Route Total								4E-08					1E-01
			Ingestion (swimming)													
				Benzo(a)anthracene	2E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	1.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.0E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	1.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.2E-09	2.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	3.8E-10	mg/kg-day	N/A	N/A	N/A	4.4E-09	mg/kg-day	3.0E-02	mg/kg-day	1.5E-07
				Benzo(k)fluoranthene	3E-01	ug/L	1.4E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.1E-10	1.6E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	1.6E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	3.5E-11	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	1.0E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-09	1.2E-08	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	7E-02	ug/L	3.6E-10	mg/kg-day	N/A	N/A	N/A	4.2E-09	mg/kg-day	3.0E-02	mg/kg-day	1.4E-07
				1,4-Dichlorobenzene	3E-01	ug/L	1.5E-09	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	8.2E-12	1.8E-08	mg/kg-day	7.0E-02	mg/kg-day	2.5E-07
				Benzene	6E-01	ug/L	3.1E-09	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	1.7E-10	3.6E-08	mg/kg-day	4.0E-03	mg/kg-day	8.9E-06
				Aroclor-1260	3E-01	ug/L	1.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.6E-09	1.9E-08	mg/kg-day	2.0E-05	mg/kg-day	9.4E-04
				4,4'-DDD	1E-02	ug/L	8.0E-11	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.9E-11	9.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	2E-02	ug/L	8.1E-11	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	2.7E-11	9.4E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.31.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	1E-02	ug/L	7.5E-11	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.2E-09	8.8E-10	mg/kg-day	5.0E-05	mg/kg-day	1.8E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	4E-03	ug/L	2.0E-11	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.8E-10	2.3E-10	mg/kg-day	1.3E-05	mg/kg-day	1.8E-05
				Aluminum	2E+04	ug/L	9.1E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	1.0E-02	mg/kg-day	1.1E-01
				Arsenic	1E+01	ug/L	6.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.0E-08	7.0E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03
				Cadmium (other media)	2E+01	ug/L	8.7E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	2.5E-05	mg/kg-day	4.1E-02
				Chromium	2E+02	ug/L	1.2E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	7.5E-05	mg/kg-day	1.8E-01
				Cobalt	9E+00	ug/L	4.9E-08	mg/kg-day	N/A	N/A	N/A	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Copper	4E+02	ug/L	2.3E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	4.0E-02	mg/kg-day	6.7E-04
				Cyanide	1E+01	ug/L	5.7E-08	mg/kg-day	N/A	N/A	N/A	6.6E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Iron	5E+04	ug/L	2.4E-04	mg/kg-day	N/A	N/A	N/A	2.8E-03	mg/kg-day	7.0E-01	mg/kg-day	4.1E-03
				Lead	3E+02	ug/L	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	8E+02	ug/L	4.1E-06	mg/kg-day	N/A	N/A	N/A	4.7E-05	mg/kg-day	7.0E-02	mg/kg-day	6.8E-04
				Mercury (water)	4E-01	ug/L	2.0E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	2.1E-05	mg/kg-day	1.1E-03
				Vanadium	5E+01	ug/L	2.6E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	1.8E-04	mg/kg-day	1.7E-02
			Exp. Route Total								1E-07					4E-01
		Exposure Point Total									2E-07					5E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Adjacent to Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.5E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.0E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	6.6E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.5E-09	7.8E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	1.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.7E-09	2.3E-06	mg/kg-day	2.0E-02	mg/kg-day	1.1E-04
				Carbazole	2E-01	mg/kg	2.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.2E-11	2.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.8E-08	2.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	4.0E-03	mg/kg-day	4.3E-06
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	5.6E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-08	6.5E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	7.1E-06
				Aroclor-1242	2E-01	mg/kg	2.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.1E-09	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aroclor-1254	3E-01	mg/kg	2.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.7E-09	3.2E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03
				Aroclor-1260	1E-01	mg/kg	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.1E-04
				Dieldrin	2E-02	mg/kg	1.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.3E-09	1.7E-09	mg/kg-day	5.0E-05	mg/kg-day	3.4E-05
				Aluminum	9E+03	mg/kg	7.6E-05	mg/kg-day	N/A	N/A	N/A	8.9E-04	mg/kg-day	1.0E+00	mg/kg-day	8.9E-04
				Antimony	2E+00	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.9E-07	mg/kg-day	4.0E-04	mg/kg-day	4.7E-04
				Arsenic	4E+01	mg/kg	3.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.1E-07	3.9E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02
				Cadmium (other media)	1E+01	mg/kg	8.6E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	1.0E-03	mg/kg-day	1.0E-03
				Chromium	1E+02	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	3.0E-03	mg/kg-day	4.8E-03
				Cobalt	5E+00	mg/kg	4.3E-08	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03
				Copper	2E+02	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	4.0E-02	mg/kg-day	5.2E-04

TABLE 7.31.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
				Iron	2E+04	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	2.2E-03	mg/kg-day	7.0E-01	mg/kg-day	3.2E-03		
				Lead														
				Manganese (other media)	3E+02	mg/kg	2.3E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	7.0E-02	mg/kg-day	3.9E-04		
				Mercury (other media)	3E-01	mg/kg	2.6E-09	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	1.0E-04	mg/kg-day	3.0E-04		
				Thallium	7E-01	mg/kg	6.2E-09	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	8.0E-05	mg/kg-day	9.1E-04		
			Vanadium	2E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.1E-04			
			Exp. Route Total						9E-07					3E-02				
			Dermal															
			Benzo(a)anthracene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.1E-08	4.3E-07	mg/kg-day	N/A	N/A	N/A			
			Benzo(a)pyrene	2E+00	mg/kg	4.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.7E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A			
			Benzo(b)fluoranthene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A			
			Benzo(k)fluoranthene	8E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.7E-09	2.5E-07	mg/kg-day	N/A	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	4.8E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.8E-09	5.6E-06	mg/kg-day	2.0E-02	mg/kg-day	2.8E-04			
			Carbazole	2E-01	mg/kg	6.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.4E-10	8.0E-08	mg/kg-day	N/A	N/A	N/A			
			Dibenz(a,h)anthracene	2E-01	mg/kg	5.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-07	6.6E-08	mg/kg-day	N/A	N/A	N/A			
			Dibenzofuran	2E-01	mg/kg	3.7E-09	mg/kg-day	N/A	N/A	N/A	4.3E-08	mg/kg-day	4.0E-03	mg/kg-day	1.1E-05			
			Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A			
			Phenanthrene	2E+00	mg/kg	5.9E-08	mg/kg-day	N/A	N/A	N/A	6.9E-07	mg/kg-day	3.0E-02	mg/kg-day	2.3E-05			
			Aroclor-1242	2E-01	mg/kg	7.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.4E-09	8.7E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03			
			Aroclor-1254	3E-01	mg/kg	9.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	9.5E-09	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03			
			Aroclor-1260	1E-01	mg/kg	3.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.7E-09	4.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03			
			Dieldrin	2E-02	mg/kg	3.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.8E-09	4.2E-09	mg/kg-day	5.0E-05	mg/kg-day	8.5E-05			
			Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
			Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
			Arsenic	4E+01	mg/kg	2.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.8E-07	3.0E-06	mg/kg-day	3.0E-04	mg/kg-day	9.9E-03			
			Cadmium (other media)	1E+01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.0E-03			
			Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
			Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
			Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
			Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
			Lead															
			Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
			Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
			Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
			Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
			Exp. Route Total						2E-06					2E-02				
			Exposure Point Total						3E-06					5E-02				
			Exposure Medium Total						N/A					N/A				
			Medium Total						N/A					N/A				
			Total of Receptor Risks Across All Media															
N/A											Total of Receptor Hazards Across All Media						N/A	

Notes

TABLE 7.31.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.32.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.9E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.2E-06	2.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.6E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	5.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.2E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.6E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.2E-09	1.8E-06	mg/kg-day	2.0E-02	mg/kg-day	9.2E-05
				Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.0E-10	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.1E-07	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	9.4E-09	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-03	mg/kg-day	2.7E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	8.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	3.0E-02	mg/kg-day	1.9E-04
				Aroclor-1248	6E+00	mg/kg	4.3E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.7E-07	5.0E-06	mg/kg-day	2.0E-05	mg/kg-day	2.5E-01
				Aroclor-1254	5E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.6E-08	4.4E-07	mg/kg-day	2.0E-05	mg/kg-day	2.2E-02
				Aroclor-1260	2E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.5E-08	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.4E-03
				Dieldrin	2E-02	mg/kg	1.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.2E-08	1.6E-08	mg/kg-day	5.0E-05	mg/kg-day	3.2E-04
				Dioxin TEQ	6E-05	mg/kg	4.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	5.4E-07	4.8E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.2E-04	mg/kg-day	N/A	N/A	N/A	7.2E-03	mg/kg-day	1.0E+00	mg/kg-day	7.2E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-06	1.3E-05	mg/kg-day	3.0E-04	mg/kg-day	4.2E-02
				Cadmium (other media)	1E+01	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	8.9E-06	mg/kg-day	1.0E-03	mg/kg-day	8.9E-03
				Chromium	1E+02	mg/kg	8.6E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	3.0E-03	mg/kg-day	3.4E-02
				Cobalt	4E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	9.8E-03
				Copper	2E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	1.6E-04	mg/kg-day	4.0E-02	mg/kg-day	4.1E-03
				Iron	3E+04	mg/kg	1.9E-03	mg/kg-day	N/A	N/A	N/A	2.2E-02	mg/kg-day	7.0E-01	mg/kg-day	3.2E-02
				Lead												
				Manganese (other media)	7E+02	mg/kg	4.8E-05	mg/kg-day	N/A	N/A	N/A	5.6E-04	mg/kg-day	7.0E-02	mg/kg-day	8.0E-03
				Mercury (other media)	5E-01	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	4.1E-07	mg/kg-day	1.0E-04	mg/kg-day	4.1E-03
				Thallium	1E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	8.0E-05	mg/kg-day	1.1E-02
				Vanadium	3E+01	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	7.0E-03	mg/kg-day	3.4E-03
				Zinc	9E+02	mg/kg	6.4E-05	mg/kg-day	N/A	N/A	N/A	7.4E-04	mg/kg-day	3.0E-01	mg/kg-day	2.5E-03
				Exp. Route Total				1E-05							4E-01	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-07	1.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.9E-06	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.1E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.4E-08	7.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.4E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.0E-09	1.6E-06	mg/kg-day	2.0E-02	mg/kg-day	8.1E-05
				Carbazole	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.5E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	2.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.8E-07	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	8.2E-09	mg/kg-day	N/A	N/A	N/A	9.6E-08	mg/kg-day	4.0E-03	mg/kg-day	2.4E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	9.4E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.32.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	5.5E-07	mg/kg-day	N/A	N/A	N/A	6.4E-06	mg/kg-day	3.0E-02	mg/kg-day	2.1E-04
				Aroclor-1248	6E+00	mg/kg	5.3E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.1E-06	6.2E-06	mg/kg-day	2.0E-05	mg/kg-day	3.1E-01
				Aroclor-1254	5E-01	mg/kg	4.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.4E-08	5.5E-07	mg/kg-day	2.0E-05	mg/kg-day	2.7E-02
				Aroclor-1260	2E-01	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.1E-08	1.8E-07	mg/kg-day	2.0E-05	mg/kg-day	9.1E-03
				Dieldrin	2E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.0E-08	1.4E-08	mg/kg-day	5.0E-05	mg/kg-day	2.9E-04
				Dioxin TEQ	6E-05	mg/kg	1.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.4E-07	1.3E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.3E-07	3.4E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Cadmium (other media)	1E+01	mg/kg	6.7E-09	mg/kg-day	N/A	N/A	N/A	7.8E-08	mg/kg-day	2.5E-05	mg/kg-day	3.1E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								9E-06					4E-01
		Exposure Point Total									2E-05					8E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal (wading)	Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	5E-01	ug/L	7.6E-08	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	4.1E-10	8.9E-07	mg/kg-day	7.0E-02	mg/kg-day	1.3E-05
				Benzene	8E-01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	3E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.32.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
				4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A				
				Dieldrin	1E-02	ug/L	2.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.3E-08	2.4E-08	mg/kg-day	5.0E-05	mg/kg-day	4.9E-04				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				Heptachlor Epoxide	4E-03	ug/L	1.2E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.1E-08	1.4E-08	mg/kg-day	1.3E-05	mg/kg-day	1.1E-03				
				Aluminum	2E+04	ug/L	2.5E-05	mg/kg-day	N/A	N/A	N/A	2.9E-04	mg/kg-day	1.0E-02	mg/kg-day	2.9E-02				
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Cadmium (other media)	2E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A				
				Chromium	2E+02	ug/L	6.3E-07	mg/kg-day	N/A	N/A	N/A	7.3E-06	mg/kg-day	7.5E-05	mg/kg-day	9.7E-02				
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A				
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A				
				Vanadium	5E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A				
						Exp. Route Total								5E-08					1E-01	
						Exposure Point Total								5E-08						1E-01
					Exposure Medium Total									N/A						N/A
				Medium Total										N/A						N/A
				Sediment	Sediment	Adjacent to Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.9E-08	5.3E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(a)pyrene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	6.4E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(b)fluoranthene	1E+00	mg/kg	5.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	6.0E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(k)fluoranthene	8E-01	mg/kg	2.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.8E-09	3.1E-07	mg/kg-day	N/A	N/A	N/A
								bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	7.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.1E-08	9.0E-06	mg/kg-day	2.0E-02	mg/kg-day	4.5E-04
								Carbazole	2E-01	mg/kg	8.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	9.9E-08	mg/kg-day	N/A	N/A	N/A
								Dibenz(a,h)anthracene	2E-01	mg/kg	7.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.5E-07	8.1E-08	mg/kg-day	N/A	N/A	N/A
								Dibenzofuran	2E-01	mg/kg	5.9E-09	mg/kg-day	N/A	N/A	N/A	6.9E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05
								Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.9E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
Phenanthrene	2E+00	mg/kg	7.3E-08					mg/kg-day	N/A	N/A	N/A	8.5E-07	mg/kg-day	3.0E-02	mg/kg-day	2.8E-05				
Aroclor-1242	2E-01	mg/kg	8.5E-09					mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.7E-08	9.9E-08	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03				
Aroclor-1254	3E-01	mg/kg	1.1E-08					mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.2E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.3E-03				
Aroclor-1260	1E-01	mg/kg	4.2E-09					mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.4E-09	4.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03				
Dieldrin	2E-02	mg/kg	5.8E-10					mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.3E-09	6.8E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04				
Aluminum	9E+03	mg/kg	3.0E-04					mg/kg-day	N/A	N/A	N/A	3.6E-03	mg/kg-day	1.0E+00	mg/kg-day	3.6E-03				
Antimony	2E+00	mg/kg	6.5E-08					mg/kg-day	N/A	N/A	N/A	7.5E-07	mg/kg-day	4.0E-04	mg/kg-day	1.9E-03				
Arsenic	4E+01	mg/kg	1.4E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.0E-06	1.6E-05	mg/kg-day	3.0E-04	mg/kg-day	5.3E-02								

TABLE 7.32.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
				Cadmium (other media)	1E+01	mg/kg	3.4E-07	mg/kg-day	N/A	N/A	N/A	4.0E-06	mg/kg-day	1.0E-03	mg/kg-day	4.0E-03		
				Chromium	1E+02	mg/kg	5.0E-06	mg/kg-day	N/A	N/A	N/A	5.8E-05	mg/kg-day	3.0E-03	mg/kg-day	1.9E-02		
				Cobalt	5E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.7E-03		
				Copper	2E+02	mg/kg	7.2E-06	mg/kg-day	N/A	N/A	N/A	8.4E-05	mg/kg-day	4.0E-02	mg/kg-day	2.1E-03		
				Iron	2E+04	mg/kg	7.7E-04	mg/kg-day	N/A	N/A	N/A	9.0E-03	mg/kg-day	7.0E-01	mg/kg-day	1.3E-02		
				Lead														
				Manganese (other media)	3E+02	mg/kg	9.4E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	7.0E-02	mg/kg-day	1.6E-03		
				Mercury (other media)	3E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.0E-04	mg/kg-day	1.2E-03		
				Thallium	7E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	8.0E-05	mg/kg-day	3.6E-03		
				Vanadium	2E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	8.6E-06	mg/kg-day	7.0E-03	mg/kg-day	1.2E-03		
				Exp. Route Total						4E-06					1E-01			
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	8.6E-07	mg/kg-day	N/A	N/A	N/A		
				Benzo(a)pyrene	2E+00	mg/kg	8.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A		
				Benzo(b)fluoranthene	1E+00	mg/kg	8.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	9.8E-07	mg/kg-day	N/A	N/A	N/A		
				Benzo(k)fluoranthene	8E-01	mg/kg	4.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.5E-09	5.0E-07	mg/kg-day	N/A	N/A	N/A		
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	9.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.4E-08	1.1E-05	mg/kg-day	2.0E-02	mg/kg-day	5.6E-04		
				Carbazole	2E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.7E-10	1.6E-07	mg/kg-day	N/A	N/A	N/A		
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.5E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A		
				Dibenzofuran	2E-01	mg/kg	7.4E-09	mg/kg-day	N/A	N/A	N/A	8.6E-08	mg/kg-day	4.0E-03	mg/kg-day	2.2E-05		
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.0E-08	4.3E-07	mg/kg-day	N/A	N/A	N/A		
				Phenanthrene	2E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.6E-05		
				Aroclor-1242	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.0E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.7E-03		
				Aroclor-1254	3E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.8E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02		
				Aroclor-1260	1E-01	mg/kg	7.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.5E-08	8.6E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03		
				Dieldrin	2E-02	mg/kg	7.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.2E-08	8.5E-09	mg/kg-day	5.0E-05	mg/kg-day	1.7E-04		
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A		
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A		
				Arsenic	4E+01	mg/kg	5.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.6E-07	5.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02		
				Cadmium (other media)	1E+01	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	5.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.0E-03		
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A		
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A		
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A		
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A		
				Lead														
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A		
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A		
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A		
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A		
				Exp. Route Total						4E-06					5E-02			
			Exposure Point Total							7E-06					2E-01			

TABLE 7.32.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
	Exposure Medium Total												N/A				N/A
Medium Total													N/A				N/A
							Total of Receptor Risks Across All Media						N/A	Total of Receptor Hazards Across All Media			N/A

Notes
 Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.32.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Landfill	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	3.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.3E-08	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-06	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.9E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.0E-09	1.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.5E-10	4.6E-07	mg/kg-day	2.0E-02	mg/kg-day	2.3E-05
				Carbazole	2E-01	mg/kg	3.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.6E-11	4.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	5.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-07	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	2.3E-09	mg/kg-day	N/A	N/A	N/A	2.7E-08	mg/kg-day	4.0E-03	mg/kg-day	6.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.8E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	7E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-02	mg/kg-day	4.6E-05
				Aroclor-1248	6E+00	mg/kg	1.1E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-07	1.3E-06	mg/kg-day	2.0E-05	mg/kg-day	6.3E-02
				Aroclor-1254	5E-01	mg/kg	9.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	9.5E-09	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03
				Aroclor-1260	2E-01	mg/kg	3.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.2E-09	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Dieldrin	2E-02	mg/kg	3.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.6E-09	4.1E-09	mg/kg-day	5.0E-05	mg/kg-day	8.1E-05
				Dioxin TEQ	3E-05	mg/kg	5.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	7.2E-08	6.5E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.1E-07	3.2E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Cadmium (other media)	1E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	1.0E-03	mg/kg-day	2.2E-03
				Chromium	1E+02	mg/kg	2.2E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	3.0E-03	mg/kg-day	8.4E-03
				Cobalt	4E+00	mg/kg	6.3E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.4E-03
				Copper	2E+02	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	4.0E-02	mg/kg-day	1.0E-03
				Iron	3E+04	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	5.5E-03	mg/kg-day	7.0E-01	mg/kg-day	7.9E-03
				Lead												
				Manganese (other media)	7E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	7.0E-02	mg/kg-day	2.0E-03
				Mercury (other media)	5E-01	mg/kg	8.7E-09	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	1.0E-04	mg/kg-day	1.0E-03
				Thallium	1E+00	mg/kg	1.9E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	8.0E-05	mg/kg-day	2.8E-03
				Vanadium	3E+01	mg/kg	5.1E-07	mg/kg-day	N/A	N/A	N/A	5.9E-06	mg/kg-day	7.0E-03	mg/kg-day	8.5E-04
				Zinc	9E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	3.0E-01	mg/kg-day	6.2E-04
				Exp. Route Total										2E-06		
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	8.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.0E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	3.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.9E-09	3.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	7.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	9.8E-10	8.1E-07	mg/kg-day	2.0E-02	mg/kg-day	4.1E-05
				Carbazole	2E-01	mg/kg	8.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.9E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	1E-01	mg/kg	4.1E-09	mg/kg-day	N/A	N/A	N/A	4.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.8E-08	4.7E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.32.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	7E+00	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	3.0E-02	mg/kg-day	1.1E-04
				Aroclor-1248	6E+00	mg/kg	2.7E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.7E-07	3.1E-06	mg/kg-day	2.0E-05	mg/kg-day	1.6E-01
				Aroclor-1254	5E-01	mg/kg	2.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.3E-08	2.7E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Aroclor-1260	2E-01	mg/kg	7.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.8E-09	9.1E-08	mg/kg-day	2.0E-05	mg/kg-day	4.6E-03
				Dieldrin	2E-02	mg/kg	6.1E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.8E-09	7.1E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Dioxin TEQ	3E-05	mg/kg	2.9E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	3.8E-08	3.4E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.2E-07	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.6E-03
				Cadmium (other media)	1E+01	mg/kg	3.3E-09	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	2.5E-05	mg/kg-day	1.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	7E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	9E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								4E-06					2E-01
		Exposure Point Total									6E-06					3E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Adjacent to Landfill	Dermal (wading)	Benzo(a)anthracene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	3E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	3E-01	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	3E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	3E-01	ug/L	2.0E-08	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	1.1E-10	2.3E-07	mg/kg-day	7.0E-02	mg/kg-day	3.3E-06
				Benzene	6E-01	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	3E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	1E-02	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.32.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
Sediment	Sediment	Adjacent to Landfill	Ingestion	4,4'-DDE	2E-02	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A			
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A			
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A	N/A			
				Dieldrin	1E-02	ug/L	1.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.7E-08	1.2E-08	mg/kg-day	5.0E-05	mg/kg-day	2.4E-04				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	N/A			
				Heptachlor Epoxide	4E-03	ug/L	6.2E-10	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	5.6E-09	7.2E-09	mg/kg-day	1.3E-05	mg/kg-day	5.6E-04				
				Aluminum	2E+04	ug/L	1.2E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	1.0E-02	mg/kg-day	1.4E-02				
				Arsenic	1E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A			
				Cadmium (other media)	2E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A	N/A			
				Chromium	2E+02	ug/L	3.1E-07	mg/kg-day	N/A	N/A	N/A	3.7E-06	mg/kg-day	7.5E-05	mg/kg-day	4.9E-02				
				Cobalt	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	N/A			
				Copper	4E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	N/A			
				Cyanide	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	N/A			
				Iron	5E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	N/A			
				Lead	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				Manganese (other media)	8E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	N/A			
				Mercury (water)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	N/A			
				Vanadium	5E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A	N/A			
						Exp. Route Total								2E-08				6E-02		
						Exposure Point Total								2E-08				6E-02		
						Exposure Medium Total								N/A				N/A		
				Medium Total											N/A					N/A
				Sediment	Sediment	Adjacent to Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.5E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(a)pyrene	2E+00	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.0E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(b)fluoranthene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(k)fluoranthene	8E-01	mg/kg	6.6E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.5E-09	7.8E-08	mg/kg-day	N/A	N/A	N/A
		bis(2-Ethylhexyl)phthalate	2E+01					mg/kg	1.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.7E-09	2.3E-06	mg/kg-day	2.0E-02	mg/kg-day	1.1E-04		
		Carbazole	2E-01					mg/kg	2.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.2E-11	2.5E-08	mg/kg-day	N/A	N/A	N/A		
		Dibenz(a,h)anthracene	2E-01					mg/kg	1.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.8E-08	2.0E-08	mg/kg-day	N/A	N/A	N/A		
		Dibenzofuran	2E-01					mg/kg	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	4.0E-03	mg/kg-day	4.3E-06		
		Indeno(1,2,3-cd)pyrene	6E-01					mg/kg	5.6E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-08	6.5E-08	mg/kg-day	N/A	N/A	N/A		
		Phenanthrene	2E+00					mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	7.1E-06		
Aroclor-1242	2E-01	mg/kg	2.1E-09					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.1E-09	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03				
Aroclor-1254	3E-01	mg/kg	2.7E-09					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.7E-09	3.2E-08	mg/kg-day	2.0E-05	mg/kg-day	1.6E-03				
Aroclor-1260	1E-01	mg/kg	1.1E-09					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.1E-04				
Dieldrin	2E-02	mg/kg	1.5E-10					mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.3E-09	1.7E-09	mg/kg-day	5.0E-05	mg/kg-day	3.4E-05				
Aluminum	9E+03	mg/kg	7.6E-05					mg/kg-day	N/A	N/A	N/A	8.9E-04	mg/kg-day	1.0E+00	mg/kg-day	8.9E-04				
Antimony	2E+00	mg/kg	1.6E-08					mg/kg-day	N/A	N/A	N/A	1.9E-07	mg/kg-day	4.0E-04	mg/kg-day	4.7E-04				
Arsenic	4E+01	mg/kg	3.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.1E-07	3.9E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02								

TABLE 7.32.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	8.6E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	1.0E-03	mg/kg-day	1.0E-03
				Chromium	1E+02	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	3.0E-03	mg/kg-day	4.8E-03
				Cobalt	5E+00	mg/kg	4.3E-08	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03
				Copper	2E+02	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	4.0E-02	mg/kg-day	5.2E-04
				Iron	2E+04	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	2.2E-03	mg/kg-day	7.0E-01	mg/kg-day	3.2E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	2.3E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	7.0E-02	mg/kg-day	3.9E-04
				Mercury (other media)	3E-01	mg/kg	2.6E-09	mg/kg-day	N/A	N/A	N/A	3.0E-08	mg/kg-day	1.0E-04	mg/kg-day	3.0E-04
				Thallium	7E-01	mg/kg	6.2E-09	mg/kg-day	N/A	N/A	N/A	7.2E-08	mg/kg-day	8.0E-05	mg/kg-day	9.1E-04
				Vanadium	2E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.1E-04
			Exp. Route Total								9E-07					3E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.1E-08	4.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	4.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.7E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	8E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.7E-09	2.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+01	mg/kg	4.8E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.8E-09	5.6E-06	mg/kg-day	2.0E-02	mg/kg-day	2.8E-04
				Carbazole	2E-01	mg/kg	6.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.4E-10	8.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-07	6.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.7E-09	mg/kg-day	N/A	N/A	N/A	4.3E-08	mg/kg-day	4.0E-03	mg/kg-day	1.1E-05
				Indeno(1,2,3-cd)pyrene	6E-01	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	5.9E-08	mg/kg-day	N/A	N/A	N/A	6.9E-07	mg/kg-day	3.0E-02	mg/kg-day	2.3E-05
				Aroclor-1242	2E-01	mg/kg	7.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.4E-09	8.7E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03
				Aroclor-1254	3E-01	mg/kg	9.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	9.5E-09	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.5E-03
				Aroclor-1260	1E-01	mg/kg	3.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.7E-09	4.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03
				Dieldrin	2E-02	mg/kg	3.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.8E-09	4.2E-09	mg/kg-day	5.0E-05	mg/kg-day	8.5E-05
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	4E+01	mg/kg	2.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.8E-07	3.0E-06	mg/kg-day	3.0E-04	mg/kg-day	9.9E-03
				Cadmium (other media)	1E+01	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.0E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	5E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					2E-02
		Exposure Point Total									3E-06					5E-02

TABLE 7.32.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
	Exposure Medium Total									N/A					N/A	
Medium Total									N/A						N/A	

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.33.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	7.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.4E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	7.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.3E-06	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	8.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.4E-07	2.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-02	mg/kg-day	4.2E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.1E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	5.9E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.2E-07	1.7E-04	mg/kg-day	2.0E-02	mg/kg-day	8.6E-03
				Carbazole	5E-01	mg/kg	6.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.3E-09	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	6.1E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	4.5E-09	1.8E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.5E-07	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	9.9E-08	mg/kg-day	4.0E-03	mg/kg-day	2.5E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	4.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.2E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.4E-06	mg/kg-day	3.0E-02	mg/kg-day	1.1E-04
				Aroclor-1248	4E-01	mg/kg	5.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.0E-07	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.3E-03
				Aroclor-1254	2E-01	mg/kg	2.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.8E-08	7.0E-08	mg/kg-day	2.0E-05	mg/kg-day	3.5E-03
				Aroclor-1260	2E-01	mg/kg	3.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.9E-08	1.0E-07	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03
				Dieldrin	2E-01	mg/kg	2.4E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.9E-07	7.0E-08	mg/kg-day	5.0E-05	mg/kg-day	1.4E-03
				Dioxin TEQ	5E-05	mg/kg	6.3E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	8.2E-07	1.8E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.2E-03	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	1.0E+00	mg/kg-day	3.5E-03
				Arsenic	1E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-06	5.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02
				Cadmium (other media)	9E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	1.0E-03	mg/kg-day	3.6E-03
				Chromium	3E+02	mg/kg	4.0E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	3.0E-03	mg/kg-day	3.9E-02
				Cobalt	8E+00	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.0E-02
				Copper	3E+02	mg/kg	3.6E-05	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	4.0E-02	mg/kg-day	2.6E-03
				Iron	3E+04	mg/kg	4.0E-03	mg/kg-day	N/A	N/A	N/A	1.2E-02	mg/kg-day	7.0E-01	mg/kg-day	1.7E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.9E-03
				Mercury (other media)	7E-01	mg/kg	9.5E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-04	mg/kg-day	2.8E-03
				Thallium	2E+00	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	9.4E-07	mg/kg-day	8.0E-05	mg/kg-day	1.2E-02
				Vanadium	3E+01	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-03	mg/kg-day	1.6E-03
				Zinc	5E+02	mg/kg	7.5E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-01	mg/kg-day	7.3E-04
			Exp. Route Total								1E-05					1E-01
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	3.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.8E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	4.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	6.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.2E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	8.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.8E-09	2.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.3E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.3E-07	6.8E-05	mg/kg-day	2.0E-02	mg/kg-day	3.4E-03
				Carbazole	5E-01	mg/kg	3.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.8E-10	9.9E-08	mg/kg-day	N/A	N/A	N/A

TABLE 7.33.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	2.3E-09	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	4.0E-03	mg/kg-day	9.8E-06
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	6.6E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	6.1E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-02	mg/kg-day	5.9E-05
				Aroclor-1248	4E-01	mg/kg	2.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.6E-08	8.2E-08	mg/kg-day	2.0E-05	mg/kg-day	4.1E-03
				Aroclor-1254	2E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.7E-08	3.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Aroclor-1260	2E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.9E-08	5.6E-08	mg/kg-day	2.0E-05	mg/kg-day	2.8E-03
				Dieldrin	2E-01	mg/kg	9.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-07	2.8E-08	mg/kg-day	5.0E-05	mg/kg-day	5.6E-04
				Dioxin TEQ	5E-05	mg/kg	7.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	9.8E-08	2.2E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.3E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03
				Cadmium (other media)	9E+00	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	5.8E-04
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								5E-06					2E-02
		Exposure Point Total									2E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (swimming)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E-01	ug/L	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A

TABLE 7.33.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzene	2E+00	ug/L	4.3E-07	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	2.4E-08	1.3E-06	mg/kg-day	4.0E-03	mg/kg-day	3.1E-04
				Aroclor-1260	1E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	3.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.0E-08	9.2E-09	mg/kg-day	5.0E-05	mg/kg-day	1.8E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	2.1E-06	mg/kg-day	N/A	N/A	N/A	6.3E-06	mg/kg-day	1.0E-02	mg/kg-day	6.3E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	4.3E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.0E-04
				Chromium	3E+00	ug/L	5.1E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	7.5E-05	mg/kg-day	2.0E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	2.5E-06	mg/kg-day	N/A	N/A	N/A	7.3E-06	mg/kg-day	7.0E-02	mg/kg-day	1.0E-04
				Mercury (water)	2E-02	ug/L	1.2E-10	mg/kg-day	N/A	N/A	N/A	3.6E-10	mg/kg-day	2.1E-05	mg/kg-day	1.7E-05
				Vanadium	2E+00	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	1.8E-04	mg/kg-day	2.3E-04
				Exp. Route Total							7E-08					4E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	2.6E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-09	7.5E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	3.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-09	9.1E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	2.1E-09	mg/kg-day	N/A	N/A	N/A	6.3E-09	mg/kg-day	3.0E-02	mg/kg-day	2.1E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	2.3E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	1.7E-11	6.6E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E-01	ug/L	3.0E-09	mg/kg-day	N/A	N/A	N/A	8.8E-09	mg/kg-day	2.0E-02	mg/kg-day	4.4E-07
				Phenanthrene	1E-01	ug/L	2.1E-09	mg/kg-day	N/A	N/A	N/A	6.1E-09	mg/kg-day	3.0E-02	mg/kg-day	2.0E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	5.2E-08	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	2.8E-09	1.5E-07	mg/kg-day	4.0E-03	mg/kg-day	3.8E-05
				Aroclor-1260	1E-01	ug/L	2.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.2E-09	7.5E-09	mg/kg-day	2.0E-05	mg/kg-day	3.8E-04
				4,4'-DDD	5E-03	ug/L	1.1E-10	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	2.7E-11	3.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	3.0E-11	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.0E-11	8.8E-11	mg/kg-day	N/A	N/A	N/A

TABLE 7.33.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDT	2E-03	ug/L	3.6E-11	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	1.2E-11	1.1E-10	mg/kg-day	5.0E-04	mg/kg-day	2.1E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	8.5E-11	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.4E-09	2.5E-10	mg/kg-day	5.0E-05	mg/kg-day	5.0E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	6.0E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	1.0E-02	mg/kg-day	1.7E-03
				Arsenic	3E+00	ug/L	6.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.6E-08	1.9E-07	mg/kg-day	3.0E-04	mg/kg-day	6.2E-04
				Cadmium (other media)	6E-01	ug/L	1.2E-08	mg/kg-day	N/A	N/A	N/A	3.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.4E-03
				Chromium	3E+00	ug/L	7.1E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	7.5E-05	mg/kg-day	2.8E-03
				Cobalt	8E-01	ug/L	1.7E-08	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	3.0E-04	mg/kg-day	1.7E-04
				Copper	9E+00	ug/L	2.0E-07	mg/kg-day	N/A	N/A	N/A	5.8E-07	mg/kg-day	4.0E-02	mg/kg-day	1.5E-05
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	1.6E-04	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	7.0E-01	mg/kg-day	6.7E-04
				Lead	7E+00	ug/L	1.5E-07	mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	7.0E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.9E-04
				Mercury (water)	2E-02	ug/L	3.4E-10	mg/kg-day	N/A	N/A	N/A	1.0E-09	mg/kg-day	2.1E-05	mg/kg-day	4.8E-05
				Vanadium	2E+00	ug/L	4.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.8E-04	mg/kg-day	6.4E-04
			Exp. Route Total								1E-07					9E-03
		Exposure Point Total									2E-07					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-06	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	6.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.9E-09	4.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.9E-09	5.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.0E-05
				Carbazole	3E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.2E-10	6.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.6E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.4E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	4.0E-03	mg/kg-day	4.7E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.4E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	8.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.6E-07	2.3E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Aroclor-1260	4E-01	mg/kg	2.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.4E-08	7.8E-08	mg/kg-day	2.0E-05	mg/kg-day	3.9E-03
				Dieldrin	7E-03	mg/kg	4.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.7E-09	1.4E-09	mg/kg-day	5.0E-05	mg/kg-day	2.8E-05
				Aluminum	8E+03	mg/kg	5.6E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	1.0E+00	mg/kg-day	1.6E-03
				Antimony	2E+00	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	4.0E-04	mg/kg-day	8.0E-04
				Arsenic	9E+00	mg/kg	6.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.9E-07	1.9E-06	mg/kg-day	3.0E-04	mg/kg-day	6.4E-03
				Cadmium (other media)	2E+01	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	1.0E-03	mg/kg-day	3.6E-03

TABLE 7.33.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RID/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Chromium	1E+02	mg/kg	8.7E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	3.0E-03	mg/kg-day	8.5E-03	
				Cobalt	6E+00	mg/kg	4.5E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.3E-03	
				Copper	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	4.0E-02	mg/kg-day	8.2E-04	
				Iron	2E+04	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.9E-03	mg/kg-day	7.0E-01	mg/kg-day	5.5E-03	
				Lead													
				Manganese (other media)	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	7.0E-02	mg/kg-day	7.9E-04	
				Mercury (other media)	5E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	1.0E-04	mg/kg-day	1.0E-03	
				Thallium	4E-01	mg/kg	2.9E-08	mg/kg-day	N/A	N/A	N/A	8.4E-08	mg/kg-day	8.0E-05	mg/kg-day	1.1E-03	
				Vanadium	2E+01	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	7.0E-03	mg/kg-day	5.4E-04	
				Exp. Route Total							3E-06					5E-02	
				Dermal	Benzo(a)anthracene	3E+00	mg/kg	5.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.8E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
					Benzo(a)pyrene	3E+00	mg/kg	5.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.1E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A
					Benzo(b)fluoranthene	3E+00	mg/kg	5.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
					Benzo(k)fluoranthene	2E+00	mg/kg	3.9E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.8E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
					bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.3E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.5E-05
					Carbazole	3E-01	mg/kg	6.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.2E-09	1.8E-07	mg/kg-day	N/A	N/A	N/A
					Dibenz(a,h)anthracene	5E-01	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.4E-07	2.9E-07	mg/kg-day	N/A	N/A	N/A
					Dibenzofuran	9E-02	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.0E-05
					Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-07	8.4E-07	mg/kg-day	N/A	N/A	N/A
					Phenanthrene	3E+00	mg/kg	5.0E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-02	mg/kg-day	4.9E-05
					Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
					Aroclor-1254	1E+00	mg/kg	2.4E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.9E-07	7.1E-07	mg/kg-day	2.0E-05	mg/kg-day	3.6E-02
					Aroclor-1260	4E-01	mg/kg	8.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.6E-07	2.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
					Dieldrin	7E-03	mg/kg	1.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.7E-08	3.1E-09	mg/kg-day	5.0E-05	mg/kg-day	6.1E-05
					Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
					Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
					Arsenic	9E+00	mg/kg	4.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.5E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.2E-03
			Cadmium (other media)		2E+01	mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	7.9E-08	mg/kg-day	2.5E-05	mg/kg-day	3.1E-03	
			Chromium		1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A	
			Cobalt		6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
			Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A		
			Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A		
			Lead														
			Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	
			Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A	
			Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A	
			Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A	
			Exp. Route Total							7E-06					6E-02		
			Exposure Point Total								1E-05					1E-01	
			Exposure Medium Total								N/A					N/A	

TABLE 7.33.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Medium Total										N/A						N/A
					Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A

TABLE 7.33.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	5.4E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(a)pyrene	5E+00	mg/kg	1.5E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-06	5.3E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(b)fluoranthene	6E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	6.4E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(g,h,i)perylene	3E+00	mg/kg	9.1E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	3.0E-02	mg/kg-day	1.1E-05			
				Benzo(k)fluoranthene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.3E-09	1.1E-07	mg/kg-day	N/A	N/A	N/A			
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.2E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.7E-07	4.3E-05	mg/kg-day	2.0E-02	mg/kg-day	2.1E-03			
				Carbazole	5E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.7E-10	4.8E-08	mg/kg-day	N/A	N/A	N/A			
				Chrysene	4E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	9.3E-10	4.5E-07	mg/kg-day	N/A	N/A	N/A			
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	7.5E-08	mg/kg-day	N/A	N/A	N/A			
				Dibenzofuran	2E-01	mg/kg	7.0E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	4.0E-03	mg/kg-day	6.2E-06			
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	9.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.6E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	8E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	8.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.9E-05			
				Aroclor-1248	4E-01	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.0E-08	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03			
				Aroclor-1254	2E-01	mg/kg	5.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.0E-09	1.8E-08	mg/kg-day	2.0E-05	mg/kg-day	8.8E-04			
				Aroclor-1260	2E-01	mg/kg	7.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.2E-09	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-03			
				Dieldrin	2E-01	mg/kg	5.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.0E-08	1.8E-08	mg/kg-day	5.0E-05	mg/kg-day	3.5E-04			
				Dioxin TEQ	4E-05	mg/kg	1.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.4E-07	3.8E-12	mg/kg-day	N/A	N/A	N/A			
				Aluminum	9E+03	mg/kg	2.5E-04	mg/kg-day	N/A	N/A	N/A	8.9E-04	mg/kg-day	1.0E+00	mg/kg-day	8.9E-04			
				Arsenic	1E+01	mg/kg	3.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.7E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.4E-03			
				Cadmium (other media)	9E+00	mg/kg	2.6E-07	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	1.0E-03	mg/kg-day	9.1E-04			
				Chromium	3E+02	mg/kg	8.3E-06	mg/kg-day	N/A	N/A	N/A	2.9E-05	mg/kg-day	3.0E-03	mg/kg-day	9.7E-03			
				Cobalt	8E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	7.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03			
				Copper	3E+02	mg/kg	7.5E-06	mg/kg-day	N/A	N/A	N/A	2.6E-05	mg/kg-day	4.0E-02	mg/kg-day	6.5E-04			
				Iron	3E+04	mg/kg	8.3E-04	mg/kg-day	N/A	N/A	N/A	2.9E-03	mg/kg-day	7.0E-01	mg/kg-day	4.2E-03			
				Lead															
				Manganese (other media)	8E+02	mg/kg	2.4E-05	mg/kg-day	N/A	N/A	N/A	8.6E-05	mg/kg-day	7.0E-02	mg/kg-day	1.2E-03			
				Mercury (other media)	7E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	6.9E-08	mg/kg-day	1.0E-04	mg/kg-day	6.9E-04			
				Thallium	2E+00	mg/kg	6.7E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	2.9E-03			
				Vanadium	3E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	7.0E-03	mg/kg-day	4.0E-04			
				Zinc	5E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	3.0E-01	mg/kg-day	1.8E-04			
			Exp. Route Total								3E-06						4E-02		
						Dermal	Benzo(a)anthracene	5E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	5.6E-07	mg/kg-day	N/A	N/A	N/A
							Benzo(a)pyrene	5E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-06	5.5E-07	mg/kg-day	N/A	N/A	N/A
							Benzo(b)fluoranthene	6E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	6.6E-07	mg/kg-day	N/A	N/A	N/A
							Benzo(g,h,i)perylene	3E+00	mg/kg	9.4E-08	mg/kg-day	N/A	N/A	N/A	3.3E-07	mg/kg-day	3.0E-02	mg/kg-day	1.1E-05
							Benzo(k)fluoranthene	1E+00	mg/kg	3.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.4E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
							bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	9.8E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.4E-07	3.4E-05	mg/kg-day	2.0E-02	mg/kg-day	1.7E-03
							Carbazole	5E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.8E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A

TABLE 7.33.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Chrysene	4E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	9.7E-10	4.6E-07	mg/kg-day	N/A	N/A	N/A			
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	7.8E-08	mg/kg-day	N/A	N/A	N/A			
				Dibenzofuran	2E-01	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	2.0E-08	mg/kg-day	4.0E-03	mg/kg-day	4.9E-06			
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.8E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	8E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	8.9E-07	mg/kg-day	3.0E-02	mg/kg-day	3.0E-05			
				Aroclor-1248	4E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.2E-08	4.1E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03			
				Aroclor-1254	2E-01	mg/kg	5.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.6E-09	2.0E-08	mg/kg-day	2.0E-05	mg/kg-day	9.8E-04			
				Aroclor-1260	2E-01	mg/kg	8.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	8.0E-09	2.8E-08	mg/kg-day	2.0E-05	mg/kg-day	1.4E-03			
				Dieldrin	2E-01	mg/kg	4.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.4E-08	1.4E-08	mg/kg-day	5.0E-05	mg/kg-day	2.8E-04			
				Dioxin TEQ	4E-05	mg/kg	2.6E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	3.3E-08	9.0E-13	mg/kg-day	N/A	N/A	N/A			
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Arsenic	1E+01	mg/kg	9.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-07	3.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03			
				Cadmium (other media)	9E+00	mg/kg	2.1E-09	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	2.5E-05	mg/kg-day	2.9E-04			
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A			
				Exp. Route Total											2E-06				8E-03
				Exposure Point Total											5E-06				4E-02
				Exposure Medium Total											N/A				N/A
				Medium Total											N/A				N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (swimming)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Benzo(g,h,i)perylene	5E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A			
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Naphthalene	5E-02	ug/L	1.6E-08	mg/kg-day	N/A	N/A	N/A	5.4E-08	mg/kg-day	2.0E-02	mg/kg-day	2.7E-06			
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			

TABLE 7.33.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzene	2E+00	ug/L	1.8E-07	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	9.8E-09	6.3E-07	mg/kg-day	4.0E-03	mg/kg-day	1.6E-04
				Aroclor-1260	1E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	1.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.1E-08	4.6E-09	mg/kg-day	5.0E-05	mg/kg-day	9.2E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	8.9E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	1.0E-02	mg/kg-day	3.1E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	1.8E-09	mg/kg-day	N/A	N/A	N/A	6.3E-09	mg/kg-day	2.5E-05	mg/kg-day	2.5E-04
				Chromium	3E+00	ug/L	2.1E-08	mg/kg-day	N/A	N/A	N/A	7.5E-08	mg/kg-day	7.5E-05	mg/kg-day	1.0E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.7E-06	mg/kg-day	7.0E-02	mg/kg-day	5.2E-05
				Mercury (water)	2E-02	ug/L	5.2E-11	mg/kg-day	N/A	N/A	N/A	1.8E-10	mg/kg-day	2.1E-05	mg/kg-day	8.6E-06
				Vanadium	2E+00	ug/L	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	1.8E-04	mg/kg-day	1.1E-04
				Exp. Route Total							3E-08					2E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.8E-10	3.8E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	1.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.5E-10	4.6E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	5E-02	ug/L	4.5E-10	mg/kg-day	N/A	N/A	N/A	1.6E-09	mg/kg-day	3.0E-02	mg/kg-day	5.2E-08
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	9.5E-10	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	6.9E-12	3.3E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	5E-02	ug/L	4.5E-10	mg/kg-day	N/A	N/A	N/A	1.6E-09	mg/kg-day	2.0E-02	mg/kg-day	7.9E-08
				Phenanthrene	1E-01	ug/L	8.7E-10	mg/kg-day	N/A	N/A	N/A	3.1E-09	mg/kg-day	3.0E-02	mg/kg-day	1.0E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	2.1E-08	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	1.2E-09	7.5E-08	mg/kg-day	4.0E-03	mg/kg-day	1.9E-05
				Aroclor-1260	1E-01	ug/L	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-09	3.8E-09	mg/kg-day	2.0E-05	mg/kg-day	1.9E-04
				4,4'-DDD	5E-03	ug/L	4.7E-11	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.1E-11	1.6E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	1.3E-11	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	4.3E-12	4.4E-11	mg/kg-day	N/A	N/A	N/A

TABLE 7.33.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDT	2E-03	ug/L	1.5E-11	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	5.2E-12	5.3E-11	mg/kg-day	5.0E-04	mg/kg-day	1.1E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	3.6E-11	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.7E-10	1.2E-10	mg/kg-day	5.0E-05	mg/kg-day	2.5E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	2.5E-06	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	1.0E-02	mg/kg-day	8.7E-04
				Arsenic	3E+00	ug/L	2.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.0E-08	9.3E-08	mg/kg-day	3.0E-04	mg/kg-day	3.1E-04
				Cadmium (other media)	6E-01	ug/L	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	2.5E-05	mg/kg-day	7.0E-04
				Chromium	3E+00	ug/L	3.0E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	7.5E-05	mg/kg-day	1.4E-03
				Cobalt	8E-01	ug/L	7.2E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	3.0E-04	mg/kg-day	8.5E-05
				Copper	9E+00	ug/L	8.3E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	4.0E-02	mg/kg-day	7.3E-06
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	6.7E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	7.0E-01	mg/kg-day	3.3E-04
				Lead	7E+00	ug/L	6.0E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	2.9E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	7.0E-02	mg/kg-day	1.5E-04
				Mercury (water)	2E-02	ug/L	1.4E-10	mg/kg-day	N/A	N/A	N/A	5.0E-10	mg/kg-day	2.1E-05	mg/kg-day	2.4E-05
				Vanadium	2E+00	ug/L	1.7E-08	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	1.8E-04	mg/kg-day	3.2E-04
			Exp. Route Total								4E-08					4E-03
		Exposure Point Total									8E-08					6E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	4.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.0E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	4.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	2.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.1E-09	9.9E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.9E-10	1.5E-07	mg/kg-day	2.0E-02	mg/kg-day	7.4E-06
				Carbazole	3E-01	mg/kg	4.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.8E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	7.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.4E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	4.7E-09	mg/kg-day	4.0E-03	mg/kg-day	1.2E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-08	7.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	3.7E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	3.0E-02	mg/kg-day	4.3E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.7E-08	5.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Aroclor-1260	4E-01	mg/kg	5.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.6E-09	2.0E-08	mg/kg-day	2.0E-05	mg/kg-day	9.8E-04
				Dieldrin	7E-03	mg/kg	1.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.6E-09	3.5E-10	mg/kg-day	5.0E-05	mg/kg-day	7.0E-06
				Aluminum	8E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	4.1E-04	mg/kg-day	1.0E+00	mg/kg-day	4.1E-04
				Antimony	2E+00	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	8.0E-08	mg/kg-day	4.0E-04	mg/kg-day	2.0E-04
				Arsenic	9E+00	mg/kg	1.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.1E-07	4.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.6E-03
				Cadmium (other media)	2E+01	mg/kg	2.6E-07	mg/kg-day	N/A	N/A	N/A	9.0E-07	mg/kg-day	1.0E-03	mg/kg-day	9.0E-04

TABLE 7.33.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chromium	1E+02	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	6.4E-06	mg/kg-day	3.0E-03	mg/kg-day	2.1E-03
				Cobalt	6E+00	mg/kg	9.3E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Copper	2E+02	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	8.2E-06	mg/kg-day	4.0E-02	mg/kg-day	2.1E-04
				Iron	2E+04	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	9.7E-04	mg/kg-day	7.0E-01	mg/kg-day	1.4E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	7.0E-02	mg/kg-day	2.0E-04
				Mercury (other media)	5E-01	mg/kg	7.2E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	1.0E-04	mg/kg-day	2.5E-04
				Thallium	4E-01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04
				Vanadium	2E+01	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	9.5E-07	mg/kg-day	7.0E-03	mg/kg-day	1.4E-04
			Exp. Route Total								7E-07					1E-02
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	7.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.7E-06	8.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	8.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.2E-08	5.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.6E-09	6.5E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Carbazole	3E-01	mg/kg	2.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.0E-10	8.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	4.0E-03	mg/kg-day	5.1E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.8E-08	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.0E-07	3.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Aroclor-1260	4E-01	mg/kg	3.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.4E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.0E-03
				Dieldrin	7E-03	mg/kg	4.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.0E-09	1.5E-09	mg/kg-day	5.0E-05	mg/kg-day	3.1E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03
				Cadmium (other media)	2E+01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	2.5E-05	mg/kg-day	1.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					3E-02
		Exposure Point Total									4E-06					4E-02
	Exposure Medium Total										N/A					N/A

TABLE 7.33.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
Medium Total												N/A						N/A
							Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A

TABLE 7.34.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	7.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.4E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	7.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.3E-06	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	8.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.4E-07	2.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-02	mg/kg-day	4.2E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.1E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	5.9E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.2E-07	1.7E-04	mg/kg-day	2.0E-02	mg/kg-day	8.6E-03
				Carbazole	5E-01	mg/kg	6.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.3E-09	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	6.1E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	4.5E-09	1.8E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.5E-07	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	9.9E-08	mg/kg-day	4.0E-03	mg/kg-day	2.5E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	4.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.2E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.4E-06	mg/kg-day	3.0E-02	mg/kg-day	1.1E-04
				Aroclor-1248	4E-01	mg/kg	5.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.0E-07	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.3E-03
				Aroclor-1254	2E-01	mg/kg	2.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.8E-08	7.0E-08	mg/kg-day	2.0E-05	mg/kg-day	3.5E-03
				Aroclor-1260	2E-01	mg/kg	3.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.9E-08	1.0E-07	mg/kg-day	2.0E-05	mg/kg-day	5.0E-03
				Dieldrin	2E-01	mg/kg	2.4E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.9E-07	7.0E-08	mg/kg-day	5.0E-05	mg/kg-day	1.4E-03
				Dioxin TEQ	5E-05	mg/kg	6.3E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	8.2E-07	1.8E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.2E-03	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	1.0E+00	mg/kg-day	3.5E-03
				Arsenic	1E+01	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-06	5.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02
				Cadmium (other media)	9E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	1.0E-03	mg/kg-day	3.6E-03
				Chromium	3E+02	mg/kg	4.0E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	3.0E-03	mg/kg-day	3.9E-02
				Cobalt	8E+00	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.0E-02
				Copper	3E+02	mg/kg	3.6E-05	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	4.0E-02	mg/kg-day	2.6E-03
				Iron	3E+04	mg/kg	4.0E-03	mg/kg-day	N/A	N/A	N/A	1.2E-02	mg/kg-day	7.0E-01	mg/kg-day	1.7E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.9E-03
				Mercury (other media)	7E-01	mg/kg	9.5E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-04	mg/kg-day	2.8E-03
				Thallium	2E+00	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	9.4E-07	mg/kg-day	8.0E-05	mg/kg-day	1.2E-02
				Vanadium	3E+01	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-03	mg/kg-day	1.6E-03
				Zinc	5E+02	mg/kg	7.5E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-01	mg/kg-day	7.3E-04
			Exp. Route Total								1E-05					1E-01
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	3.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.8E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	4.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	6.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.2E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	8.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.8E-09	2.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.3E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.3E-07	6.8E-05	mg/kg-day	2.0E-02	mg/kg-day	3.4E-03
				Carbazole	5E-01	mg/kg	3.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.8E-10	9.9E-08	mg/kg-day	N/A	N/A	N/A

TABLE 7.34.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Chrysene	4E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	2.3E-09	9.3E-07	mg/kg-day	N/A	N/A	N/A			
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A			
				Dibenzofuran	2E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	4.0E-03	mg/kg-day	9.8E-06			
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	6.6E-07	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	8E+00	mg/kg	6.1E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-02	mg/kg-day	5.9E-05			
				Aroclor-1248	4E-01	mg/kg	2.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.6E-08	8.2E-08	mg/kg-day	2.0E-05	mg/kg-day	4.1E-03			
				Aroclor-1254	2E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.7E-08	3.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03			
				Aroclor-1260	2E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.9E-08	5.6E-08	mg/kg-day	2.0E-05	mg/kg-day	2.8E-03			
				Dieldrin	2E-01	mg/kg	9.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-07	2.8E-08	mg/kg-day	5.0E-05	mg/kg-day	5.6E-04			
				Dioxin TEQ	5E-05	mg/kg	7.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	9.8E-08	2.2E-12	mg/kg-day	N/A	N/A	N/A			
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.3E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03			
				Cadmium (other media)	9E+00	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	5.8E-04			
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A			
						Exp. Route Total								5E-06				2E-02	
						Exposure Point Total								2E-05				2E-01	
					Exposure Medium Total									N/A				N/A	
				Medium Total										N/A				N/A	
				Surface Water	Surface Water	Downstream of Landfill	Dermal (wading)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A
								Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A
								Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A
								Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
								Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A			
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				Naphthalene	1E-01	ug/L	6.8E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	9.9E-06			
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Benzene	2E+00	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A			

TABLE 7.34.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	1E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	2.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.3E-08	6.1E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	1.4E-06	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	1.0E-02	mg/kg-day	4.1E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	2.8E-09	mg/kg-day	N/A	N/A	N/A	8.3E-09	mg/kg-day	2.5E-05	mg/kg-day	3.3E-04
				Chromium	3E+00	ug/L	3.4E-08	mg/kg-day	N/A	N/A	N/A	9.9E-08	mg/kg-day	7.5E-05	mg/kg-day	1.3E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	9.5E-09	mg/kg-day	N/A	N/A	N/A	2.8E-08	mg/kg-day	1.8E-04	mg/kg-day	1.5E-04
			Exp. Route Total								3E-08					2E-03
		Exposure Point Total									3E-08					2E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-06	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	6.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.9E-09	4.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.9E-09	5.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.0E-05
				Carbazole	3E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.2E-10	6.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.6E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.4E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	4.0E-03	mg/kg-day	4.7E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.4E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	5.1E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	8.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.6E-07	2.3E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Aroclor-1260	4E-01	mg/kg	2.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.4E-08	7.8E-08	mg/kg-day	2.0E-05	mg/kg-day	3.9E-03
				Dieldrin	7E-03	mg/kg	4.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.7E-09	1.4E-09	mg/kg-day	5.0E-05	mg/kg-day	2.8E-05

TABLE 7.34.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	5.6E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	1.0E+00	mg/kg-day	1.6E-03
				Antimony	2E+00	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	4.0E-04	mg/kg-day	8.0E-04
				Arsenic	9E+00	mg/kg	6.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.9E-07	1.9E-06	mg/kg-day	3.0E-04	mg/kg-day	6.4E-03
				Cadmium (other media)	2E+01	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	1.0E-03	mg/kg-day	3.6E-03
				Chromium	1E+02	mg/kg	8.7E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	3.0E-03	mg/kg-day	8.5E-03
				Cobalt	6E+00	mg/kg	4.5E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.3E-03
				Copper	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	4.0E-02	mg/kg-day	8.2E-04
				Iron	2E+04	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.9E-03	mg/kg-day	7.0E-01	mg/kg-day	5.5E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	7.0E-02	mg/kg-day	7.9E-04
				Mercury (other media)	5E-01	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	1.0E-04	mg/kg-day	1.0E-03
				Thallium	4E-01	mg/kg	2.9E-08	mg/kg-day	N/A	N/A	N/A	8.4E-08	mg/kg-day	8.0E-05	mg/kg-day	1.1E-03
				Vanadium	2E+01	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	7.0E-03	mg/kg-day	5.4E-04
			Exp. Route Total								3E-06					5E-02
			Dermal	Benzo(a)anthracene	3E+00	mg/kg	5.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.8E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	5.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.1E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	5.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	3.9E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.8E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.3E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.5E-05
				Carbazole	3E-01	mg/kg	6.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.2E-09	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.4E-07	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.0E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-07	8.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	5.0E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-02	mg/kg-day	4.9E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	2.4E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.9E-07	7.1E-07	mg/kg-day	2.0E-05	mg/kg-day	3.6E-02
				Aroclor-1260	4E-01	mg/kg	8.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.6E-07	2.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Dieldrin	7E-03	mg/kg	1.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.7E-08	3.1E-09	mg/kg-day	5.0E-05	mg/kg-day	6.1E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	4.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.5E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.2E-03
				Cadmium (other media)	2E+01	mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	7.9E-08	mg/kg-day	2.5E-05	mg/kg-day	3.1E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A

TABLE 7.34.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
			Exp. Route Total								7E-06					6E-02	
			Exposure Point Total								1E-05					1E-01	
		Exposure Medium Total									N/A				N/A		
	Medium Total									N/A				N/A			
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media					N/A

TABLE 7.34.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	5.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.5E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-06	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	9.1E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	3.0E-02	mg/kg-day	1.1E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.3E-09	1.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.2E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.7E-07	4.3E-05	mg/kg-day	2.0E-02	mg/kg-day	2.1E-03
				Carbazole	5E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.7E-10	4.8E-08	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	9.3E-10	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.0E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	4.0E-03	mg/kg-day	6.2E-06
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	9.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.6E-08	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	8.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.9E-05
				Aroclor-1248	4E-01	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.0E-08	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Aroclor-1254	2E-01	mg/kg	5.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.0E-09	1.8E-08	mg/kg-day	2.0E-05	mg/kg-day	8.8E-04
				Aroclor-1260	2E-01	mg/kg	7.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.2E-09	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-03
				Dieldrin	2E-01	mg/kg	5.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.0E-08	1.8E-08	mg/kg-day	5.0E-05	mg/kg-day	3.5E-04
				Dioxin TEQ	4E-05	mg/kg	1.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.4E-07	3.8E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	2.5E-04	mg/kg-day	N/A	N/A	N/A	8.9E-04	mg/kg-day	1.0E+00	mg/kg-day	8.9E-04
				Arsenic	1E+01	mg/kg	3.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.7E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.4E-03
				Cadmium (other media)	9E+00	mg/kg	2.6E-07	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	1.0E-03	mg/kg-day	9.1E-04
				Chromium	3E+02	mg/kg	8.3E-06	mg/kg-day	N/A	N/A	N/A	2.9E-05	mg/kg-day	3.0E-03	mg/kg-day	9.7E-03
				Cobalt	8E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	7.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03
				Copper	3E+02	mg/kg	7.5E-06	mg/kg-day	N/A	N/A	N/A	2.6E-05	mg/kg-day	4.0E-02	mg/kg-day	6.5E-04
				Iron	3E+04	mg/kg	8.3E-04	mg/kg-day	N/A	N/A	N/A	2.9E-03	mg/kg-day	7.0E-01	mg/kg-day	4.2E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	2.4E-05	mg/kg-day	N/A	N/A	N/A	8.6E-05	mg/kg-day	7.0E-02	mg/kg-day	1.2E-03
				Mercury (other media)	7E-01	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	6.9E-08	mg/kg-day	1.0E-04	mg/kg-day	6.9E-04
				Thallium	2E+00	mg/kg	6.7E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	2.9E-03
				Vanadium	3E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	7.0E-03	mg/kg-day	4.0E-04
				Zinc	5E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	5.5E-05	mg/kg-day	3.0E-01	mg/kg-day	1.8E-04
Exp. Route Total											3E-06				4E-02	
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-06	5.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	6.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	9.4E-08	mg/kg-day	N/A	N/A	N/A	3.3E-07	mg/kg-day	3.0E-02	mg/kg-day	1.1E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	3.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.4E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	9.8E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.4E-07	3.4E-05	mg/kg-day	2.0E-02	mg/kg-day	1.7E-03
				Carbazole	5E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.8E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A

TABLE 7.34.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	9.7E-10	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	7.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	2.0E-08	mg/kg-day	4.0E-03	mg/kg-day	4.9E-06
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.8E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	8.9E-07	mg/kg-day	3.0E-02	mg/kg-day	3.0E-05
				Aroclor-1248	4E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.2E-08	4.1E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Aroclor-1254	2E-01	mg/kg	5.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.6E-09	2.0E-08	mg/kg-day	2.0E-05	mg/kg-day	9.8E-04
				Aroclor-1260	2E-01	mg/kg	8.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	8.0E-09	2.8E-08	mg/kg-day	2.0E-05	mg/kg-day	1.4E-03
				Dieldrin	2E-01	mg/kg	4.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.4E-08	1.4E-08	mg/kg-day	5.0E-05	mg/kg-day	2.8E-04
				Dioxin TEQ	4E-05	mg/kg	2.6E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	3.3E-08	9.0E-13	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-07	3.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Cadmium (other media)	9E+00	mg/kg	2.1E-09	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	2.5E-05	mg/kg-day	2.9E-04
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					8E-03
		Exposure Point Total									5E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (wading)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	5E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	5E-02	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	2.0E-02	mg/kg-day	1.8E-06
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.34.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	1E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	8.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.4E-08	3.0E-09	mg/kg-day	5.0E-05	mg/kg-day	6.1E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	5.9E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	1.0E-02	mg/kg-day	2.1E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	1.2E-09	mg/kg-day	N/A	N/A	N/A	4.2E-09	mg/kg-day	2.5E-05	mg/kg-day	1.7E-04
				Chromium	3E+00	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	7.5E-05	mg/kg-day	6.6E-04
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	3.9E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	1.8E-04	mg/kg-day	7.6E-05
			Exp. Route Total								1E-08					1E-03
		Exposure Point Total									1E-08					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	4.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.0E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	4.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	2.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.1E-09	9.9E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	4.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.9E-10	1.5E-07	mg/kg-day	2.0E-02	mg/kg-day	7.4E-06
				Carbazole	3E-01	mg/kg	4.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.8E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	7.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.4E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.3E-09	mg/kg-day	N/A	N/A	N/A	4.7E-09	mg/kg-day	4.0E-03	mg/kg-day	1.2E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-08	7.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	3.7E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	3.0E-02	mg/kg-day	4.3E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.7E-08	5.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Aroclor-1260	4E-01	mg/kg	5.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.6E-09	2.0E-08	mg/kg-day	2.0E-05	mg/kg-day	9.8E-04
				Dieldrin	7E-03	mg/kg	1.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.6E-09	3.5E-10	mg/kg-day	5.0E-05	mg/kg-day	7.0E-06

TABLE 7.34.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	4.1E-04	mg/kg-day	1.0E+00	mg/kg-day	4.1E-04
				Antimony	2E+00	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	8.0E-08	mg/kg-day	4.0E-04	mg/kg-day	2.0E-04
				Arsenic	9E+00	mg/kg	1.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.1E-07	4.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.6E-03
				Cadmium (other media)	2E+01	mg/kg	2.6E-07	mg/kg-day	N/A	N/A	N/A	9.0E-07	mg/kg-day	1.0E-03	mg/kg-day	9.0E-04
				Chromium	1E+02	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	6.4E-06	mg/kg-day	3.0E-03	mg/kg-day	2.1E-03
				Cobalt	6E+00	mg/kg	9.3E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.1E-03
				Copper	2E+02	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	8.2E-06	mg/kg-day	4.0E-02	mg/kg-day	2.1E-04
				Iron	2E+04	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	9.7E-04	mg/kg-day	7.0E-01	mg/kg-day	1.4E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	7.0E-02	mg/kg-day	2.0E-04
				Mercury (other media)	5E-01	mg/kg	7.2E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	1.0E-04	mg/kg-day	2.5E-04
				Thallium	4E-01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04
				Vanadium	2E+01	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	9.5E-07	mg/kg-day	7.0E-03	mg/kg-day	1.4E-04
			Exp. Route Total								7E-07					1E-02
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	7.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.7E-06	8.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	8.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.2E-08	5.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.6E-09	6.5E-07	mg/kg-day	2.0E-02	mg/kg-day	3.3E-05
				Carbazole	3E-01	mg/kg	2.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.0E-10	8.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	4.0E-03	mg/kg-day	5.1E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.8E-08	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.0E-07	3.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Aroclor-1260	4E-01	mg/kg	3.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.4E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.0E-03
				Dieldrin	7E-03	mg/kg	4.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.0E-09	1.5E-09	mg/kg-day	5.0E-05	mg/kg-day	3.1E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-07	6.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.1E-03
				Cadmium (other media)	2E+01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	2.5E-05	mg/kg-day	1.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A

TABLE 7.34.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
			Exp. Route Total								3E-06					3E-02	
			Exposure Point Total								4E-06					4E-02	
			Exposure Medium Total								N/A					N/A	
			Medium Total								N/A					N/A	
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media					N/A

TABLE 7.35.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	3.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.1E-07	4.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.0E-06	4.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	4.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.6E-07	5.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	3.0E-02	mg/kg-day	8.5E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.7E-08	9.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.9E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.1E-07	3.4E-04	mg/kg-day	2.0E-02	mg/kg-day	1.7E-02
				Carbazole	5E-01	mg/kg	3.3E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.6E-10	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	3.1E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	6.7E-09	3.6E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-06	6.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	4.0E-03	mg/kg-day	4.9E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.7E-07	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	5.9E-07	mg/kg-day	N/A	N/A	N/A	6.9E-06	mg/kg-day	3.0E-02	mg/kg-day	2.3E-04
				Aroclor-1248	4E-01	mg/kg	2.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.0E-08	2.9E-07	mg/kg-day	2.0E-05	mg/kg-day	1.5E-02
				Aroclor-1254	2E-01	mg/kg	1.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.4E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.0E-03
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.5E-08	2.0E-07	mg/kg-day	2.0E-05	mg/kg-day	1.0E-02
				Dieldrin	2E-01	mg/kg	1.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.9E-07	1.4E-07	mg/kg-day	5.0E-05	mg/kg-day	2.8E-03
				Dioxin TEQ	5E-05	mg/kg	3.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	4.1E-07	3.7E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.1E-04	mg/kg-day	N/A	N/A	N/A	7.1E-03	mg/kg-day	1.0E+00	mg/kg-day	7.1E-03
				Arsenic	1E+01	mg/kg	9.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.5E-02
				Cadmium (other media)	9E+00	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	7.3E-06	mg/kg-day	1.0E-03	mg/kg-day	7.3E-03
				Chromium	3E+02	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	3.0E-03	mg/kg-day	7.8E-02
				Cobalt	8E+00	mg/kg	5.2E-07	mg/kg-day	N/A	N/A	N/A	6.1E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02
				Copper	3E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	2.1E-04	mg/kg-day	4.0E-02	mg/kg-day	5.2E-03
				Iron	3E+04	mg/kg	2.0E-03	mg/kg-day	N/A	N/A	N/A	2.3E-02	mg/kg-day	7.0E-01	mg/kg-day	3.3E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.9E-05	mg/kg-day	N/A	N/A	N/A	6.8E-04	mg/kg-day	7.0E-02	mg/kg-day	9.8E-03
				Mercury (other media)	7E-01	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	1.0E-04	mg/kg-day	5.5E-03
				Thallium	2E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	8.0E-05	mg/kg-day	2.4E-02
				Vanadium	3E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	7.0E-03	mg/kg-day	3.2E-03
				Zinc	5E+02	mg/kg	3.7E-05	mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	3.0E-01	mg/kg-day	1.5E-03
			Exp. Route Total								1E-05					3E-01
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	4.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.3E-07	5.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	4.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.1E-06	4.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	5.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-06	5.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-02	mg/kg-day	9.7E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-08	1.0E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.6E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.6E-07	3.0E-04	mg/kg-day	2.0E-02	mg/kg-day	1.5E-02
				Carbazole	5E-01	mg/kg	3.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.5E-10	4.4E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.35.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	3.5E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	7.7E-09	4.1E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-06	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	4.0E-03	mg/kg-day	4.3E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.4E-07	2.9E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	6.7E-07	mg/kg-day	N/A	N/A	N/A	7.9E-06	mg/kg-day	3.0E-02	mg/kg-day	2.6E-04
				Aroclor-1248	4E-01	mg/kg	3.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.2E-08	3.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Aroclor-1254	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.0E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.6E-03
				Aroclor-1260	2E-01	mg/kg	2.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.3E-08	2.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Dieldrin	2E-01	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.7E-07	1.2E-07	mg/kg-day	5.0E-05	mg/kg-day	2.5E-03
				Dioxin TEQ	5E-05	mg/kg	8.3E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.1E-07	9.7E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.6E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.3E-03
				Cadmium (other media)	9E+00	mg/kg	5.5E-09	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-05					7E-02
		Exposure Point Total									3E-05					4E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (swimming)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E-01	ug/L	3.2E-08	mg/kg-day	N/A	N/A	N/A	3.7E-07	mg/kg-day	2.0E-02	mg/kg-day	1.8E-05
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A

TABLE 7.35.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzene	2E+00	ug/L	1.3E-07	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	7.2E-09	1.5E-06	mg/kg-day	4.0E-03	mg/kg-day	3.8E-04
				Aroclor-1260	1E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	9.6E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-08	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	2.2E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	6.5E-07	mg/kg-day	N/A	N/A	N/A	7.6E-06	mg/kg-day	1.0E-02	mg/kg-day	7.6E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	1.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	2.5E-05	mg/kg-day	6.2E-04
				Chromium	3E+00	ug/L	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	7.5E-05	mg/kg-day	2.4E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	4.4E-09	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	1.8E-04	mg/kg-day	2.8E-04
			Exp. Route Total								2E-08					5E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	1.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-09	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	1.6E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.4E-09	1.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	3.0E-02	mg/kg-day	4.2E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	2.5E-11	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E-01	ug/L	1.5E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	2.0E-02	mg/kg-day	8.8E-07
				Phenanthrene	1E-01	ug/L	1.0E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	3.0E-02	mg/kg-day	4.1E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	2.6E-08	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	1.4E-09	3.0E-07	mg/kg-day	4.0E-03	mg/kg-day	7.5E-05
				Aroclor-1260	1E-01	ug/L	1.3E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.6E-09	1.5E-08	mg/kg-day	2.0E-05	mg/kg-day	7.5E-04
				4,4'-DDD	5E-03	ug/L	5.6E-11	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.3E-11	6.5E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	1.5E-11	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	5.1E-12	1.8E-10	mg/kg-day	N/A	N/A	N/A

TABLE 7.35.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDT	2E-03	ug/L	1.8E-11	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	6.2E-12	2.1E-10	mg/kg-day	5.0E-04	mg/kg-day	4.3E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	4.3E-11	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.8E-10	5.0E-10	mg/kg-day	5.0E-05	mg/kg-day	1.0E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	3.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-05	mg/kg-day	1.0E-02	mg/kg-day	3.5E-03
				Arsenic	3E+00	ug/L	3.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.8E-08	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Cadmium (other media)	6E-01	ug/L	6.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.8E-03
				Chromium	3E+00	ug/L	3.6E-08	mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	7.5E-05	mg/kg-day	5.5E-03
				Cobalt	8E-01	ug/L	8.7E-09	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	3.0E-04	mg/kg-day	3.4E-04
				Copper	9E+00	ug/L	1.0E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	4.0E-02	mg/kg-day	2.9E-05
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	8.0E-05	mg/kg-day	N/A	N/A	N/A	9.3E-04	mg/kg-day	7.0E-01	mg/kg-day	1.3E-03
				Lead	7E+00	ug/L	7.3E-08	mg/kg-day	N/A	N/A	N/A	8.5E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	3.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	7.0E-02	mg/kg-day	5.8E-04
				Mercury (water)	2E-02	ug/L	1.7E-10	mg/kg-day	N/A	N/A	N/A	2.0E-09	mg/kg-day	2.1E-05	mg/kg-day	9.5E-05
				Vanadium	2E+00	ug/L	2.0E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	1.8E-04	mg/kg-day	1.3E-03
			Exp. Route Total								6E-08					2E-02
		Exposure Point Total									8E-08					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	9.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	9.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.1E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.5E-08	7.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.4E-09	1.2E-06	mg/kg-day	2.0E-02	mg/kg-day	5.9E-05
				Carbazole	3E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	3.2E-09	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	4.0E-03	mg/kg-day	9.4E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	5.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	8.8E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-02	mg/kg-day	3.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	4.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.0E-08	4.6E-07	mg/kg-day	2.0E-05	mg/kg-day	2.3E-02
				Aroclor-1260	4E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.7E-08	1.6E-07	mg/kg-day	2.0E-05	mg/kg-day	7.8E-03
				Dieldrin	7E-03	mg/kg	2.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.8E-09	2.8E-09	mg/kg-day	5.0E-05	mg/kg-day	5.6E-05
				Aluminum	8E+03	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	3.2E-03	mg/kg-day	1.0E+00	mg/kg-day	3.2E-03
				Antimony	2E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	4.0E-04	mg/kg-day	1.6E-03
				Arsenic	9E+00	mg/kg	3.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.0E-07	3.9E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02
				Cadmium (other media)	2E+01	mg/kg	6.1E-07	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	1.0E-03	mg/kg-day	7.2E-03

TABLE 7.35.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chromium	1E+02	mg/kg	4.4E-06	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	3.0E-03	mg/kg-day	1.7E-02
				Cobalt	6E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.7E-03
				Copper	2E+02	mg/kg	5.6E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	4.0E-02	mg/kg-day	1.6E-03
				Iron	2E+04	mg/kg	6.6E-04	mg/kg-day	N/A	N/A	N/A	7.7E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02
				Lead												
				Manganese (other media)	3E+02	mg/kg	9.5E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	7.0E-02	mg/kg-day	1.6E-03
				Mercury (other media)	5E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	4E-01	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	8.0E-05	mg/kg-day	2.1E-03
				Vanadium	2E+01	mg/kg	6.5E-07	mg/kg-day	N/A	N/A	N/A	7.6E-06	mg/kg-day	7.0E-03	mg/kg-day	1.1E-03
			Exp. Route Total								4E-06					1E-01
			Dermal	Benzo(a)anthracene	3E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.5E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.7E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.4E-08	1.3E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.4E-05
				Carbazole	3E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.3E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	4.0E-09	mg/kg-day	N/A	N/A	N/A	4.7E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	9.6E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	1.7E-06	mg/kg-day	3.0E-02	mg/kg-day	5.6E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	7.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.4E-07	8.1E-07	mg/kg-day	2.0E-05	mg/kg-day	4.1E-02
				Aroclor-1260	4E-01	mg/kg	2.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.7E-08	2.7E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Dieldrin	7E-03	mg/kg	3.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.8E-09	3.5E-09	mg/kg-day	5.0E-05	mg/kg-day	7.0E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.9E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.8E-03
				Cadmium (other media)	2E+01	mg/kg	7.7E-09	mg/kg-day	N/A	N/A	N/A	9.0E-08	mg/kg-day	2.5E-05	mg/kg-day	3.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								5E-06					6E-02
		Exposure Point Total									9E-06					2E-01
	Exposure Medium Total										N/A					N/A

TABLE 7.35.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
Medium Total										N/A					N/A			
Total of Receptor Risks Across All Media										N/A		Total of Receptor Hazards Across All Media					N/A	

Notes
Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.35.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	9.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.0E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.1E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	1.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.2E-09	2.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	7.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.0E-07	8.6E-05	mg/kg-day	2.0E-02	mg/kg-day	4.3E-03
				Carbazole	5E-01	mg/kg	8.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.6E-10	9.6E-08	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	1.7E-09	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.8E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	5.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	6.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.7E-06	mg/kg-day	3.0E-02	mg/kg-day	5.7E-05
				Aroclor-1248	4E-01	mg/kg	6.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.3E-09	7.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.7E-03
				Aroclor-1254	2E-01	mg/kg	3.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.0E-09	3.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Aroclor-1260	2E-01	mg/kg	4.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	4.3E-09	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Dieldrin	2E-01	mg/kg	3.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.8E-08	3.5E-08	mg/kg-day	5.0E-05	mg/kg-day	7.0E-04
				Dioxin TEQ	4E-05	mg/kg	6.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	8.4E-08	7.5E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03
				Arsenic	1E+01	mg/kg	2.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.4E-07	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.8E-03
				Cadmium (other media)	9E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	1.0E-03	mg/kg-day	1.8E-03
				Chromium	3E+02	mg/kg	5.0E-06	mg/kg-day	N/A	N/A	N/A	5.8E-05	mg/kg-day	3.0E-03	mg/kg-day	1.9E-02
				Cobalt	8E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.1E-03
				Copper	3E+02	mg/kg	4.5E-06	mg/kg-day	N/A	N/A	N/A	5.2E-05	mg/kg-day	4.0E-02	mg/kg-day	1.3E-03
				Iron	3E+04	mg/kg	5.0E-04	mg/kg-day	N/A	N/A	N/A	5.8E-03	mg/kg-day	7.0E-01	mg/kg-day	8.3E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	7.0E-02	mg/kg-day	2.4E-03
				Mercury (other media)	7E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	1.0E-04	mg/kg-day	1.4E-03
				Thallium	2E+00	mg/kg	4.0E-08	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	8.0E-05	mg/kg-day	5.9E-03
				Vanadium	3E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	7.0E-03	mg/kg-day	8.0E-04
				Zinc	5E+02	mg/kg	9.4E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.6E-04
			Exp. Route Total								3E-06					7E-02
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.7E-07	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.6E-06	2.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.5E-07	2.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-02	mg/kg-day	4.9E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	4.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.7E-09	5.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.3E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-07	1.5E-04	mg/kg-day	2.0E-02	mg/kg-day	7.5E-03
				Carbazole	5E-01	mg/kg	1.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.8E-10	2.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.35.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Chrysene	4E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	3.8E-09	2.0E-06	mg/kg-day	N/A	N/A	N/A			
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.4E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A			
				Dibenzofuran	2E-01	mg/kg	7.4E-09	mg/kg-day	N/A	N/A	N/A	8.7E-08	mg/kg-day	4.0E-03	mg/kg-day	2.2E-05			
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	8E+00	mg/kg	3.4E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-02	mg/kg-day	1.3E-04			
				Aroclor-1248	4E-01	mg/kg	1.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.5E-08	1.8E-07	mg/kg-day	2.0E-05	mg/kg-day	9.0E-03			
				Aroclor-1254	2E-01	mg/kg	7.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.4E-09	8.6E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03			
				Aroclor-1260	2E-01	mg/kg	1.1E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.2E-03			
				Dieldrin	2E-01	mg/kg	5.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.5E-08	6.2E-08	mg/kg-day	5.0E-05	mg/kg-day	1.2E-03			
				Dioxin TEQ	4E-05	mg/kg	3.4E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	4.4E-08	4.0E-12	mg/kg-day	N/A	N/A	N/A			
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Arsenic	1E+01	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.7E-03			
				Cadmium (other media)	9E+00	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	2.5E-05	mg/kg-day	1.3E-03			
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A			
				Exp. Route Total											7E-06				3E-02
				Exposure Point Total											1E-05				1E-01
				Exposure Medium Total											N/A				N/A
				Medium Total											N/A				N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (swimming)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				Benzo(g,h,i)perylene	5E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A				
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	2.0E-02	mg/kg-day	N/A				
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				Naphthalene	5E-02	ug/L	5.7E-09	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	2.0E-02	mg/kg-day	3.3E-06			
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			

TABLE 7.35.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzene	2E+00	ug/L	6.6E-08	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	3.6E-09	7.7E-07	mg/kg-day	4.0E-03	mg/kg-day	1.9E-04
				Aroclor-1260	1E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	4.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	7.7E-09	5.6E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	3.3E-07	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	1.0E-02	mg/kg-day	3.8E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	6.6E-10	mg/kg-day	N/A	N/A	N/A	7.7E-09	mg/kg-day	2.5E-05	mg/kg-day	3.1E-04
				Chromium	3E+00	ug/L	7.8E-09	mg/kg-day	N/A	N/A	N/A	9.2E-08	mg/kg-day	7.5E-05	mg/kg-day	1.2E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	2.2E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	1.8E-04	mg/kg-day	1.4E-04
				Exp. Route Total							1E-08					2E-03
			Ingestion (swimming)	Benzo(a)anthracene	1E-01	ug/L	6.4E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-09	7.5E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	7.8E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-09	9.1E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	5E-02	ug/L	2.7E-10	mg/kg-day	N/A	N/A	N/A	3.1E-09	mg/kg-day	3.0E-02	mg/kg-day	1.0E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	5.7E-10	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	1.2E-11	6.6E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	5E-02	ug/L	2.7E-10	mg/kg-day	N/A	N/A	N/A	3.2E-09	mg/kg-day	2.0E-02	mg/kg-day	1.6E-07
				Phenanthrene	1E-01	ug/L	5.2E-10	mg/kg-day	N/A	N/A	N/A	6.1E-09	mg/kg-day	3.0E-02	mg/kg-day	2.0E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	1.3E-08	mg/kg-day	5.5E-02	(mg/kg-day) ⁻¹	7.1E-10	1.5E-07	mg/kg-day	4.0E-03	mg/kg-day	3.8E-05
				Aroclor-1260	1E-01	ug/L	6.4E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.4E-10	7.5E-09	mg/kg-day	2.0E-05	mg/kg-day	3.8E-04
				4,4'-DDD	5E-03	ug/L	2.8E-11	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	6.7E-12	3.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	7.5E-12	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	2.6E-12	8.8E-11	mg/kg-day	N/A	N/A	N/A

TABLE 7.35.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDT	2E-03	ug/L	9.1E-12	mg/kg-day	3.4E-01	(mg/kg-day) ⁻¹	3.1E-12	1.1E-10	mg/kg-day	5.0E-04	mg/kg-day	2.1E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	2.1E-11	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.4E-10	2.5E-10	mg/kg-day	5.0E-05	mg/kg-day	5.0E-06
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.7E-05	mg/kg-day	1.0E-02	mg/kg-day	1.7E-03
				Arsenic	3E+00	ug/L	1.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.4E-08	1.9E-07	mg/kg-day	3.0E-04	mg/kg-day	6.2E-04
				Cadmium (other media)	6E-01	ug/L	3.0E-09	mg/kg-day	N/A	N/A	N/A	3.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.4E-03
				Chromium	3E+00	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	7.5E-05	mg/kg-day	2.8E-03
				Cobalt	8E-01	ug/L	4.3E-09	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	3.0E-04	mg/kg-day	1.7E-04
				Copper	9E+00	ug/L	5.0E-08	mg/kg-day	N/A	N/A	N/A	5.8E-07	mg/kg-day	4.0E-02	mg/kg-day	1.5E-05
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.7E-04	mg/kg-day	7.0E-01	mg/kg-day	6.7E-04
				Lead	7E+00	ug/L	3.6E-08	mg/kg-day	N/A	N/A	N/A	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	1.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.9E-04
				Mercury (water)	2E-02	ug/L	8.6E-11	mg/kg-day	N/A	N/A	N/A	1.0E-09	mg/kg-day	2.1E-05	mg/kg-day	4.8E-05
				Vanadium	2E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.8E-04	mg/kg-day	6.4E-04
			Exp. Route Total								3E-08					9E-03
		Exposure Point Total									4E-08					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.4E-07	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.6E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.7E-09	2.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.6E-10	3.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	3E-01	mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.3E-11	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.7E-08	5.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	8.0E-10	mg/kg-day	N/A	N/A	N/A	9.4E-09	mg/kg-day	4.0E-03	mg/kg-day	2.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	2.2E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	3.0E-02	mg/kg-day	8.6E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.0E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	5.8E-03
				Aroclor-1260	4E-01	mg/kg	3.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.4E-09	3.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Dieldrin	7E-03	mg/kg	6.0E-11	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.6E-10	7.0E-10	mg/kg-day	5.0E-05	mg/kg-day	1.4E-05
				Aluminum	8E+03	mg/kg	6.9E-05	mg/kg-day	N/A	N/A	N/A	8.1E-04	mg/kg-day	1.0E+00	mg/kg-day	8.1E-04
				Antimony	2E+00	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	4.0E-04	mg/kg-day	4.0E-04
				Arsenic	9E+00	mg/kg	8.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	9.6E-07	mg/kg-day	3.0E-04	mg/kg-day	3.2E-03
				Cadmium (other media)	2E+01	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	1.0E-03	mg/kg-day	1.8E-03

TABLE 7.35.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chromium	1E+02	mg/kg	1.1E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	4.2E-03
				Cobalt	6E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	6.5E-07	mg/kg-day	3.0E-04	mg/kg-day	2.2E-03
				Copper	2E+02	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	4.0E-02	mg/kg-day	4.1E-04
				Iron	2E+04	mg/kg	1.7E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	7.0E-01	mg/kg-day	2.8E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	7.0E-02	mg/kg-day	4.0E-04
				Mercury (other media)	5E-01	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	5.0E-08	mg/kg-day	1.0E-04	mg/kg-day	5.0E-04
				Thallium	4E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	8.0E-05	mg/kg-day	5.3E-04
				Vanadium	2E+01	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	7.0E-03	mg/kg-day	2.7E-04
			Exp. Route Total								9E-07					3E-02
			Dermal													
				Benzo(a)anthracene	3E+00	mg/kg	7.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	8.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	8.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.7E-06	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	9.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.2E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	6.4E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.9E-10	7.4E-07	mg/kg-day	2.0E-02	mg/kg-day	3.7E-05
				Carbazole	3E-01	mg/kg	8.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	4.0E-03	mg/kg-day	5.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.0E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	7.2E-08	mg/kg-day	N/A	N/A	N/A	8.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.8E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	3.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.5E-08	4.1E-07	mg/kg-day	2.0E-05	mg/kg-day	2.0E-02
				Aroclor-1260	4E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.2E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	6.8E-03
				Dieldrin	7E-03	mg/kg	1.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.4E-09	1.7E-09	mg/kg-day	5.0E-05	mg/kg-day	3.5E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	6.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.3E-08	7.2E-07	mg/kg-day	3.0E-04	mg/kg-day	2.4E-03
				Cadmium (other media)	2E+01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	4.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.8E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					3E-02
		Exposure Point Total									4E-06					6E-02
	Exposure Medium Total										N/A					N/A

TABLE 7.35.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Medium Total										N/A						N/A
Total of Receptor Risks Across All Media										N/A	Total of Receptor Hazards Across All Media					N/A

Notes
Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.36.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	3.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.1E-07	4.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.0E-06	4.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	4.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.6E-07	5.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	3.0E-02	mg/kg-day	8.5E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.7E-08	9.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.9E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.1E-07	3.4E-04	mg/kg-day	2.0E-02	mg/kg-day	1.7E-02
				Carbazole	5E-01	mg/kg	3.3E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.6E-10	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	3.1E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	6.7E-09	3.6E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-06	6.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	4.0E-03	mg/kg-day	4.9E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.7E-07	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	5.9E-07	mg/kg-day	N/A	N/A	N/A	6.9E-06	mg/kg-day	3.0E-02	mg/kg-day	2.3E-04
				Aroclor-1248	4E-01	mg/kg	2.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.0E-08	2.9E-07	mg/kg-day	2.0E-05	mg/kg-day	1.5E-02
				Aroclor-1254	2E-01	mg/kg	1.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.4E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.0E-03
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.5E-08	2.0E-07	mg/kg-day	2.0E-05	mg/kg-day	1.0E-02
				Dieldrin	2E-01	mg/kg	1.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.9E-07	1.4E-07	mg/kg-day	5.0E-05	mg/kg-day	2.8E-03
				Dioxin TEQ	5E-05	mg/kg	3.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	4.1E-07	3.7E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.1E-04	mg/kg-day	N/A	N/A	N/A	7.1E-03	mg/kg-day	1.0E+00	mg/kg-day	7.1E-03
				Arsenic	1E+01	mg/kg	9.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.4E-06	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.5E-02
				Cadmium (other media)	9E+00	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	7.3E-06	mg/kg-day	1.0E-03	mg/kg-day	7.3E-03
				Chromium	3E+02	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	3.0E-03	mg/kg-day	7.8E-02
				Cobalt	8E+00	mg/kg	5.2E-07	mg/kg-day	N/A	N/A	N/A	6.1E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02
				Copper	3E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	2.1E-04	mg/kg-day	4.0E-02	mg/kg-day	5.2E-03
				Iron	3E+04	mg/kg	2.0E-03	mg/kg-day	N/A	N/A	N/A	2.3E-02	mg/kg-day	7.0E-01	mg/kg-day	3.3E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.9E-05	mg/kg-day	N/A	N/A	N/A	6.8E-04	mg/kg-day	7.0E-02	mg/kg-day	9.8E-03
				Mercury (other media)	7E-01	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	1.0E-04	mg/kg-day	5.5E-03
				Thallium	2E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	8.0E-05	mg/kg-day	2.4E-02
				Vanadium	3E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	7.0E-03	mg/kg-day	3.2E-03
				Zinc	5E+02	mg/kg	3.7E-05	mg/kg-day	N/A	N/A	N/A	4.4E-04	mg/kg-day	3.0E-01	mg/kg-day	1.5E-03
			Exp. Route Total								1E-05					3E-01
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	4.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.3E-07	5.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	4.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.1E-06	4.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	5.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-06	5.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	3.0E-02	mg/kg-day	9.7E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-08	1.0E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.6E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.6E-07	3.0E-04	mg/kg-day	2.0E-02	mg/kg-day	1.5E-02
				Carbazole	5E-01	mg/kg	3.8E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.5E-10	4.4E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.36.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	3.5E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	7.7E-09	4.1E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-06	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	4.0E-03	mg/kg-day	4.3E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.4E-07	2.9E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	6.7E-07	mg/kg-day	N/A	N/A	N/A	7.9E-06	mg/kg-day	3.0E-02	mg/kg-day	2.6E-04
				Aroclor-1248	4E-01	mg/kg	3.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.2E-08	3.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Aroclor-1254	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.0E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.6E-03
				Aroclor-1260	2E-01	mg/kg	2.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.3E-08	2.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Dieldrin	2E-01	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.7E-07	1.2E-07	mg/kg-day	5.0E-05	mg/kg-day	2.5E-03
				Dioxin TEQ	5E-05	mg/kg	8.3E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.1E-07	9.7E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.6E-07	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	9.3E-03
				Cadmium (other media)	9E+00	mg/kg	5.5E-09	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-05					7E-02
		Exposure Point Total									3E-05					4E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (wading)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	1E-01	ug/L	1.9E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	2.0E-02	mg/kg-day	1.1E-05
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	2E+00	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.36.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	1E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	5.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.5E-09	6.9E-09	mg/kg-day	5.0E-05	mg/kg-day	1.4E-04
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	4.0E-07	mg/kg-day	N/A	N/A	N/A	4.7E-06	mg/kg-day	1.0E-02	mg/kg-day	4.7E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	3E+00	ug/L	9.7E-09	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	7.5E-05	mg/kg-day	1.5E-03
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								9E-09					2E-03
		Exposure Point Total									9E-09					2E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	9.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	9.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.1E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.5E-08	7.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.4E-09	1.2E-06	mg/kg-day	2.0E-02	mg/kg-day	5.9E-05
				Carbazole	3E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	3.2E-09	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	4.0E-03	mg/kg-day	9.4E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	5.9E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	8.8E-08	mg/kg-day	N/A	N/A	N/A	1.0E-06	mg/kg-day	3.0E-02	mg/kg-day	3.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	4.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.0E-08	4.6E-07	mg/kg-day	2.0E-05	mg/kg-day	2.3E-02
				Aroclor-1260	4E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.7E-08	1.6E-07	mg/kg-day	2.0E-05	mg/kg-day	7.8E-03
				Dieldrin	7E-03	mg/kg	2.4E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.8E-09	2.8E-09	mg/kg-day	5.0E-05	mg/kg-day	5.6E-05

TABLE 7.36.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	3.2E-03	mg/kg-day	1.0E+00	mg/kg-day	3.2E-03
				Antimony	2E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	4.0E-04	mg/kg-day	1.6E-03
				Arsenic	9E+00	mg/kg	3.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.0E-07	3.9E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02
				Cadmium (other media)	2E+01	mg/kg	6.1E-07	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	1.0E-03	mg/kg-day	7.2E-03
				Chromium	1E+02	mg/kg	4.4E-06	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	3.0E-03	mg/kg-day	1.7E-02
				Cobalt	6E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.7E-03
				Copper	2E+02	mg/kg	5.6E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	4.0E-02	mg/kg-day	1.6E-03
				Iron	2E+04	mg/kg	6.6E-04	mg/kg-day	N/A	N/A	N/A	7.7E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02
				Lead												
				Manganese (other media)	3E+02	mg/kg	9.5E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	7.0E-02	mg/kg-day	1.6E-03
				Mercury (other media)	5E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	1.0E-04	mg/kg-day	2.0E-03
				Thallium	4E-01	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	8.0E-05	mg/kg-day	2.1E-03
				Vanadium	2E+01	mg/kg	6.5E-07	mg/kg-day	N/A	N/A	N/A	7.6E-06	mg/kg-day	7.0E-03	mg/kg-day	1.1E-03
			Exp. Route Total								4E-06					1E-01
			Dermal	Benzo(a)anthracene	3E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.5E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.7E-07	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.4E-08	1.3E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.4E-05
				Carbazole	3E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.3E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	4.0E-09	mg/kg-day	N/A	N/A	N/A	4.7E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	9.6E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	1.7E-06	mg/kg-day	3.0E-02	mg/kg-day	5.6E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	7.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.4E-07	8.1E-07	mg/kg-day	2.0E-05	mg/kg-day	4.1E-02
				Aroclor-1260	4E-01	mg/kg	2.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.7E-08	2.7E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Dieldrin	7E-03	mg/kg	3.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.8E-09	3.5E-09	mg/kg-day	5.0E-05	mg/kg-day	7.0E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.9E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.8E-03
				Cadmium (other media)	2E+01	mg/kg	7.7E-09	mg/kg-day	N/A	N/A	N/A	9.0E-08	mg/kg-day	2.5E-05	mg/kg-day	3.6E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A

TABLE 7.36.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
			Exp. Route Total													
			Exposure Point Total													
			Exposure Medium Total													
Medium Total																
												</				

Notes
Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.36.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	9.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	9.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.0E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.1E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	1.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.2E-09	2.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	7.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.0E-07	8.6E-05	mg/kg-day	2.0E-02	mg/kg-day	4.3E-03
				Carbazole	5E-01	mg/kg	8.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.6E-10	9.6E-08	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	1.7E-09	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.8E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	4.0E-03	mg/kg-day	1.2E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	5.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	6.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.7E-06	mg/kg-day	3.0E-02	mg/kg-day	5.7E-05
				Aroclor-1248	4E-01	mg/kg	6.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.3E-09	7.3E-08	mg/kg-day	2.0E-05	mg/kg-day	3.7E-03
				Aroclor-1254	2E-01	mg/kg	3.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.0E-09	3.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Aroclor-1260	2E-01	mg/kg	4.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	4.3E-09	5.0E-08	mg/kg-day	2.0E-05	mg/kg-day	2.5E-03
				Dieldrin	2E-01	mg/kg	3.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.8E-08	3.5E-08	mg/kg-day	5.0E-05	mg/kg-day	7.0E-04
				Dioxin TEQ	4E-05	mg/kg	6.5E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	8.4E-08	7.5E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03
				Arsenic	1E+01	mg/kg	2.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.4E-07	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	8.8E-03
				Cadmium (other media)	9E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	1.0E-03	mg/kg-day	1.8E-03
				Chromium	3E+02	mg/kg	5.0E-06	mg/kg-day	N/A	N/A	N/A	5.8E-05	mg/kg-day	3.0E-03	mg/kg-day	1.9E-02
				Cobalt	8E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.1E-03
				Copper	3E+02	mg/kg	4.5E-06	mg/kg-day	N/A	N/A	N/A	5.2E-05	mg/kg-day	4.0E-02	mg/kg-day	1.3E-03
				Iron	3E+04	mg/kg	5.0E-04	mg/kg-day	N/A	N/A	N/A	5.8E-03	mg/kg-day	7.0E-01	mg/kg-day	8.3E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	7.0E-02	mg/kg-day	2.4E-03
				Mercury (other media)	7E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	1.0E-04	mg/kg-day	1.4E-03
				Thallium	2E+00	mg/kg	4.0E-08	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	8.0E-05	mg/kg-day	5.9E-03
				Vanadium	3E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	7.0E-03	mg/kg-day	8.0E-04
				Zinc	5E+02	mg/kg	9.4E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.6E-04
			Exp. Route Total								3E-06					7E-02
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.7E-07	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.6E-06	2.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.5E-07	2.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-02	mg/kg-day	4.9E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	4.4E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.7E-09	5.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.3E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-07	1.5E-04	mg/kg-day	2.0E-02	mg/kg-day	7.5E-03
				Carbazole	5E-01	mg/kg	1.9E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.8E-10	2.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.36.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Chrysene	4E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	3.8E-09	2.0E-06	mg/kg-day	N/A	N/A	N/A			
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.4E-07	3.4E-07	mg/kg-day	N/A	N/A	N/A			
				Dibenzofuran	2E-01	mg/kg	7.4E-09	mg/kg-day	N/A	N/A	N/A	8.7E-08	mg/kg-day	4.0E-03	mg/kg-day	2.2E-05			
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	8E+00	mg/kg	3.4E-07	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-02	mg/kg-day	1.3E-04			
				Aroclor-1248	4E-01	mg/kg	1.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.5E-08	1.8E-07	mg/kg-day	2.0E-05	mg/kg-day	9.0E-03			
				Aroclor-1254	2E-01	mg/kg	7.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.4E-09	8.6E-08	mg/kg-day	2.0E-05	mg/kg-day	4.3E-03			
				Aroclor-1260	2E-01	mg/kg	1.1E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	6.2E-03			
				Dieldrin	2E-01	mg/kg	5.3E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.5E-08	6.2E-08	mg/kg-day	5.0E-05	mg/kg-day	1.2E-03			
				Dioxin TEQ	4E-05	mg/kg	3.4E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	4.4E-08	4.0E-12	mg/kg-day	N/A	N/A	N/A			
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Arsenic	1E+01	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.7E-03			
				Cadmium (other media)	9E+00	mg/kg	2.7E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	2.5E-05	mg/kg-day	1.3E-03			
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A			
				Exp. Route Total											7E-06				3E-02
				Exposure Point Total											1E-05				1E-01
				Exposure Medium Total											N/A				N/A
				Medium Total											N/A				N/A
Surface Water	Surface Water	Downstream of Landfill	Dermal (wading)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Benzo(g,h,i)perylene	5E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				bis(2-Ethylhexyl)phthalate	ND	ug/L	N/A	N/A	1.4E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A			
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Naphthalene	5E-02	ug/L	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	2.0E-02	mg/kg-day	2.0E-06			
				Phenanthrene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Benzene	2E+00	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A			

TABLE 7.36.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	1E-01	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	1E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	2E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	4E-03	ug/L	3.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.7E-09	3.5E-09	mg/kg-day	5.0E-05	mg/kg-day	6.9E-05
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	ND	ug/L	N/A	N/A	9.1E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	1.3E-05	mg/kg-day	N/A
				Aluminum	3E+02	ug/L	2.0E-07	mg/kg-day	N/A	N/A	N/A	2.4E-06	mg/kg-day	1.0E-02	mg/kg-day	2.4E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	6E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	3E+00	ug/L	4.8E-09	mg/kg-day	N/A	N/A	N/A	5.6E-08	mg/kg-day	7.5E-05	mg/kg-day	7.5E-04
				Cobalt	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	7E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	2E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								5E-09					1E-03
		Exposure Point Total									5E-09					1E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Downstream of Landfill	Ingestion	Benzo(a)anthracene	3E+00	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	2.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.4E-07	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.6E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	1.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.7E-09	2.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	2.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.6E-10	3.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	3E-01	mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.3E-11	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.7E-08	5.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	8.0E-10	mg/kg-day	N/A	N/A	N/A	9.4E-09	mg/kg-day	4.0E-03	mg/kg-day	2.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	2.2E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	3.0E-02	mg/kg-day	8.6E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	1.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.0E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	5.8E-03
				Aroclor-1260	4E-01	mg/kg	3.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.4E-09	3.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Dieldrin	7E-03	mg/kg	6.0E-11	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.6E-10	7.0E-10	mg/kg-day	5.0E-05	mg/kg-day	1.4E-05

TABLE 7.36.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	6.9E-05	mg/kg-day	N/A	N/A	N/A	8.1E-04	mg/kg-day	1.0E+00	mg/kg-day	8.1E-04
				Antimony	2E+00	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	4.0E-04	mg/kg-day	4.0E-04
				Arsenic	9E+00	mg/kg	8.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	9.6E-07	mg/kg-day	3.0E-04	mg/kg-day	3.2E-03
				Cadmium (other media)	2E+01	mg/kg	1.5E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	1.0E-03	mg/kg-day	1.8E-03
				Chromium	1E+02	mg/kg	1.1E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	4.2E-03
				Cobalt	6E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	6.5E-07	mg/kg-day	3.0E-04	mg/kg-day	2.2E-03
				Copper	2E+02	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	4.0E-02	mg/kg-day	4.1E-04
				Iron	2E+04	mg/kg	1.7E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	7.0E-01	mg/kg-day	2.8E-03
				Lead												
				Manganese (other media)	3E+02	mg/kg	2.4E-06	mg/kg-day	N/A	N/A	N/A	2.8E-05	mg/kg-day	7.0E-02	mg/kg-day	4.0E-04
				Mercury (other media)	5E-01	mg/kg	4.3E-09	mg/kg-day	N/A	N/A	N/A	5.0E-08	mg/kg-day	1.0E-04	mg/kg-day	5.0E-04
				Thallium	4E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	8.0E-05	mg/kg-day	5.3E-04
				Vanadium	2E+01	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	7.0E-03	mg/kg-day	2.7E-04
			Exp. Route Total								9E-07					3E-02
			Dermal	Benzo(a)anthracene	3E+00	mg/kg	7.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	8.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	3E+00	mg/kg	8.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.7E-06	9.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	9.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.2E-08	6.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	3E+00	mg/kg	6.4E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.9E-10	7.4E-07	mg/kg-day	2.0E-02	mg/kg-day	3.7E-05
				Carbazole	3E-01	mg/kg	8.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	4.0E-03	mg/kg-day	5.9E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.0E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	3E+00	mg/kg	7.2E-08	mg/kg-day	N/A	N/A	N/A	8.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.8E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	1E+00	mg/kg	3.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.5E-08	4.1E-07	mg/kg-day	2.0E-05	mg/kg-day	2.0E-02
				Aroclor-1260	4E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.2E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	6.8E-03
				Dieldrin	7E-03	mg/kg	1.5E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.4E-09	1.7E-09	mg/kg-day	5.0E-05	mg/kg-day	3.5E-05
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	6.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.3E-08	7.2E-07	mg/kg-day	3.0E-04	mg/kg-day	2.4E-03
				Cadmium (other media)	2E+01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	4.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.8E-03
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A

TABLE 7.36.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
			Exp. Route Total								3E-06					3E-02	
			Exposure Point Total								4E-06					6E-02	
			Exposure Medium Total									N/A				N/A	
			Medium Total									N/A				N/A	
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media					N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.37.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations									
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient					
							Value	Units	Value	Units		Value	Units	Value	Units						
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-07	9.8E-07	mg/kg-day	N/A	N/A	N/A					
				Benzo(a)pyrene	2E+00	mg/kg	2.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.0E-06	8.1E-07	mg/kg-day	N/A	N/A	N/A					
				Benzo(b)fluoranthene	4E+00	mg/kg	4.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.6E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A					
				Benzo(k)fluoranthene	1E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.2E-08	5.0E-07	mg/kg-day	N/A	N/A	N/A					
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	6.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	9.4E-09	2.0E-06	mg/kg-day	2.0E-02	mg/kg-day	9.8E-05					
				Carbazole	2E-01	mg/kg	3.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.9E-10	8.7E-08	mg/kg-day	N/A	N/A	N/A					
				Dibenz(a,h)anthracene	5E-01	mg/kg	7.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.2E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A					
				Dibenzofuran	9E-02	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	4.0E-03	mg/kg-day	9.6E-06					
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	5.7E-07	mg/kg-day	N/A	N/A	N/A					
				Phenanthrene	2E+00	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	9.4E-07	mg/kg-day	3.0E-02	mg/kg-day	3.1E-05					
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A					
				Aroclor-1254	2E-01	mg/kg	3.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.7E-08	9.8E-08	mg/kg-day	2.0E-05	mg/kg-day	4.9E-03					
				Aroclor-1260	4E-01	mg/kg	4.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.8E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.1E-03					
				Dieldrin	1E-01	mg/kg	1.7E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.7E-07	4.9E-08	mg/kg-day	5.0E-05	mg/kg-day	9.8E-04					
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A					
				Aluminum	1E+04	mg/kg	1.5E-03	mg/kg-day	N/A	N/A	N/A	4.3E-03	mg/kg-day	1.0E+00	mg/kg-day	4.3E-03					
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A					
				Arsenic	2E+01	mg/kg	2.2E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.2E-06	6.3E-06	mg/kg-day	3.0E-04	mg/kg-day	2.1E-02					
				Cadmium (other media)	9E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	1.0E-03	mg/kg-day	3.6E-03					
				Chromium	2E+02	mg/kg	2.3E-05	mg/kg-day	N/A	N/A	N/A	6.8E-05	mg/kg-day	3.0E-03	mg/kg-day	2.3E-02					
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A					
				Copper	2E+02	mg/kg	3.2E-05	mg/kg-day	N/A	N/A	N/A	9.4E-05	mg/kg-day	4.0E-02	mg/kg-day	2.4E-03					
				Iron	3E+04	mg/kg	3.6E-03	mg/kg-day	N/A	N/A	N/A	1.0E-02	mg/kg-day	7.0E-01	mg/kg-day	1.5E-02					
				Lead																	
				Manganese (other media)	1E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.9E-04	mg/kg-day	7.0E-02	mg/kg-day	5.6E-03					
				Mercury (other media)	6E-01	mg/kg	8.4E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	1.0E-04	mg/kg-day	2.4E-03					
				Thallium	2E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	8.0E-05	mg/kg-day	9.2E-03					
				Vanadium	3E+01	mg/kg	4.4E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	7.0E-03	mg/kg-day	1.8E-03					
				Zinc	3E+02	mg/kg	3.7E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.6E-04					
			Exp. Route Total											7E-06							
						Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	5.1E-07	mg/kg-day	N/A	N/A	N/A		
							Benzo(a)pyrene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-06	4.2E-07	mg/kg-day	N/A	N/A	N/A		
							Benzo(b)fluoranthene	4E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	7.4E-07	mg/kg-day	N/A	N/A	N/A		
							Benzo(k)fluoranthene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.4E-09	2.6E-07	mg/kg-day	N/A	N/A	N/A		
							bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	2.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.7E-09	7.8E-07	mg/kg-day	2.0E-02	mg/kg-day	3.9E-05		
							Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.1E-10	4.5E-08	mg/kg-day	N/A	N/A	N/A		
							Dibenz(a,h)anthracene	5E-01	mg/kg	3.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.7E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A		
							Dibenzofuran	9E-02	mg/kg	5.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.8E-06		

TABLE 7.37.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.4E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	4.9E-07	mg/kg-day	3.0E-02	mg/kg-day	1.6E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.7E-08	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aroclor-1260	4E-01	mg/kg	2.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.5E-08	8.0E-08	mg/kg-day	2.0E-05	mg/kg-day	4.0E-03
				Dieldrin	1E-01	mg/kg	6.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.1E-07	1.9E-08	mg/kg-day	5.0E-05	mg/kg-day	3.9E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.9E-07	7.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03
				Cadmium (other media)	9E+00	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.8E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									9E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	1.7E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.4E-07	5.0E-05	mg/kg-day	2.0E-02	mg/kg-day	2.5E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.37.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	1.0E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	3.6E-09	3.0E-08	mg/kg-day	5.0E-04	mg/kg-day	5.9E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	5.2E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	4.7E-08	1.5E-08	mg/kg-day	1.3E-05	mg/kg-day	1.2E-03
				Aluminum	2E+03	ug/L	1.6E-05	mg/kg-day	N/A	N/A	N/A	4.7E-05	mg/kg-day	1.0E-02	mg/kg-day	4.7E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	3.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	2.5E-05	mg/kg-day	4.2E-04
				Chromium	9E+00	ug/L	1.3E-07	mg/kg-day	N/A	N/A	N/A	3.8E-07	mg/kg-day	7.5E-05	mg/kg-day	5.1E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	2.3E-06	mg/kg-day	N/A	N/A	N/A	6.7E-06	mg/kg-day	7.0E-02	mg/kg-day	9.5E-05
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	3.2E-08	mg/kg-day	N/A	N/A	N/A	9.5E-08	mg/kg-day	1.8E-04	mg/kg-day	5.2E-04
			Exp. Route Total								3E-07					1E-02
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	3.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.2E-08	8.8E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	4.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	2.1E-09	mg/kg-day	N/A	N/A	N/A	6.3E-09	mg/kg-day	3.0E-02	mg/kg-day	2.1E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	2.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.0E-09	6.3E-07	mg/kg-day	2.0E-02	mg/kg-day	3.1E-05
				Chrysene	2E-01	ug/L	3.2E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	2.4E-11	9.4E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	3.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	3.0E-02	mg/kg-day	3.5E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	1.2E-10	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	3.0E-11	3.6E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	9.4E-11	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	3.3E-11	2.8E-10	mg/kg-day	5.0E-04	mg/kg-day	5.5E-07

TABLE 7.37.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	6.2E-11	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	5.7E-10	1.8E-10	mg/kg-day	1.3E-05	mg/kg-day	1.4E-05	
				Aluminum	2E+03	ug/L	4.4E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	1.0E-02	mg/kg-day	1.3E-02	
				Arsenic	5E+00	ug/L	9.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-07	2.9E-07	mg/kg-day	3.0E-04	mg/kg-day	9.6E-04	
				Cadmium (other media)	5E-01	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	2.5E-05	mg/kg-day	1.2E-03	
				Chromium	9E+00	ug/L	1.8E-07	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	7.5E-05	mg/kg-day	7.1E-03	
				Cobalt	7E-01	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	3.0E-04	mg/kg-day	1.4E-04	
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Iron	4E+03	ug/L	7.9E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	7.0E-01	mg/kg-day	3.3E-04	
				Lead	9E+00	ug/L	1.8E-07	mg/kg-day	N/A	N/A	N/A	5.4E-07	mg/kg-day	N/A	N/A	N/A	
				Manganese (other media)	3E+02	ug/L	6.3E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	2.6E-04	
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	
				Vanadium	4E+00	ug/L	9.0E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	1.8E-04	mg/kg-day	1.4E-03	
					Exp. Route Total								2E-07				
			Exposure Point Total										5E-07				
		Exposure Medium Total										N/A					N/A
	Medium Total										N/A					N/A	
Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	1E+00	mg/kg	8.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.1E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(k)fluoranthene	6E-01	mg/kg	4.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.0E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	9.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.3E-08	2.6E-06	mg/kg-day	2.0E-02	mg/kg-day	1.3E-04	
				Carbazole	1E-01	mg/kg	9.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.8E-10	2.6E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	1E-01	mg/kg	7.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.6E-08	2.2E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenzofuran	7E-02	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.7E-06	
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A	
				Phenanthrene	1E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	3.0E-02	mg/kg-day	7.5E-06	
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				Aroclor-1254	6E-02	mg/kg	4.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.2E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.0E-04	
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.7E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.6E-03	
				Dieldrin	7E-02	mg/kg	5.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.3E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04	
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03	
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A	
				Arsenic	9E+00	mg/kg	6.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.4E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03	
				Cadmium (other media)	1E+01	mg/kg	9.6E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	1.0E-03	mg/kg-day	2.8E-03	
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02	
				Cobalt	1E+01	mg/kg	7.7E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.5E-03	

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Scenario Timeframe: Future
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 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Copper	2E+02	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	4.3E-05	mg/kg-day	4.0E-02	mg/kg-day	1.1E-03
				Iron	1E+04	mg/kg	8.5E-04	mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	7.0E-01	mg/kg-day	3.5E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.8E-05	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	7.0E-02	mg/kg-day	2.4E-03
				Mercury (other media)	4E-01	mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	8.8E-08	mg/kg-day	1.0E-04	mg/kg-day	8.8E-04
				Thallium	6E-01	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	7.0E-03	mg/kg-day	6.9E-04
				Exp. Route Total							2E-06					5E-02
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-06	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	1.2E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	8.4E-09	3.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	2.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.8E-08	5.8E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04
				Carbazole	1E-01	mg/kg	2.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.2E-10	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	6.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	8.0E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.1E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.5E-08	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Aroclor-1260	6E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.4E-07	3.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02
				Dieldrin	7E-02	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.8E-07	3.3E-08	mg/kg-day	5.0E-05	mg/kg-day	6.6E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	4.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.2E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	4.0E-03
				Cadmium (other media)	1E+01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	6.2E-08	mg/kg-day	2.5E-05	mg/kg-day	2.5E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Exp. Route Total							3E-06					3E-02
				Exposure Point Total							5E-06					7E-02
				Exposure Medium Total							N/A					N/A
				Medium Total							N/A					N/A

TABLE 7.37.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Total of Receptor Risks Across All Media							N/A		Total of Receptor Hazards Across All Media							N/A	

TABLE 7.37.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations									
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient					
							Value	Units	Value	Units		Value	Units	Value	Units						
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A					
				Benzo(a)pyrene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A					
				Benzo(b)fluoranthene	2E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A					
				Benzo(k)fluoranthene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.6E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A					
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.4E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.1E-10	1.5E-07	mg/kg-day	2.0E-02	mg/kg-day	7.7E-06					
				Carbazole	2E-01	mg/kg	6.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.2E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A					
				Dibenz(a,h)anthracene	3E-01	mg/kg	7.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.5E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A					
				Dibenzofuran	9E-02	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	9.6E-09	mg/kg-day	4.0E-03	mg/kg-day	2.4E-06					
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-08	7.2E-08	mg/kg-day	N/A	N/A	N/A					
				Phenanthrene	1E+00	mg/kg	4.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	3.0E-02	mg/kg-day	4.7E-06					
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A					
				Aroclor-1254	8E-02	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.3E-09	8.0E-09	mg/kg-day	2.0E-05	mg/kg-day	4.0E-04					
				Aroclor-1260	1E-01	mg/kg	3.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.5E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.2E-04					
				Dieldrin	5E-02	mg/kg	1.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.4E-08	5.3E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04					
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A					
				Aluminum	7E+03	mg/kg	2.0E-04	mg/kg-day	N/A	N/A	N/A	7.2E-04	mg/kg-day	1.0E+00	mg/kg-day	7.2E-04					
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A					
				Arsenic	9E+00	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.9E-07	9.2E-07	mg/kg-day	3.0E-04	mg/kg-day	3.1E-03					
				Cadmium (other media)	4E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.6E-07	mg/kg-day	1.0E-03	mg/kg-day	3.6E-04					
				Chromium	9E+01	mg/kg	2.7E-06	mg/kg-day	N/A	N/A	N/A	9.5E-06	mg/kg-day	3.0E-03	mg/kg-day	3.2E-03					
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A					
				Copper	1E+02	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	4.0E-02	mg/kg-day	3.0E-04					
				Iron	1E+04	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	1.5E-03	mg/kg-day	7.0E-01	mg/kg-day	2.2E-03					
				Lead																	
				Manganese (other media)	4E+02	mg/kg	1.0E-05	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	7.0E-02	mg/kg-day	5.2E-04					
				Mercury (other media)	3E-01	mg/kg	9.6E-09	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	1.0E-04	mg/kg-day	3.4E-04					
				Thallium	1E+00	mg/kg	2.8E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	8.0E-05	mg/kg-day	1.2E-03					
				Vanadium	2E+01	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.1E-04					
				Zinc	1E+02	mg/kg	4.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	3.0E-01	mg/kg-day	5.0E-05					
			Exp. Route Total											8E-07							
						Dermal	Benzo(a)anthracene	1E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.9E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A		
							Benzo(a)pyrene	1E+00	mg/kg	3.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A		
							Benzo(b)fluoranthene	2E+00	mg/kg	5.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.3E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A		
							Benzo(k)fluoranthene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.7E-09	1.3E-07	mg/kg-day	N/A	N/A	N/A		
							bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.9E-10	1.2E-07	mg/kg-day	2.0E-02	mg/kg-day	6.1E-06		
							Carbazole	2E-01	mg/kg	6.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.3E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A		
							Dibenz(a,h)anthracene	3E-01	mg/kg	7.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.7E-08	2.7E-08	mg/kg-day	N/A	N/A	N/A		
							Dibenzofuran	9E-02	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.7E-09	mg/kg-day	4.0E-03	mg/kg-day	1.9E-06		

TABLE 7.37.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-08	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	3.0E-02	mg/kg-day	4.9E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.5E-09	8.9E-09	mg/kg-day	2.0E-05	mg/kg-day	4.5E-04
				Aroclor-1260	1E-01	mg/kg	4.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	4.0E-09	1.4E-08	mg/kg-day	2.0E-05	mg/kg-day	6.9E-04
				Dieldrin	5E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.9E-08	4.3E-09	mg/kg-day	5.0E-05	mg/kg-day	8.5E-05
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	6.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.4E-08	2.2E-07	mg/kg-day	3.0E-04	mg/kg-day	7.3E-04
				Cadmium (other media)	4E+00	mg/kg	8.1E-10	mg/kg-day	N/A	N/A	N/A	2.8E-09	mg/kg-day	2.5E-05	mg/kg-day	1.1E-04
				Chromium	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								5E-07					2E-03
		Exposure Point Total									1E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)	Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	3.6E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.0E-08	1.3E-05	mg/kg-day	2.0E-02	mg/kg-day	6.3E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.37.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				alpha-Chlordane	2E-03	ug/L	1.9E-09	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	6.7E-10	6.7E-09	mg/kg-day	5.0E-04	mg/kg-day	1.3E-05	
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A	
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A	
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor Epoxide	2E-03	ug/L	1.3E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.2E-08	4.7E-09	mg/kg-day	1.3E-05	mg/kg-day	3.6E-04	
				Aluminum	7E+02	ug/L	2.4E-06	mg/kg-day	N/A	N/A	N/A	8.3E-06	mg/kg-day	1.0E-02	mg/kg-day	8.3E-04	
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Cadmium (other media)	4E-01	ug/L	1.2E-09	mg/kg-day	N/A	N/A	N/A	4.1E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04	
				Chromium	3E+00	ug/L	2.1E-08	mg/kg-day	N/A	N/A	N/A	7.4E-08	mg/kg-day	7.5E-05	mg/kg-day	9.9E-04	
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Manganese (other media)	2E+02	ug/L	5.4E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	7.0E-02	mg/kg-day	2.7E-05	
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	
				Vanadium	2E+00	ug/L	6.1E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	1.8E-04	mg/kg-day	1.2E-04	
			Exp. Route Total									6E-08					3E-03
			Ingestion (swimming)														
				Benzo(a)anthracene	7E-02	ug/L	6.3E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.6E-10	2.2E-09	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	8E-02	ug/L	7.2E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.2E-09	2.5E-09	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	1E-01	ug/L	8.9E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.5E-10	3.1E-09	mg/kg-day	N/A	N/A	N/A	
				Benzo(g,h,i)perylene	7E-02	ug/L	6.0E-10	mg/kg-day	N/A	N/A	N/A	2.1E-09	mg/kg-day	3.0E-02	mg/kg-day	7.0E-08	
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	4.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.3E-10	1.6E-07	mg/kg-day	2.0E-02	mg/kg-day	7.8E-06	
				Chrysene	8E-02	ug/L	7.2E-10	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	5.2E-12	2.5E-09	mg/kg-day	N/A	N/A	N/A	
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	6.3E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.6E-10	2.2E-09	mg/kg-day	N/A	N/A	N/A	
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Phenanthrene	9E-02	ug/L	8.1E-10	mg/kg-day	N/A	N/A	N/A	2.8E-09	mg/kg-day	3.0E-02	mg/kg-day	9.4E-08	
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A	
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				4,4'-DDD	4E-03	ug/L	3.6E-11	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	8.6E-12	1.3E-10	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				alpha-Chlordane	2E-03	ug/L	1.8E-11	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	6.3E-12	6.3E-11	mg/kg-day	5.0E-04	mg/kg-day	1.3E-07	

TABLE 7.37.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	1.6E-11	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.5E-10	5.6E-11	mg/kg-day	1.3E-05	mg/kg-day	4.3E-06	
				Aluminum	7E+02	ug/L	6.6E-06	mg/kg-day	N/A	N/A	N/A	2.3E-05	mg/kg-day	1.0E-02	mg/kg-day	2.3E-03	
				Arsenic	3E+00	ug/L	3.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.6E-08	1.1E-07	mg/kg-day	3.0E-04	mg/kg-day	3.5E-04	
				Cadmium (other media)	4E-01	ug/L	3.2E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	2.5E-05	mg/kg-day	4.5E-04	
				Chromium	3E+00	ug/L	3.0E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	7.5E-05	mg/kg-day	1.4E-03	
				Cobalt	7E-01	ug/L	5.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	3.0E-04	mg/kg-day	6.9E-05	
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Iron	2E+03	ug/L	1.3E-05	mg/kg-day	N/A	N/A	N/A	4.7E-05	mg/kg-day	7.0E-01	mg/kg-day	6.7E-05	
				Lead	4E+00	ug/L	3.8E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	N/A	N/A	N/A	
				Manganese (other media)	2E+02	ug/L	1.5E-06	mg/kg-day	N/A	N/A	N/A	5.3E-06	mg/kg-day	7.0E-02	mg/kg-day	7.5E-05	
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	
				Vanadium	2E+00	ug/L	1.7E-08	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	1.8E-04	mg/kg-day	3.3E-04	
					Exp. Route Total								5E-08				5E-03
				Exposure Point Total								1E-07				8E-03	
	Exposure Medium Total										N/A				N/A		
	Medium Total										N/A				N/A		
Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	7E-01	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.2E-09	3.4E-08	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	6E-01	mg/kg	9.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.6E-08	3.2E-08	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	8E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.1E-09	3.9E-08	mg/kg-day	N/A	N/A	N/A	
				Benzo(k)fluoranthene	3E-01	mg/kg	4.5E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.3E-10	1.6E-08	mg/kg-day	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	8.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.2E-09	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05	
				Carbazole	1E-01	mg/kg	1.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.8E-11	6.6E-09	mg/kg-day	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	7E-02	mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.8E-09	3.7E-09	mg/kg-day	N/A	N/A	N/A	
				Dibenzofuran	7E-02	mg/kg	1.0E-09	mg/kg-day	N/A	N/A	N/A	3.7E-09	mg/kg-day	4.0E-03	mg/kg-day	9.2E-07	
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	4.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.0E-09	1.5E-08	mg/kg-day	N/A	N/A	N/A	
				Phenanthrene	6E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	3.0E-02	mg/kg-day	1.1E-06	
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				Aroclor-1254	2E-02	mg/kg	3.2E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.2E-10	1.1E-09	mg/kg-day	2.0E-05	mg/kg-day	5.6E-05	
				Aroclor-1260	2E-01	mg/kg	2.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.7E-09	9.5E-09	mg/kg-day	2.0E-05	mg/kg-day	4.7E-04	
				Dieldrin	3E-02	mg/kg	3.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.1E-09	1.3E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05	
				Aluminum	6E+03	mg/kg	8.6E-05	mg/kg-day	N/A	N/A	N/A	3.0E-04	mg/kg-day	1.0E+00	mg/kg-day	3.0E-04	
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A	
				Arsenic	6E+00	mg/kg	8.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	2.8E-07	mg/kg-day	3.0E-04	mg/kg-day	9.4E-04	
				Cadmium (other media)	5E+00	mg/kg	7.9E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-03	mg/kg-day	2.8E-04	
				Chromium	7E+01	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-06	mg/kg-day	3.0E-03	mg/kg-day	1.2E-03	
				Cobalt	6E+00	mg/kg	8.7E-08	mg/kg-day	N/A	N/A	N/A	3.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.0E-03	

TABLE 7.37.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Copper	9E+01	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	4.0E-02	mg/kg-day	1.1E-04
				Iron	1E+04	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	5.3E-04	mg/kg-day	7.0E-01	mg/kg-day	7.6E-04
				Lead												
				Manganese (other media)	4E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.8E-04
				Mercury (other media)	2E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	1.0E-04	mg/kg-day	1.1E-04
				Thallium	4E-01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04
				Vanadium	1E+01	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	7.0E-03	mg/kg-day	1.0E-04
				Exp. Route Total							2E-07					6E-03
			Dermal	Benzo(a)anthracene	7E-01	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-09	8.9E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	3.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.1E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.4E-05
				Carbazole	1E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.5E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	4.6E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.0E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	5.1E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	3.0E-02	mg/kg-day	6.0E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	2.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.0E-09	6.9E-09	mg/kg-day	2.0E-05	mg/kg-day	3.4E-04
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.7E-08	5.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Dieldrin	3E-02	mg/kg	1.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.7E-08	5.9E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-07	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Cadmium (other media)	5E+00	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.5E-05	mg/kg-day	4.9E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Exp. Route Total							7E-07					5E-03
				Exposure Point Total							1E-06					1E-02
				Exposure Medium Total							N/A					N/A
				Medium Total							N/A					N/A

TABLE 7.37.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Total of Receptor Risks Across All Media							N/A		Total of Receptor Hazards Across All Media							N/A	

TABLE 7.38.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-07	9.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.0E-06	8.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	4.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.6E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.2E-08	5.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	6.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	9.4E-09	2.0E-06	mg/kg-day	2.0E-02	mg/kg-day	9.8E-05
				Carbazole	2E-01	mg/kg	3.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.9E-10	8.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	7.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.2E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	4.0E-03	mg/kg-day	9.6E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	9.4E-07	mg/kg-day	3.0E-02	mg/kg-day	3.1E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	3.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.7E-08	9.8E-08	mg/kg-day	2.0E-05	mg/kg-day	4.9E-03
				Aroclor-1260	4E-01	mg/kg	4.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.8E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.1E-03
				Dieldrin	1E-01	mg/kg	1.7E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.7E-07	4.9E-08	mg/kg-day	5.0E-05	mg/kg-day	9.8E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	1.5E-03	mg/kg-day	N/A	N/A	N/A	4.3E-03	mg/kg-day	1.0E+00	mg/kg-day	4.3E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.2E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.2E-06	6.3E-06	mg/kg-day	3.0E-04	mg/kg-day	2.1E-02
				Cadmium (other media)	9E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	1.0E-03	mg/kg-day	3.6E-03
				Chromium	2E+02	mg/kg	2.3E-05	mg/kg-day	N/A	N/A	N/A	6.8E-05	mg/kg-day	3.0E-03	mg/kg-day	2.3E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	3.2E-05	mg/kg-day	N/A	N/A	N/A	9.4E-05	mg/kg-day	4.0E-02	mg/kg-day	2.4E-03
				Iron	3E+04	mg/kg	3.6E-03	mg/kg-day	N/A	N/A	N/A	1.0E-02	mg/kg-day	7.0E-01	mg/kg-day	1.5E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.9E-04	mg/kg-day	7.0E-02	mg/kg-day	5.6E-03
				Mercury (other media)	6E-01	mg/kg	8.4E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	1.0E-04	mg/kg-day	2.4E-03
				Thallium	2E+00	mg/kg	2.5E-07	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	8.0E-05	mg/kg-day	9.2E-03
				Vanadium	3E+01	mg/kg	4.4E-06	mg/kg-day	N/A	N/A	N/A	1.3E-05	mg/kg-day	7.0E-03	mg/kg-day	1.8E-03
				Zinc	3E+02	mg/kg	3.7E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-01	mg/kg-day	3.6E-04
				Exp. Route Total										7E-06		
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	5.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-06	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	7.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.4E-09	2.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	2.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.7E-09	7.8E-07	mg/kg-day	2.0E-02	mg/kg-day	3.9E-05
				Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.1E-10	4.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.7E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.3E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.8E-06

TABLE 7.38.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.4E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	4.9E-07	mg/kg-day	3.0E-02	mg/kg-day	1.6E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.7E-08	5.5E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
				Aroclor-1260	4E-01	mg/kg	2.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.5E-08	8.0E-08	mg/kg-day	2.0E-05	mg/kg-day	4.0E-03
				Dieldrin	1E-01	mg/kg	6.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.1E-07	1.9E-08	mg/kg-day	5.0E-05	mg/kg-day	3.9E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.9E-07	7.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.5E-03
				Cadmium (other media)	9E+00	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.8E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									9E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E-01	ug/L	1.1E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.6E-07	3.3E-05	mg/kg-day	2.0E-02	mg/kg-day	1.7E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.38.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A			
				alpha-Chlordane	4E-03	ug/L	6.7E-09	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	2.3E-09	2.0E-08	mg/kg-day	5.0E-04	mg/kg-day	3.9E-05				
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A				
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				Heptachlor Epoxide	3E-03	ug/L	3.4E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	3.1E-08	9.9E-09	mg/kg-day	1.3E-05	mg/kg-day	7.6E-04				
				Aluminum	2E+03	ug/L	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.1E-05	mg/kg-day	1.0E-02	mg/kg-day	3.1E-03				
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Cadmium (other media)	5E-01	ug/L	2.4E-09	mg/kg-day	N/A	N/A	N/A	7.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.8E-04				
				Chromium	9E+00	ug/L	8.7E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	7.5E-05	mg/kg-day	3.4E-03				
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A				
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A				
				Vanadium	4E+00	ug/L	2.1E-08	mg/kg-day	N/A	N/A	N/A	6.2E-08	mg/kg-day	1.8E-04	mg/kg-day	3.4E-04				
						Exp. Route Total						2E-07					1E-02			
						Exposure Point Total						2E-07					1E-02			
						Exposure Medium Total						N/A					N/A			
				Medium Total												N/A				
				Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(a)pyrene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(b)fluoranthene	1E+00	mg/kg	8.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.1E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(k)fluoranthene	6E-01	mg/kg	4.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.0E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
					bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	9.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.3E-08	2.6E-06	mg/kg-day	2.0E-02	mg/kg-day	1.3E-04			
					Carbazole	1E-01	mg/kg	9.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.8E-10	2.6E-08	mg/kg-day	N/A	N/A	N/A			
					Dibenz(a,h)anthracene	1E-01	mg/kg	7.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.6E-08	2.2E-08	mg/kg-day	N/A	N/A	N/A			
					Dibenzofuran	7E-02	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.7E-06			
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A				
				Phenanthrene	1E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	3.0E-02	mg/kg-day	7.5E-06				
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
				Aroclor-1254	6E-02	mg/kg	4.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.2E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.0E-04				
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.7E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.6E-03				
				Dieldrin	7E-02	mg/kg	5.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.3E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04				
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03				
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A				

TABLE 7.38.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Arsenic	9E+00	mg/kg	6.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.4E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Cadmium (other media)	1E+01	mg/kg	9.6E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	1.0E-03	mg/kg-day	2.8E-03
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02
				Cobalt	1E+01	mg/kg	7.7E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.5E-03
				Copper	2E+02	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	4.3E-05	mg/kg-day	4.0E-02	mg/kg-day	1.1E-03
				Iron	1E+04	mg/kg	8.5E-04	mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	7.0E-01	mg/kg-day	3.5E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.8E-05	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	7.0E-02	mg/kg-day	2.4E-03
				Mercury (other media)	4E-01	mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	8.8E-08	mg/kg-day	1.0E-04	mg/kg-day	8.8E-04
				Thallium	6E-01	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03
				Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	7.0E-03	mg/kg-day	6.9E-04
			Exp. Route Total								2E-06					5E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-06	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	1.2E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	8.4E-09	3.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	2.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.8E-08	5.8E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04
				Carbazole	1E-01	mg/kg	2.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.2E-10	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	6.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	8.0E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.1E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.5E-08	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03
				Aroclor-1260	6E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.4E-07	3.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02
				Dieldrin	7E-02	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.8E-07	3.3E-08	mg/kg-day	5.0E-05	mg/kg-day	6.6E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	4.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.2E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	4.0E-03
				Cadmium (other media)	1E+01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	6.2E-08	mg/kg-day	2.5E-05	mg/kg-day	2.5E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								3E-06					3E-02

TABLE 7.38.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
		Exposure Point Total								5E-06					7E-02					
	Exposure Medium Total									N/A					N/A					
Medium Total										N/A					N/A					
					Total of Receptor Risks Across All Media					N/A					Total of Receptor Hazards Across All Media					N/A

TABLE 7.38.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.6E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.4E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.1E-10	1.5E-07	mg/kg-day	2.0E-02	mg/kg-day	7.7E-06
				Carbazole	2E-01	mg/kg	6.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.2E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	7.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.5E-08	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	9.6E-09	mg/kg-day	4.0E-03	mg/kg-day	2.4E-06
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-08	7.2E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	4.0E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	3.0E-02	mg/kg-day	4.7E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.3E-09	8.0E-09	mg/kg-day	2.0E-05	mg/kg-day	4.0E-04
				Aroclor-1260	1E-01	mg/kg	3.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.5E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.2E-04
				Dieldrin	5E-02	mg/kg	1.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.4E-08	5.3E-09	mg/kg-day	5.0E-05	mg/kg-day	1.1E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	2.0E-04	mg/kg-day	N/A	N/A	N/A	7.2E-04	mg/kg-day	1.0E+00	mg/kg-day	7.2E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.9E-07	9.2E-07	mg/kg-day	3.0E-04	mg/kg-day	3.1E-03
				Cadmium (other media)	4E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	3.6E-07	mg/kg-day	1.0E-03	mg/kg-day	3.6E-04
				Chromium	9E+01	mg/kg	2.7E-06	mg/kg-day	N/A	N/A	N/A	9.5E-06	mg/kg-day	3.0E-03	mg/kg-day	3.2E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	4.0E-02	mg/kg-day	3.0E-04
				Iron	1E+04	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	1.5E-03	mg/kg-day	7.0E-01	mg/kg-day	2.2E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	1.0E-05	mg/kg-day	N/A	N/A	N/A	3.6E-05	mg/kg-day	7.0E-02	mg/kg-day	5.2E-04
				Mercury (other media)	3E-01	mg/kg	9.6E-09	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	1.0E-04	mg/kg-day	3.4E-04
				Thallium	1E+00	mg/kg	2.8E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	8.0E-05	mg/kg-day	1.2E-03
				Vanadium	2E+01	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	7.0E-03	mg/kg-day	3.1E-04
				Zinc	1E+02	mg/kg	4.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	3.0E-01	mg/kg-day	5.0E-05
				Exp. Route Total										8E-07		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.9E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.3E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.7E-09	1.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	3.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.9E-10	1.2E-07	mg/kg-day	2.0E-02	mg/kg-day	6.1E-06
				Carbazole	2E-01	mg/kg	6.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.3E-10	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	7.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.7E-08	2.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.2E-09	mg/kg-day	N/A	N/A	N/A	7.7E-09	mg/kg-day	4.0E-03	mg/kg-day	1.9E-06

TABLE 7.38.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-08	7.5E-08	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	1E+00	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	3.0E-02	mg/kg-day	4.9E-06			
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1254	8E-02	mg/kg	2.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.5E-09	8.9E-09	mg/kg-day	2.0E-05	mg/kg-day	4.5E-04			
				Aroclor-1260	1E-01	mg/kg	4.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	4.0E-09	1.4E-08	mg/kg-day	2.0E-05	mg/kg-day	6.9E-04			
				Dieldrin	5E-02	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.9E-08	4.3E-09	mg/kg-day	5.0E-05	mg/kg-day	8.5E-05			
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Aluminum	7E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	9E+00	mg/kg	6.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.4E-08	2.2E-07	mg/kg-day	3.0E-04	mg/kg-day	7.3E-04			
				Cadmium (other media)	4E+00	mg/kg	8.1E-10	mg/kg-day	N/A	N/A	N/A	2.8E-09	mg/kg-day	2.5E-05	mg/kg-day	1.1E-04			
				Chromium	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A			
						Exp. Route Total							5E-07					2E-03	
						Exposure Point Total							1E-06						2E-02
					Exposure Medium Total									N/A					N/A
				Medium Total											N/A				N/A
				Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)	Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A
	Benzo(a)pyrene	8E-02	ug/L					N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A		
Benzo(b)fluoranthene	1E-01	ug/L	N/A					N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
Benzo(g,h,i)perylene	7E-02	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
Benzo(k)fluoranthene	ND	ug/L	N/A					N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
bis(2-Ethylhexyl)phthalate	5E+00	ug/L	2.4E-06					mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.3E-08	8.3E-06	mg/kg-day	2.0E-02	mg/kg-day	4.1E-04			
Chrysene	8E-02	ug/L	N/A					N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A					N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
Naphthalene	ND	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A			
Phenanthrene	9E-02	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
1,4-Dichlorobenzene	ND	ug/L	N/A					N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
Benzene	ND	ug/L	N/A					N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A			
Aroclor-1260	ND	ug/L	N/A					N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			

TABLE 7.38.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	1.3E-09	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	4.4E-10	4.4E-09	mg/kg-day	5.0E-04	mg/kg-day	8.9E-06
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	8.8E-10	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	8.0E-09	3.1E-09	mg/kg-day	1.3E-05	mg/kg-day	2.4E-04
				Aluminum	7E+02	ug/L	1.6E-06	mg/kg-day	N/A	N/A	N/A	5.5E-06	mg/kg-day	1.0E-02	mg/kg-day	5.5E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	7.7E-10	mg/kg-day	N/A	N/A	N/A	2.7E-09	mg/kg-day	2.5E-05	mg/kg-day	1.1E-04
				Chromium	3E+00	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	7.5E-05	mg/kg-day	6.5E-04
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	4.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	1.8E-04	mg/kg-day	7.8E-05
			Exp. Route Total								4E-08					2E-03
		Exposure Point Total									4E-08					2E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	7E-01	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.2E-09	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	9.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.6E-08	3.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.1E-09	3.9E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	4.5E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.3E-10	1.6E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	8.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.2E-09	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	1E-01	mg/kg	1.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.8E-11	6.6E-09	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.8E-09	3.7E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.0E-09	mg/kg-day	N/A	N/A	N/A	3.7E-09	mg/kg-day	4.0E-03	mg/kg-day	9.2E-07
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	4.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.0E-09	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	3.0E-02	mg/kg-day	1.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	3.2E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.2E-10	1.1E-09	mg/kg-day	2.0E-05	mg/kg-day	5.6E-05
				Aroclor-1260	2E-01	mg/kg	2.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.7E-09	9.5E-09	mg/kg-day	2.0E-05	mg/kg-day	4.7E-04
				Dieldrin	3E-02	mg/kg	3.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.1E-09	1.3E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05
				Aluminum	6E+03	mg/kg	8.6E-05	mg/kg-day	N/A	N/A	N/A	3.0E-04	mg/kg-day	1.0E+00	mg/kg-day	3.0E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A

TABLE 7.38.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Arsenic	6E+00	mg/kg	8.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	2.8E-07	mg/kg-day	3.0E-04	mg/kg-day	9.4E-04
				Cadmium (other media)	5E+00	mg/kg	7.9E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-03	mg/kg-day	2.8E-04
				Chromium	7E+01	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-06	mg/kg-day	3.0E-03	mg/kg-day	1.2E-03
				Cobalt	6E+00	mg/kg	8.7E-08	mg/kg-day	N/A	N/A	N/A	3.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.0E-03
				Copper	9E+01	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	4.0E-02	mg/kg-day	1.1E-04
				Iron	1E+04	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	5.3E-04	mg/kg-day	7.0E-01	mg/kg-day	7.6E-04
				Lead												
				Manganese (other media)	4E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.8E-04
				Mercury (other media)	2E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	1.0E-04	mg/kg-day	1.1E-04
				Thallium	4E-01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04
				Vanadium	1E+01	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	7.0E-03	mg/kg-day	1.0E-04
			Exp. Route Total								2E-07					6E-03
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-09	8.9E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	3.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.1E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.4E-05
				Carbazole	1E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.5E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	4.6E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.0E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	5.1E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	3.0E-02	mg/kg-day	6.0E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	2.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.0E-09	6.9E-09	mg/kg-day	2.0E-05	mg/kg-day	3.4E-04
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.7E-08	5.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Dieldrin	3E-02	mg/kg	1.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.7E-08	5.9E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-07	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Cadmium (other media)	5E+00	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.5E-05	mg/kg-day	4.9E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								7E-07					5E-03

TABLE 7.38.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
		Exposure Point Total										1E-06				1E-02		
	Exposure Medium Total										N/A				N/A			
Medium Total										N/A				N/A				
							Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A

TABLE 7.39.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.7E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.3E-07	2.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-08	9.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	3.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.7E-09	3.9E-06	mg/kg-day	2.0E-02	mg/kg-day	2.0E-04
				Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.0E-10	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.8E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.6E-09	mg/kg-day	N/A	N/A	N/A	7.7E-08	mg/kg-day	4.0E-03	mg/kg-day	1.9E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	9.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	3.0E-02	mg/kg-day	6.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.3E-08	2.0E-07	mg/kg-day	2.0E-05	mg/kg-day	9.8E-03
				Aroclor-1260	4E-01	mg/kg	2.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.9E-08	2.8E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Dieldrin	1E-01	mg/kg	8.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.3E-07	9.8E-08	mg/kg-day	5.0E-05	mg/kg-day	2.0E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	7.3E-04	mg/kg-day	N/A	N/A	N/A	8.5E-03	mg/kg-day	1.0E+00	mg/kg-day	8.5E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-06	1.3E-05	mg/kg-day	3.0E-04	mg/kg-day	4.2E-02
				Cadmium (other media)	9E+00	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	1.0E-03	mg/kg-day	7.2E-03
				Chromium	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	3.0E-03	mg/kg-day	4.5E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	4.0E-02	mg/kg-day	4.7E-03
				Iron	3E+04	mg/kg	1.8E-03	mg/kg-day	N/A	N/A	N/A	2.1E-02	mg/kg-day	7.0E-01	mg/kg-day	3.0E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	6.7E-05	mg/kg-day	N/A	N/A	N/A	7.8E-04	mg/kg-day	7.0E-02	mg/kg-day	1.1E-02
				Mercury (other media)	6E-01	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	4.9E-07	mg/kg-day	1.0E-04	mg/kg-day	4.9E-03
				Thallium	2E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	8.0E-05	mg/kg-day	1.8E-02
				Vanadium	3E+01	mg/kg	2.2E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	7.0E-03	mg/kg-day	3.6E-03
				Zinc	3E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-01	mg/kg-day	7.2E-04
				Exp. Route Total											7E-06	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.2E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.5E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.1E-07	3.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	9.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.1E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	2.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.1E-09	3.4E-06	mg/kg-day	2.0E-02	mg/kg-day	1.7E-04
				Carbazole	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.9E-07	4.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.8E-09	mg/kg-day	N/A	N/A	N/A	6.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05

TABLE 7.39.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	7.1E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	2.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.1E-08	2.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Aroclor-1260	4E-01	mg/kg	3.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.0E-08	3.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Dieldrin	1E-01	mg/kg	7.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.2E-07	8.6E-08	mg/kg-day	5.0E-05	mg/kg-day	1.7E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.3E-07	3.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Cadmium (other media)	9E+00	mg/kg	5.5E-09	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								6E-06					5E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	5.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.4E-08	6.1E-05	mg/kg-day	2.0E-02	mg/kg-day	3.1E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.39.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				alpha-Chlordane	4E-03	ug/L	3.1E-09	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.1E-09	3.6E-08	mg/kg-day	5.0E-04	mg/kg-day	7.2E-05	
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A	
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A	
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor Epoxide	3E-03	ug/L	1.6E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.4E-08	1.8E-08	mg/kg-day	1.3E-05	mg/kg-day	1.4E-03	
				Aluminum	2E+03	ug/L	4.9E-06	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	1.0E-02	mg/kg-day	5.7E-03	
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Cadmium (other media)	5E-01	ug/L	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.2E-04	
				Chromium	9E+00	ug/L	4.0E-08	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	7.5E-05	mg/kg-day	6.2E-03	
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	
				Vanadium	4E+00	ug/L	9.9E-09	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.8E-04	mg/kg-day	6.4E-04	
			Exp. Route Total									9E-08					2E-02
			Ingestion (swimming)														
				Benzo(a)anthracene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	1E-01	ug/L	1.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.3E-08	1.8E-08	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	2E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.7E-09	2.5E-08	mg/kg-day	N/A	N/A	N/A	
				Benzo(g,h,i)perylene	1E-01	ug/L	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	3.0E-02	mg/kg-day	4.2E-07	
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	1.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.5E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.3E-05	
				Chrysene	2E-01	ug/L	1.6E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	3.5E-11	1.9E-08	mg/kg-day	N/A	N/A	N/A	
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A	
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Phenanthrene	2E-01	ug/L	1.8E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	3.0E-02	mg/kg-day	7.1E-07	
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A	
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				4,4'-DDD	6E-03	ug/L	6.2E-11	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.5E-11	7.3E-10	mg/kg-day	N/A	N/A	N/A	
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				alpha-Chlordane	4E-03	ug/L	4.7E-11	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.7E-11	5.5E-10	mg/kg-day	5.0E-04	mg/kg-day	1.1E-06	

TABLE 7.39.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	3.1E-11	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	2.8E-10	3.6E-10	mg/kg-day	1.3E-05	mg/kg-day	2.8E-05	
				Aluminum	2E+03	ug/L	2.2E-05	mg/kg-day	N/A	N/A	N/A	2.6E-04	mg/kg-day	1.0E-02	mg/kg-day	2.6E-02	
				Arsenic	5E+00	ug/L	4.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.4E-08	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03	
				Cadmium (other media)	5E-01	ug/L	5.0E-09	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	2.5E-05	mg/kg-day	2.4E-03	
				Chromium	9E+00	ug/L	9.1E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.5E-05	mg/kg-day	1.4E-02	
				Cobalt	7E-01	ug/L	7.1E-09	mg/kg-day	N/A	N/A	N/A	8.3E-08	mg/kg-day	3.0E-04	mg/kg-day	2.8E-04	
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Iron	4E+03	ug/L	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.6E-04	mg/kg-day	7.0E-01	mg/kg-day	6.6E-04	
				Lead	9E+00	ug/L	9.2E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	N/A	N/A	N/A	
				Manganese (other media)	3E+02	ug/L	3.2E-06	mg/kg-day	N/A	N/A	N/A	3.7E-05	mg/kg-day	7.0E-02	mg/kg-day	5.3E-04	
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	
				Vanadium	4E+00	ug/L	4.5E-08	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	1.8E-04	mg/kg-day	2.9E-03	
					Exp. Route Total								1E-07				
				Exposure Point Total								2E-07					7E-02
			Exposure Medium Total								N/A					N/A	
			Medium Total								N/A					N/A	
Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	1E+00	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(k)fluoranthene	6E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.4E-09	2.4E-07	mg/kg-day	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	4.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.3E-09	5.3E-06	mg/kg-day	2.0E-02	mg/kg-day	2.6E-04	
				Carbazole	1E-01	mg/kg	4.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.1E-11	5.3E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	1E-01	mg/kg	3.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.4E-08	4.5E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenzofuran	7E-02	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	4.0E-03	mg/kg-day	7.3E-06	
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-08	1.7E-07	mg/kg-day	N/A	N/A	N/A	
				Phenanthrene	1E+00	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	3.0E-02	mg/kg-day	1.5E-05	
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				Aroclor-1254	6E-02	mg/kg	2.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.1E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03	
				Aroclor-1260	6E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.8E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02	
				Dieldrin	7E-02	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.1E-08	3.0E-08	mg/kg-day	5.0E-05	mg/kg-day	6.0E-04	
				Aluminum	9E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03	
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A	
				Arsenic	9E+00	mg/kg	3.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.7E-07	3.7E-06	mg/kg-day	3.0E-04	mg/kg-day	1.2E-02	
				Cadmium (other media)	1E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	1.0E-03	mg/kg-day	5.6E-03	
				Chromium	2E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	3.0E-03	mg/kg-day	2.2E-02	
				Cobalt	1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.5E-06	mg/kg-day	3.0E-04	mg/kg-day	1.5E-02	

TABLE 7.39.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
				Copper	2E+02	mg/kg	7.3E-06	mg/kg-day	N/A	N/A	N/A	8.5E-05	mg/kg-day	4.0E-02	mg/kg-day	2.1E-03				
				Iron	1E+04	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	5.0E-03	mg/kg-day	7.0E-01	mg/kg-day	7.1E-03				
				Lead																
				Manganese (other media)	8E+02	mg/kg	2.9E-05	mg/kg-day	N/A	N/A	N/A	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.8E-03				
				Mercury (other media)	4E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	1.0E-04	mg/kg-day	1.8E-03				
				Thallium	6E-01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	3.1E-03				
				Vanadium	2E+01	mg/kg	8.3E-07	mg/kg-day	N/A	N/A	N/A	9.7E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03				
			Exp. Route Total						2E-06									9E-02		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	6.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	7.3E-07	mg/kg-day	N/A	N/A	N/A				
				Benzo(a)pyrene	1E+00	mg/kg	5.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	6.5E-07	mg/kg-day	N/A	N/A	N/A				
				Benzo(b)fluoranthene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	7.9E-07	mg/kg-day	N/A	N/A	N/A				
				Benzo(k)fluoranthene	6E-01	mg/kg	3.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	7.2E-09	3.8E-07	mg/kg-day	N/A	N/A	N/A				
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	5.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.9E-09	6.6E-06	mg/kg-day	2.0E-02	mg/kg-day	3.3E-04				
				Carbazole	1E-01	mg/kg	7.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.5E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A				
				Dibenz(a,h)anthracene	1E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-07	7.3E-08	mg/kg-day	N/A	N/A	N/A				
				Dibenzofuran	7E-02	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	4.0E-03	mg/kg-day	9.2E-06				
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.1E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A				
				Phenanthrene	1E+00	mg/kg	6.2E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05				
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
				Aroclor-1254	6E-02	mg/kg	3.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.2E-09	4.2E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03				
				Aroclor-1260	6E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.7E-08	3.9E-07	mg/kg-day	2.0E-05	mg/kg-day	2.0E-02				
				Dieldrin	7E-02	mg/kg	3.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.2E-08	3.8E-08	mg/kg-day	5.0E-05	mg/kg-day	7.5E-04				
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A				
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A				
				Arsenic	9E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.6E-03				
				Cadmium (other media)	1E+01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.8E-03				
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A				
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A				
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
				Lead																
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A				
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A				
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A				
			Exp. Route Total						2E-06									3E-02		
			Exposure Point Total								4E-06									1E-01
			Exposure Medium Total								N/A									N/A
			Medium Total								N/A									N/A

TABLE 7.39.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Total of Receptor Risks Across All Media							N/A		Total of Receptor Hazards Across All Media							N/A	

Notes
Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.39.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.2E-07	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.4E-08	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.6E-09	2.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	2.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.7E-10	3.1E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	2E-01	mg/kg	3.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.4E-11	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.9E-08	5.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.7E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	4.0E-03	mg/kg-day	4.8E-06
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.4E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	3.0E-02	mg/kg-day	9.4E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.4E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	8.0E-04
				Aroclor-1260	1E-01	mg/kg	2.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.1E-09	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Dieldrin	5E-02	mg/kg	9.1E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-08	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	2.1E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	1.0E+00	mg/kg-day	1.4E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.4E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Cadmium (other media)	4E+00	mg/kg	6.1E-08	mg/kg-day	N/A	N/A	N/A	7.1E-07	mg/kg-day	1.0E-03	mg/kg-day	7.1E-04
				Chromium	9E+01	mg/kg	1.6E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	3.0E-03	mg/kg-day	6.3E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	4.0E-02	mg/kg-day	6.0E-04
				Iron	1E+04	mg/kg	2.6E-04	mg/kg-day	N/A	N/A	N/A	3.0E-03	mg/kg-day	7.0E-01	mg/kg-day	4.3E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	6.2E-06	mg/kg-day	N/A	N/A	N/A	7.3E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03
				Mercury (other media)	3E-01	mg/kg	5.8E-09	mg/kg-day	N/A	N/A	N/A	6.7E-08	mg/kg-day	1.0E-04	mg/kg-day	6.7E-04
				Thallium	1E+00	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	8.0E-05	mg/kg-day	2.5E-03
				Vanadium	2E+01	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	7.0E-03	mg/kg-day	6.2E-04
				Zinc	1E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	3.0E-01	mg/kg-day	1.0E-04
				Exp. Route Total										9E-07		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	5.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	6.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.7E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	9.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.1E-08	5.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.5E-10	5.4E-07	mg/kg-day	2.0E-02	mg/kg-day	2.7E-05
				Carbazole	2E-01	mg/kg	8.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	9.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.3E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.9E-09	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	4.0E-03	mg/kg-day	8.5E-06

TABLE 7.39.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.2E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.5E-07	mg/kg-day	3.0E-02	mg/kg-day	2.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	3.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.4E-09	3.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Aroclor-1260	1E-01	mg/kg	5.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.2E-09	6.1E-08	mg/kg-day	2.0E-05	mg/kg-day	3.1E-03
				Dieldrin	5E-02	mg/kg	1.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.6E-08	1.9E-08	mg/kg-day	5.0E-05	mg/kg-day	3.8E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	8.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	9.7E-07	mg/kg-day	3.0E-04	mg/kg-day	3.2E-03
				Cadmium (other media)	4E+00	mg/kg	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.0E-04
				Chromium	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					9E-03
		Exposure Point Total									3E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)	Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	1.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-08	1.5E-05	mg/kg-day	2.0E-02	mg/kg-day	7.7E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A

TABLE 7.39.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations									
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RID/RfC		Hazard Quotient					
							Value	Units	Value	Units		Value	Units	Value	Units						
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				alpha-Chlordane	2E-03	ug/L	7.0E-10	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	2.5E-10	8.2E-09	mg/kg-day	5.0E-04	mg/kg-day	1.6E-05					
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A					
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A					
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A					
				Heptachlor Epoxide	2E-03	ug/L	4.9E-10	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	4.5E-09	5.7E-09	mg/kg-day	1.3E-05	mg/kg-day	4.4E-04					
				Aluminum	7E+02	ug/L	8.7E-07	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	1.0E-02	mg/kg-day	1.0E-03					
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A					
				Cadmium (other media)	4E-01	ug/L	4.3E-10	mg/kg-day	N/A	N/A	N/A	5.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.0E-04					
				Chromium	3E+00	ug/L	7.8E-09	mg/kg-day	N/A	N/A	N/A	9.1E-08	mg/kg-day	7.5E-05	mg/kg-day	1.2E-03					
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A					
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A					
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A					
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A					
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A					
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A					
				Vanadium	2E+00	ug/L	2.2E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	1.8E-04	mg/kg-day	1.4E-04					
				Exp. Route Total												2E-08					4E-03
				Ingestion (swimming)																	
				Benzo(a)anthracene	7E-02	ug/L	3.8E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.2E-10	4.4E-09	mg/kg-day	N/A	N/A	N/A					
				Benzo(a)pyrene	8E-02	ug/L	4.3E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.4E-09	5.0E-09	mg/kg-day	N/A	N/A	N/A					
				Benzo(b)fluoranthene	1E-01	ug/L	5.4E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A					
				Benzo(g,h,i)perylene	7E-02	ug/L	3.6E-10	mg/kg-day	N/A	N/A	N/A	4.2E-09	mg/kg-day	3.0E-02	mg/kg-day	1.4E-07					
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A					
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	2.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.8E-10	3.1E-07	mg/kg-day	2.0E-02	mg/kg-day	1.6E-05					
				Chrysene	8E-02	ug/L	4.3E-10	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	9.4E-12	5.0E-09	mg/kg-day	N/A	N/A	N/A					
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	3.8E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.2E-10	4.4E-09	mg/kg-day	N/A	N/A	N/A					
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A					
			Phenanthrene	9E-02	ug/L	4.8E-10	mg/kg-day	N/A	N/A	N/A	5.6E-09	mg/kg-day	3.0E-02	mg/kg-day	1.9E-07						
			1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A						
			Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A						
			Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A						
			4,4'-DDD	4E-03	ug/L	2.1E-11	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	5.2E-12	2.5E-10	mg/kg-day	N/A	N/A	N/A						
			4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A						
			4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A						
			alpha-Chlordane	2E-03	ug/L	1.1E-11	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	3.8E-12	1.3E-10	mg/kg-day	5.0E-04	mg/kg-day	2.5E-07						

TABLE 7.39.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	9.7E-12	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	8.8E-11	1.1E-10	mg/kg-day	1.3E-05	mg/kg-day	8.7E-06	
				Aluminum	7E+02	ug/L	3.9E-06	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	1.0E-02	mg/kg-day	4.6E-03	
				Arsenic	3E+00	ug/L	1.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-08	2.1E-07	mg/kg-day	3.0E-04	mg/kg-day	7.1E-04	
				Cadmium (other media)	4E-01	ug/L	1.9E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	2.5E-05	mg/kg-day	9.0E-04	
				Chromium	3E+00	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	7.5E-05	mg/kg-day	2.8E-03	
				Cobalt	7E-01	ug/L	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	3.0E-04	mg/kg-day	1.4E-04	
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Iron	2E+03	ug/L	8.1E-06	mg/kg-day	N/A	N/A	N/A	9.4E-05	mg/kg-day	7.0E-01	mg/kg-day	1.3E-04	
				Lead	4E+00	ug/L	2.3E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	N/A	N/A	N/A	
				Manganese (other media)	2E+02	ug/L	9.0E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-02	mg/kg-day	1.5E-04	
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	
				Vanadium	2E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.8E-04	mg/kg-day	6.5E-04	
			Exp. Route Total									4E-08					1E-02
		Exposure Point Total									6E-08					1E-02	
	Exposure Medium Total									N/A					N/A		
	Medium Total									N/A					N/A		
	Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	7E-01	mg/kg	5.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-08	6.9E-08	mg/kg-day	N/A	N/A	N/A
					Benzo(a)pyrene	6E-01	mg/kg	5.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-07	6.3E-08	mg/kg-day	N/A	N/A	N/A
					Benzo(b)fluoranthene	8E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-08	7.8E-08	mg/kg-day	N/A	N/A	N/A
Benzo(k)fluoranthene					3E-01	mg/kg	2.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.9E-10	3.1E-08	mg/kg-day	N/A	N/A	N/A	
bis(2-Ethylhexyl)phthalate					6E+00	mg/kg	5.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.0E-10	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05	
Carbazole					1E-01	mg/kg	1.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.3E-11	1.3E-08	mg/kg-day	N/A	N/A	N/A	
Dibenz(a,h)anthracene					7E-02	mg/kg	6.4E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-08	7.5E-09	mg/kg-day	N/A	N/A	N/A	
Dibenzofuran					7E-02	mg/kg	6.3E-10	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06	
Indeno(1,2,3-cd)pyrene					3E-01	mg/kg	2.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.4E-09	2.9E-08	mg/kg-day	N/A	N/A	N/A	
Phenanthrene					6E-01	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	3.0E-02	mg/kg-day	2.1E-06	
Aroclor-1242					ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
Aroclor-1254					2E-02	mg/kg	1.9E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.9E-10	2.2E-09	mg/kg-day	2.0E-05	mg/kg-day	1.1E-04	
Aroclor-1260					2E-01	mg/kg	1.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.6E-09	1.9E-08	mg/kg-day	2.0E-05	mg/kg-day	9.5E-04	
Dieldrin					3E-02	mg/kg	2.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.7E-09	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05	
Aluminum					6E+03	mg/kg	5.2E-05	mg/kg-day	N/A	N/A	N/A	6.1E-04	mg/kg-day	1.0E+00	mg/kg-day	6.1E-04	
Antimony					ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A	
Arsenic					6E+00	mg/kg	4.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.3E-08	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03	
Cadmium (other media)					5E+00	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	5.6E-07	mg/kg-day	1.0E-03	mg/kg-day	5.6E-04	
Chromium					7E+01	mg/kg	6.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-06	mg/kg-day	3.0E-03	mg/kg-day	2.3E-03	
Cobalt					6E+00	mg/kg	5.2E-08	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.0E-03	

TABLE 7.39.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Copper	9E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	4.0E-02	mg/kg-day	2.2E-04
				Iron	1E+04	mg/kg	9.1E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.5E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	7.0E-02	mg/kg-day	5.7E-04
				Mercury (other media)	2E-01	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	1.0E-04	mg/kg-day	2.2E-04
				Thallium	4E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	8.0E-05	mg/kg-day	5.2E-04
				Vanadium	1E+01	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	7.0E-03	mg/kg-day	2.0E-04
				Exp. Route Total							2E-07					1E-02
				Dermal												
				Benzo(a)anthracene	7E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.2E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.7E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	8.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05
				Carbazole	1E-01	mg/kg	3.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.3E-11	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	2.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.6E-08	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.6E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	8.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	6.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04
				Aroclor-1260	2E-01	mg/kg	5.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.7E-09	6.6E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03
				Dieldrin	3E-02	mg/kg	5.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.2E-09	6.7E-09	mg/kg-day	5.0E-05	mg/kg-day	1.3E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	3.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.5E-08	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Exp. Route Total							6E-07					6E-03
				Exposure Point Total							9E-07					2E-02
				Exposure Medium Total							N/A					N/A
				Medium Total							N/A					N/A

TABLE 7.39.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Total of Receptor Risks Across All Media							N/A		Total of Receptor Hazards Across All Media							N/A	

Notes
Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.40.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.7E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-06	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.3E-07	2.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-08	9.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	3.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.7E-09	3.9E-06	mg/kg-day	2.0E-02	mg/kg-day	2.0E-04
				Carbazole	2E-01	mg/kg	1.5E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.0E-10	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	3.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.8E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.6E-09	mg/kg-day	N/A	N/A	N/A	7.7E-08	mg/kg-day	4.0E-03	mg/kg-day	1.9E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	9.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	3.0E-02	mg/kg-day	6.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.3E-08	2.0E-07	mg/kg-day	2.0E-05	mg/kg-day	9.8E-03
				Aroclor-1260	4E-01	mg/kg	2.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.9E-08	2.8E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Dieldrin	1E-01	mg/kg	8.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.3E-07	9.8E-08	mg/kg-day	5.0E-05	mg/kg-day	2.0E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	7.3E-04	mg/kg-day	N/A	N/A	N/A	8.5E-03	mg/kg-day	1.0E+00	mg/kg-day	8.5E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-06	1.3E-05	mg/kg-day	3.0E-04	mg/kg-day	4.2E-02
				Cadmium (other media)	9E+00	mg/kg	6.2E-07	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	1.0E-03	mg/kg-day	7.2E-03
				Chromium	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	1.4E-04	mg/kg-day	3.0E-03	mg/kg-day	4.5E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	4.0E-02	mg/kg-day	4.7E-03
				Iron	3E+04	mg/kg	1.8E-03	mg/kg-day	N/A	N/A	N/A	2.1E-02	mg/kg-day	7.0E-01	mg/kg-day	3.0E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	6.7E-05	mg/kg-day	N/A	N/A	N/A	7.8E-04	mg/kg-day	7.0E-02	mg/kg-day	1.1E-02
				Mercury (other media)	6E-01	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	4.9E-07	mg/kg-day	1.0E-04	mg/kg-day	4.9E-03
				Thallium	2E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	8.0E-05	mg/kg-day	1.8E-02
				Vanadium	3E+01	mg/kg	2.2E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	7.0E-03	mg/kg-day	3.6E-03
				Zinc	3E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-01	mg/kg-day	7.2E-04
				Exp. Route Total											7E-06	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.2E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.5E-06	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	4E+00	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.1E-07	3.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	9.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.1E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	mg/kg	2.9E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.1E-09	3.4E-06	mg/kg-day	2.0E-02	mg/kg-day	1.7E-04
				Carbazole	2E-01	mg/kg	1.7E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.4E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.9E-07	4.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.8E-09	mg/kg-day	N/A	N/A	N/A	6.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05

TABLE 7.40.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.8E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	7.1E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-01	mg/kg	2.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.1E-08	2.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Aroclor-1260	4E-01	mg/kg	3.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.0E-08	3.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Dieldrin	1E-01	mg/kg	7.4E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.2E-07	8.6E-08	mg/kg-day	5.0E-05	mg/kg-day	1.7E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	2E+01	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.3E-07	3.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Cadmium (other media)	9E+00	mg/kg	5.5E-09	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	2.5E-05	mg/kg-day	2.6E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								6E-06					5E-02
		Exposure Point Total									1E-05					2E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	3.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.5E-08	3.8E-05	mg/kg-day	2.0E-02	mg/kg-day	1.9E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.40.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	1.9E-09	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	6.7E-10	2.2E-08	mg/kg-day	5.0E-04	mg/kg-day	4.5E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	9.7E-10	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	8.8E-09	1.1E-08	mg/kg-day	1.3E-05	mg/kg-day	8.7E-04
				Aluminum	2E+03	ug/L	3.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-05	mg/kg-day	1.0E-02	mg/kg-day	3.5E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	9E+00	ug/L	2.5E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	7.5E-05	mg/kg-day	3.8E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								5E-08					1E-02
		Exposure Point Total									5E-08					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.4E-09	2.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	4.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.3E-09	5.3E-06	mg/kg-day	2.0E-02	mg/kg-day	2.6E-04
				Carbazole	1E-01	mg/kg	4.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.1E-11	5.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	3.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.4E-08	4.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	4.0E-03	mg/kg-day	7.3E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-08	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	3.0E-02	mg/kg-day	1.5E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	2.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.1E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Aroclor-1260	6E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.8E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	7E-02	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.1E-08	3.0E-08	mg/kg-day	5.0E-05	mg/kg-day	6.0E-04
				Aluminum	9E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A

TABLE 7.40.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Arsenic	9E+00	mg/kg	3.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.7E-07	3.7E-06	mg/kg-day	3.0E-04	mg/kg-day	1.2E-02
				Cadmium (other media)	1E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	1.0E-03	mg/kg-day	5.6E-03
				Chromium	2E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	3.0E-03	mg/kg-day	2.2E-02
				Cobalt	1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.5E-06	mg/kg-day	3.0E-04	mg/kg-day	1.5E-02
				Copper	2E+02	mg/kg	7.3E-06	mg/kg-day	N/A	N/A	N/A	8.5E-05	mg/kg-day	4.0E-02	mg/kg-day	2.1E-03
				Iron	1E+04	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	5.0E-03	mg/kg-day	7.0E-01	mg/kg-day	7.1E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	2.9E-05	mg/kg-day	N/A	N/A	N/A	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.8E-03
				Mercury (other media)	4E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	1.0E-04	mg/kg-day	1.8E-03
				Thallium	6E-01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	3.1E-03
				Vanadium	2E+01	mg/kg	8.3E-07	mg/kg-day	N/A	N/A	N/A	9.7E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03
			Exp. Route Total								2E-06					9E-02
			Dermal													
				Benzo(a)anthracene	1E+00	mg/kg	6.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	7.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	5.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	6.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	7.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	3.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	7.2E-09	3.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	5.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.9E-09	6.6E-06	mg/kg-day	2.0E-02	mg/kg-day	3.3E-04
				Carbazole	1E-01	mg/kg	7.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.5E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-07	7.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	4.0E-03	mg/kg-day	9.2E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.1E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	6.2E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	3.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.2E-09	4.2E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03
				Aroclor-1260	6E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.7E-08	3.9E-07	mg/kg-day	2.0E-05	mg/kg-day	2.0E-02
				Dieldrin	7E-02	mg/kg	3.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.2E-08	3.8E-08	mg/kg-day	5.0E-05	mg/kg-day	7.5E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.6E-03
				Cadmium (other media)	1E+01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.8E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								2E-06					3E-02

TABLE 7.40.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
		Exposure Point Total										4E-06						1E-01
	Exposure Medium Total										N/A						N/A	
Medium Total										N/A						N/A		
Total of Receptor Risks Across All Media										N/A	Total of Receptor Hazards Across All Media					N/A		

TABLE 7.40.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.2E-07	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.4E-08	4.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.6E-09	2.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	2.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.7E-10	3.1E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	2E-01	mg/kg	3.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.4E-11	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.9E-08	5.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.7E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	4.0E-03	mg/kg-day	4.8E-06
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-08	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.4E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	3.0E-02	mg/kg-day	9.4E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	1.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.4E-09	1.6E-08	mg/kg-day	2.0E-05	mg/kg-day	8.0E-04
				Aroclor-1260	1E-01	mg/kg	2.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.1E-09	2.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03
				Dieldrin	5E-02	mg/kg	9.1E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-08	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	2.1E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	1.0E+00	mg/kg-day	1.4E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.4E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Cadmium (other media)	4E+00	mg/kg	6.1E-08	mg/kg-day	N/A	N/A	N/A	7.1E-07	mg/kg-day	1.0E-03	mg/kg-day	7.1E-04
				Chromium	9E+01	mg/kg	1.6E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	3.0E-03	mg/kg-day	6.3E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	2.0E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	4.0E-02	mg/kg-day	6.0E-04
				Iron	1E+04	mg/kg	2.6E-04	mg/kg-day	N/A	N/A	N/A	3.0E-03	mg/kg-day	7.0E-01	mg/kg-day	4.3E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	6.2E-06	mg/kg-day	N/A	N/A	N/A	7.3E-05	mg/kg-day	7.0E-02	mg/kg-day	1.0E-03
				Mercury (other media)	3E-01	mg/kg	5.8E-09	mg/kg-day	N/A	N/A	N/A	6.7E-08	mg/kg-day	1.0E-04	mg/kg-day	6.7E-04
				Thallium	1E+00	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	8.0E-05	mg/kg-day	2.5E-03
				Vanadium	2E+01	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	7.0E-03	mg/kg-day	6.2E-04
				Zinc	1E+02	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	3.0E-01	mg/kg-day	1.0E-04
				Exp. Route Total										9E-07		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	5.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	6.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.7E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	9.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.1E-08	5.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	4.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.5E-10	5.4E-07	mg/kg-day	2.0E-02	mg/kg-day	2.7E-05
				Carbazole	2E-01	mg/kg	8.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.7E-10	9.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	3E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.3E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.9E-09	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	4.0E-03	mg/kg-day	8.5E-06

TABLE 7.40.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	7E-01	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.2E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.5E-07	mg/kg-day	3.0E-02	mg/kg-day	2.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	8E-02	mg/kg	3.4E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.4E-09	3.9E-08	mg/kg-day	2.0E-05	mg/kg-day	2.0E-03
				Aroclor-1260	1E-01	mg/kg	5.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.2E-09	6.1E-08	mg/kg-day	2.0E-05	mg/kg-day	3.1E-03
				Dieldrin	5E-02	mg/kg	1.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.6E-08	1.9E-08	mg/kg-day	5.0E-05	mg/kg-day	3.8E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	7E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	8.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	9.7E-07	mg/kg-day	3.0E-04	mg/kg-day	3.2E-03
				Cadmium (other media)	4E+00	mg/kg	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.0E-04
				Chromium	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	3E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					9E-03
		Exposure Point Total									3E-06					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)	Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	8.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.1E-08	9.4E-06	mg/kg-day	2.0E-02	mg/kg-day	4.7E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A

TABLE 7.40.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	4.3E-10	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.5E-10	5.1E-09	mg/kg-day	5.0E-04	mg/kg-day	1.0E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	3.0E-10	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	2.7E-09	3.5E-09	mg/kg-day	1.3E-05	mg/kg-day	2.7E-04
				Aluminum	7E+02	ug/L	5.3E-07	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	1.0E-02	mg/kg-day	6.2E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	3E+00	ug/L	4.8E-09	mg/kg-day	N/A	N/A	N/A	5.6E-08	mg/kg-day	7.5E-05	mg/kg-day	7.5E-04
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								1E-08					2E-03
		Exposure Point Total									1E-08					2E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	7E-01	mg/kg	5.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-08	6.9E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	5.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-07	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-08	7.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	2.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.9E-10	3.1E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	5.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.0E-10	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Carbazole	1E-01	mg/kg	1.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.3E-11	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.4E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-08	7.5E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	6.3E-10	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.4E-09	2.9E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	3.0E-02	mg/kg-day	2.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	1.9E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.9E-10	2.2E-09	mg/kg-day	2.0E-05	mg/kg-day	1.1E-04
				Aroclor-1260	2E-01	mg/kg	1.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.6E-09	1.9E-08	mg/kg-day	2.0E-05	mg/kg-day	9.5E-04
				Dieldrin	3E-02	mg/kg	2.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.7E-09	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05
				Aluminum	6E+03	mg/kg	5.2E-05	mg/kg-day	N/A	N/A	N/A	6.1E-04	mg/kg-day	1.0E+00	mg/kg-day	6.1E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A

TABLE 7.40.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Arsenic	6E+00	mg/kg	4.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.3E-08	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Cadmium (other media)	5E+00	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	5.6E-07	mg/kg-day	1.0E-03	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	6.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-06	mg/kg-day	3.0E-03	mg/kg-day	2.3E-03
				Cobalt	6E+00	mg/kg	5.2E-08	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.0E-03
				Copper	9E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	4.0E-02	mg/kg-day	2.2E-04
				Iron	1E+04	mg/kg	9.1E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.5E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	7.0E-02	mg/kg-day	5.7E-04
				Mercury (other media)	2E-01	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	1.0E-04	mg/kg-day	2.2E-04
				Thallium	4E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	8.0E-05	mg/kg-day	5.2E-04
				Vanadium	1E+01	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	7.0E-03	mg/kg-day	2.0E-04
			Exp. Route Total								2E-07					1E-02
			Dermal	Benzo(a)anthracene	7E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.2E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.7E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	8.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05
				Carbazole	1E-01	mg/kg	3.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.3E-11	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	2.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.6E-08	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.6E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	8.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	6.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04
				Aroclor-1260	2E-01	mg/kg	5.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.7E-09	6.6E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03
				Dieldrin	3E-02	mg/kg	5.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.2E-09	6.7E-09	mg/kg-day	5.0E-05	mg/kg-day	1.3E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	3.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.5E-08	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								6E-07					6E-03

TABLE 7.40.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
		Exposure Point Total									9E-07					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A

Notes
 Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.41.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	5.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	7.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	9.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.8E-09	2.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.7E-09	3.5E-07	mg/kg-day	2.0E-02	mg/kg-day	1.7E-05
				Carbazole	1E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.1E-10	6.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-07	7.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	3.0E-02	mg/kg-day	1.6E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	7.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.5E-07	2.1E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	6.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.0E-06	1.8E-07	mg/kg-day	5.0E-05	mg/kg-day	3.7E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.1E-03	mg/kg-day	N/A	N/A	N/A	3.1E-03	mg/kg-day	1.0E+00	mg/kg-day	3.1E-03
				Antimony	1E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	4.6E-07	mg/kg-day	4.0E-04	mg/kg-day	1.1E-03
				Arsenic	1E+01	mg/kg	1.6E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.5E-06	4.8E-06	mg/kg-day	3.0E-04	mg/kg-day	1.6E-02
				Cadmium (other media)	4E+00	mg/kg	5.4E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03
				Chromium	2E+02	mg/kg	3.1E-05	mg/kg-day	N/A	N/A	N/A	9.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.0E-02
				Cobalt	4E+00	mg/kg	5.9E-07	mg/kg-day	N/A	N/A	N/A	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.7E-03
				Copper	1E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	5.4E-05	mg/kg-day	4.0E-02	mg/kg-day	1.4E-03
				Iron	2E+04	mg/kg	2.2E-03	mg/kg-day	N/A	N/A	N/A	6.5E-03	mg/kg-day	7.0E-01	mg/kg-day	9.2E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	6.5E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	7.0E-02	mg/kg-day	2.7E-03
				Mercury (other media)	8E-01	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	1.0E-04	mg/kg-day	3.2E-03
				Thallium	2E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	7.3E-08	mg/kg-day	8.0E-05	mg/kg-day	9.1E-04
				Vanadium	3E+01	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	7.0E-03	mg/kg-day	1.5E-03
				Zinc	1E+02	mg/kg	1.7E-05	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	3.0E-01	mg/kg-day	1.6E-04
				Exp. Route Total										5E-06		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	8.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.5E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.4E-07	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.3E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	4.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.5E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	4.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.6E-10	1.4E-07	mg/kg-day	2.0E-02	mg/kg-day	6.9E-06
				Carbazole	1E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.7E-08	3.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	9.1E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	4.0E-03	mg/kg-day	6.6E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.4E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.41.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
				Phenanthrene	1E+00	mg/kg	8.4E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-02	mg/kg-day	8.2E-06				
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
				Aroclor-1260	5E-01	mg/kg	4.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.1E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	5.9E-03				
				Dieldrin	5E-01	mg/kg	2.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.0E-07	7.3E-08	mg/kg-day	5.0E-05	mg/kg-day	1.5E-03				
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A				
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A				
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A				
				Arsenic	1E+01	mg/kg	2.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.9E-07	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03				
				Cadmium (other media)	4E+00	mg/kg	2.1E-09	mg/kg-day	N/A	N/A	N/A	6.2E-09	mg/kg-day	2.5E-05	mg/kg-day	2.5E-04				
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A				
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A				
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
				Lead																
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A				
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A				
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A				
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A				
				Exp. Route Total											2E-06				1E-02	
				Exposure Point Total											7E-06				1E-01	
				Exposure Medium Total											N/A				N/A	
				Medium Total											N/A				N/A	
				Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
								Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
					Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A				
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A				
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	1.7E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.4E-07	5.0E-05	mg/kg-day	2.0E-02	mg/kg-day	2.5E-03				
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A				
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A				
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A				
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A				
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				

TABLE 7.41.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	1.0E-08	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	3.6E-09	3.0E-08	mg/kg-day	5.0E-04	mg/kg-day	5.9E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	5.2E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	4.7E-08	1.5E-08	mg/kg-day	1.3E-05	mg/kg-day	1.2E-03
				Aluminum	2E+03	ug/L	1.6E-05	mg/kg-day	N/A	N/A	N/A	4.7E-05	mg/kg-day	1.0E-02	mg/kg-day	4.7E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	3.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	2.5E-05	mg/kg-day	4.2E-04
				Chromium	9E+00	ug/L	1.3E-07	mg/kg-day	N/A	N/A	N/A	3.8E-07	mg/kg-day	7.5E-05	mg/kg-day	5.1E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	2.3E-06	mg/kg-day	N/A	N/A	N/A	6.7E-06	mg/kg-day	7.0E-02	mg/kg-day	9.5E-05
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	3.2E-08	mg/kg-day	N/A	N/A	N/A	9.5E-08	mg/kg-day	1.8E-04	mg/kg-day	5.2E-04
			Exp. Route Total								3E-07					1E-02
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	3.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.2E-08	8.8E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	4.3E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	2.1E-09	mg/kg-day	N/A	N/A	N/A	6.3E-09	mg/kg-day	3.0E-02	mg/kg-day	2.1E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	2.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.0E-09	6.3E-07	mg/kg-day	2.0E-02	mg/kg-day	3.1E-05
				Chrysene	2E-01	ug/L	3.2E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	2.4E-11	9.4E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	3.6E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	3.0E-02	mg/kg-day	3.5E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	1.2E-10	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	3.0E-11	3.6E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	9.4E-11	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	3.3E-11	2.8E-10	mg/kg-day	5.0E-04	mg/kg-day	5.5E-07
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.41.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	6.2E-11	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	5.7E-10	1.8E-10	mg/kg-day	1.3E-05	mg/kg-day	1.4E-05
				Aluminum	2E+03	ug/L	4.4E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	1.0E-02	mg/kg-day	1.3E-02
				Arsenic	5E+00	ug/L	9.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-07	2.9E-07	mg/kg-day	3.0E-04	mg/kg-day	9.6E-04
				Cadmium (other media)	5E-01	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	2.5E-05	mg/kg-day	1.2E-03
				Chromium	9E+00	ug/L	1.8E-07	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	7.5E-05	mg/kg-day	7.1E-03
				Cobalt	7E-01	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	3.0E-04	mg/kg-day	1.4E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	7.9E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	7.0E-01	mg/kg-day	3.3E-04
				Lead	9E+00	ug/L	1.8E-07	mg/kg-day	N/A	N/A	N/A	5.4E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	6.3E-06	mg/kg-day	N/A	N/A	N/A	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	2.6E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	9.0E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	1.8E-04	mg/kg-day	1.4E-03
			Exp. Route Total								2E-07					2E-02
		Exposure Point Total									5E-07					4E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	8.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.1E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	4.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.0E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	9.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.3E-08	2.6E-06	mg/kg-day	2.0E-02	mg/kg-day	1.3E-04
				Carbazole	1E-01	mg/kg	9.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.8E-10	2.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	7.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.6E-08	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.7E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	3.0E-02	mg/kg-day	7.5E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	4.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.2E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.0E-04
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.7E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.6E-03
				Dieldrin	7E-02	mg/kg	5.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.3E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	6.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.4E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03
				Cadmium (other media)	1E+01	mg/kg	9.6E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	1.0E-03	mg/kg-day	2.8E-03
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02
				Cobalt	1E+01	mg/kg	7.7E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.5E-03
				Copper	2E+02	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	4.3E-05	mg/kg-day	4.0E-02	mg/kg-day	1.1E-03

TABLE 7.41.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
				Iron	1E+04	mg/kg	8.5E-04	mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	7.0E-01	mg/kg-day	3.5E-03		
				Lead														
				Manganese (other media)	8E+02	mg/kg	5.8E-05	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	7.0E-02	mg/kg-day	2.4E-03		
				Mercury (other media)	4E-01	mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	8.8E-08	mg/kg-day	1.0E-04	mg/kg-day	8.8E-04		
				Thallium	6E-01	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03		
			Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	7.0E-03	mg/kg-day	6.9E-04			
			Exp. Route Total						2E-06					5E-02				
			Dermal															
			Benzo(a)anthracene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	6.4E-07	mg/kg-day	N/A	N/A	N/A			
			Benzo(a)pyrene	1E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-06	5.7E-07	mg/kg-day	N/A	N/A	N/A			
			Benzo(b)fluoranthene	1E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A			
			Benzo(k)fluoranthene	6E-01	mg/kg	1.2E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	8.4E-09	3.4E-07	mg/kg-day	N/A	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	2.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.8E-08	5.8E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04			
			Carbazole	1E-01	mg/kg	2.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.2E-10	7.5E-08	mg/kg-day	N/A	N/A	N/A			
			Dibenz(a,h)anthracene	1E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	6.4E-08	mg/kg-day	N/A	N/A	N/A			
			Dibenzofuran	7E-02	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	8.0E-06			
			Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A			
			Phenanthrene	1E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.1E-05			
			Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
			Aroclor-1254	6E-02	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.5E-08	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03			
			Aroclor-1260	6E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.4E-07	3.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02			
			Dieldrin	7E-02	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.8E-07	3.3E-08	mg/kg-day	5.0E-05	mg/kg-day	6.6E-04			
			Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
			Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
			Arsenic	9E+00	mg/kg	4.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.2E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	4.0E-03			
			Cadmium (other media)	1E+01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	6.2E-08	mg/kg-day	2.5E-05	mg/kg-day	2.5E-03			
			Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
			Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
			Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
			Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
			Lead															
			Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
			Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
			Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
			Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
			Exp. Route Total						3E-06					3E-02				
			Exposure Point Total						5E-06					7E-02				
			Exposure Medium Total						N/A					N/A				
			Medium Total						N/A					N/A				
			Total of Receptor Risks Across All Media															
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media					N/A	

TABLE 7.41.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.6E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.7E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.4E-09	6.8E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.5E-10	8.7E-08	mg/kg-day	2.0E-02	mg/kg-day	4.3E-06
				Carbazole	1E-01	mg/kg	4.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.5E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-08	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	4.7E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	4.0E-03	mg/kg-day	4.1E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.0E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.5E-08	5.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.6E-03
				Dieldrin	5E-01	mg/kg	1.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.1E-07	4.6E-08	mg/kg-day	5.0E-05	mg/kg-day	9.2E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	7.9E-04	mg/kg-day	1.0E+00	mg/kg-day	7.9E-04
				Antimony	1E+00	mg/kg	3.3E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.8E-04
				Arsenic	1E+01	mg/kg	3.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.1E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	4.0E-03
				Cadmium (other media)	4E+00	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	1.0E-03	mg/kg-day	3.9E-04
				Chromium	2E+02	mg/kg	6.5E-06	mg/kg-day	N/A	N/A	N/A	2.3E-05	mg/kg-day	3.0E-03	mg/kg-day	7.6E-03
				Cobalt	4E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Copper	1E+02	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	4.0E-02	mg/kg-day	3.4E-04
				Iron	2E+04	mg/kg	4.6E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	7.0E-01	mg/kg-day	2.3E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	7.0E-02	mg/kg-day	6.8E-04
				Mercury (other media)	8E-01	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	8.0E-08	mg/kg-day	1.0E-04	mg/kg-day	8.0E-04
				Thallium	2E-01	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	8.0E-05	mg/kg-day	2.3E-04
				Vanadium	3E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	7.0E-03	mg/kg-day	3.7E-04
				Zinc	1E+02	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	3.0E-01	mg/kg-day	4.0E-05
				Exp. Route Total										1E-06		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.7E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.9E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.5E-09	7.0E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.8E-10	6.9E-08	mg/kg-day	2.0E-02	mg/kg-day	3.5E-06
				Carbazole	1E-01	mg/kg	4.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.9E-11	1.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.0E-08	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	4.0E-03	mg/kg-day	3.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.41.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RID/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Phenanthrene	1E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.1E-06			
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1260	5E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.7E-08	5.9E-08	mg/kg-day	2.0E-05	mg/kg-day	3.0E-03			
				Dieldrin	5E-01	mg/kg	1.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.7E-07	3.7E-08	mg/kg-day	5.0E-05	mg/kg-day	7.3E-04			
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	1E+01	mg/kg	8.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	2.9E-07	mg/kg-day	3.0E-04	mg/kg-day	9.6E-04			
				Cadmium (other media)	4E+00	mg/kg	8.9E-10	mg/kg-day	N/A	N/A	N/A	3.1E-09	mg/kg-day	2.5E-05	mg/kg-day	1.2E-04			
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A			
				Exp. Route Total										7E-07					5E-03
				Exposure Point Total										2E-06					3E-02
				Exposure Medium Total										N/A					N/A
				Medium Total										N/A					N/A
				Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)	Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A
	Benzo(a)pyrene	8E-02	ug/L					N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A		
Benzo(b)fluoranthene	1E-01	ug/L	N/A					N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
Benzo(g,h,i)perylene	7E-02	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
Benzo(k)fluoranthene	ND	ug/L	N/A					N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
bis(2-Ethylhexyl)phthalate	5E+00	ug/L	3.6E-06					mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.0E-08	1.3E-05	mg/kg-day	2.0E-02	mg/kg-day	6.3E-04			
Chrysene	8E-02	ug/L	N/A					N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A					N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
Naphthalene	ND	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A			
Phenanthrene	9E-02	ug/L	N/A					N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
1,4-Dichlorobenzene	ND	ug/L	N/A					N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
Benzene	ND	ug/L	N/A					N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A			
Aroclor-1260	ND	ug/L	N/A					N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			

TABLE 7.41.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	1.9E-09	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	6.7E-10	6.7E-09	mg/kg-day	5.0E-04	mg/kg-day	1.3E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	1.3E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.2E-08	4.7E-09	mg/kg-day	1.3E-05	mg/kg-day	3.6E-04
				Aluminum	7E+02	ug/L	2.4E-06	mg/kg-day	N/A	N/A	N/A	8.3E-06	mg/kg-day	1.0E-02	mg/kg-day	8.3E-04
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	1.2E-09	mg/kg-day	N/A	N/A	N/A	4.1E-09	mg/kg-day	2.5E-05	mg/kg-day	1.6E-04
				Chromium	3E+00	ug/L	2.1E-08	mg/kg-day	N/A	N/A	N/A	7.4E-08	mg/kg-day	7.5E-05	mg/kg-day	9.9E-04
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	5.4E-07	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	7.0E-02	mg/kg-day	2.7E-05
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	6.1E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	1.8E-04	mg/kg-day	1.2E-04
			Exp. Route Total								6E-08					3E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	7E-02	ug/L	6.3E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.6E-10	2.2E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	7.2E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.2E-09	2.5E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	8.9E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.5E-10	3.1E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	6.0E-10	mg/kg-day	N/A	N/A	N/A	2.1E-09	mg/kg-day	3.0E-02	mg/kg-day	7.0E-08
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	4.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.3E-10	1.6E-07	mg/kg-day	2.0E-02	mg/kg-day	7.8E-06
				Chrysene	8E-02	ug/L	7.2E-10	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	5.2E-12	2.5E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	6.3E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.6E-10	2.2E-09	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	8.1E-10	mg/kg-day	N/A	N/A	N/A	2.8E-09	mg/kg-day	3.0E-02	mg/kg-day	9.4E-08
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	3.6E-11	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	8.6E-12	1.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	1.8E-11	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	6.3E-12	6.3E-11	mg/kg-day	5.0E-04	mg/kg-day	1.3E-07
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.41.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	1.6E-11	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.5E-10	5.6E-11	mg/kg-day	1.3E-05	mg/kg-day	4.3E-06
				Aluminum	7E+02	ug/L	6.6E-06	mg/kg-day	N/A	N/A	N/A	2.3E-05	mg/kg-day	1.0E-02	mg/kg-day	2.3E-03
				Arsenic	3E+00	ug/L	3.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.6E-08	1.1E-07	mg/kg-day	3.0E-04	mg/kg-day	3.5E-04
				Cadmium (other media)	4E-01	ug/L	3.2E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	2.5E-05	mg/kg-day	4.5E-04
				Chromium	3E+00	ug/L	3.0E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	7.5E-05	mg/kg-day	1.4E-03
				Cobalt	7E-01	ug/L	5.9E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	3.0E-04	mg/kg-day	6.9E-05
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	1.3E-05	mg/kg-day	N/A	N/A	N/A	4.7E-05	mg/kg-day	7.0E-01	mg/kg-day	6.7E-05
				Lead	4E+00	ug/L	3.8E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	1.5E-06	mg/kg-day	N/A	N/A	N/A	5.3E-06	mg/kg-day	7.0E-02	mg/kg-day	7.5E-05
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	1.7E-08	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	1.8E-04	mg/kg-day	3.3E-04
			Exp. Route Total								5E-08					5E-03
		Exposure Point Total									1E-07					8E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	7E-01	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.2E-09	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	9.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.6E-08	3.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.1E-09	3.9E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	4.5E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.3E-10	1.6E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	8.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.2E-09	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	1E-01	mg/kg	1.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.8E-11	6.6E-09	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.8E-09	3.7E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.0E-09	mg/kg-day	N/A	N/A	N/A	3.7E-09	mg/kg-day	4.0E-03	mg/kg-day	9.2E-07
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	4.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.0E-09	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	3.0E-02	mg/kg-day	1.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	3.2E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.2E-10	1.1E-09	mg/kg-day	2.0E-05	mg/kg-day	5.6E-05
				Aroclor-1260	2E-01	mg/kg	2.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.7E-09	9.5E-09	mg/kg-day	2.0E-05	mg/kg-day	4.7E-04
				Dieldrin	3E-02	mg/kg	3.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.1E-09	1.3E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05
				Aluminum	6E+03	mg/kg	8.6E-05	mg/kg-day	N/A	N/A	N/A	3.0E-04	mg/kg-day	1.0E+00	mg/kg-day	3.0E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	8.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	2.8E-07	mg/kg-day	3.0E-04	mg/kg-day	9.4E-04
				Cadmium (other media)	5E+00	mg/kg	7.9E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-03	mg/kg-day	2.8E-04
				Chromium	7E+01	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-06	mg/kg-day	3.0E-03	mg/kg-day	1.2E-03
				Cobalt	6E+00	mg/kg	8.7E-08	mg/kg-day	N/A	N/A	N/A	3.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.0E-03
				Copper	9E+01	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	4.0E-02	mg/kg-day	1.1E-04

TABLE 7.41.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations														
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient										
							Value	Units	Value	Units		Value	Units	Value	Units											
				Iron	1E+04	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	5.3E-04	mg/kg-day	7.0E-01	mg/kg-day	7.6E-04										
				Lead																						
				Manganese (other media)	4E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.8E-04										
				Mercury (other media)	2E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	1.0E-04	mg/kg-day	1.1E-04										
				Thallium	4E-01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04										
			Vanadium	1E+01	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	7.0E-03	mg/kg-day	1.0E-04											
			Exp. Route Total						2E-07					6E-03												
			Dermal	Benzo(a)anthracene	7E-01	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A										
				Benzo(a)pyrene	6E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A										
				Benzo(b)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A										
				Benzo(k)fluoranthene	3E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-09	8.9E-08	mg/kg-day	N/A	N/A	N/A										
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	3.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.1E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.4E-05										
				Carbazole	1E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	3.7E-08	mg/kg-day	N/A	N/A	N/A										
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.5E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A										
				Dibenzofuran	7E-02	mg/kg	4.6E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.0E-06										
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A										
				Phenanthrene	6E-01	mg/kg	5.1E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	3.0E-02	mg/kg-day	6.0E-06										
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A										
				Aroclor-1254	2E-02	mg/kg	2.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.0E-09	6.9E-09	mg/kg-day	2.0E-05	mg/kg-day	3.4E-04										
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.7E-08	5.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03										
				Dieldrin	3E-02	mg/kg	1.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.7E-08	5.9E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04										
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A										
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A										
				Arsenic	6E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-07	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03										
				Cadmium (other media)	5E+00	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.5E-05	mg/kg-day	4.9E-04										
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A										
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A										
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A										
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A										
				Lead																						
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A									
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A									
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A									
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A									
				Exp. Route Total						7E-07					5E-03											
				Exposure Point Total								1E-06					1E-02									
				Exposure Medium Total								N/A					N/A									
				Medium Total								N/A					N/A									
				Total of Receptor Risks Across All Media											N/A		Total of Receptor Hazards Across All Media									

TABLE 7.42.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	5.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	4.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	7.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	9.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.8E-09	2.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.7E-09	3.5E-07	mg/kg-day	2.0E-02	mg/kg-day	1.7E-05
				Carbazole	1E-01	mg/kg	2.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.1E-10	6.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-07	7.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	4.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	3.0E-02	mg/kg-day	1.6E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	7.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.5E-07	2.1E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	6.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.0E-06	1.8E-07	mg/kg-day	5.0E-05	mg/kg-day	3.7E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.1E-03	mg/kg-day	N/A	N/A	N/A	3.1E-03	mg/kg-day	1.0E+00	mg/kg-day	3.1E-03
				Antimony	1E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	4.6E-07	mg/kg-day	4.0E-04	mg/kg-day	1.1E-03
				Arsenic	1E+01	mg/kg	1.6E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.5E-06	4.8E-06	mg/kg-day	3.0E-04	mg/kg-day	1.6E-02
				Cadmium (other media)	4E+00	mg/kg	5.4E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03
				Chromium	2E+02	mg/kg	3.1E-05	mg/kg-day	N/A	N/A	N/A	9.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.0E-02
				Cobalt	4E+00	mg/kg	5.9E-07	mg/kg-day	N/A	N/A	N/A	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.7E-03
				Copper	1E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	5.4E-05	mg/kg-day	4.0E-02	mg/kg-day	1.4E-03
				Iron	2E+04	mg/kg	2.2E-03	mg/kg-day	N/A	N/A	N/A	6.5E-03	mg/kg-day	7.0E-01	mg/kg-day	9.2E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	6.5E-05	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	7.0E-02	mg/kg-day	2.7E-03
				Mercury (other media)	8E-01	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	1.0E-04	mg/kg-day	3.2E-03
				Thallium	2E-01	mg/kg	2.5E-08	mg/kg-day	N/A	N/A	N/A	7.3E-08	mg/kg-day	8.0E-05	mg/kg-day	9.1E-04
				Vanadium	3E+01	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	7.0E-03	mg/kg-day	1.5E-03
				Zinc	1E+02	mg/kg	1.7E-05	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	3.0E-01	mg/kg-day	1.6E-04
				Exp. Route Total										5E-06		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	8.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.5E-08	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	8.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.4E-07	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.3E-08	3.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	4.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.5E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	4.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.6E-10	1.4E-07	mg/kg-day	2.0E-02	mg/kg-day	6.9E-06
				Carbazole	1E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	3.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.7E-08	3.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	9.1E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	4.0E-03	mg/kg-day	6.6E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.4E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.42.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	8.4E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	3.0E-02	mg/kg-day	8.2E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	4.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.1E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	5.9E-03
				Dieldrin	5E-01	mg/kg	2.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.0E-07	7.3E-08	mg/kg-day	5.0E-05	mg/kg-day	1.5E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.9E-07	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Cadmium (other media)	4E+00	mg/kg	2.1E-09	mg/kg-day	N/A	N/A	N/A	6.2E-09	mg/kg-day	2.5E-05	mg/kg-day	2.5E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					1E-02
		Exposure Point Total									7E-06					1E-01
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	1.1E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.6E-07	3.3E-05	mg/kg-day	2.0E-02	mg/kg-day	1.7E-03
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.42.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				alpha-Chlordane	4E-03	ug/L	6.7E-09	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	2.3E-09	2.0E-08	mg/kg-day	5.0E-04	mg/kg-day	3.9E-05	
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A	
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A	
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor Epoxide	3E-03	ug/L	3.4E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	3.1E-08	9.9E-09	mg/kg-day	1.3E-05	mg/kg-day	7.6E-04	
				Aluminum	2E+03	ug/L	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.1E-05	mg/kg-day	1.0E-02	mg/kg-day	3.1E-03	
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Cadmium (other media)	5E-01	ug/L	2.4E-09	mg/kg-day	N/A	N/A	N/A	7.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.8E-04	
				Chromium	9E+00	ug/L	8.7E-08	mg/kg-day	N/A	N/A	N/A	2.5E-07	mg/kg-day	7.5E-05	mg/kg-day	3.4E-03	
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A	
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A	
				Vanadium	4E+00	ug/L	2.1E-08	mg/kg-day	N/A	N/A	N/A	6.2E-08	mg/kg-day	1.8E-04	mg/kg-day	3.4E-04	
						Exp. Route Total							2E-07				
				Exposure Point Total							2E-07						1E-02
			Exposure Medium Total								N/A						N/A
Medium Total										N/A					N/A		
Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.0E-07	2.0E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	1E+00	mg/kg	8.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.1E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(k)fluoranthene	6E-01	mg/kg	4.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.0E-09	1.2E-07	mg/kg-day	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	9.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.3E-08	2.6E-06	mg/kg-day	2.0E-02	mg/kg-day	1.3E-04	
				Carbazole	1E-01	mg/kg	9.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.8E-10	2.6E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	1E-01	mg/kg	7.7E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.6E-08	2.2E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenzofuran	7E-02	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	1.5E-08	mg/kg-day	4.0E-03	mg/kg-day	3.7E-06	
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A	
				Phenanthrene	1E+00	mg/kg	7.7E-08	mg/kg-day	N/A	N/A	N/A	2.2E-07	mg/kg-day	3.0E-02	mg/kg-day	7.5E-06	
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A	
				Aroclor-1254	6E-02	mg/kg	4.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.2E-09	1.2E-08	mg/kg-day	2.0E-05	mg/kg-day	6.0E-04	
				Aroclor-1260	6E-01	mg/kg	3.8E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.7E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.6E-03	
				Dieldrin	7E-02	mg/kg	5.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.3E-08	1.5E-08	mg/kg-day	5.0E-05	mg/kg-day	3.0E-04	
				Aluminum	9E+03	mg/kg	6.3E-04	mg/kg-day	N/A	N/A	N/A	1.9E-03	mg/kg-day	1.0E+00	mg/kg-day	1.9E-03	
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A	
				Arsenic	9E+00	mg/kg	6.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.4E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.1E-03	

TABLE 7.42.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Cadmium (other media)	1E+01	mg/kg	9.6E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	1.0E-03	mg/kg-day	2.8E-03			
				Chromium	2E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	3.3E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02			
				Cobalt	1E+01	mg/kg	7.7E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.5E-03			
				Copper	2E+02	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	4.3E-05	mg/kg-day	4.0E-02	mg/kg-day	1.1E-03			
				Iron	1E+04	mg/kg	8.5E-04	mg/kg-day	N/A	N/A	N/A	2.5E-03	mg/kg-day	7.0E-01	mg/kg-day	3.5E-03			
				Lead															
				Manganese (other media)	8E+02	mg/kg	5.8E-05	mg/kg-day	N/A	N/A	N/A	1.7E-04	mg/kg-day	7.0E-02	mg/kg-day	2.4E-03			
				Mercury (other media)	4E-01	mg/kg	3.0E-08	mg/kg-day	N/A	N/A	N/A	8.8E-08	mg/kg-day	1.0E-04	mg/kg-day	8.8E-04			
				Thallium	6E-01	mg/kg	4.2E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	8.0E-05	mg/kg-day	1.5E-03			
				Vanadium	2E+01	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	4.9E-06	mg/kg-day	7.0E-03	mg/kg-day	6.9E-04			
				Exp. Route Total						2E-06					5E-02				
				Dermal															
				Benzo(a)anthracene	1E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	6.4E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(a)pyrene	1E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-06	5.7E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(b)fluoranthene	1E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-07	7.0E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(k)fluoranthene	6E-01	mg/kg	1.2E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	8.4E-09	3.4E-07	mg/kg-day	N/A	N/A	N/A			
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	2.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.8E-08	5.8E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04			
				Carbazole	1E-01	mg/kg	2.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.2E-10	7.5E-08	mg/kg-day	N/A	N/A	N/A			
				Dibenz(a,h)anthracene	1E-01	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	6.4E-08	mg/kg-day	N/A	N/A	N/A			
				Dibenzofuran	7E-02	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	4.0E-03	mg/kg-day	8.0E-06			
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.0E-08	2.4E-07	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	1E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	3.0E-02	mg/kg-day	2.1E-05			
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1254	6E-02	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.5E-08	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03			
				Aroclor-1260	6E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.4E-07	3.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02			
				Dieldrin	7E-02	mg/kg	1.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.8E-07	3.3E-08	mg/kg-day	5.0E-05	mg/kg-day	6.6E-04			
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	9E+00	mg/kg	4.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.2E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	4.0E-03			
				Cadmium (other media)	1E+01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	6.2E-08	mg/kg-day	2.5E-05	mg/kg-day	2.5E-03			
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Exp. Route Total						3E-06					3E-02				
Exposure Point Total							5E-06					7E-02							

TABLE 7.42.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
	Exposure Medium Total												N/A				N/A
Medium Total													N/A				N/A
							Total of Receptor Risks Across All Media						N/A	Total of Receptor Hazards Across All Media			N/A

TABLE 7.42.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.6E-07	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.7E-08	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.4E-09	6.8E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.5E-10	8.7E-08	mg/kg-day	2.0E-02	mg/kg-day	4.3E-06
				Carbazole	1E-01	mg/kg	4.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.5E-11	1.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-08	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	4.7E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	4.0E-03	mg/kg-day	4.1E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	3.4E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.0E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.5E-08	5.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.6E-03
				Dieldrin	5E-01	mg/kg	1.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.1E-07	4.6E-08	mg/kg-day	5.0E-05	mg/kg-day	9.2E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	2.2E-04	mg/kg-day	N/A	N/A	N/A	7.9E-04	mg/kg-day	1.0E+00	mg/kg-day	7.9E-04
				Antimony	1E+00	mg/kg	3.3E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.8E-04
				Arsenic	1E+01	mg/kg	3.4E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.1E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	4.0E-03
				Cadmium (other media)	4E+00	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	1.0E-03	mg/kg-day	3.9E-04
				Chromium	2E+02	mg/kg	6.5E-06	mg/kg-day	N/A	N/A	N/A	2.3E-05	mg/kg-day	3.0E-03	mg/kg-day	7.6E-03
				Cobalt	4E+00	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Copper	1E+02	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	4.0E-02	mg/kg-day	3.4E-04
				Iron	2E+04	mg/kg	4.6E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	7.0E-01	mg/kg-day	2.3E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	7.0E-02	mg/kg-day	6.8E-04
				Mercury (other media)	8E-01	mg/kg	2.3E-08	mg/kg-day	N/A	N/A	N/A	8.0E-08	mg/kg-day	1.0E-04	mg/kg-day	8.0E-04
				Thallium	2E-01	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	8.0E-05	mg/kg-day	2.3E-04
				Vanadium	3E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	7.0E-03	mg/kg-day	3.7E-04
				Zinc	1E+02	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	3.0E-01	mg/kg-day	4.0E-05
				Exp. Route Total										1E-06	2E-02	
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.7E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.9E-08	1.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.5E-09	7.0E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.8E-10	6.9E-08	mg/kg-day	2.0E-02	mg/kg-day	3.5E-06
				Carbazole	1E-01	mg/kg	4.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.9E-11	1.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.0E-08	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	4.0E-03	mg/kg-day	3.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.42.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	3.0E-02	mg/kg-day	4.1E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.7E-08	5.9E-08	mg/kg-day	2.0E-05	mg/kg-day	3.0E-03
				Dieldrin	5E-01	mg/kg	1.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.7E-07	3.7E-08	mg/kg-day	5.0E-05	mg/kg-day	7.3E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	8.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	2.9E-07	mg/kg-day	3.0E-04	mg/kg-day	9.6E-04
				Cadmium (other media)	4E+00	mg/kg	8.9E-10	mg/kg-day	N/A	N/A	N/A	3.1E-09	mg/kg-day	2.5E-05	mg/kg-day	1.2E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								7E-07					5E-03
		Exposure Point Total									2E-06					3E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)	Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	2.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.3E-08	8.3E-06	mg/kg-day	2.0E-02	mg/kg-day	4.1E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.42.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day)	⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A			
				alpha-Chlordane	2E-03	ug/L	1.3E-09	mg/kg-day	3.5E-01	(mg/kg-day)	⁻¹	4.4E-10	4.4E-09	mg/kg-day	5.0E-04	mg/kg-day	8.9E-06			
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day)	⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A			
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day)	⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A			
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day)	⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A			
				Heptachlor Epoxide	2E-03	ug/L	8.8E-10	mg/kg-day	9.1E+00	(mg/kg-day)	⁻¹	8.0E-09	3.1E-09	mg/kg-day	1.3E-05	mg/kg-day	2.4E-04			
				Aluminum	7E+02	ug/L	1.6E-06	mg/kg-day	N/A	N/A	N/A	5.5E-06	mg/kg-day	1.0E-02	mg/kg-day	5.5E-04				
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day)	⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Cadmium (other media)	4E-01	ug/L	7.7E-10	mg/kg-day	N/A	N/A	N/A	2.7E-09	mg/kg-day	2.5E-05	mg/kg-day	1.1E-04				
				Chromium	3E+00	ug/L	1.4E-08	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	7.5E-05	mg/kg-day	6.5E-04				
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A				
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A				
				Vanadium	2E+00	ug/L	4.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	1.8E-04	mg/kg-day	7.8E-05				
						Exp. Route Total									4E-08				2E-03	
						Exposure Point Total									4E-08				2E-03	
						Exposure Medium Total									N/A				N/A	
				Medium Total											N/A					N/A
				Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	7E-01	mg/kg	9.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.2E-09	3.4E-08	mg/kg-day	N/A	N/A	N/A
								Benzo(a)pyrene	6E-01	mg/kg	9.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.6E-08	3.2E-08	mg/kg-day	N/A	N/A	N/A
								Benzo(b)fluoranthene	8E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.1E-09	3.9E-08	mg/kg-day	N/A	N/A	N/A
								Benzo(k)fluoranthene	3E-01	mg/kg	4.5E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.3E-10	1.6E-08	mg/kg-day	N/A	N/A	N/A
								bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	8.3E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.2E-09	2.9E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
					Carbazole	1E-01	mg/kg	1.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.8E-11	6.6E-09	mg/kg-day	N/A	N/A	N/A			
					Dibenz(a,h)anthracene	7E-02	mg/kg	1.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.8E-09	3.7E-09	mg/kg-day	N/A	N/A	N/A			
					Dibenzofuran	7E-02	mg/kg	1.0E-09	mg/kg-day	N/A	N/A	N/A	3.7E-09	mg/kg-day	4.0E-03	mg/kg-day	9.2E-07			
					Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	4.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.0E-09	1.5E-08	mg/kg-day	N/A	N/A	N/A			
				Phenanthrene	6E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	3.2E-08	mg/kg-day	3.0E-02	mg/kg-day	1.1E-06				
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
				Aroclor-1254	2E-02	mg/kg	3.2E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.2E-10	1.1E-09	mg/kg-day	2.0E-05	mg/kg-day	5.6E-05				
				Aroclor-1260	2E-01	mg/kg	2.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.7E-09	9.5E-09	mg/kg-day	2.0E-05	mg/kg-day	4.7E-04				
				Dieldrin	3E-02	mg/kg	3.8E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.1E-09	1.3E-09	mg/kg-day	5.0E-05	mg/kg-day	2.7E-05				
				Aluminum	6E+03	mg/kg	8.6E-05	mg/kg-day	N/A	N/A	N/A	3.0E-04	mg/kg-day	1.0E+00	mg/kg-day	3.0E-04				
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A				
				Arsenic	6E+00	mg/kg	8.1E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-07	2.8E-07	mg/kg-day	3.0E-04	mg/kg-day	9.4E-04				

TABLE 7.42.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	5E+00	mg/kg	7.9E-08	mg/kg-day	N/A	N/A	N/A	2.8E-07	mg/kg-day	1.0E-03	mg/kg-day	2.8E-04
				Chromium	7E+01	mg/kg	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-06	mg/kg-day	3.0E-03	mg/kg-day	1.2E-03
				Cobalt	6E+00	mg/kg	8.7E-08	mg/kg-day	N/A	N/A	N/A	3.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.0E-03
				Copper	9E+01	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	4.0E-02	mg/kg-day	1.1E-04
				Iron	1E+04	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	5.3E-04	mg/kg-day	7.0E-01	mg/kg-day	7.6E-04
				Lead												
				Manganese (other media)	4E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.8E-04
				Mercury (other media)	2E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	1.1E-08	mg/kg-day	1.0E-04	mg/kg-day	1.1E-04
				Thallium	4E-01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	8.0E-05	mg/kg-day	2.6E-04
				Vanadium	1E+01	mg/kg	2.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-07	mg/kg-day	7.0E-03	mg/kg-day	1.0E-04
			Exp. Route Total								2E-07					6E-03
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.8E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.6E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-09	8.9E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	3.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.1E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.4E-05
				Carbazole	1E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.5E-08	2.1E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	4.6E-09	mg/kg-day	N/A	N/A	N/A	1.6E-08	mg/kg-day	4.0E-03	mg/kg-day	4.0E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-08	8.3E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	5.1E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	3.0E-02	mg/kg-day	6.0E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	2.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.0E-09	6.9E-09	mg/kg-day	2.0E-05	mg/kg-day	3.4E-04
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.7E-08	5.8E-08	mg/kg-day	2.0E-05	mg/kg-day	2.9E-03
				Dieldrin	3E-02	mg/kg	1.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.7E-08	5.9E-09	mg/kg-day	5.0E-05	mg/kg-day	1.2E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-07	3.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Cadmium (other media)	5E+00	mg/kg	3.5E-09	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.5E-05	mg/kg-day	4.9E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								7E-07					5E-03
		Exposure Point Total									1E-06					1E-02

TABLE 7.42.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
	Exposure Medium Total												N/A				N/A
Medium Total													N/A				N/A
							Total of Receptor Risks Across All Media						N/A	Total of Receptor Hazards Across All Media			N/A

TABLE 7.43.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	8.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	8.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-06	9.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	4.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.0E-08	5.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	5.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.3E-10	6.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.5E-05
				Carbazole	1E-01	mg/kg	1.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.8E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	4.0E-03	mg/kg-day	3.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	8.1E-08	mg/kg-day	N/A	N/A	N/A	9.5E-07	mg/kg-day	3.0E-02	mg/kg-day	3.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	3.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.3E-08	4.2E-07	mg/kg-day	2.0E-05	mg/kg-day	2.1E-02
				Dieldrin	5E-01	mg/kg	3.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.0E-07	3.7E-07	mg/kg-day	5.0E-05	mg/kg-day	7.4E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	5.4E-04	mg/kg-day	N/A	N/A	N/A	6.3E-03	mg/kg-day	1.0E+00	mg/kg-day	6.3E-03
				Antimony	1E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.3E-03
				Arsenic	1E+01	mg/kg	8.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-06	9.6E-06	mg/kg-day	3.0E-04	mg/kg-day	3.2E-02
				Cadmium (other media)	4E+00	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	1.0E-03	mg/kg-day	3.1E-03
				Chromium	2E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	3.0E-03	mg/kg-day	6.0E-02
				Cobalt	4E+00	mg/kg	2.9E-07	mg/kg-day	N/A	N/A	N/A	3.4E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Copper	1E+02	mg/kg	9.3E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	4.0E-02	mg/kg-day	2.7E-03
				Iron	2E+04	mg/kg	1.1E-03	mg/kg-day	N/A	N/A	N/A	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	1.8E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	3.3E-05	mg/kg-day	N/A	N/A	N/A	3.8E-04	mg/kg-day	7.0E-02	mg/kg-day	5.4E-03
				Mercury (other media)	8E-01	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	1.0E-04	mg/kg-day	6.4E-03
				Thallium	2E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	8.0E-05	mg/kg-day	1.8E-03
				Vanadium	3E+01	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	7.0E-03	mg/kg-day	2.9E-03
				Zinc	1E+02	mg/kg	8.3E-06	mg/kg-day	N/A	N/A	N/A	9.7E-05	mg/kg-day	3.0E-01	mg/kg-day	3.2E-04
				Exp. Route Total										5E-06		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	9.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	9.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.1E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-07	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.2E-08	6.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	5.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.3E-10	6.1E-07	mg/kg-day	2.0E-02	mg/kg-day	3.0E-05
				Carbazole	1E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.3E-10	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.2E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	4.0E-03	mg/kg-day	2.9E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	9.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.43.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
				Phenanthrene	1E+00	mg/kg	9.3E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-02	mg/kg-day	3.6E-05		
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A		
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A		
				Aroclor-1260	5E-01	mg/kg	4.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.9E-08	5.2E-07	mg/kg-day	2.0E-05	mg/kg-day	2.6E-02		
				Dieldrin	5E-01	mg/kg	2.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.4E-07	3.2E-07	mg/kg-day	5.0E-05	mg/kg-day	6.5E-03		
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A		
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A		
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A		
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.3E-07	2.5E-06	mg/kg-day	3.0E-04	mg/kg-day	8.4E-03		
				Cadmium (other media)	4E+00	mg/kg	2.4E-09	mg/kg-day	N/A	N/A	N/A	2.7E-08	mg/kg-day	2.5E-05	mg/kg-day	1.1E-03		
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A		
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A		
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A		
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A		
				Lead														
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A		
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A		
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A		
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A		
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A		
						Exp. Route Total						4E-06						4E-02
						Exposure Point Total						9E-06						2E-01
						Exposure Medium Total						N/A						N/A
				Medium Total										N/A				
	Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A		
					Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A		
					Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A		
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A			
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	5.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.4E-08	6.1E-05	mg/kg-day	2.0E-02	mg/kg-day	3.1E-03		
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A			
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A			
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A		
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A		
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A		
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A		
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A		

TABLE 7.43.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	3.1E-09	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.1E-09	3.6E-08	mg/kg-day	5.0E-04	mg/kg-day	7.2E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	3E-03	ug/L	1.6E-09	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	1.4E-08	1.8E-08	mg/kg-day	1.3E-05	mg/kg-day	1.4E-03
				Aluminum	2E+03	ug/L	4.9E-06	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	1.0E-02	mg/kg-day	5.7E-03
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	5E-01	ug/L	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	5.2E-04
				Chromium	9E+00	ug/L	4.0E-08	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	7.5E-05	mg/kg-day	6.2E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	4E+00	ug/L	9.9E-09	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.8E-04	mg/kg-day	6.4E-04
			Exp. Route Total								9E-08					2E-02
			Ingestion (swimming)													
				Benzo(a)anthracene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E-01	ug/L	1.5E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.3E-08	1.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.7E-09	2.5E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	1.1E-09	mg/kg-day	N/A	N/A	N/A	1.3E-08	mg/kg-day	3.0E-02	mg/kg-day	4.2E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	1.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.5E-09	1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.3E-05
				Chrysene	2E-01	ug/L	1.6E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	3.5E-11	1.9E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	1.8E-09	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	3.0E-02	mg/kg-day	7.1E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	6E-03	ug/L	6.2E-11	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	1.5E-11	7.3E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	4E-03	ug/L	4.7E-11	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.7E-11	5.5E-10	mg/kg-day	5.0E-04	mg/kg-day	1.1E-06
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.43.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A	
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A	
				Heptachlor Epoxide	3E-03	ug/L	3.1E-11	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	2.8E-10	3.6E-10	mg/kg-day	1.3E-05	mg/kg-day	2.8E-05		
				Aluminum	2E+03	ug/L	2.2E-05	mg/kg-day	N/A	N/A	N/A	2.6E-04	mg/kg-day	1.0E-02	mg/kg-day	2.6E-02		
				Arsenic	5E+00	ug/L	4.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.4E-08	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03		
				Cadmium (other media)	5E-01	ug/L	5.0E-09	mg/kg-day	N/A	N/A	N/A	5.9E-08	mg/kg-day	2.5E-05	mg/kg-day	2.4E-03		
				Chromium	9E+00	ug/L	9.1E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	7.5E-05	mg/kg-day	1.4E-02		
				Cobalt	7E-01	ug/L	7.1E-09	mg/kg-day	N/A	N/A	N/A	8.3E-08	mg/kg-day	3.0E-04	mg/kg-day	2.8E-04		
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A		
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A		
				Iron	4E+03	ug/L	4.0E-05	mg/kg-day	N/A	N/A	N/A	4.6E-04	mg/kg-day	7.0E-01	mg/kg-day	6.6E-04		
				Lead	9E+00	ug/L	9.2E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	N/A	N/A	N/A		
				Manganese (other media)	3E+02	ug/L	3.2E-06	mg/kg-day	N/A	N/A	N/A	3.7E-05	mg/kg-day	7.0E-02	mg/kg-day	5.3E-04		
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A		
				Vanadium	4E+00	ug/L	4.5E-08	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	1.8E-04	mg/kg-day	2.9E-03		
				Exp. Route Total									1E-07					5E-02
				Exposure Point Total									2E-07					7E-02
				Exposure Medium Total									N/A					N/A
				Medium Total											N/A			
	Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A	
					Benzo(a)pyrene	1E+00	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A	
Benzo(b)fluoranthene					1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A		
Benzo(k)fluoranthene					6E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.4E-09	2.4E-07	mg/kg-day	N/A	N/A	N/A		
bis(2-Ethylhexyl)phthalate					1E+01	mg/kg	4.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.3E-09	5.3E-06	mg/kg-day	2.0E-02	mg/kg-day	2.6E-04		
Carbazole					1E-01	mg/kg	4.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.1E-11	5.3E-08	mg/kg-day	N/A	N/A	N/A		
Dibenz(a,h)anthracene					1E-01	mg/kg	3.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.4E-08	4.5E-08	mg/kg-day	N/A	N/A	N/A		
Dibenzofuran					7E-02	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	4.0E-03	mg/kg-day	7.3E-06		
Indeno(1,2,3-cd)pyrene					4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-08	1.7E-07	mg/kg-day	N/A	N/A	N/A		
Phenanthrene					1E+00	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	3.0E-02	mg/kg-day	1.5E-05		
Aroclor-1242					ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A		
Aroclor-1254					6E-02	mg/kg	2.1E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.1E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03		
Aroclor-1260					6E-01	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.8E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02		
Dieldrin					7E-02	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.1E-08	3.0E-08	mg/kg-day	5.0E-05	mg/kg-day	6.0E-04		
Aluminum					9E+03	mg/kg	3.2E-04	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03		
Antimony					ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A		
Arsenic					9E+00	mg/kg	3.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.7E-07	3.7E-06	mg/kg-day	3.0E-04	mg/kg-day	1.2E-02		
Cadmium (other media)					1E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	1.0E-03	mg/kg-day	5.6E-03		
Chromium					2E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	3.0E-03	mg/kg-day	2.2E-02		
Cobalt					1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.5E-06	mg/kg-day	3.0E-04	mg/kg-day	1.5E-02		
Copper					2E+02	mg/kg	7.3E-06	mg/kg-day	N/A	N/A	N/A	8.5E-05	mg/kg-day	4.0E-02	mg/kg-day	2.1E-03		

TABLE 7.43.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
				Iron	1E+04	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	5.0E-03	mg/kg-day	7.0E-01	mg/kg-day	7.1E-03				
				Lead																
				Manganese (other media)	8E+02	mg/kg	2.9E-05	mg/kg-day	N/A	N/A	N/A	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.8E-03				
				Mercury (other media)	4E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	1.0E-04	mg/kg-day	1.8E-03				
				Thallium	6E-01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	3.1E-03				
				Vanadium	2E+01	mg/kg	8.3E-07	mg/kg-day	N/A	N/A	N/A	9.7E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03				
				Exp. Route Total								2E-06					9E-02			
				Dermal																
				Benzo(a)anthracene	1E+00	mg/kg	6.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	7.3E-07	mg/kg-day	N/A	N/A	N/A				
				Benzo(a)pyrene	1E+00	mg/kg	5.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	6.5E-07	mg/kg-day	N/A	N/A	N/A				
				Benzo(b)fluoranthene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	7.9E-07	mg/kg-day	N/A	N/A	N/A				
				Benzo(k)fluoranthene	6E-01	mg/kg	3.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	7.2E-09	3.8E-07	mg/kg-day	N/A	N/A	N/A				
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	5.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.9E-09	6.6E-06	mg/kg-day	2.0E-02	mg/kg-day	3.3E-04				
				Carbazole	1E-01	mg/kg	7.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.5E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A				
				Dibenz(a,h)anthracene	1E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-07	7.3E-08	mg/kg-day	N/A	N/A	N/A				
				Dibenzofuran	7E-02	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	4.0E-03	mg/kg-day	9.2E-06				
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.1E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A				
				Phenanthrene	1E+00	mg/kg	6.2E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05				
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
				Aroclor-1254	6E-02	mg/kg	3.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.2E-09	4.2E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03				
				Aroclor-1260	6E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.7E-08	3.9E-07	mg/kg-day	2.0E-05	mg/kg-day	2.0E-02				
				Dieldrin	7E-02	mg/kg	3.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.2E-08	3.8E-08	mg/kg-day	5.0E-05	mg/kg-day	7.5E-04				
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A				
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A				
				Arsenic	9E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.6E-03				
				Cadmium (other media)	1E+01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.8E-03				
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A				
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A				
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
				Lead																
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A				
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A				
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A				
							Exp. Route Total										3E-02			
						Exposure Point Total												1E-01		
					Exposure Medium Total														N/A	
				Medium Total																N/A
				Total of Receptor Risks Across All Media											N/A		Total of Receptor Hazards Across All Media			

Notes

TABLE 7.43.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.43.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.7E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.6E-07	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.7E-08	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.5E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.1E-10	1.7E-07	mg/kg-day	2.0E-02	mg/kg-day	8.7E-06
				Carbazole	1E-01	mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.1E-11	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	3.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.0E-08	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	3.3E-08	mg/kg-day	4.0E-03	mg/kg-day	8.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.9E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	3.0E-02	mg/kg-day	7.9E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	9.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	9.1E-09	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.3E-03
				Dieldrin	5E-01	mg/kg	7.9E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.3E-07	9.2E-08	mg/kg-day	5.0E-05	mg/kg-day	1.8E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	1.0E+00	mg/kg-day	1.6E-03
				Antimony	1E+00	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	4.0E-04	mg/kg-day	5.7E-04
				Arsenic	1E+01	mg/kg	2.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.1E-07	2.4E-06	mg/kg-day	3.0E-04	mg/kg-day	8.0E-03
				Cadmium (other media)	4E+00	mg/kg	6.7E-08	mg/kg-day	N/A	N/A	N/A	7.8E-07	mg/kg-day	1.0E-03	mg/kg-day	7.8E-04
				Chromium	2E+02	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	4.5E-05	mg/kg-day	3.0E-03	mg/kg-day	1.5E-02
				Cobalt	4E+00	mg/kg	7.3E-08	mg/kg-day	N/A	N/A	N/A	8.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.9E-03
				Copper	1E+02	mg/kg	2.3E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	4.0E-02	mg/kg-day	6.8E-04
				Iron	2E+04	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	3.2E-03	mg/kg-day	7.0E-01	mg/kg-day	4.6E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	8.2E-06	mg/kg-day	N/A	N/A	N/A	9.5E-05	mg/kg-day	7.0E-02	mg/kg-day	1.4E-03
				Mercury (other media)	8E-01	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	1.0E-04	mg/kg-day	1.6E-03
				Thallium	2E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	8.0E-05	mg/kg-day	4.6E-04
				Vanadium	3E+01	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	5.2E-06	mg/kg-day	7.0E-03	mg/kg-day	7.4E-04
				Zinc	1E+02	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	3.0E-01	mg/kg-day	8.1E-05
				Exp. Route Total										1E-06		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-06	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	8.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.8E-09	3.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.7E-10	3.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	1E-01	mg/kg	5.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.2E-10	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	8.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.5E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.0E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.43.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Phenanthrene	1E+00	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	5.4E-07	mg/kg-day	3.0E-02	mg/kg-day	1.8E-05			
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1260	5E-01	mg/kg	2.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.2E-08	2.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.3E-02			
				Dieldrin	5E-01	mg/kg	1.4E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.2E-07	1.6E-07	mg/kg-day	5.0E-05	mg/kg-day	3.2E-03			
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	1E+01	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.2E-03			
				Cadmium (other media)	4E+00	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.5E-04			
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A			
						Exp. Route Total									2E-06				2E-02
						Exposure Point Total									3E-06				7E-02
						Exposure Medium Total									N/A				N/A
				Medium Total												N/A			
	Surface Water	Surface Water	Upstream of Landfill	Dermal (swimming)	Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A		
					Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A			
					Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A			
Benzo(g,h,i)perylene					7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A				
Benzo(k)fluoranthene					ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
bis(2-Ethylhexyl)phthalate					5E+00	ug/L	1.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-08	1.5E-05	mg/kg-day	2.0E-02	mg/kg-day	7.7E-04			
Chrysene					8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
Indeno(1,2,3-cd)pyrene					7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
Naphthalene					ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
Phenanthrene					9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A				
1,4-Dichlorobenzene					ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
Benzene					ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A			
Aroclor-1260					ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			

TABLE 7.43.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	7.0E-10	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	2.5E-10	8.2E-09	mg/kg-day	5.0E-04	mg/kg-day	1.6E-05
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	4.9E-10	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	4.5E-09	5.7E-09	mg/kg-day	1.3E-05	mg/kg-day	4.4E-04
				Aluminum	7E+02	ug/L	8.7E-07	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	1.0E-02	mg/kg-day	1.0E-03
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	4.3E-10	mg/kg-day	N/A	N/A	N/A	5.0E-09	mg/kg-day	2.5E-05	mg/kg-day	2.0E-04
				Chromium	3E+00	ug/L	7.8E-09	mg/kg-day	N/A	N/A	N/A	9.1E-08	mg/kg-day	7.5E-05	mg/kg-day	1.2E-03
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	2.2E-09	mg/kg-day	N/A	N/A	N/A	2.6E-08	mg/kg-day	1.8E-04	mg/kg-day	1.4E-04
			Exp. Route Total								2E-08					4E-03
			Ingestion (swimming)													
				Benzo(a)anthracene	7E-02	ug/L	3.8E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.2E-10	4.4E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	4.3E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.4E-09	5.0E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	5.4E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	3.6E-10	mg/kg-day	N/A	N/A	N/A	4.2E-09	mg/kg-day	3.0E-02	mg/kg-day	1.4E-07
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	2.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.8E-10	3.1E-07	mg/kg-day	2.0E-02	mg/kg-day	1.6E-05
				Chrysene	8E-02	ug/L	4.3E-10	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	9.4E-12	5.0E-09	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	3.8E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.2E-10	4.4E-09	mg/kg-day	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	4.8E-10	mg/kg-day	N/A	N/A	N/A	5.6E-09	mg/kg-day	3.0E-02	mg/kg-day	1.9E-07
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	2.1E-11	mg/kg-day	2.4E-01	(mg/kg-day) ⁻¹	5.2E-12	2.5E-10	mg/kg-day	N/A	N/A	N/A
				4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-Chlordane	2E-03	ug/L	1.1E-11	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	3.8E-12	1.3E-10	mg/kg-day	5.0E-04	mg/kg-day	2.5E-07
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A

TABLE 7.43.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Heptachlor Epoxide	2E-03	ug/L	9.7E-12	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	8.8E-11	1.1E-10	mg/kg-day	1.3E-05	mg/kg-day	8.7E-06
				Aluminum	7E+02	ug/L	3.9E-06	mg/kg-day	N/A	N/A	N/A	4.6E-05	mg/kg-day	1.0E-02	mg/kg-day	4.6E-03
				Arsenic	3E+00	ug/L	1.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.7E-08	2.1E-07	mg/kg-day	3.0E-04	mg/kg-day	7.1E-04
				Cadmium (other media)	4E-01	ug/L	1.9E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	2.5E-05	mg/kg-day	9.0E-04
				Chromium	3E+00	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	7.5E-05	mg/kg-day	2.8E-03
				Cobalt	7E-01	ug/L	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.1E-08	mg/kg-day	3.0E-04	mg/kg-day	1.4E-04
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	8.1E-06	mg/kg-day	N/A	N/A	N/A	9.4E-05	mg/kg-day	7.0E-01	mg/kg-day	1.3E-04
				Lead	4E+00	ug/L	2.3E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	N/A	N/A	N/A
				Manganese (other media)	2E+02	ug/L	9.0E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-02	mg/kg-day	1.5E-04
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	1.8E-04	mg/kg-day	6.5E-04
			Exp. Route Total								4E-08					1E-02
		Exposure Point Total									6E-08					1E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	7E-01	mg/kg	5.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-08	6.9E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	5.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-07	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-08	7.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	2.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.9E-10	3.1E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	5.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.0E-10	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
				Carbazole	1E-01	mg/kg	1.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.3E-11	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	6.4E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-08	7.5E-09	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	6.3E-10	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.4E-09	2.9E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	3.0E-02	mg/kg-day	2.1E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	1.9E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.9E-10	2.2E-09	mg/kg-day	2.0E-05	mg/kg-day	1.1E-04
				Aroclor-1260	2E-01	mg/kg	1.6E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.6E-09	1.9E-08	mg/kg-day	2.0E-05	mg/kg-day	9.5E-04
				Dieldrin	3E-02	mg/kg	2.3E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.7E-09	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05
				Aluminum	6E+03	mg/kg	5.2E-05	mg/kg-day	N/A	N/A	N/A	6.1E-04	mg/kg-day	1.0E+00	mg/kg-day	6.1E-04
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	4.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.3E-08	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03
				Cadmium (other media)	5E+00	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	5.6E-07	mg/kg-day	1.0E-03	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	6.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-06	mg/kg-day	3.0E-03	mg/kg-day	2.3E-03
				Cobalt	6E+00	mg/kg	5.2E-08	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.0E-03
				Copper	9E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	4.0E-02	mg/kg-day	2.2E-04

TABLE 7.43.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations																										
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RID/RfC		Hazard Quotient																						
							Value	Units	Value	Units		Value	Units	Value	Units																							
				Iron	1E+04	mg/kg	9.1E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.5E-03																						
				Lead	4E+02	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	7.0E-02	mg/kg-day	5.7E-04																						
				Manganese (other media)	2E-01	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	1.0E-04	mg/kg-day	2.2E-04																						
				Mercury (other media)	4E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	8.0E-05	mg/kg-day	5.2E-04																						
				Thallium	1E+01	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	7.0E-03	mg/kg-day	2.0E-04																						
			Exp. Route Total						2E-07					1E-02																								
			Dermal	Benzo(a)anthracene	7E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.2E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A																						
				Benzo(a)pyrene	6E-01	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A																						
				Benzo(b)fluoranthene	8E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.7E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A																						
				Benzo(k)fluoranthene	3E-01	mg/kg	8.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A																						
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05																						
				Carbazole	1E-01	mg/kg	3.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.3E-11	4.3E-08	mg/kg-day	N/A	N/A	N/A																						
				Dibenz(a,h)anthracene	7E-02	mg/kg	2.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.6E-08	2.4E-08	mg/kg-day	N/A	N/A	N/A																						
				Dibenzofuran	7E-02	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.6E-06																						
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	8.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A																						
				Phenanthrene	6E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06																						
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A																						
				Aroclor-1254	2E-02	mg/kg	6.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04																						
				Aroclor-1260	2E-01	mg/kg	5.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.7E-09	6.6E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03																						
				Dieldrin	3E-02	mg/kg	5.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.2E-09	6.7E-09	mg/kg-day	5.0E-05	mg/kg-day	1.3E-04																						
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A																						
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A																						
				Arsenic	6E+00	mg/kg	3.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.5E-08	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03																						
				Cadmium (other media)	5E+00	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.6E-04																						
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A																						
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A																						
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A																						
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A																						
				Lead																																		
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A																					
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A																					
			Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A																						
			Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A																						
			Exp. Route Total						6E-07					6E-03																								
			Exposure Point Total							9E-07					2E-02																							
			Exposure Medium Total							N/A					N/A																							
			Medium Total							N/A					N/A																							
			Total of Receptor Risks Across All Media																	N/A	Total of Receptor Hazards Across All Media																	N/A

Notes

TABLE 7.43.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk		Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units			Value	Units	Value	Units	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.44.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	8.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	8.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-06	9.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	4.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.0E-08	5.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	5.9E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.3E-10	6.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.5E-05
				Carbazole	1E-01	mg/kg	1.0E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.1E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.8E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	4.0E-03	mg/kg-day	3.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	8.3E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	8.1E-08	mg/kg-day	N/A	N/A	N/A	9.5E-07	mg/kg-day	3.0E-02	mg/kg-day	3.2E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	3.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.3E-08	4.2E-07	mg/kg-day	2.0E-05	mg/kg-day	2.1E-02
				Dieldrin	5E-01	mg/kg	3.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.0E-07	3.7E-07	mg/kg-day	5.0E-05	mg/kg-day	7.4E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	5.4E-04	mg/kg-day	N/A	N/A	N/A	6.3E-03	mg/kg-day	1.0E+00	mg/kg-day	6.3E-03
				Antimony	1E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.3E-03
				Arsenic	1E+01	mg/kg	8.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-06	9.6E-06	mg/kg-day	3.0E-04	mg/kg-day	3.2E-02
				Cadmium (other media)	4E+00	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	1.0E-03	mg/kg-day	3.1E-03
				Chromium	2E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	3.0E-03	mg/kg-day	6.0E-02
				Cobalt	4E+00	mg/kg	2.9E-07	mg/kg-day	N/A	N/A	N/A	3.4E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Copper	1E+02	mg/kg	9.3E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	4.0E-02	mg/kg-day	2.7E-03
				Iron	2E+04	mg/kg	1.1E-03	mg/kg-day	N/A	N/A	N/A	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	1.8E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	3.3E-05	mg/kg-day	N/A	N/A	N/A	3.8E-04	mg/kg-day	7.0E-02	mg/kg-day	5.4E-03
				Mercury (other media)	8E-01	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	1.0E-04	mg/kg-day	6.4E-03
				Thallium	2E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	8.0E-05	mg/kg-day	1.8E-03
				Vanadium	3E+01	mg/kg	1.8E-06	mg/kg-day	N/A	N/A	N/A	2.1E-05	mg/kg-day	7.0E-03	mg/kg-day	2.9E-03
				Zinc	1E+02	mg/kg	8.3E-06	mg/kg-day	N/A	N/A	N/A	9.7E-05	mg/kg-day	3.0E-01	mg/kg-day	3.2E-04
				Exp. Route Total										5E-06		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	9.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	9.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.1E-06	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-07	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.2E-08	6.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	5.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.3E-10	6.1E-07	mg/kg-day	2.0E-02	mg/kg-day	3.0E-05
				Carbazole	1E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.3E-10	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.2E-07	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	4.0E-03	mg/kg-day	2.9E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-07	9.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.44.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
				Phenanthrene	1E+00	mg/kg	9.3E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-02	mg/kg-day	3.6E-05			
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				Aroclor-1260	5E-01	mg/kg	4.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	8.9E-08	5.2E-07	mg/kg-day	2.0E-05	mg/kg-day	2.6E-02			
				Dieldrin	5E-01	mg/kg	2.8E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.4E-07	3.2E-07	mg/kg-day	5.0E-05	mg/kg-day	6.5E-03			
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
				Arsenic	1E+01	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.3E-07	2.5E-06	mg/kg-day	3.0E-04	mg/kg-day	8.4E-03			
				Cadmium (other media)	4E+00	mg/kg	2.4E-09	mg/kg-day	N/A	N/A	N/A	2.7E-08	mg/kg-day	2.5E-05	mg/kg-day	1.1E-03			
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A			
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A			
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A			
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A			
				Lead															
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A			
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A			
						Exp. Route Total						4E-06					4E-02		
				Exposure Point Total							9E-06					2E-01			
				Exposure Medium Total							N/A					N/A			
				Medium Total							N/A					N/A			
				Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)	Benzo(a)anthracene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A
								Benzo(a)pyrene	1E-01	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A
								Benzo(b)fluoranthene	2E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	1E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A				
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				bis(2-Ethylhexyl)phthalate	1E+01	ug/L	3.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.5E-08	3.8E-05	mg/kg-day	2.0E-02	mg/kg-day	1.9E-03			
				Chrysene	2E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				Indeno(1,2,3-cd)pyrene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A				
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A			
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A			
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A			
				Aroclor-1260	ND	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A			
				4,4'-DDD	6E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A			

TABLE 7.44.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
Sediment	Sediment	Upstream of Landfill	Ingestion	4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				alpha-Chlordane	4E-03	ug/L	1.9E-09	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	6.7E-10	2.2E-08	mg/kg-day	5.0E-04	mg/kg-day	4.5E-05				
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A				
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				Heptachlor Epoxide	3E-03	ug/L	9.7E-10	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	8.8E-09	1.1E-08	mg/kg-day	1.3E-05	mg/kg-day	8.7E-04				
				Aluminum	2E+03	ug/L	3.0E-06	mg/kg-day	N/A	N/A	N/A	3.5E-05	mg/kg-day	1.0E-02	mg/kg-day	3.5E-03				
				Arsenic	5E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Cadmium (other media)	5E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A				
				Chromium	9E+00	ug/L	2.5E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	7.5E-05	mg/kg-day	3.8E-03				
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A				
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
				Iron	4E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
				Lead	9E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A				
				Vanadium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A				
				Exp. Route Total										5E-08				1E-02		
				Exposure Point Total										5E-08				1E-02		
				Exposure Medium Total										N/A				N/A		
				Medium Total										N/A				N/A		
				Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.4E-08	4.5E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(a)pyrene	1E+00	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.5E-07	4.0E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(b)fluoranthene	1E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.2E-08	4.9E-07	mg/kg-day	N/A	N/A	N/A
								Benzo(k)fluoranthene	6E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.4E-09	2.4E-07	mg/kg-day	N/A	N/A	N/A
								bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	4.5E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.3E-09	5.3E-06	mg/kg-day	2.0E-02	mg/kg-day	2.6E-04
								Carbazole	1E-01	mg/kg	4.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.1E-11	5.3E-08	mg/kg-day	N/A	N/A	N/A
								Dibenz(a,h)anthracene	1E-01	mg/kg	3.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.4E-08	4.5E-08	mg/kg-day	N/A	N/A	N/A
								Dibenzofuran	7E-02	mg/kg	2.5E-09	mg/kg-day	N/A	N/A	N/A	2.9E-08	mg/kg-day	4.0E-03	mg/kg-day	7.3E-06
								Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-08	1.7E-07	mg/kg-day	N/A	N/A	N/A
								Phenanthrene	1E+00	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	3.0E-02	mg/kg-day	1.5E-05
Aroclor-1242	ND	mg/kg	N/A					N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
Aroclor-1254	6E-02	mg/kg	2.1E-09					mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.1E-09	2.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03				
Aroclor-1260	6E-01	mg/kg	1.9E-08					mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.8E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02				
Dieldrin	7E-02	mg/kg	2.6E-09					mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.1E-08	3.0E-08	mg/kg-day	5.0E-05	mg/kg-day	6.0E-04				
Aluminum	9E+03	mg/kg	3.2E-04					mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03				
Antimony	ND	mg/kg	N/A					N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A				
Arsenic	9E+00	mg/kg	3.1E-07					mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.7E-07	3.7E-06	mg/kg-day	3.0E-04	mg/kg-day	1.2E-02				

TABLE 7.44.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	1E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	1.0E-03	mg/kg-day	5.6E-03
				Chromium	2E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	6.6E-05	mg/kg-day	3.0E-03	mg/kg-day	2.2E-02
				Cobalt	1E+01	mg/kg	3.8E-07	mg/kg-day	N/A	N/A	N/A	4.5E-06	mg/kg-day	3.0E-04	mg/kg-day	1.5E-02
				Copper	2E+02	mg/kg	7.3E-06	mg/kg-day	N/A	N/A	N/A	8.5E-05	mg/kg-day	4.0E-02	mg/kg-day	2.1E-03
				Iron	1E+04	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	5.0E-03	mg/kg-day	7.0E-01	mg/kg-day	7.1E-03
				Lead												
				Manganese (other media)	8E+02	mg/kg	2.9E-05	mg/kg-day	N/A	N/A	N/A	3.4E-04	mg/kg-day	7.0E-02	mg/kg-day	4.8E-03
				Mercury (other media)	4E-01	mg/kg	1.5E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	1.0E-04	mg/kg-day	1.8E-03
				Thallium	6E-01	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	8.0E-05	mg/kg-day	3.1E-03
				Vanadium	2E+01	mg/kg	8.3E-07	mg/kg-day	N/A	N/A	N/A	9.7E-06	mg/kg-day	7.0E-03	mg/kg-day	1.4E-03
				Exp. Route Total								2E-06				
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	6.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	7.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	5.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	6.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	7.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	6E-01	mg/kg	3.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	7.2E-09	3.8E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	1E+01	mg/kg	5.7E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.9E-09	6.6E-06	mg/kg-day	2.0E-02	mg/kg-day	3.3E-04
				Carbazole	1E-01	mg/kg	7.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.5E-10	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	1E-01	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-07	7.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	3.7E-08	mg/kg-day	4.0E-03	mg/kg-day	9.2E-06
				Indeno(1,2,3-cd)pyrene	4E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.1E-08	2.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	6.2E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-02	mg/kg-day	2.4E-05
				Aroclor-1242	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	6E-02	mg/kg	3.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.2E-09	4.2E-08	mg/kg-day	2.0E-05	mg/kg-day	2.1E-03
				Aroclor-1260	6E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	6.7E-08	3.9E-07	mg/kg-day	2.0E-05	mg/kg-day	2.0E-02
				Dieldrin	7E-02	mg/kg	3.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.2E-08	3.8E-08	mg/kg-day	5.0E-05	mg/kg-day	7.5E-04
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	9E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.8E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.6E-03
				Cadmium (other media)	1E+01	mg/kg	6.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	2.5E-05	mg/kg-day	2.8E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	6E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Exp. Route Total								2E-06				
			Exposure Point Total								4E-06					1E-01

TABLE 7.44.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
	Exposure Medium Total												N/A				N/A			
Medium Total														N/A				N/A		
							Total of Receptor Risks Across All Media						N/A	Total of Receptor Hazards Across All Media						N/A

Notes
Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.44.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.7E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.6E-07	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.7E-08	3.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.5E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.5E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.1E-10	1.7E-07	mg/kg-day	2.0E-02	mg/kg-day	8.7E-06
				Carbazole	1E-01	mg/kg	2.6E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.1E-11	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	3.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.0E-08	3.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	3.3E-08	mg/kg-day	4.0E-03	mg/kg-day	8.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.9E-08	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	3.0E-02	mg/kg-day	7.9E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	9.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	9.1E-09	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.3E-03
				Dieldrin	5E-01	mg/kg	7.9E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.3E-07	9.2E-08	mg/kg-day	5.0E-05	mg/kg-day	1.8E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	1.0E+00	mg/kg-day	1.6E-03
				Antimony	1E+00	mg/kg	2.0E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	4.0E-04	mg/kg-day	5.7E-04
				Arsenic	1E+01	mg/kg	2.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.1E-07	2.4E-06	mg/kg-day	3.0E-04	mg/kg-day	8.0E-03
				Cadmium (other media)	4E+00	mg/kg	6.7E-08	mg/kg-day	N/A	N/A	N/A	7.8E-07	mg/kg-day	1.0E-03	mg/kg-day	7.8E-04
				Chromium	2E+02	mg/kg	3.9E-06	mg/kg-day	N/A	N/A	N/A	4.5E-05	mg/kg-day	3.0E-03	mg/kg-day	1.5E-02
				Cobalt	4E+00	mg/kg	7.3E-08	mg/kg-day	N/A	N/A	N/A	8.6E-07	mg/kg-day	3.0E-04	mg/kg-day	2.9E-03
				Copper	1E+02	mg/kg	2.3E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	4.0E-02	mg/kg-day	6.8E-04
				Iron	2E+04	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	3.2E-03	mg/kg-day	7.0E-01	mg/kg-day	4.6E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	8.2E-06	mg/kg-day	N/A	N/A	N/A	9.5E-05	mg/kg-day	7.0E-02	mg/kg-day	1.4E-03
				Mercury (other media)	8E-01	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	1.0E-04	mg/kg-day	1.6E-03
				Thallium	2E-01	mg/kg	3.1E-09	mg/kg-day	N/A	N/A	N/A	3.6E-08	mg/kg-day	8.0E-05	mg/kg-day	4.6E-04
				Vanadium	3E+01	mg/kg	4.4E-07	mg/kg-day	N/A	N/A	N/A	5.2E-06	mg/kg-day	7.0E-03	mg/kg-day	7.4E-04
				Zinc	1E+02	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	2.4E-05	mg/kg-day	3.0E-01	mg/kg-day	8.1E-05
				Exp. Route Total										1E-06		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-06	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	8.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.8E-09	3.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.6E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.7E-10	3.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.5E-05
				Carbazole	1E-01	mg/kg	5.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.2E-10	6.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	8.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.0E-09	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.5E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.0E-08	4.8E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.44.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	5.4E-07	mg/kg-day	3.0E-02	mg/kg-day	1.8E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	2.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.2E-08	2.6E-07	mg/kg-day	2.0E-05	mg/kg-day	1.3E-02
				Dieldrin	5E-01	mg/kg	1.4E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.2E-07	1.6E-07	mg/kg-day	5.0E-05	mg/kg-day	3.2E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.6E-07	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.2E-03
				Cadmium (other media)	4E+00	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.5E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-06					2E-02
		Exposure Point Total									3E-06					7E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Upstream of Landfill	Dermal (wading)	Benzo(a)anthracene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	8E-02	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	7E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	5E+00	ug/L	8.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.1E-08	9.4E-06	mg/kg-day	2.0E-02	mg/kg-day	4.7E-04
				Chrysene	8E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	7E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Phenanthrene	9E-02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	ND	ug/L	N/A	N/A	5.4E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Benzene	ND	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Aroclor-1260	ND	ug/L	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	4E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.44.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
Sediment	Sediment	Upstream of Landfill	Ingestion	4,4'-DDE	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				alpha-Chlordane	2E-03	ug/L	4.3E-10	mg/kg-day	3.5E-01	(mg/kg-day) ⁻¹	1.5E-10	5.1E-09	mg/kg-day	5.0E-04	mg/kg-day	1.0E-05				
				beta-BHC	ND	ug/L	N/A	N/A	1.8E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-04	mg/kg-day	N/A				
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A				
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A				
				Heptachlor Epoxide	2E-03	ug/L	3.0E-10	mg/kg-day	9.1E+00	(mg/kg-day) ⁻¹	2.7E-09	3.5E-09	mg/kg-day	1.3E-05	mg/kg-day	2.7E-04				
				Aluminum	7E+02	ug/L	5.3E-07	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	1.0E-02	mg/kg-day	6.2E-04				
				Arsenic	3E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A				
				Chromium	3E+00	ug/L	4.8E-09	mg/kg-day	N/A	N/A	N/A	5.6E-08	mg/kg-day	7.5E-05	mg/kg-day	7.5E-04				
				Cobalt	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
				Copper	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A				
				Cyanide	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A				
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
				Lead	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
				Manganese (other media)	2E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A				
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A				
				Exp. Route Total									1E-08					2E-03		
				Exposure Point Total									1E-08					2E-03		
				Exposure Medium Total									N/A					N/A		
				Medium Total									N/A					N/A		
				Sediment	Sediment	Upstream of Landfill	Ingestion	Benzo(a)anthracene	7E-01	mg/kg	5.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-08	6.9E-08	mg/kg-day	N/A	N/A	N/A
								Benzo(a)pyrene	6E-01	mg/kg	5.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-07	6.3E-08	mg/kg-day	N/A	N/A	N/A
								Benzo(b)fluoranthene	8E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-08	7.8E-08	mg/kg-day	N/A	N/A	N/A
								Benzo(k)fluoranthene	3E-01	mg/kg	2.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.9E-10	3.1E-08	mg/kg-day	N/A	N/A	N/A
								bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	5.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.0E-10	5.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.9E-05
								Carbazole	1E-01	mg/kg	1.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.3E-11	1.3E-08	mg/kg-day	N/A	N/A	N/A
								Dibenz(a,h)anthracene	7E-02	mg/kg	6.4E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-08	7.5E-09	mg/kg-day	N/A	N/A	N/A
								Dibenzofuran	7E-02	mg/kg	6.3E-10	mg/kg-day	N/A	N/A	N/A	7.3E-09	mg/kg-day	4.0E-03	mg/kg-day	1.8E-06
								Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	2.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.4E-09	2.9E-08	mg/kg-day	N/A	N/A	N/A
								Phenanthrene	6E-01	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	6.3E-08	mg/kg-day	3.0E-02	mg/kg-day	2.1E-06
Aroclor-1242	ND	mg/kg	N/A					N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A				
Aroclor-1254	2E-02	mg/kg	1.9E-10					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.9E-10	2.2E-09	mg/kg-day	2.0E-05	mg/kg-day	1.1E-04				
Aroclor-1260	2E-01	mg/kg	1.6E-09					mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.6E-09	1.9E-08	mg/kg-day	2.0E-05	mg/kg-day	9.5E-04				
Dieldrin	3E-02	mg/kg	2.3E-10					mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.7E-09	2.7E-09	mg/kg-day	5.0E-05	mg/kg-day	5.4E-05				
Aluminum	6E+03	mg/kg	5.2E-05					mg/kg-day	N/A	N/A	N/A	6.1E-04	mg/kg-day	1.0E+00	mg/kg-day	6.1E-04				
Antimony	ND	mg/kg	N/A					N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A				
Arsenic	6E+00	mg/kg	4.9E-08					mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.3E-08	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03				

TABLE 7.44.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cadmium (other media)	5E+00	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	5.6E-07	mg/kg-day	1.0E-03	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	6.0E-07	mg/kg-day	N/A	N/A	N/A	7.0E-06	mg/kg-day	3.0E-03	mg/kg-day	2.3E-03
				Cobalt	6E+00	mg/kg	5.2E-08	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.0E-03
				Copper	9E+01	mg/kg	7.4E-07	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	4.0E-02	mg/kg-day	2.2E-04
				Iron	1E+04	mg/kg	9.1E-05	mg/kg-day	N/A	N/A	N/A	1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.5E-03
				Lead												
				Manganese (other media)	4E+02	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	7.0E-02	mg/kg-day	5.7E-04
				Mercury (other media)	2E-01	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	1.0E-04	mg/kg-day	2.2E-04
				Thallium	4E-01	mg/kg	3.6E-09	mg/kg-day	N/A	N/A	N/A	4.2E-08	mg/kg-day	8.0E-05	mg/kg-day	5.2E-04
				Vanadium	1E+01	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	7.0E-03	mg/kg-day	2.0E-04
			Exp. Route Total								2E-07					1E-02
			Dermal													
				Benzo(a)anthracene	7E-01	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.2E-08	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	6E-01	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.9E-07	2.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	8E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.7E-08	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	3E-01	mg/kg	8.7E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-09	1.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	6E+00	mg/kg	1.3E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-09	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.3E-05
				Carbazole	1E-01	mg/kg	3.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	7.3E-11	4.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-02	mg/kg	2.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.6E-08	2.4E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	7E-02	mg/kg	1.6E-09	mg/kg-day	N/A	N/A	N/A	1.8E-08	mg/kg-day	4.0E-03	mg/kg-day	4.6E-06
				Indeno(1,2,3-cd)pyrene	3E-01	mg/kg	8.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-08	9.4E-08	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	6E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	2.1E-07	mg/kg-day	3.0E-02	mg/kg-day	6.8E-06
				Aroclor-1242	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	2E-02	mg/kg	6.7E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.7E-10	7.8E-09	mg/kg-day	2.0E-05	mg/kg-day	3.9E-04
				Aroclor-1260	2E-01	mg/kg	5.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.7E-09	6.6E-08	mg/kg-day	2.0E-05	mg/kg-day	3.3E-03
				Dieldrin	3E-02	mg/kg	5.7E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.2E-09	6.7E-09	mg/kg-day	5.0E-05	mg/kg-day	1.3E-04
				Aluminum	6E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	6E+00	mg/kg	3.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.5E-08	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.2E-09	mg/kg-day	N/A	N/A	N/A	1.4E-08	mg/kg-day	2.5E-05	mg/kg-day	5.6E-04
				Chromium	7E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	6E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	9E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	1E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	4E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
			Exp. Route Total								6E-07					6E-03
		Exposure Point Total									9E-07					2E-02

TABLE 7.44.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RID/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
	Exposure Medium Total											N/A						N/A
Medium Total												N/A						N/A
							Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.45.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion	Benzo(a)pyrene	1E-01	mg/kg	2.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-07	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-08	6.5E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	1.0E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-06	2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	9.8E-03
				Iron	9E+03	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.9E-03	mg/kg-day	7.0E-01	mg/kg-day	5.5E-03
				Thallium	1E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	4.0E-07	mg/kg-day	8.0E-05	mg/kg-day	5.0E-03
			Exp. Route Total								2E-06					2E-02
			Dermal	Benzo(a)pyrene	1E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.4E-08	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.5E-09	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.8E-07	3.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								3E-07					1E-03
		Exposure Point Total									2E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal (wading)	Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	2.2E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.0E-08	6.3E-06	mg/kg-day	2.0E-02	mg/kg-day	3.1E-04
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	1.8E-09	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	3.2E-09	5.2E-09	mg/kg-day	6.0E-04	mg/kg-day	8.7E-06
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
			Exp. Route Total								3E-08					3E-04
		Exposure Point Total									3E-08					3E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Wetlands	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.8E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.7E-07	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.6E-08	3.4E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	8.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.3E-09	2.5E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.4E-10	3.5E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-07	5.0E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.45.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion	Benzo(a)pyrene	1E-01	mg/kg	3.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.3E-08	1.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	4.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.4E-09	1.6E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.7E-07	4.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Iron	8E+03	mg/kg	2.3E-04	mg/kg-day	N/A	N/A	N/A	8.1E-04	mg/kg-day	7.0E-01	mg/kg-day	1.2E-03
				Thallium	7E-01	mg/kg	1.9E-08	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	8.0E-05	mg/kg-day	8.3E-04
			Exp. Route Total								2E-07					3E-03
			Dermal	Benzo(a)pyrene	1E-01	mg/kg	3.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-08	1.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	4.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.5E-09	1.7E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	2.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.2E-08	9.7E-08	mg/kg-day	3.0E-04	mg/kg-day	3.2E-04
				Iron	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								7E-08					3E-04
		Exposure Point Total									3E-07					4E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal (wading)	Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	9.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.3E-08	3.1E-06	mg/kg-day	2.0E-02	mg/kg-day	1.6E-04
				Chrysene	5E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	7.4E-10	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	1.3E-09	2.6E-09	mg/kg-day	6.0E-04	mg/kg-day	4.3E-06
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
			Exp. Route Total								1E-08					2E-04
		Exposure Point Total									1E-08					2E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Wetlands	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-08	5.8E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	7.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-08	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.3E-09	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	2.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.0E-11	8.8E-09	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.6E-08	1.3E-08	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-08	5.1E-08	mg/kg-day	N/A	N/A	N/A

TABLE 7.45.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations										
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient						
							Value	Units	Value	Units		Value	Units	Value	Units							
Medium				Aroclor-1260	7E-02	mg/kg	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-09	3.8E-09	mg/kg-day	2.0E-05	mg/kg-day	1.9E-04						
				Aluminum	2E+04	mg/kg	2.5E-04	mg/kg-day	N/A	N/A	N/A	8.8E-04	mg/kg-day	1.0E+00	mg/kg-day	8.8E-04						
				Antimony	1E+00	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	5.7E-08	mg/kg-day	4.0E-04	mg/kg-day	1.4E-04						
				Arsenic	8E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.7E-07	3.9E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03						
				Chromium	5E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	3.0E-03	mg/kg-day	9.3E-04						
				Cobalt	1E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	6.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03						
				Iron	3E+04	mg/kg	3.9E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	7.0E-01	mg/kg-day	2.0E-03						
				Lead																		
				Manganese (other media)	6E+02	mg/kg	9.2E-06	mg/kg-day	N/A	N/A	N/A	3.2E-05	mg/kg-day	7.0E-02	mg/kg-day	4.6E-04						
				Thallium	4E-01	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	8.0E-05	mg/kg-day	2.4E-04						
				Vanadium	4E+01	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	7.0E-03	mg/kg-day	2.9E-04						
				Exp. Route Total											4E-07					9E-03		
				Dermal	Benzo(a)anthracene	1E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.9E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A					
					Benzo(a)pyrene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.1E-07	4.4E-07	mg/kg-day	N/A	N/A	N/A					
					Benzo(b)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A					
					Benzo(k)fluoranthene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	7.5E-09	3.6E-07	mg/kg-day	N/A	N/A	N/A					
					Carbazole	2E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.9E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A					
					Dibenz(a,h)anthracene	2E-01	mg/kg	2.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.5E-07	7.2E-08	mg/kg-day	N/A	N/A	N/A					
					Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.1E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A					
					Aroclor-1260	7E-02	mg/kg	6.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.7E-09	2.3E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03					
					Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A					
					Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A					
					Arsenic	8E+00	mg/kg	1.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.2E-07	5.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03					
					Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A					
					Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A					
					Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A					
					Lead																	
					Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A					
					Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A					
					Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A					
					Exp. Route Total											2E-06					3E-03	
					Exposure Point Total												2E-06					1E-02
				Exposure Medium Total												N/A					N/A	
				Medium Total												N/A					N/A	
											Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A

TABLE 7.46.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion	Benzo(a)pyrene	1E-01	mg/kg	2.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.4E-07	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-08	6.5E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	1.0E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-06	2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	9.8E-03
				Iron	9E+03	mg/kg	1.3E-03	mg/kg-day	N/A	N/A	N/A	3.9E-03	mg/kg-day	7.0E-01	mg/kg-day	5.5E-03
				Thallium	1E+00	mg/kg	1.4E-07	mg/kg-day	N/A	N/A	N/A	4.0E-07	mg/kg-day	8.0E-05	mg/kg-day	5.0E-03
			Exp. Route Total								2E-06					2E-02
			Dermal	Benzo(a)pyrene	1E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.4E-08	3.0E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.5E-09	3.4E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.8E-07	3.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.2E-03
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								3E-07					1E-03
			Exposure Point Total									2E-06				
		Exposure Medium Total									N/A					N/A
Medium Total									N/A					N/A		
Surface Water	Surface Water	Wetlands	Dermal (swimming)	Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	3.3E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.6E-08	9.5E-06	mg/kg-day	2.0E-02	mg/kg-day	4.8E-04
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	2.7E-09	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	4.9E-09	7.9E-09	mg/kg-day	6.0E-04	mg/kg-day	1.3E-05
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	2.5E-06	mg/kg-day	N/A	N/A	N/A	7.3E-06	mg/kg-day	7.0E-02	mg/kg-day	1.0E-04
				Exp. Route Total								5E-08				
			Ingestion (swimming)	Benzo(b)fluoranthene	1E-01	ug/L	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	4.1E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	5.7E-10	1.2E-07	mg/kg-day	2.0E-02	mg/kg-day	5.9E-06
				Chrysene	1E-01	ug/L	2.4E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	1.7E-11	6.9E-09	mg/kg-day	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	1.0E-10	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	1.9E-10	3.1E-10	mg/kg-day	6.0E-04	mg/kg-day	5.1E-07
Arsenic	2E+00	ug/L	3.5E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.2E-08	1.0E-07	mg/kg-day	3.0E-04	mg/kg-day	3.4E-04				
Cobalt	2E+00	ug/L	4.4E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	3.0E-04	mg/kg-day	4.3E-04				
Cyanide	9E+01	ug/L	2.0E-06	mg/kg-day	N/A	N/A	N/A	5.7E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04				

TABLE 7.46.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Iron	2E+03	ug/L	3.5E-05	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	7.0E-01	mg/kg-day	1.4E-04	
				Manganese (other media)	3E+02	ug/L	6.9E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.9E-04	
			Exp. Route Total						5E-08					1E-03			
			Exposure Point Total										1E-07		2E-03		
		Exposure Medium Total										N/A		N/A			
Medium Total												N/A		N/A			
Sediment	Sediment	Wetlands	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.8E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	2E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.7E-07	3.1E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	2E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.6E-08	3.4E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(k)fluoranthene	1E+00	mg/kg	8.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.3E-09	2.5E-07	mg/kg-day	N/A	N/A	N/A	
				Carbazole	2E-01	mg/kg	1.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.4E-10	3.5E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-07	5.0E-08	mg/kg-day	N/A	N/A	N/A	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.1E-08	2.0E-07	mg/kg-day	N/A	N/A	N/A	
				Aroclor-1260	7E-02	mg/kg	5.2E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.0E-08	1.5E-08	mg/kg-day	2.0E-05	mg/kg-day	7.6E-04	
				Aluminum	2E+04	mg/kg	1.2E-03	mg/kg-day	N/A	N/A	N/A	3.5E-03	mg/kg-day	1.0E+00	mg/kg-day	3.5E-03	
				Antimony	1E+00	mg/kg	7.8E-08	mg/kg-day	N/A	N/A	N/A	2.3E-07	mg/kg-day	4.0E-04	mg/kg-day	5.7E-04	
				Arsenic	8E+00	mg/kg	5.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.9E-07	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.1E-03	
				Chromium	5E+01	mg/kg	3.8E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	3.0E-03	mg/kg-day	3.7E-03	
				Cobalt	1E+01	mg/kg	9.3E-07	mg/kg-day	N/A	N/A	N/A	2.7E-06	mg/kg-day	3.0E-04	mg/kg-day	9.0E-03	
				Iron	3E+04	mg/kg	1.9E-03	mg/kg-day	N/A	N/A	N/A	5.5E-03	mg/kg-day	7.0E-01	mg/kg-day	7.8E-03	
				Lead													
				Manganese (other media)	6E+02	mg/kg	4.4E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	7.0E-02	mg/kg-day	1.8E-03	
				Thallium	4E-01	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	7.5E-08	mg/kg-day	8.0E-05	mg/kg-day	9.4E-04	
				Vanadium	4E+01	mg/kg	2.8E-06	mg/kg-day	N/A	N/A	N/A	8.1E-06	mg/kg-day	7.0E-03	mg/kg-day	1.2E-03	
				Exp. Route Total						2E-06		3E-02					
				Dermal	Benzo(a)anthracene	1E+00	mg/kg	2.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	6.6E-07	mg/kg-day	N/A	N/A	N/A
					Benzo(a)pyrene	2E+00	mg/kg	3.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.2E-06	8.8E-07	mg/kg-day	N/A	N/A	N/A
					Benzo(b)fluoranthene	2E+00	mg/kg	3.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.5E-07	9.8E-07	mg/kg-day	N/A	N/A	N/A
					Benzo(k)fluoranthene	1E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.8E-08	7.2E-07	mg/kg-day	N/A	N/A	N/A
					Carbazole	2E-01	mg/kg	3.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.8E-10	1.0E-07	mg/kg-day	N/A	N/A	N/A
					Dibenz(a,h)anthracene	2E-01	mg/kg	4.9E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.6E-07	1.4E-07	mg/kg-day	N/A	N/A	N/A
					Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-07	5.8E-07	mg/kg-day	N/A	N/A	N/A
					Aroclor-1260	7E-02	mg/kg	1.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.2E-08	4.7E-08	mg/kg-day	2.0E-05	mg/kg-day	2.3E-03
					Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
					Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
			Arsenic		8E+00	mg/kg	3.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.2E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.4E-03	
			Chromium		5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A	
			Cobalt		1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	

TABLE 7.46.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A	
				Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A	
				Exp. Route Total						4E-06				6E-03		
			Exposure Point Total							6E-06				4E-02		
		Exposure Medium Total							N/A				N/A			
		Medium Total							N/A				N/A			
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A

TABLE 7.46.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion	Benzo(a)pyrene	1E-01	mg/kg	3.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.3E-08	1.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	4.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.4E-09	1.6E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.7E-07	4.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Iron	8E+03	mg/kg	2.3E-04	mg/kg-day	N/A	N/A	N/A	8.1E-04	mg/kg-day	7.0E-01	mg/kg-day	1.2E-03
				Thallium	7E-01	mg/kg	1.9E-08	mg/kg-day	N/A	N/A	N/A	6.6E-08	mg/kg-day	8.0E-05	mg/kg-day	8.3E-04
			Exp. Route Total								2E-07					3E-03
			Dermal	Benzo(a)pyrene	1E-01	mg/kg	3.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-08	1.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	4.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.5E-09	1.7E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	2.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.2E-08	9.7E-08	mg/kg-day	3.0E-04	mg/kg-day	3.2E-04
				Iron	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								7E-08					3E-04
		Exposure Point Total									3E-07					4E-03
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal (swimming)	Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	1.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.9E-08	4.8E-06	mg/kg-day	2.0E-02	mg/kg-day	2.4E-04
				Chrysene	5E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	1.1E-09	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	2.0E-09	3.9E-09	mg/kg-day	6.0E-04	mg/kg-day	6.6E-06
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
			Ingestion (swimming)	Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	1.0E-06	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	7.0E-02	mg/kg-day	5.2E-05
			Exp. Route Total								2E-08					3E-04
			Ingestion (swimming)	Benzo(b)fluoranthene	1E-01	ug/L	8.9E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.5E-10	3.1E-09	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	1.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.4E-10	5.9E-08	mg/kg-day	2.0E-02	mg/kg-day	3.0E-06
				Chrysene	5E-02	ug/L	4.8E-10	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	3.5E-12	1.7E-09	mg/kg-day	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	4.4E-11	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	7.9E-11	1.5E-10	mg/kg-day	6.0E-04	mg/kg-day	2.5E-07
				Arsenic	2E+00	ug/L	1.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.2E-08	5.0E-08	mg/kg-day	3.0E-04	mg/kg-day	1.7E-04
				Cobalt	2E+00	ug/L	1.8E-08	mg/kg-day	N/A	N/A	N/A	6.4E-08	mg/kg-day	3.0E-04	mg/kg-day	2.1E-04
				Cyanide	9E+01	ug/L	8.2E-07	mg/kg-day	N/A	N/A	N/A	2.9E-06	mg/kg-day	2.0E-02	mg/kg-day	1.4E-04

TABLE 7.46.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Iron	2E+03	ug/L	1.4E-05	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	7.0E-01	mg/kg-day	7.2E-05	
				Manganese (other media)	3E+02	ug/L	2.9E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	7.0E-02	mg/kg-day	1.4E-04	
			Exp. Route Total								2E-08			7E-04			
			Exposure Point Total								4E-08			1E-03			
		Exposure Medium Total								N/A			N/A				
Medium Total												N/A				N/A	
Sediment	Sediment	Wetlands	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-08	5.8E-08	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	2E+00	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	7.7E-08	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	2E+00	mg/kg	2.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-08	8.6E-08	mg/kg-day	N/A	N/A	N/A	
				Benzo(k)fluoranthene	1E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.3E-09	6.3E-08	mg/kg-day	N/A	N/A	N/A	
				Carbazole	2E-01	mg/kg	2.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.0E-11	8.8E-09	mg/kg-day	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	2E-01	mg/kg	3.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.6E-08	1.3E-08	mg/kg-day	N/A	N/A	N/A	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-08	5.1E-08	mg/kg-day	N/A	N/A	N/A	
				Aroclor-1260	7E-02	mg/kg	1.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-09	3.8E-09	mg/kg-day	2.0E-05	mg/kg-day	1.9E-04	
				Aluminum	2E+04	mg/kg	2.5E-04	mg/kg-day	N/A	N/A	N/A	8.8E-04	mg/kg-day	1.0E+00	mg/kg-day	8.8E-04	
				Antimony	1E+00	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	5.7E-08	mg/kg-day	4.0E-04	mg/kg-day	1.4E-04	
				Arsenic	8E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.7E-07	3.9E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03	
				Chromium	5E+01	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	2.8E-06	mg/kg-day	3.0E-03	mg/kg-day	9.3E-04	
				Cobalt	1E+01	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	6.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03	
				Iron	3E+04	mg/kg	3.9E-04	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	7.0E-01	mg/kg-day	2.0E-03	
				Lead													
				Manganese (other media)	6E+02	mg/kg	9.2E-06	mg/kg-day	N/A	N/A	N/A	3.2E-05	mg/kg-day	7.0E-02	mg/kg-day	4.6E-04	
				Thallium	4E-01	mg/kg	5.4E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	8.0E-05	mg/kg-day	2.4E-04	
				Vanadium	4E+01	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	7.0E-03	mg/kg-day	2.9E-04	
				Exp. Route Total								4E-07					
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.9E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	2E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.1E-07	4.4E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	2E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-07	4.9E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(k)fluoranthene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	7.5E-09	3.6E-07	mg/kg-day	N/A	N/A	N/A	
				Carbazole	2E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.9E-10	5.0E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.5E-07	7.2E-08	mg/kg-day	N/A	N/A	N/A	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.1E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A	
				Aroclor-1260	7E-02	mg/kg	6.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.7E-09	2.3E-08	mg/kg-day	2.0E-05	mg/kg-day	1.2E-03	
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A	
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A	
				Arsenic	8E+00	mg/kg	1.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.2E-07	5.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03	
				Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A	
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	

TABLE 7.46.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A	
				Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A	
				</												

TABLE 7.47.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion	Benzo(a)pyrene	1E-01	mg/kg	9.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.1E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	5.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.5E-07	5.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02
				Iron	9E+03	mg/kg	6.6E-04	mg/kg-day	N/A	N/A	N/A	7.7E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02
				Thallium	1E+00	mg/kg	6.8E-08	mg/kg-day	N/A	N/A	N/A	8.0E-07	mg/kg-day	8.0E-05	mg/kg-day	1.0E-02
			Exp. Route Total								1E-06					4E-02
			Dermal	Benzo(a)pyrene	1E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	1.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.0E-07	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.2E-03
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								5E-07					5E-03
		Exposure Point Total									1E-06					5E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Surface Water	Surface Water	Wetlands	Dermal (wading)	Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	6.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.6E-09	7.2E-06	mg/kg-day	2.0E-02	mg/kg-day	3.6E-04
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	5.1E-10	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	9.2E-10	5.9E-09	mg/kg-day	6.0E-04	mg/kg-day	9.9E-06
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
			Exp. Route Total								1E-08					4E-04
		Exposure Point Total									1E-08					4E-04
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
Sediment	Sediment	Wetlands	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	4.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.7E-08	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	6.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	6.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.4E-09	5.0E-07	mg/kg-day	N/A	N/A	N/A
				Carbazole	2E-01	mg/kg	6.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.2E-10	7.0E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	8.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.7E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.47.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
Medium 1				Aroclor-1260	7E-02	mg/kg	2.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.2E-09	3.0E-08	mg/kg-day	2.0E-05	mg/kg-day	1.5E-03			
				Aluminum	2E+04	mg/kg	6.0E-04	mg/kg-day	N/A	N/A	N/A	7.0E-03	mg/kg-day	1.0E+00	mg/kg-day	7.0E-03			
				Antimony	1E+00	mg/kg	3.9E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	4.0E-04	mg/kg-day	1.1E-03			
				Arsenic	8E+00	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.0E-07	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.0E-02			
				Chromium	5E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	3.0E-03	mg/kg-day	7.5E-03			
				Cobalt	1E+01	mg/kg	4.7E-07	mg/kg-day	N/A	N/A	N/A	5.4E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02			
				Iron	3E+04	mg/kg	9.4E-04	mg/kg-day	N/A	N/A	N/A	1.1E-02	mg/kg-day	7.0E-01	mg/kg-day	1.6E-02			
				Lead															
				Manganese (other media)	6E+02	mg/kg	2.2E-05	mg/kg-day	N/A	N/A	N/A	2.6E-04	mg/kg-day	7.0E-02	mg/kg-day	3.7E-03			
				Thallium	4E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	8.0E-05	mg/kg-day	1.9E-03			
			Vanadium	4E+01	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	7.0E-03	mg/kg-day	2.3E-03				
			Exp. Route Total										2E-06					7E-02	
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	6.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A			
				Benzo(a)pyrene	2E+00	mg/kg	8.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A			
				Benzo(b)fluoranthene	2E+00	mg/kg	9.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A			
				Benzo(k)fluoranthene	1E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.5E-08	8.2E-07	mg/kg-day	N/A	N/A	N/A			
				Carbazole	2E-01	mg/kg	9.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.0E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A			
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A			
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	6.7E-07	mg/kg-day	N/A	N/A	N/A			
				Aroclor-1260	7E-02	mg/kg	4.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.1E-09	5.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03			
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A			
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A			
			Arsenic	8E+00	mg/kg	9.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	3.9E-03				
			Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A				
			Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
			Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
			Lead																
			Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A			
			Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
			Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A			
			Exp. Route Total										3E-06					7E-03	
			Exposure Point Total											5E-06					8E-02
			Exposure Medium Total											N/A					N/A
			Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media			N/A	Total of Receptor Hazards Across All Media					N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.47.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
Soil	Surface Soil	Wetlands	Ingestion	Benzo(a)pyrene	1E-01	mg/kg	1.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.2E-08	2.2E-08	mg/kg-day	N/A	N/A	N/A		
				Benzo(b)fluoranthene	2E-01	mg/kg	2.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.1E-09	3.3E-08	mg/kg-day	N/A	N/A	N/A		
				Arsenic	4E+00	mg/kg	7.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.0E-07	8.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.7E-03		
				Iron	8E+03	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	7.0E-01	mg/kg-day	2.3E-03		
				Thallium	7E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	8.0E-05	mg/kg-day	1.7E-03		
			Exp. Route Total									2E-07					7E-03	
			Dermal	Benzo(a)pyrene	1E-01	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.6E-08	5.1E-08	mg/kg-day	N/A	N/A	N/A		
				Benzo(b)fluoranthene	2E-01	mg/kg	6.4E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-08	7.5E-08	mg/kg-day	N/A	N/A	N/A		
				Arsenic	4E+00	mg/kg	3.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.5E-08	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03		
				Iron	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A		
		Thallium		7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A			
		Exp. Route Total									2E-07					1E-03		
		Exposure Point Total										3E-07					8E-03	
		Exposure Medium Total										N/A					N/A	
Medium Total											N/A					N/A		
Surface Water	Surface Water	Wetlands	Dermal (wading)	Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A		
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	3.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.3E-09	3.6E-06	mg/kg-day	2.0E-02	mg/kg-day	1.8E-04		
				Chrysene	5E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A			
				beta-BHC	5E-03	ug/L	2.5E-10	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	4.6E-10	3.0E-09	mg/kg-day	6.0E-04	mg/kg-day	4.9E-06		
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A		
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A		
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A		
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A		
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A		
			Exp. Route Total									5E-09					2E-04	
		Exposure Point Total										5E-09					2E-04	
		Exposure Medium Total										N/A					N/A	
		Medium Total											N/A					N/A
		Sediment	Sediment	Wetlands	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	9.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A
Benzo(a)pyrene	2E+00					mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.9E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A		
Benzo(b)fluoranthene	2E+00					mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.2E-08	1.7E-07	mg/kg-day	N/A	N/A	N/A		
Benzo(k)fluoranthene	1E+00					mg/kg	1.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.4E-09	1.3E-07	mg/kg-day	N/A	N/A	N/A		
Carbazole	2E-01					mg/kg	1.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.0E-11	1.8E-08	mg/kg-day	N/A	N/A	N/A		
Dibenz(a,h)anthracene	2E-01					mg/kg	2.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.7E-08	2.5E-08	mg/kg-day	N/A	N/A	N/A		
Indeno(1,2,3-cd)pyrene	1E+00					mg/kg	8.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A		

TABLE 7.47.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (wading)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
Medium 1				Aroclor-1260	7E-02	mg/kg	6.5E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.5E-10	7.6E-09	mg/kg-day	2.0E-05	mg/kg-day	3.8E-04				
				Aluminum	2E+04	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03				
				Antimony	1E+00	mg/kg	9.7E-09	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.8E-04				
				Arsenic	8E+00	mg/kg	6.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.9E-08	7.7E-07	mg/kg-day	3.0E-04	mg/kg-day	2.6E-03				
				Chromium	5E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	3.0E-03	mg/kg-day	1.9E-03				
				Cobalt	1E+01	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.5E-03				
				Iron	3E+04	mg/kg	2.3E-04	mg/kg-day	N/A	N/A	N/A	2.7E-03	mg/kg-day	7.0E-01	mg/kg-day	3.9E-03				
				Lead																
				Manganese (other media)	6E+02	mg/kg	5.5E-06	mg/kg-day	N/A	N/A	N/A	6.4E-05	mg/kg-day	7.0E-02	mg/kg-day	9.2E-04				
				Thallium	4E-01	mg/kg	3.2E-09	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	8.0E-05	mg/kg-day	4.7E-04				
				Vanadium	4E+01	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	4.0E-06	mg/kg-day	7.0E-03	mg/kg-day	5.8E-04				
				Exp. Route Total						5E-07									2E-02	
				Dermal	Benzo(a)anthracene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.0E-08	3.8E-07	mg/kg-day	N/A	N/A	N/A			
					Benzo(a)pyrene	2E+00	mg/kg	4.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.4E-07	5.0E-07	mg/kg-day	N/A	N/A	N/A			
					Benzo(b)fluoranthene	2E+00	mg/kg	4.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	5.6E-07	mg/kg-day	N/A	N/A	N/A			
					Benzo(k)fluoranthene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	7.7E-09	4.1E-07	mg/kg-day	N/A	N/A	N/A			
					Carbazole	2E-01	mg/kg	4.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.8E-11	5.7E-08	mg/kg-day	N/A	N/A	N/A			
					Dibenz(a,h)anthracene	2E-01	mg/kg	7.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.5E-07	8.2E-08	mg/kg-day	N/A	N/A	N/A			
					Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.2E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A			
			Aroclor-1260		7E-02	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.3E-09	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-03				
			Aluminum		2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A				
			Antimony		1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A				
			Arsenic		8E+00	mg/kg	5.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.4E-08	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03				
			Chromium		5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A				
			Cobalt		1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A				
			Iron		3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A				
			Lead																	
			Manganese (other media)		6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A				
			Thallium		4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A				
			Vanadium		4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A				
			Exp. Route Total							1E-06									3E-03	
			Exposure Point Total							2E-06									2E-02	
			Exposure Medium Total							N/A									N/A	
			Medium Total							N/A									N/A	
										Total of Receptor Risks Across All Media					Total of Receptor Hazards Across All Media					N/A

Notes

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.48.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion	Benzo(a)pyrene	1E-01	mg/kg	9.8E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.1E-07	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-08	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	5.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.5E-07	5.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.0E-02
				Iron	9E+03	mg/kg	6.6E-04	mg/kg-day	N/A	N/A	N/A	7.7E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02
				Thallium	1E+00	mg/kg	6.8E-08	mg/kg-day	N/A	N/A	N/A	8.0E-07	mg/kg-day	8.0E-05	mg/kg-day	1.0E-02
			Exp. Route Total								1E-06					4E-02
			Dermal	Benzo(a)pyrene	1E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Arsenic	7E+00	mg/kg	1.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.0E-07	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	5.2E-03
				Iron	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total								5E-07					5E-03
			Exposure Point Total									1E-06				
		Exposure Medium Total									N/A					N/A
Medium Total									N/A					N/A		
Surface Water	Surface Water	Wetlands	Dermal (swimming)	Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	1.0E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.4E-08	1.2E-05	mg/kg-day	2.0E-02	mg/kg-day	5.8E-04
				Chrysene	1E-01	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	8.3E-10	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	1.5E-09	9.6E-09	mg/kg-day	6.0E-04	mg/kg-day	1.6E-05
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Exp. Route Total								2E-08				
			Ingestion (swimming)	Benzo(b)fluoranthene	1E-01	ug/L	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.4E-09	1.3E-08	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	2.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.9E-10	2.4E-07	mg/kg-day	2.0E-02	mg/kg-day	1.2E-05
				Chrysene	1E-01	ug/L	1.2E-09	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	2.6E-11	1.4E-08	mg/kg-day	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	5.2E-11	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	9.4E-11	6.1E-10	mg/kg-day	6.0E-04	mg/kg-day	1.0E-06
Arsenic	2E+00	ug/L	1.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.6E-08	2.0E-07	mg/kg-day	3.0E-04	mg/kg-day	6.7E-04				
Cobalt	2E+00	ug/L	2.2E-08	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	3.0E-04	mg/kg-day	8.5E-04				
Cyanide	9E+01	ug/L	9.9E-07	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	2.0E-02	mg/kg-day	5.7E-04				

TABLE 7.48.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RID/RIC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Iron	2E+03	ug/L	1.7E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	7.0E-01	mg/kg-day	2.9E-04	
				Manganese (other media)	3E+02	ug/L	3.5E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	7.0E-02	mg/kg-day	5.8E-04	
				Exp. Route Total							3E-08					3E-03	
				Exposure Point Total							4E-08					4E-03	
	Exposure Medium Total										N/A				N/A		
Medium Total										N/A				N/A			
Sediment	Sediment	Wetlands	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	4.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.7E-08	4.6E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-06	6.2E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	2E+00	mg/kg	5.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-07	6.9E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(k)fluoranthene	1E+00	mg/kg	4.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.4E-09	5.0E-07	mg/kg-day	N/A	N/A	N/A	
				Carbazole	2E-01	mg/kg	6.0E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.2E-10	7.0E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	2E-01	mg/kg	8.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-07	1.0E-07	mg/kg-day	N/A	N/A	N/A	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.7E-08	4.1E-07	mg/kg-day	N/A	N/A	N/A	
				Aroclor-1260	7E-02	mg/kg	2.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.2E-09	3.0E-08	mg/kg-day	2.0E-05	mg/kg-day	1.5E-03	
				Aluminum	2E+04	mg/kg	6.0E-04	mg/kg-day	N/A	N/A	N/A	7.0E-03	mg/kg-day	1.0E+00	mg/kg-day	7.0E-03	
				Antimony	1E+00	mg/kg	3.9E-08	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	4.0E-04	mg/kg-day	1.1E-03	
				Arsenic	8E+00	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.0E-07	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.0E-02	
				Chromium	5E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	3.0E-03	mg/kg-day	7.5E-03	
				Cobalt	1E+01	mg/kg	4.7E-07	mg/kg-day	N/A	N/A	N/A	5.4E-06	mg/kg-day	3.0E-04	mg/kg-day	1.8E-02	
				Iron	3E+04	mg/kg	9.4E-04	mg/kg-day	N/A	N/A	N/A	1.1E-02	mg/kg-day	7.0E-01	mg/kg-day	1.6E-02	
				Lead													
				Manganese (other media)	6E+02	mg/kg	2.2E-05	mg/kg-day	N/A	N/A	N/A	2.6E-04	mg/kg-day	7.0E-02	mg/kg-day	3.7E-03	
				Thallium	4E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	1.5E-07	mg/kg-day	8.0E-05	mg/kg-day	1.9E-03	
				Vanadium	4E+01	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	7.0E-03	mg/kg-day	2.3E-03	
				Exp. Route Total							2E-06					7E-02	
				Dermal	Benzo(a)anthracene	1E+00	mg/kg	6.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-07	7.5E-07	mg/kg-day	N/A	N/A	N/A
					Benzo(a)pyrene	2E+00	mg/kg	8.6E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A
					Benzo(b)fluoranthene	2E+00	mg/kg	9.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-07	1.1E-06	mg/kg-day	N/A	N/A	N/A
					Benzo(k)fluoranthene	1E+00	mg/kg	7.0E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.5E-08	8.2E-07	mg/kg-day	N/A	N/A	N/A
					Carbazole	2E-01	mg/kg	9.8E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.0E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
					Dibenz(a,h)anthracene	2E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-07	1.6E-07	mg/kg-day	N/A	N/A	N/A
					Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	6.7E-07	mg/kg-day	N/A	N/A	N/A
					Aroclor-1260	7E-02	mg/kg	4.6E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.1E-09	5.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.7E-03
					Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
					Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
			Arsenic		8E+00	mg/kg	9.9E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	3.9E-03	
			Chromium		5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A	
			Cobalt		1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	
				Manganese (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A	
				Thallium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A	
				Vanadium												
				Exp. Route Total						3E-06				7E-03		
				Exposure Point Total							5E-06				8E-02	
				Exposure Medium Total							N/A				N/A	
		Medium Total										N/A				N/A
Total of Receptor Risks Across All Media							N/A		Total of Receptor Hazards Across All Media					N/A		

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.48.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Wetlands	Ingestion	Benzo(a)pyrene	1E-01	mg/kg	1.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.2E-08	2.2E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	2.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.1E-09	3.3E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	7.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.0E-07	8.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.7E-03
				Iron	8E+03	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	7.0E-01	mg/kg-day	2.3E-03
				Thallium	7E-01	mg/kg	1.1E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	8.0E-05	mg/kg-day	1.7E-03
			Exp. Route Total						2E-07						7E-03	
			Dermal	Benzo(a)pyrene	1E-01	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.6E-08	5.1E-08	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E-01	mg/kg	6.4E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-08	7.5E-08	mg/kg-day	N/A	N/A	N/A
				Arsenic	4E+00	mg/kg	3.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	5.5E-08	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				Iron	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Thallium	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
			Exp. Route Total						2E-07						1E-03	
			Exposure Point Total							3E-07						8E-03
	Exposure Medium Total							N/A						N/A		
Medium Total							N/A							N/A		
Surface Water	Surface Water	Wetlands	Dermal (swimming)	Benzo(b)fluoranthene	1E-01	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	5.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.0E-09	5.8E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04
				Chrysene	5E-02	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	4.1E-10	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	7.4E-10	4.8E-09	mg/kg-day	6.0E-04	mg/kg-day	8.0E-06
				Arsenic	2E+00	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Cyanide	9E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Manganese (other media)	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Exp. Route Total						8E-09						3E-04
			Ingestion (swimming)	Benzo(b)fluoranthene	1E-01	ug/L	5.4E-10	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-09	6.3E-09	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	ug/L	1.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.4E-10	1.2E-07	mg/kg-day	2.0E-02	mg/kg-day	5.9E-06
				Chrysene	5E-02	ug/L	2.9E-10	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	6.3E-12	3.4E-09	mg/kg-day	N/A	N/A	N/A
				beta-BHC	5E-03	ug/L	2.6E-11	mg/kg-day	1.8E+00	(mg/kg-day) ⁻¹	4.7E-11	3.1E-10	mg/kg-day	6.0E-04	mg/kg-day	5.1E-07
				Arsenic	2E+00	ug/L	8.6E-09	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.3E-08	1.0E-07	mg/kg-day	3.0E-04	mg/kg-day	3.4E-04
				Cobalt	2E+00	ug/L	1.1E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	3.0E-04	mg/kg-day	4.3E-04
	Cyanide	9E+01	ug/L	4.9E-07	mg/kg-day	N/A	N/A	N/A	5.7E-06	mg/kg-day	2.0E-02	mg/kg-day	2.9E-04			

TABLE 7.48.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Iron	2E+03	ug/L	8.7E-06	mg/kg-day	N/A	N/A	N/A	1.0E-04	mg/kg-day	7.0E-01	mg/kg-day	1.4E-04	
				Manganese (other media)	3E+02	ug/L	1.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-02	mg/kg-day	2.9E-04	
			Exp. Route Total						1E-08					1E-03			
		Exposure Point Total							2E-08					2E-03			
		Exposure Medium Total							N/A					N/A			
Medium Total												N/A					N/A
Sediment	Sediment	Wetlands	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	9.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	2E+00	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.9E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	2E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.2E-08	1.7E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(k)fluoranthene	1E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.4E-09	1.3E-07	mg/kg-day	N/A	N/A	N/A	
				Carbazole	2E-01	mg/kg	1.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.0E-11	1.8E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.7E-08	2.5E-08	mg/kg-day	N/A	N/A	N/A	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	8.8E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.9E-08	1.0E-07	mg/kg-day	N/A	N/A	N/A	
				Aroclor-1260	7E-02	mg/kg	6.5E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.5E-10	7.6E-09	mg/kg-day	2.0E-05	mg/kg-day	3.8E-04	
				Aluminum	2E+04	mg/kg	1.5E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03	
				Antimony	1E+00	mg/kg	9.7E-09	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-04	mg/kg-day	2.8E-04	
				Arsenic	8E+00	mg/kg	6.6E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.9E-08	7.7E-07	mg/kg-day	3.0E-04	mg/kg-day	2.6E-03	
				Chromium	5E+01	mg/kg	4.8E-07	mg/kg-day	N/A	N/A	N/A	5.6E-06	mg/kg-day	3.0E-03	mg/kg-day	1.9E-03	
				Cobalt	1E+01	mg/kg	1.2E-07	mg/kg-day	N/A	N/A	N/A	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.5E-03	
				Iron	3E+04	mg/kg	2.3E-04	mg/kg-day	N/A	N/A	N/A	2.7E-03	mg/kg-day	7.0E-01	mg/kg-day	3.9E-03	
				Lead													
				Manganese (other media)	6E+02	mg/kg	5.5E-06	mg/kg-day	N/A	N/A	N/A	6.4E-05	mg/kg-day	7.0E-02	mg/kg-day	9.2E-04	
				Thallium	4E-01	mg/kg	3.2E-09	mg/kg-day	N/A	N/A	N/A	3.8E-08	mg/kg-day	8.0E-05	mg/kg-day	4.7E-04	
				Vanadium	4E+01	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	4.0E-06	mg/kg-day	7.0E-03	mg/kg-day	5.8E-04	
				Exp. Route Total						5E-07					2E-02		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.0E-08	3.8E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(a)pyrene	2E+00	mg/kg	4.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.4E-07	5.0E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(b)fluoranthene	2E+00	mg/kg	4.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	5.6E-07	mg/kg-day	N/A	N/A	N/A	
				Benzo(k)fluoranthene	1E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	7.7E-09	4.1E-07	mg/kg-day	N/A	N/A	N/A	
				Carbazole	2E-01	mg/kg	4.9E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	9.8E-11	5.7E-08	mg/kg-day	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	2E-01	mg/kg	7.0E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.5E-07	8.2E-08	mg/kg-day	N/A	N/A	N/A	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.2E-08	3.3E-07	mg/kg-day	N/A	N/A	N/A	
				Aroclor-1260	7E-02	mg/kg	2.3E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.3E-09	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-03	
				Aluminum	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A	
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A	
				Arsenic	8E+00	mg/kg	5.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	7.4E-08	5.8E-07	mg/kg-day	3.0E-04	mg/kg-day	1.9E-03	
				Chromium	5E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A	
				Cobalt	1E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A	

TABLE 7.48.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child (swimming)

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	6E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	
				Thallium	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A	
				Vanadium	4E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A	
					Exp. Route Total					1E-06				3E-03		
				Exposure Point Total					2E-06				2E-02			
				Exposure Medium Total					N/A				N/A			
		Medium Total										N/A				N/A
					Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A

TABLE 7.49.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Commercial Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	1.9E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-06	5.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.8E-06	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-05	5.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.2E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-06	6.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.1E-06	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	3.0E-02	mg/kg-day	1.0E-04
				Benzo(k)fluoranthene	1E+00	mg/kg	3.9E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.8E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.5E-04	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.1E-06	4.1E-04	mg/kg-day	2.0E-02	mg/kg-day	2.1E-02
				Carbazole	5E-01	mg/kg	1.6E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.3E-09	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	1.5E-06	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	1.1E-08	4.3E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.9E-06	7.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	8.5E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	4.0E-03	mg/kg-day	5.9E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.1E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.9E-07	3.0E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	3.0E-06	mg/kg-day	N/A	N/A	N/A	8.3E-06	mg/kg-day	3.0E-02	mg/kg-day	2.8E-04
				Aroclor-1248	4E-01	mg/kg	1.3E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.5E-07	3.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.8E-02
				Aroclor-1254	2E-01	mg/kg	6.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.2E-07	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.4E-03
				Aroclor-1260	2E-01	mg/kg	8.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.7E-07	2.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Dieldrin	2E-01	mg/kg	6.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.7E-07	1.7E-07	mg/kg-day	5.0E-05	mg/kg-day	3.4E-03
				Dioxin TEQ	5E-05	mg/kg	1.6E-11	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	2.0E-06	4.4E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	3.0E-03	mg/kg-day	N/A	N/A	N/A	8.5E-03	mg/kg-day	1.0E+00	mg/kg-day	8.5E-03
				Arsenic	1E+01	mg/kg	4.5E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.8E-06	1.3E-05	mg/kg-day	3.0E-04	mg/kg-day	4.2E-02
				Cadmium (other media)	9E+00	mg/kg	3.1E-06	mg/kg-day	N/A	N/A	N/A	8.8E-06	mg/kg-day	1.0E-03	mg/kg-day	8.8E-03
				Chromium	3E+02	mg/kg	1.0E-04	mg/kg-day	N/A	N/A	N/A	2.8E-04	mg/kg-day	3.0E-03	mg/kg-day	9.4E-02
				Cobalt	8E+00	mg/kg	2.6E-06	mg/kg-day	N/A	N/A	N/A	7.4E-06	mg/kg-day	3.0E-04	mg/kg-day	2.5E-02
				Copper	3E+02	mg/kg	9.0E-05	mg/kg-day	N/A	N/A	N/A	2.5E-04	mg/kg-day	4.0E-02	mg/kg-day	6.3E-03
				Iron	3E+04	mg/kg	1.0E-02	mg/kg-day	N/A	N/A	N/A	2.8E-02	mg/kg-day	7.0E-01	mg/kg-day	4.0E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	2.9E-04	mg/kg-day	N/A	N/A	N/A	8.2E-04	mg/kg-day	7.0E-02	mg/kg-day	1.2E-02
				Mercury (other media)	7E-01	mg/kg	2.4E-07	mg/kg-day	N/A	N/A	N/A	6.7E-07	mg/kg-day	1.0E-04	mg/kg-day	6.7E-03
				Thallium	2E+00	mg/kg	8.1E-07	mg/kg-day	N/A	N/A	N/A	2.3E-06	mg/kg-day	8.0E-05	mg/kg-day	2.8E-02
				Vanadium	3E+01	mg/kg	9.6E-06	mg/kg-day	N/A	N/A	N/A	2.7E-05	mg/kg-day	7.0E-03	mg/kg-day	3.9E-03
				Zinc	5E+02	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	5.3E-04	mg/kg-day	3.0E-01	mg/kg-day	1.8E-03
			Exp. Route Total								3E-05					3E-01
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	1.6E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-06	4.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.6E-06	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-05	4.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.9E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.4E-06	5.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	9.4E-07	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	3.0E-02	mg/kg-day	8.7E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.4E-08	9.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	9.7E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.4E-06	2.7E-04	mg/kg-day	2.0E-02	mg/kg-day	1.4E-02
				Carbazole	5E-01	mg/kg	1.4E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.8E-09	3.9E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.49.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	1.3E-06	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	9.6E-09	3.7E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-06	6.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	4.0E-03	mg/kg-day	3.9E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	9.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.8E-07	2.6E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	2.5E-06	mg/kg-day	N/A	N/A	N/A	7.1E-06	mg/kg-day	3.0E-02	mg/kg-day	2.4E-04
				Aroclor-1248	4E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.3E-07	3.3E-07	mg/kg-day	2.0E-05	mg/kg-day	1.6E-02
				Aroclor-1254	2E-01	mg/kg	5.6E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.1E-07	1.6E-07	mg/kg-day	2.0E-05	mg/kg-day	7.8E-03
				Aroclor-1260	2E-01	mg/kg	8.0E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.6E-07	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	2E-01	mg/kg	4.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.4E-07	1.1E-07	mg/kg-day	5.0E-05	mg/kg-day	2.2E-03
				Dioxin TEQ	5E-05	mg/kg	3.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	4.0E-07	8.7E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	9.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.3E-06	2.5E-06	mg/kg-day	3.0E-04	mg/kg-day	8.4E-03
				Cadmium (other media)	9E+00	mg/kg	2.1E-08	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	2.5E-05	mg/kg-day	2.3E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Exp. Route Total							2E-05					6E-02
				Exposure Point Total							5E-05					4E-01
				Exposure Medium Total							N/A					N/A
Medium Total										N/A					N/A	
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A

TABLE 7.49.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Commercial Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	2.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-07	2.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.1E-06	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	3.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.5E-07	2.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	3.0E-02	mg/kg-day	4.5E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	6.1E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.4E-09	4.7E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.3E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.2E-07	1.8E-04	mg/kg-day	2.0E-02	mg/kg-day	9.0E-03
				Carbazole	5E-01	mg/kg	2.6E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.2E-10	2.0E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	1.8E-09	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	4.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.0E-07	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	1.0E-07	mg/kg-day	4.0E-03	mg/kg-day	2.6E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	4.7E-07	mg/kg-day	N/A	N/A	N/A	3.6E-06	mg/kg-day	3.0E-02	mg/kg-day	1.2E-04
				Aroclor-1248	4E-01	mg/kg	2.0E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.0E-08	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	7.7E-03
				Aroclor-1254	2E-01	mg/kg	9.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	9.5E-09	7.4E-08	mg/kg-day	2.0E-05	mg/kg-day	3.7E-03
				Aroclor-1260	2E-01	mg/kg	1.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.4E-08	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	5.3E-03
				Dieldrin	2E-01	mg/kg	9.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-07	7.4E-08	mg/kg-day	5.0E-05	mg/kg-day	1.5E-03
				Dioxin TEQ	4E-05	mg/kg	2.0E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	2.7E-07	1.6E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	1.0E+00	mg/kg-day	3.7E-03
				Arsenic	1E+01	mg/kg	7.2E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.1E-06	5.6E-06	mg/kg-day	3.0E-04	mg/kg-day	1.9E-02
				Cadmium (other media)	9E+00	mg/kg	4.9E-07	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	1.0E-03	mg/kg-day	3.8E-03
				Chromium	3E+02	mg/kg	1.6E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	3.0E-03	mg/kg-day	4.1E-02
				Cobalt	8E+00	mg/kg	4.1E-07	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				Copper	3E+02	mg/kg	1.4E-05	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	4.0E-02	mg/kg-day	2.7E-03
				Iron	3E+04	mg/kg	1.6E-03	mg/kg-day	N/A	N/A	N/A	1.2E-02	mg/kg-day	7.0E-01	mg/kg-day	1.8E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	4.6E-05	mg/kg-day	N/A	N/A	N/A	3.6E-04	mg/kg-day	7.0E-02	mg/kg-day	5.1E-03
				Mercury (other media)	7E-01	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	1.0E-04	mg/kg-day	2.9E-03
				Thallium	2E+00	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	9.9E-07	mg/kg-day	8.0E-05	mg/kg-day	1.2E-02
				Vanadium	3E+01	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	7.0E-03	mg/kg-day	1.7E-03
				Zinc	5E+02	mg/kg	3.0E-05	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	3.0E-01	mg/kg-day	7.7E-04
			Exp. Route Total								5E-06					1E-01
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	5.0E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.7E-07	3.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	4.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.6E-06	3.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	5.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.3E-07	4.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	3.0E-07	mg/kg-day	N/A	N/A	N/A	2.3E-06	mg/kg-day	3.0E-02	mg/kg-day	7.7E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	7.6E-09	8.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	3.1E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.3E-07	2.4E-04	mg/kg-day	2.0E-02	mg/kg-day	1.2E-02
				Carbazole	5E-01	mg/kg	4.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.9E-10	3.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.49.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	4.2E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	3.0E-09	3.2E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	7.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.1E-07	5.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	4.0E-03	mg/kg-day	3.4E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.9E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-07	2.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	8.0E-07	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	3.0E-02	mg/kg-day	2.1E-04
				Aroclor-1248	4E-01	mg/kg	3.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.7E-08	2.9E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Aroclor-1254	2E-01	mg/kg	1.8E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.8E-08	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	6.8E-03
				Aroclor-1260	2E-01	mg/kg	2.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.5E-08	2.0E-07	mg/kg-day	2.0E-05	mg/kg-day	9.8E-03
				Dieldrin	2E-01	mg/kg	1.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.0E-07	9.8E-08	mg/kg-day	5.0E-05	mg/kg-day	2.0E-03
				Dioxin TEQ	4E-05	mg/kg	8.1E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.0E-07	6.3E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.8E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.3E-07	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	7.4E-03
				Cadmium (other media)	9E+00	mg/kg	6.5E-09	mg/kg-day	N/A	N/A	N/A	5.1E-08	mg/kg-day	2.5E-05	mg/kg-day	2.0E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total							6E-06					5E-02	
			Exposure Point Total							1E-05					2E-01	
Exposure Medium Total									N/A					N/A		
Medium Total									N/A					N/A		
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A

TABLE 7.50.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Commercial Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	4.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	4.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-06	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	6.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.5E-07	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.3E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.7E-08	6.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	3.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.2E-09	8.3E-07	mg/kg-day	2.0E-02	mg/kg-day	4.2E-05
				Carbazole	1E-01	mg/kg	5.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.0E-09	1.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	6.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.7E-07	1.8E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.7E-08	mg/kg-day	N/A	N/A	N/A	1.6E-07	mg/kg-day	4.0E-03	mg/kg-day	4.0E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	4.1E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	3.0E-02	mg/kg-day	3.8E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.8E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.6E-07	5.1E-07	mg/kg-day	2.0E-05	mg/kg-day	2.5E-02
				Dieldrin	5E-01	mg/kg	1.6E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.5E-06	4.4E-07	mg/kg-day	5.0E-05	mg/kg-day	8.8E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	2.7E-03	mg/kg-day	N/A	N/A	N/A	7.6E-03	mg/kg-day	1.0E+00	mg/kg-day	7.6E-03
				Antimony	1E+00	mg/kg	3.9E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	4.0E-04	mg/kg-day	2.7E-03
				Arsenic	1E+01	mg/kg	4.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	6.2E-06	1.2E-05	mg/kg-day	3.0E-04	mg/kg-day	3.8E-02
				Cadmium (other media)	4E+00	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	3.8E-06	mg/kg-day	1.0E-03	mg/kg-day	3.8E-03
				Chromium	2E+02	mg/kg	7.8E-05	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	3.0E-03	mg/kg-day	7.3E-02
				Cobalt	4E+00	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.4E-02
				Copper	1E+02	mg/kg	4.7E-05	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	4.0E-02	mg/kg-day	3.3E-03
				Iron	2E+04	mg/kg	5.6E-03	mg/kg-day	N/A	N/A	N/A	1.6E-02	mg/kg-day	7.0E-01	mg/kg-day	2.2E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	4.6E-04	mg/kg-day	7.0E-02	mg/kg-day	6.5E-03
				Mercury (other media)	8E-01	mg/kg	2.8E-07	mg/kg-day	N/A	N/A	N/A	7.7E-07	mg/kg-day	1.0E-04	mg/kg-day	7.7E-03
				Thallium	2E-01	mg/kg	6.3E-08	mg/kg-day	N/A	N/A	N/A	1.8E-07	mg/kg-day	8.0E-05	mg/kg-day	2.2E-03
				Vanadium	3E+01	mg/kg	8.8E-06	mg/kg-day	N/A	N/A	N/A	2.5E-05	mg/kg-day	7.0E-03	mg/kg-day	3.5E-03
				Zinc	1E+02	mg/kg	4.1E-05	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	3.0E-01	mg/kg-day	3.9E-04
				Exp. Route Total										1E-05	2E-01	
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	3.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-07	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	3.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.7E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	5.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.9E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	2.0E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.5E-08	5.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.0E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.7E-09	5.5E-07	mg/kg-day	2.0E-02	mg/kg-day	2.7E-05
				Carbazole	1E-01	mg/kg	4.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.8E-10	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	5.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.0E-07	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	1.1E-07	mg/kg-day	4.0E-03	mg/kg-day	2.6E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	3.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-07	8.6E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.50.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations																			
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient															
							Value	Units	Value	Units		Value	Units	Value	Units																
				Phenanthrene	1E+00	mg/kg	3.5E-07	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	3.0E-02	mg/kg-day	3.3E-05															
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A															
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A															
				Aroclor-1260	5E-01	mg/kg	1.7E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.4E-07	4.7E-07	mg/kg-day	2.0E-05	mg/kg-day	2.4E-02															
				Dieldrin	5E-01	mg/kg	1.0E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.7E-06	2.9E-07	mg/kg-day	5.0E-05	mg/kg-day	5.8E-03															
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A															
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A															
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A															
				Arsenic	1E+01	mg/kg	8.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.2E-06	2.3E-06	mg/kg-day	3.0E-04	mg/kg-day	7.6E-03															
				Cadmium (other media)	4E+00	mg/kg	8.8E-09	mg/kg-day	N/A	N/A	N/A	2.5E-08	mg/kg-day	2.5E-05	mg/kg-day	9.9E-04															
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A															
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A															
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A															
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A															
				Lead																											
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A															
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A															
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A															
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A															
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A															
			Exp. Route Total							7E-06				4E-02																	
			Exposure Point Total							2E-05				3E-01																	
			Exposure Medium Total							N/A				N/A																	
Medium Total									N/A				N/A																		
Total of Receptor Risks Across All Media															N/A	Total of Receptor Hazards Across All Media															N/A

TABLE 7.50.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Commercial Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	6.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.0E-08	5.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	6.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.9E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	9.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.1E-08	7.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	3.7E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.7E-09	2.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	4.7E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.6E-10	3.6E-07	mg/kg-day	2.0E-02	mg/kg-day	1.8E-05
				Carbazole	1E-01	mg/kg	8.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.6E-10	6.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	7.4E-08	7.8E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	7.0E-08	mg/kg-day	4.0E-03	mg/kg-day	1.7E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.1E-08	4.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	6.4E-08	mg/kg-day	N/A	N/A	N/A	5.0E-07	mg/kg-day	3.0E-02	mg/kg-day	1.7E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	2.9E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.9E-08	2.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				Dieldrin	5E-01	mg/kg	2.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	4.0E-07	1.9E-07	mg/kg-day	5.0E-05	mg/kg-day	3.9E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	4.3E-04	mg/kg-day	N/A	N/A	N/A	3.3E-03	mg/kg-day	1.0E+00	mg/kg-day	3.3E-03
				Antimony	1E+00	mg/kg	6.2E-08	mg/kg-day	N/A	N/A	N/A	4.8E-07	mg/kg-day	4.0E-04	mg/kg-day	1.2E-03
				Arsenic	1E+01	mg/kg	6.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.7E-07	5.0E-06	mg/kg-day	3.0E-04	mg/kg-day	1.7E-02
				Cadmium (other media)	4E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-03
				Chromium	2E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	9.6E-05	mg/kg-day	3.0E-03	mg/kg-day	3.2E-02
				Cobalt	4E+00	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.0E-03
				Copper	1E+02	mg/kg	7.4E-06	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	4.0E-02	mg/kg-day	1.4E-03
				Iron	2E+04	mg/kg	8.8E-04	mg/kg-day	N/A	N/A	N/A	6.8E-03	mg/kg-day	7.0E-01	mg/kg-day	9.7E-03
				Lead												
				Manganese (other media)	5E+02	mg/kg	2.6E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	7.0E-02	mg/kg-day	2.9E-03
				Mercury (other media)	8E-01	mg/kg	4.3E-08	mg/kg-day	N/A	N/A	N/A	3.4E-07	mg/kg-day	1.0E-04	mg/kg-day	3.4E-03
				Thallium	2E-01	mg/kg	9.9E-09	mg/kg-day	N/A	N/A	N/A	7.7E-08	mg/kg-day	8.0E-05	mg/kg-day	9.6E-04
				Vanadium	3E+01	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	1.1E-05	mg/kg-day	7.0E-03	mg/kg-day	1.5E-03
				Zinc	1E+02	mg/kg	6.5E-06	mg/kg-day	N/A	N/A	N/A	5.1E-05	mg/kg-day	3.0E-01	mg/kg-day	1.7E-04
				Exp. Route Total										2E-06		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.5E-08	9.1E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.4E-07	8.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-07	1.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	6.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.6E-09	4.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	6.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.7E-10	4.8E-07	mg/kg-day	2.0E-02	mg/kg-day	2.4E-05
				Carbazole	1E-01	mg/kg	1.4E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.8E-10	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-07	1.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	9.2E-08	mg/kg-day	4.0E-03	mg/kg-day	2.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	9.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.1E-08	7.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.50.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	8.6E-07	mg/kg-day	3.0E-02	mg/kg-day	2.9E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	5.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	5.3E-08	4.1E-07	mg/kg-day	2.0E-05	mg/kg-day	2.1E-02
				Dieldrin	5E-01	mg/kg	3.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.3E-07	2.6E-07	mg/kg-day	5.0E-05	mg/kg-day	5.1E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.9E-07	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.7E-03
				Cadmium (other media)	4E+00	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	2.2E-08	mg/kg-day	2.5E-05	mg/kg-day	8.7E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
							Exp. Route Total								2E-06	
			Exposure Point Total									4E-06				1E-01
			Exposure Medium Total									N/A				N/A
Medium Total												N/A				N/A
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A

TABLE 7.51.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.1E-08	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	2.8E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.0E-07	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.0E-08	2.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	1.5E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.1E-09	1.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.0E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.7E-10	1.4E-06	mg/kg-day	2.0E-02	mg/kg-day	6.9E-05
				Carbazole	1E-01	mg/kg	3.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.8E-11	2.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	4.2E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-08	3.0E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	3.8E-09	mg/kg-day	N/A	N/A	N/A	2.6E-07	mg/kg-day	4.0E-03	mg/kg-day	6.6E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-08	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	3.0E-01	mg/kg-day	6.3E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	1.2E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.4E-08	8.4E-07	mg/kg-day	6.0E-05	mg/kg-day	1.4E-02
				Dieldrin	5E-01	mg/kg	1.0E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.7E-07	7.3E-07	mg/kg-day	5.0E-05	mg/kg-day	1.5E-02
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	8E+03	mg/kg	1.8E-04	mg/kg-day	N/A	N/A	N/A	1.2E-02	mg/kg-day	1.0E+00	mg/kg-day	1.2E-02
				Antimony	1E+00	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	1.8E-06	mg/kg-day	4.0E-04	mg/kg-day	4.5E-03
				Arsenic	1E+01	mg/kg	2.7E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.1E-07	1.9E-05	mg/kg-day	3.0E-04	mg/kg-day	6.3E-02
				Cadmium (other media)	4E+00	mg/kg	8.8E-08	mg/kg-day	N/A	N/A	N/A	6.2E-06	mg/kg-day	1.0E-03	mg/kg-day	6.2E-03
				Chromium	2E+02	mg/kg	5.1E-06	mg/kg-day	N/A	N/A	N/A	3.6E-04	mg/kg-day	9.0E-03	mg/kg-day	4.0E-02
				Cobalt	4E+00	mg/kg	9.7E-08	mg/kg-day	N/A	N/A	N/A	6.8E-06	mg/kg-day	3.0E-03	mg/kg-day	2.3E-03
				Copper	1E+02	mg/kg	3.1E-06	mg/kg-day	N/A	N/A	N/A	2.2E-04	mg/kg-day	4.0E-02	mg/kg-day	5.4E-03
				Iron	2E+04	mg/kg	3.7E-04	mg/kg-day	N/A	N/A	N/A	2.6E-02	mg/kg-day	7.0E-01	mg/kg-day	3.7E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	1.1E-05	mg/kg-day	N/A	N/A	N/A	7.6E-04	mg/kg-day	7.0E-02	mg/kg-day	1.1E-02
				Mercury (other media)	8E-01	mg/kg	1.8E-08	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	1.0E-04	mg/kg-day	1.3E-02
				Thallium	2E-01	mg/kg	4.1E-09	mg/kg-day	N/A	N/A	N/A	2.9E-07	mg/kg-day	8.0E-04	mg/kg-day	3.6E-04
				Vanadium	3E+01	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	4.1E-05	mg/kg-day	7.0E-03	mg/kg-day	5.8E-03
				Zinc	1E+02	mg/kg	2.7E-06	mg/kg-day	N/A	N/A	N/A	1.9E-04	mg/kg-day	3.0E-01	mg/kg-day	6.4E-04
				Exp. Route Total										9E-07		
			Dermal	Benzo(a)anthracene	1E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.1E-09	7.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.0E-08	7.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.2E-08	1.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	6.0E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.4E-10	4.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	5.9E-09	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.2E-11	4.1E-07	mg/kg-day	2.0E-02	mg/kg-day	2.1E-05
				Carbazole	1E-01	mg/kg	1.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.6E-11	9.3E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-08	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-09	mg/kg-day	N/A	N/A	N/A	7.9E-08	mg/kg-day	4.0E-03	mg/kg-day	2.0E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	9.2E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.7E-09	6.4E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.51.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	1E+00	mg/kg	1.0E-08	mg/kg-day	N/A	N/A	N/A	7.3E-07	mg/kg-day	3.0E-01	mg/kg-day	2.4E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	5.0E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.0E-08	3.5E-07	mg/kg-day	6.0E-05	mg/kg-day	5.9E-03
				Dieldrin	5E-01	mg/kg	3.1E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.0E-08	2.2E-07	mg/kg-day	5.0E-05	mg/kg-day	4.4E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.4E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.7E-08	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	5.7E-03
				Cadmium (other media)	4E+00	mg/kg	2.7E-10	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	2.5E-05	mg/kg-day	7.4E-04
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.3E-04	mg/kg-day	N/A
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-07					2E-02
			Inhalation of fugitive dust													
				Benzo(a)anthracene	1E+00	mg/kg	1.5E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	1.6E-13	1.0E-07	ug/m3	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.5E-09	ug/m3	1.1E-03	(ug/m3) ⁻¹	1.6E-12	1.0E-07	ug/m3	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.1E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	2.3E-13	1.5E-07	ug/m3	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	8.0E-10	ug/m3	1.1E-04	(ug/m3) ⁻¹	8.8E-14	5.6E-08	ug/m3	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	1.0E-09	ug/m3	NA	N/A	N/A	7.1E-08	ug/m3	N/A	N/A	N/A
				Carbazole	1E-01	mg/kg	1.8E-10	ug/m3	N/A	N/A	N/A	1.2E-08	ug/m3	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.2E-10	ug/m3	1.2E-03	(ug/m3) ⁻¹	2.6E-13	1.5E-08	ug/m3	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.0E-10	ug/m3	N/A	N/A	N/A	1.4E-08	ug/m3	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.2E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	1.4E-13	8.6E-08	ug/m3	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	1.4E-09	ug/m3	N/A	N/A	N/A	9.8E-08	ug/m3	3.0E+00	ug/m3	3.3E-08
				Aroclor-1248	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1260	5E-01	mg/kg	6.2E-10	ug/m3	5.7E-04	(ug/m3) ⁻¹	3.6E-13	4.4E-08	ug/m3	N/A	N/A	N/A
				Dieldrin	5E-01	mg/kg	5.4E-10	ug/m3	4.6E-03	(ug/m3) ⁻¹	2.5E-12	3.8E-08	ug/m3	N/A	N/A	N/A
				Dioxin TEQ	ND	mg/kg	N/A	N/A	3.8E+01	(ug/m3) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.51.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	9.3E-06	ug/m3	N/A	N/A	N/A	6.5E-04	ug/m3	N/A	N/A	N/A
				Antimony	1E+00	mg/kg	1.3E-09	ug/m3	N/A	N/A	N/A	9.4E-08	ug/m3	N/A	N/A	N/A
				Arsenic	1E+01	mg/kg	1.4E-08	ug/m3	4.3E-03	(ug/m3) ⁻¹	6.1E-11	9.9E-07	ug/m3	1.5E-03	ug/m3	6.6E-04
				Cadmium (other media)	4E+00	mg/kg	4.6E-09	ug/m3	1.8E-03	(ug/m3) ⁻¹	8.3E-12	3.2E-07	ug/m3	1.0E-02	ug/m3	3.2E-05
				Chromium	2E+02	mg/kg	2.7E-07	ug/m3	8.4E-02	(ug/m3) ⁻¹	2.2E-08	1.9E-05	ug/m3	3.0E-01	ug/m3	6.2E-05
				Cobalt	4E+00	mg/kg	5.0E-09	ug/m3	9.0E-03	(ug/m3) ⁻¹	4.5E-11	3.5E-07	ug/m3	2.0E-02	ug/m3	1.8E-05
				Copper	1E+02	mg/kg	1.6E-07	ug/m3	N/A	N/A	N/A	1.1E-05	ug/m3	N/A	N/A	N/A
				Iron	2E+04	mg/kg	1.9E-05	ug/m3	N/A	N/A	N/A	1.3E-03	ug/m3	N/A	N/A	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	5.6E-07	ug/m3	N/A	N/A	N/A	3.9E-05	ug/m3	5.0E-02	ug/m3	7.9E-04
				Mercury (other media)	8E-01	mg/kg	9.4E-10	ug/m3	N/A	N/A	N/A	6.6E-08	ug/m3	3.0E-02	ug/m3	2.2E-06
				Thallium	2E-01	mg/kg	2.1E-10	ug/m3	N/A	N/A	N/A	1.5E-08	ug/m3	N/A	N/A	N/A
				Vanadium	3E+01	mg/kg	3.0E-08	ug/m3	N/A	N/A	N/A	2.1E-06	ug/m3	N/A	N/A	N/A
				Zinc	1E+02	mg/kg	1.4E-07	ug/m3	N/A	N/A	N/A	1.0E-05	ug/m3	N/A	N/A	N/A
					Exp. Route Total							2E-08				
				Exposure Point Total							1E-06					2E-01
			Exposure Medium Total							N/A					N/A	
			Medium Total							N/A					N/A	

TABLE 7.51.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Quinnville Wellfield	Ingestion	Benzo(a)anthracene	1E+00	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-08	9.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.0E-07	9.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-08	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	7.6E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.6E-10	5.3E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	9.7E-09	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.4E-10	6.8E-07	mg/kg-day	2.0E-02	mg/kg-day	3.4E-05
				Carbazole	1E-01	mg/kg	1.7E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.4E-11	1.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	2.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.5E-08	1.5E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.9E-09	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	4.0E-03	mg/kg-day	3.3E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.6E-09	8.2E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	1E+00	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.3E-07	mg/kg-day	3.0E-01	mg/kg-day	3.1E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	5E-01	mg/kg	6.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	6.0E-09	4.2E-07	mg/kg-day	6.0E-05	mg/kg-day	6.9E-03
				Dieldrin	5E-01	mg/kg	5.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.3E-08	3.6E-07	mg/kg-day	5.0E-05	mg/kg-day	7.2E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	8E+03	mg/kg	8.9E-05	mg/kg-day	N/A	N/A	N/A	6.2E-03	mg/kg-day	1.0E+00	mg/kg-day	6.2E-03
				Antimony	1E+00	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	9.0E-07	mg/kg-day	4.0E-04	mg/kg-day	2.2E-03
				Arsenic	1E+01	mg/kg	1.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.0E-07	9.4E-06	mg/kg-day	3.0E-04	mg/kg-day	3.1E-02
				Cadmium (other media)	4E+00	mg/kg	4.4E-08	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	1.0E-03	mg/kg-day	3.1E-03
				Chromium	2E+02	mg/kg	2.5E-06	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	9.0E-03	mg/kg-day	2.0E-02
				Cobalt	4E+00	mg/kg	4.8E-08	mg/kg-day	N/A	N/A	N/A	3.4E-06	mg/kg-day	3.0E-03	mg/kg-day	1.1E-03
				Copper	1E+02	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	4.0E-02	mg/kg-day	2.7E-03
				Iron	2E+04	mg/kg	1.8E-04	mg/kg-day	N/A	N/A	N/A	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	1.8E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	5.4E-06	mg/kg-day	N/A	N/A	N/A	3.7E-04	mg/kg-day	7.0E-02	mg/kg-day	5.4E-03
				Mercury (other media)	8E-01	mg/kg	9.0E-09	mg/kg-day	N/A	N/A	N/A	6.3E-07	mg/kg-day	1.0E-04	mg/kg-day	6.3E-03
				Thallium	2E-01	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	8.0E-04	mg/kg-day	1.8E-04
				Vanadium	3E+01	mg/kg	2.9E-07	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	7.0E-03	mg/kg-day	2.9E-03
				Zinc	1E+02	mg/kg	1.4E-06	mg/kg-day	N/A	N/A	N/A	9.5E-05	mg/kg-day	3.0E-01	mg/kg-day	3.2E-04
				Exp. Route Total										4E-07		
Dermal				Benzo(a)anthracene	1E+00	mg/kg	5.5E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.0E-09	3.9E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	1E+00	mg/kg	5.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.0E-08	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	7.9E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.7E-09	5.5E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	7E-01	mg/kg	3.0E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.2E-10	2.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	2.9E-09	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.1E-11	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	1.0E-05
				Carbazole	1E-01	mg/kg	6.6E-10	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.3E-11	4.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	2E-01	mg/kg	8.2E-10	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.0E-09	5.7E-08	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-10	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	4.0E-03	mg/kg-day	9.8E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.6E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-09	3.2E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.51.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Phenanthrene	1E+00	mg/kg	5.2E-09	mg/kg-day	N/A	N/A	N/A	3.6E-07	mg/kg-day	3.0E-01	mg/kg-day	1.2E-06	
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A	
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A	
				Aroclor-1260	5E-01	mg/kg	2.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.5E-09	1.8E-07	mg/kg-day	6.0E-05	mg/kg-day	2.9E-03	
				Dieldrin	5E-01	mg/kg	1.6E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.5E-08	1.1E-07	mg/kg-day	5.0E-05	mg/kg-day	2.2E-03	
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	NA	NA	N/A	
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A	
				Antimony	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A	
				Arsenic	1E+01	mg/kg	1.2E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.8E-08	8.5E-07	mg/kg-day	3.0E-04	mg/kg-day	2.8E-03	
				Cadmium (other media)	4E+00	mg/kg	1.3E-10	mg/kg-day	N/A	N/A	N/A	9.2E-09	mg/kg-day	2.5E-05	mg/kg-day	3.7E-04	
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.3E-04	mg/kg-day	N/A	
				Cobalt	4E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A	
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A	
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A	
				Lead													
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A	
				Mercury (other media)	8E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A	
				Thallium	2E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A	
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A	
				Zinc	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A	
			Exp. Route Total									1E-07					8E-03
			Inhalation of fugitive dust	Benzo(a)anthracene	1E+00	mg/kg	7.3E-10	ug/m3	1.1E-04	(ug/m3) ⁻¹	8.1E-14	5.1E-08	ug/m3	N/A	N/A	N/A	
				Benzo(a)pyrene	1E+00	mg/kg	7.2E-10	ug/m3	1.1E-03	(ug/m3) ⁻¹	7.9E-13	5.1E-08	ug/m3	N/A	N/A	N/A	
				Benzo(b)fluoranthene	2E+00	mg/kg	1.0E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	1.2E-13	7.3E-08	ug/m3	N/A	N/A	N/A	
				Benzo(k)fluoranthene	7E-01	mg/kg	4.0E-10	ug/m3	1.1E-04	(ug/m3) ⁻¹	4.4E-14	2.8E-08	ug/m3	N/A	N/A	N/A	
				bis(2-Ethylhexyl)phthalate	9E-01	mg/kg	5.1E-10	ug/m3	NA	N/A	N/A	3.5E-08	ug/m3	N/A	N/A	N/A	
				Carbazole	1E-01	mg/kg	8.7E-11	ug/m3	N/A	N/A	N/A	6.1E-09	ug/m3	N/A	N/A	N/A	
				Dibenz(a,h)anthracene	2E-01	mg/kg	1.1E-10	ug/m3	1.2E-03	(ug/m3) ⁻¹	1.3E-13	7.6E-09	ug/m3	N/A	N/A	N/A	
				Dibenzofuran	2E-01	mg/kg	9.7E-11	ug/m3	N/A	N/A	N/A	6.8E-09	ug/m3	N/A	N/A	N/A	
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	6.1E-10	ug/m3	1.1E-04	(ug/m3) ⁻¹	6.7E-14	4.3E-08	ug/m3	N/A	N/A	N/A	
				Phenanthrene	1E+00	mg/kg	6.9E-10	ug/m3	N/A	N/A	N/A	4.9E-08	ug/m3	3.0E+00	ug/m3	1.6E-08	
				Aroclor-1248	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				Aroclor-1254	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	
				Aroclor-1260	5E-01	mg/kg	3.1E-10	ug/m3	5.7E-04	(ug/m3) ⁻¹	1.8E-13	2.2E-08	ug/m3	N/A	N/A	N/A	
				Dieldrin	5E-01	mg/kg	2.7E-10	ug/m3	4.6E-03	(ug/m3) ⁻¹	1.2E-12	1.9E-08	ug/m3	N/A	N/A	N/A	
				Dioxin TEQ	ND	mg/kg	N/A	N/A	3.8E+01	(ug/m3) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A	

TABLE 7.51.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	4.6E-06	ug/m3	N/A	N/A	N/A	3.2E-04	ug/m3	N/A	N/A	N/A
				Antimony	1E+00	mg/kg	6.7E-10	ug/m3	N/A	N/A	N/A	4.7E-08	ug/m3	N/A	N/A	N/A
				Arsenic	1E+01	mg/kg	7.0E-09	ug/m3	4.3E-03	(ug/m3) ⁻¹	3.0E-11	4.9E-07	ug/m3	1.5E-03	ug/m3	3.3E-04
				Cadmium (other media)	4E+00	mg/kg	2.3E-09	ug/m3	1.8E-03	(ug/m3) ⁻¹	4.1E-12	1.6E-07	ug/m3	1.0E-02	ug/m3	1.6E-05
				Chromium	2E+02	mg/kg	1.3E-07	ug/m3	8.4E-02	(ug/m3) ⁻¹	1.1E-08	9.3E-06	ug/m3	3.0E-01	ug/m3	3.1E-05
				Cobalt	4E+00	mg/kg	2.5E-09	ug/m3	9.0E-03	(ug/m3) ⁻¹	2.3E-11	1.8E-07	ug/m3	2.0E-02	ug/m3	8.8E-06
				Copper	1E+02	mg/kg	7.9E-08	ug/m3	N/A	N/A	N/A	5.6E-06	ug/m3	N/A	N/A	N/A
				Iron	2E+04	mg/kg	9.5E-06	ug/m3	N/A	N/A	N/A	6.6E-04	ug/m3	N/A	N/A	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	2.8E-07	ug/m3	N/A	N/A	N/A	1.9E-05	ug/m3	5.0E-02	ug/m3	3.9E-04
				Mercury (other media)	8E-01	mg/kg	4.7E-10	ug/m3	N/A	N/A	N/A	3.3E-08	ug/m3	3.0E-02	ug/m3	1.1E-06
				Thallium	2E-01	mg/kg	1.1E-10	ug/m3	N/A	N/A	N/A	7.5E-09	ug/m3	N/A	N/A	N/A
				Vanadium	3E+01	mg/kg	1.5E-08	ug/m3	N/A	N/A	N/A	1.1E-06	ug/m3	N/A	N/A	N/A
				Zinc	1E+02	mg/kg	7.1E-08	ug/m3	N/A	N/A	N/A	4.9E-06	ug/m3	N/A	N/A	N/A
					Exp. Route Total							1E-08				
				Exposure Point Total							6E-07					1E-01
			Exposure Medium Total							N/A					N/A	
Medium Total									N/A					N/A		
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A

TABLE 7.52.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.9E-08	3.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	5.5E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.0E-07	3.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.6E-08	5.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	2.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.7E-09	1.6E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	2.1E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.9E-09	1.5E-05	mg/kg-day	2.0E-02	mg/kg-day	7.3E-04
				Carbazole	3E-01	mg/kg	6.3E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.3E-10	4.4E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.3E-08	7.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	2.0E-09	mg/kg-day	N/A	N/A	N/A	1.4E-07	mg/kg-day	4.0E-03	mg/kg-day	3.6E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	3.5E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.5E-08	2.4E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	5.5E-08	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	3.0E-01	mg/kg-day	1.3E-05
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.5E-08	8.9E-07	mg/kg-day	6.0E-05	mg/kg-day	1.5E-02
				Dieldrin	5E-01	mg/kg	1.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.8E-07	8.1E-07	mg/kg-day	5.0E-05	mg/kg-day	1.6E-02
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	9E+03	mg/kg	2.1E-04	mg/kg-day	N/A	N/A	N/A	1.5E-02	mg/kg-day	1.0E+00	mg/kg-day	1.5E-02
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	3.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.5E-07	2.1E-05	mg/kg-day	3.0E-04	mg/kg-day	7.0E-02
				Cadmium (other media)	9E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	1.0E-03	mg/kg-day	1.5E-02
				Chromium	2E+02	mg/kg	3.6E-06	mg/kg-day	N/A	N/A	N/A	2.5E-04	mg/kg-day	9.0E-03	mg/kg-day	2.8E-02
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	2E+02	mg/kg	4.6E-06	mg/kg-day	N/A	N/A	N/A	3.2E-04	mg/kg-day	4.0E-02	mg/kg-day	8.0E-03
				Iron	2E+04	mg/kg	4.8E-04	mg/kg-day	N/A	N/A	N/A	3.3E-02	mg/kg-day	7.0E-01	mg/kg-day	4.8E-02
				Lead												
				Manganese (other media)	1E+03	mg/kg	2.3E-05	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	7.0E-02	mg/kg-day	2.3E-02
				Mercury (other media)	5E-01	mg/kg	1.2E-08	mg/kg-day	N/A	N/A	N/A	8.1E-07	mg/kg-day	1.0E-04	mg/kg-day	8.1E-03
				Thallium	2E+00	mg/kg	3.5E-08	mg/kg-day	N/A	N/A	N/A	2.4E-06	mg/kg-day	8.0E-04	mg/kg-day	3.0E-03
				Vanadium	2E+01	mg/kg	5.6E-07	mg/kg-day	N/A	N/A	N/A	3.9E-05	mg/kg-day	7.0E-03	mg/kg-day	5.6E-03
				Zinc	3E+02	mg/kg	6.4E-06	mg/kg-day	N/A	N/A	N/A	4.5E-04	mg/kg-day	3.0E-01	mg/kg-day	1.5E-03
				Exp. Route Total											1E-06	
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-08	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-07	1.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	3.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-08	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	9.1E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	6.7E-10	6.4E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	6.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	8.7E-10	4.4E-06	mg/kg-day	2.0E-02	mg/kg-day	2.2E-04
				Carbazole	3E-01	mg/kg	2.5E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.9E-11	1.7E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	4.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.2E-08	3.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	6.1E-10	mg/kg-day	N/A	N/A	N/A	4.3E-08	mg/kg-day	4.0E-03	mg/kg-day	1.1E-05
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.8E-09	9.4E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.52.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	2.2E-08	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	3.0E-01	mg/kg-day	5.0E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	6E-01	mg/kg	5.3E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.1E-08	3.7E-07	mg/kg-day	6.0E-05	mg/kg-day	6.2E-03
				Dieldrin	5E-01	mg/kg	3.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.5E-08	2.4E-07	mg/kg-day	5.0E-05	mg/kg-day	4.8E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.0E-08	1.9E-06	mg/kg-day	3.0E-04	mg/kg-day	6.3E-03
				Cadmium (other media)	9E+00	mg/kg	6.4E-10	mg/kg-day	N/A	N/A	N/A	4.5E-08	mg/kg-day	2.5E-05	mg/kg-day	1.8E-03
				Chromium	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.3E-04	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	1E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	5E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-07					2E-02
			Inhalation of fugitive dust													
				Benzo(a)anthracene	2E+00	mg/kg	2.8E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	3.0E-13	1.9E-07	ug/m3	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.9E-09	ug/m3	1.1E-03	(ug/m3) ⁻¹	3.2E-12	2.0E-07	ug/m3	N/A	N/A	N/A
				Benzo(b)fluoranthene	3E+00	mg/kg	4.0E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	4.4E-13	2.8E-07	ug/m3	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.2E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	1.3E-13	8.5E-08	ug/m3	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	9E+00	mg/kg	1.1E-08	ug/m3	NA	N/A	N/A	7.6E-07	ug/m3	N/A	N/A	N/A
				Carbazole	3E-01	mg/kg	3.3E-10	ug/m3	N/A	N/A	N/A	2.3E-08	ug/m3	N/A	N/A	N/A
				Dibenz(a,h)anthracene	5E-01	mg/kg	5.9E-10	ug/m3	1.2E-03	(ug/m3) ⁻¹	7.1E-13	4.1E-08	ug/m3	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.1E-10	ug/m3	N/A	N/A	N/A	7.4E-09	ug/m3	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	2E+00	mg/kg	1.8E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	2.0E-13	1.3E-07	ug/m3	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.9E-09	ug/m3	N/A	N/A	N/A	2.0E-07	ug/m3	3.0E+00	ug/m3	6.7E-08
				Aroclor-1248	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1260	6E-01	mg/kg	6.6E-10	ug/m3	5.7E-04	(ug/m3) ⁻¹	3.8E-13	4.6E-08	ug/m3	N/A	N/A	N/A
				Dieldrin	5E-01	mg/kg	6.0E-10	ug/m3	4.6E-03	(ug/m3) ⁻¹	2.8E-12	4.2E-08	ug/m3	N/A	N/A	N/A
				Dioxin TEQ	ND	mg/kg	N/A	N/A	3.8E+01	(ug/m3) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.52.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Aluminum	9E+03	mg/kg	1.1E-05	ug/m3	N/A	N/A	N/A	7.6E-04	ug/m3	N/A	N/A	N/A	
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Arsenic	1E+01	mg/kg	1.6E-08	ug/m3	4.3E-03	(ug/m3) ⁻¹	6.7E-11	1.1E-06	ug/m3	1.5E-03	ug/m3	7.3E-04	
				Cadmium (other media)	9E+00	mg/kg	1.1E-08	ug/m3	1.8E-03	(ug/m3) ⁻¹	2.0E-11	7.7E-07	ug/m3	1.0E-02	ug/m3	7.7E-05	
				Chromium	2E+02	mg/kg	1.9E-07	ug/m3	8.4E-02	(ug/m3) ⁻¹	1.6E-08	1.3E-05	ug/m3	3.0E-01	ug/m3	4.4E-05	
				Cobalt	ND	mg/kg	N/A	N/A	9.0E-03	(ug/m3) ⁻¹	N/A	N/A	N/A	2.0E-02	ug/m3	N/A	
				Copper	2E+02	mg/kg	2.4E-07	ug/m3	N/A	N/A	N/A	1.7E-05	ug/m3	N/A	N/A	N/A	
				Iron	2E+04	mg/kg	2.5E-05	ug/m3	N/A	N/A	N/A	1.7E-03	ug/m3	N/A	N/A	N/A	
				Lead													
				Manganese (other media)	1E+03	mg/kg	1.2E-06	ug/m3	N/A	N/A	N/A	8.3E-05	ug/m3	5.0E-02	ug/m3	1.7E-03	
				Mercury (other media)	5E-01	mg/kg	6.0E-10	ug/m3	N/A	N/A	N/A	4.2E-08	ug/m3	3.0E-02	ug/m3	1.4E-06	
				Thallium	2E+00	mg/kg	1.8E-09	ug/m3	N/A	N/A	N/A	1.3E-07	ug/m3	N/A	N/A	N/A	
				Vanadium	2E+01	mg/kg	2.9E-08	ug/m3	N/A	N/A	N/A	2.0E-06	ug/m3	N/A	N/A	N/A	
				Zinc	3E+02	mg/kg	3.3E-07	ug/m3	N/A	N/A	N/A	2.3E-05	ug/m3	N/A	N/A	N/A	
						Exp. Route Total								2E-08			
				Exposure Point Total									2E-06				3E-01
		Exposure Medium Total											N/A				N/A
Medium Total													N/A				N/A
								Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media			N/A

TABLE 7.52.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Southern Bank	Ingestion	Benzo(a)anthracene	2E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.5E-08	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	2.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.5E-07	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	2.7E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-08	1.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	8.5E-10	8.1E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	2.2E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.1E-10	1.5E-06	mg/kg-day	2.0E-02	mg/kg-day	7.7E-05
				Carbazole	3E-01	mg/kg	3.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.3E-11	2.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	4.1E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.0E-08	2.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	1.0E-09	mg/kg-day	N/A	N/A	N/A	7.1E-08	mg/kg-day	4.0E-03	mg/kg-day	1.8E-05
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.8E-09	8.4E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	2.2E-08	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	3.0E-01	mg/kg-day	5.2E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	3.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	3.5E-09	2.5E-07	mg/kg-day	6.0E-05	mg/kg-day	4.1E-03
				Dieldrin	1E-01	mg/kg	1.7E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	2.7E-08	1.2E-07	mg/kg-day	5.0E-05	mg/kg-day	2.4E-03
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	8E+03	mg/kg	8.6E-05	mg/kg-day	N/A	N/A	N/A	6.0E-03	mg/kg-day	1.0E+00	mg/kg-day	6.0E-03
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-04	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.7E-07	7.9E-06	mg/kg-day	3.0E-04	mg/kg-day	2.6E-02
				Cadmium (other media)	5E+00	mg/kg	5.6E-08	mg/kg-day	N/A	N/A	N/A	3.9E-06	mg/kg-day	1.0E-03	mg/kg-day	3.9E-03
				Chromium	1E+02	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	8.9E-05	mg/kg-day	9.0E-03	mg/kg-day	9.9E-03
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	1E+02	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	1.2E-04	mg/kg-day	4.0E-02	mg/kg-day	3.0E-03
				Iron	2E+04	mg/kg	1.9E-04	mg/kg-day	N/A	N/A	N/A	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	1.9E-02
				Lead												
				Manganese (other media)	5E+02	mg/kg	5.7E-06	mg/kg-day	N/A	N/A	N/A	4.0E-04	mg/kg-day	7.0E-02	mg/kg-day	5.7E-03
				Mercury (other media)	4E-01	mg/kg	4.2E-09	mg/kg-day	N/A	N/A	N/A	3.0E-07	mg/kg-day	1.0E-04	mg/kg-day	3.0E-03
				Thallium	1E+00	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	9.6E-07	mg/kg-day	8.0E-04	mg/kg-day	1.2E-03
				Vanadium	2E+01	mg/kg	2.3E-07	mg/kg-day	N/A	N/A	N/A	1.6E-05	mg/kg-day	7.0E-03	mg/kg-day	2.3E-03
				Zinc	2E+02	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	1.3E-04	mg/kg-day	3.0E-01	mg/kg-day	4.4E-04
				Exp. Route Total										4E-07		
			Dermal	Benzo(a)anthracene	2E+00	mg/kg	8.1E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.9E-09	5.7E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	7.9E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	5.8E-08	5.6E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.0E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	7.6E-09	7.3E-07	mg/kg-day	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	4.5E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.3E-10	3.2E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	6.6E-09	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	9.2E-11	4.6E-07	mg/kg-day	2.0E-02	mg/kg-day	2.3E-05
				Carbazole	3E-01	mg/kg	1.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.5E-11	8.6E-08	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	1.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-08	1.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	3.0E-10	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	4.0E-03	mg/kg-day	5.3E-06
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	4.7E-09	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.4E-09	3.3E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.52.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phenanthrene	2E+00	mg/kg	8.7E-09	mg/kg-day	N/A	N/A	N/A	6.1E-07	mg/kg-day	3.0E-01	mg/kg-day	2.0E-06
				Aroclor-1248	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	1.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Aroclor-1260	3E-01	mg/kg	1.5E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.5E-09	1.0E-07	mg/kg-day	6.0E-05	mg/kg-day	1.7E-03
				Dieldrin	1E-01	mg/kg	5.0E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.1E-09	3.5E-08	mg/kg-day	5.0E-05	mg/kg-day	7.1E-04
				Dioxin TEQ	ND	mg/kg	N/A	N/A	1.3E+05	(mg/kg-day) ⁻¹	N/A	N/A	N/A	NA	NA	N/A
				Aluminum	8E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.0E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-08	7.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.4E-03
				Cadmium (other media)	5E+00	mg/kg	1.7E-10	mg/kg-day	N/A	N/A	N/A	1.2E-08	mg/kg-day	2.5E-05	mg/kg-day	4.7E-04
				Chromium	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.3E-04	mg/kg-day	N/A
				Cobalt	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	1E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	2E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	4E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	1E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Vanadium	2E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	2E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-07					5E-03
			Inhalation of fugitive dust													
				Benzo(a)anthracene	2E+00	mg/kg	1.1E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	1.2E-13	7.5E-08	ug/m3	N/A	N/A	N/A
				Benzo(a)pyrene	2E+00	mg/kg	1.1E-09	ug/m3	1.1E-03	(ug/m3) ⁻¹	1.2E-12	7.4E-08	ug/m3	N/A	N/A	N/A
				Benzo(b)fluoranthene	2E+00	mg/kg	1.4E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	1.5E-13	9.7E-08	ug/m3	N/A	N/A	N/A
				Benzo(k)fluoranthene	1E+00	mg/kg	6.0E-10	ug/m3	1.1E-04	(ug/m3) ⁻¹	6.7E-14	4.2E-08	ug/m3	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	2E+00	mg/kg	1.1E-09	ug/m3	NA	N/A	N/A	8.0E-08	ug/m3	N/A	N/A	N/A
				Carbazole	3E-01	mg/kg	1.6E-10	ug/m3	N/A	N/A	N/A	1.1E-08	ug/m3	N/A	N/A	N/A
				Dibenz(a,h)anthracene	4E-01	mg/kg	2.1E-10	ug/m3	1.2E-03	(ug/m3) ⁻¹	2.6E-13	1.5E-08	ug/m3	N/A	N/A	N/A
				Dibenzofuran	9E-02	mg/kg	5.3E-11	ug/m3	N/A	N/A	N/A	3.7E-09	ug/m3	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	1E+00	mg/kg	6.2E-10	ug/m3	1.1E-04	(ug/m3) ⁻¹	6.9E-14	4.4E-08	ug/m3	N/A	N/A	N/A
				Phenanthrene	2E+00	mg/kg	1.2E-09	ug/m3	N/A	N/A	N/A	8.1E-08	ug/m3	3.0E+00	ug/m3	2.7E-08
				Aroclor-1248	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1254	ND	mg/kg	N/A	N/A	5.7E-04	(ug/m3) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Aroclor-1260	3E-01	mg/kg	1.8E-10	ug/m3	5.7E-04	(ug/m3) ⁻¹	1.0E-13	1.3E-08	ug/m3	N/A	N/A	N/A
				Dieldrin	1E-01	mg/kg	8.7E-11	ug/m3	4.6E-03	(ug/m3) ⁻¹	4.0E-13	6.1E-09	ug/m3	N/A	N/A	N/A
				Dioxin TEQ	ND	mg/kg	N/A	N/A	3.8E+01	(ug/m3) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 7.52.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aluminum	8E+03	mg/kg	4.5E-06	ug/m3	N/A	N/A	N/A	3.1E-04	ug/m3	N/A	N/A	N/A
				Antimony	ND	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
				Arsenic	1E+01	mg/kg	5.9E-09	ug/m3	4.3E-03	(ug/m3) ⁻¹	2.5E-11	4.1E-07	ug/m3	1.5E-03	ug/m3	2.7E-04
				Cadmium (other media)	5E+00	mg/kg	2.9E-09	ug/m3	1.8E-03	(ug/m3) ⁻¹	5.2E-12	2.0E-07	ug/m3	1.0E-02	ug/m3	2.0E-05
				Chromium	1E+02	mg/kg	6.6E-08	ug/m3	8.4E-02	(ug/m3) ⁻¹	5.5E-09	4.6E-06	ug/m3	3.0E-01	ug/m3	1.5E-05
				Cobalt	ND	mg/kg	N/A	N/A	9.0E-03	(ug/m3) ⁻¹	N/A	N/A	N/A	2.0E-02	ug/m3	N/A
				Copper	1E+02	mg/kg	8.8E-08	ug/m3	N/A	N/A	N/A	6.2E-06	ug/m3	N/A	N/A	N/A
				Iron	2E+04	mg/kg	9.9E-06	ug/m3	N/A	N/A	N/A	6.9E-04	ug/m3	N/A	N/A	N/A
				Lead												
				Manganese (other media)	5E+02	mg/kg	3.0E-07	ug/m3	N/A	N/A	N/A	2.1E-05	ug/m3	5.0E-02	ug/m3	4.1E-04
				Mercury (other media)	4E-01	mg/kg	2.2E-10	ug/m3	N/A	N/A	N/A	1.5E-08	ug/m3	3.0E-02	ug/m3	5.1E-07
				Thallium	1E+00	mg/kg	7.1E-10	ug/m3	N/A	N/A	N/A	5.0E-08	ug/m3	N/A	N/A	N/A
				Vanadium	2E+01	mg/kg	1.2E-08	ug/m3	N/A	N/A	N/A	8.4E-07	ug/m3	N/A	N/A	N/A
				Zinc	2E+02	mg/kg	9.9E-08	ug/m3	N/A	N/A	N/A	6.9E-06	ug/m3	N/A	N/A	N/A
			Exp. Route Total							6E-09					7E-04	
		Exposure Point Total							5E-07					9E-02		
	Exposure Medium Total							N/A					N/A			
Medium Total							N/A					N/A				
Total of Receptor Risks Across All Media							N/A	Total of Receptor Hazards Across All Media				N/A				

TABLE 7.53.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.0E-08	8.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.8E-07	8.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-07	1.0E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	7.2E-08	mg/kg-day	N/A	N/A	N/A	5.0E-06	mg/kg-day	3.0E-01	mg/kg-day	1.7E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	2.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.9E-09	1.8E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	9.7E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.4E-07	6.8E-04	mg/kg-day	2.0E-02	mg/kg-day	3.4E-02
				Carbazole	5E-01	mg/kg	1.1E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.2E-10	7.6E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	7.4E-10	7.1E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.2E-07	1.2E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	5.6E-09	mg/kg-day	N/A	N/A	N/A	3.9E-07	mg/kg-day	4.0E-03	mg/kg-day	9.8E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	7.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.2E-08	5.0E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	1.9E-07	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	3.0E-01	mg/kg-day	4.5E-05
				Aroclor-1248	4E-01	mg/kg	8.3E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.7E-08	5.8E-07	mg/kg-day	6.0E-05	mg/kg-day	9.7E-03
				Aroclor-1254	2E-01	mg/kg	4.0E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.9E-09	2.8E-07	mg/kg-day	6.0E-05	mg/kg-day	4.6E-03
				Aroclor-1260	2E-01	mg/kg	5.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.1E-08	4.0E-07	mg/kg-day	6.0E-05	mg/kg-day	6.7E-03
				Dieldrin	2E-01	mg/kg	4.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	6.4E-08	2.8E-07	mg/kg-day	5.0E-05	mg/kg-day	5.6E-03
				Dioxin TEQ	5E-05	mg/kg	1.0E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.3E-07	7.3E-11	mg/kg-day	NA	NA	N/A
				Aluminum	9E+03	mg/kg	2.0E-04	mg/kg-day	N/A	N/A	N/A	1.4E-02	mg/kg-day	1.0E+00	mg/kg-day	1.4E-02
				Arsenic	1E+01	mg/kg	3.0E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.5E-07	2.1E-05	mg/kg-day	3.0E-04	mg/kg-day	7.0E-02
				Cadmium (other media)	9E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	1.4E-05	mg/kg-day	1.0E-03	mg/kg-day	1.4E-02
				Chromium	3E+02	mg/kg	6.6E-06	mg/kg-day	N/A	N/A	N/A	4.6E-04	mg/kg-day	9.0E-03	mg/kg-day	5.1E-02
				Cobalt	8E+00	mg/kg	1.7E-07	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	3.0E-03	mg/kg-day	4.0E-03
				Copper	3E+02	mg/kg	5.9E-06	mg/kg-day	N/A	N/A	N/A	4.1E-04	mg/kg-day	4.0E-02	mg/kg-day	1.0E-02
				Iron	3E+04	mg/kg	6.6E-04	mg/kg-day	N/A	N/A	N/A	4.6E-02	mg/kg-day	7.0E-01	mg/kg-day	6.6E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	1.9E-05	mg/kg-day	N/A	N/A	N/A	1.4E-03	mg/kg-day	7.0E-02	mg/kg-day	1.9E-02
				Mercury (other media)	7E-01	mg/kg	1.6E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	1.0E-04	mg/kg-day	1.1E-02
				Thallium	2E+00	mg/kg	5.3E-08	mg/kg-day	N/A	N/A	N/A	3.7E-06	mg/kg-day	8.0E-04	mg/kg-day	4.7E-03
				Vanadium	3E+01	mg/kg	6.4E-07	mg/kg-day	N/A	N/A	N/A	4.5E-05	mg/kg-day	7.0E-03	mg/kg-day	6.4E-03
				Zinc	5E+02	mg/kg	1.2E-05	mg/kg-day	N/A	N/A	N/A	8.7E-04	mg/kg-day	3.0E-01	mg/kg-day	2.9E-03
Exp. Route Total											2E-06				3E-01	
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	4.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.5E-08	3.4E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	4.7E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.4E-07	3.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.1E-08	3.9E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.8E-08	mg/kg-day	N/A	N/A	N/A	2.0E-06	mg/kg-day	3.0E-01	mg/kg-day	6.6E-06
				Benzo(k)fluoranthene	1E+00	mg/kg	9.9E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	7.3E-10	7.0E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.9E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.1E-08	2.0E-04	mg/kg-day	2.0E-02	mg/kg-day	1.0E-02
				Carbazole	5E-01	mg/kg	4.2E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	8.5E-11	3.0E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.53.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	2.9E-10	2.8E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	6.6E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.8E-08	4.6E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.7E-09	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	4.0E-03	mg/kg-day	2.9E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-08	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	7.6E-08	mg/kg-day	N/A	N/A	N/A	5.3E-06	mg/kg-day	3.0E-01	mg/kg-day	1.8E-05
				Aroclor-1248	4E-01	mg/kg	3.5E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.0E-09	2.4E-07	mg/kg-day	6.0E-05	mg/kg-day	4.1E-03
				Aroclor-1254	2E-01	mg/kg	1.7E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.3E-09	1.2E-07	mg/kg-day	6.0E-05	mg/kg-day	1.9E-03
				Aroclor-1260	2E-01	mg/kg	2.4E-09	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	4.8E-09	1.7E-07	mg/kg-day	6.0E-05	mg/kg-day	2.8E-03
				Dieldrin	2E-01	mg/kg	1.2E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.9E-08	8.4E-08	mg/kg-day	5.0E-05	mg/kg-day	1.7E-03
				Dioxin TEQ	5E-05	mg/kg	9.3E-14	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	1.2E-08	6.5E-12	mg/kg-day	NA	NA	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.7E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.0E-08	1.9E-06	mg/kg-day	3.0E-04	mg/kg-day	6.3E-03
				Cadmium (other media)	9E+00	mg/kg	6.2E-10	mg/kg-day	N/A	N/A	N/A	4.3E-08	mg/kg-day	2.5E-05	mg/kg-day	1.7E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.3E-04	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
				Exp. Route Total							6E-07					3E-02
			Inhalation of fugitive dust	Benzo(a)anthracene	5E+00	mg/kg	6.4E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	7.0E-13	4.5E-07	ug/m3	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	6.3E-09	ug/m3	1.1E-03	(ug/m3) ⁻¹	6.9E-12	4.4E-07	ug/m3	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	7.5E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	8.3E-13	5.3E-07	ug/m3	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	3.7E-09	ug/m3	N/A	N/A	N/A	2.6E-07	ug/m3	3.0E+00	ug/m3	8.7E-08
				Benzo(k)fluoranthene	1E+00	mg/kg	1.3E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	1.5E-13	9.3E-08	ug/m3	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	5.0E-07	ug/m3	NA	N/A	N/A	3.5E-05	ug/m3	N/A	N/A	N/A
				Carbazole	5E-01	mg/kg	5.6E-10	ug/m3	N/A	N/A	N/A	3.9E-08	ug/m3	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	5.3E-09	ug/m3	1.1E-05	(ug/m3) ⁻¹	5.8E-14	3.7E-07	ug/m3	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	8.8E-10	ug/m3	1.2E-03	(ug/m3) ⁻¹	1.1E-12	6.2E-08	ug/m3	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.9E-10	ug/m3	N/A	N/A	N/A	2.0E-08	ug/m3	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	3.7E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	4.1E-13	2.6E-07	ug/m3	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	1.0E-08	ug/m3	N/A	N/A	N/A	7.1E-07	ug/m3	3.0E+00	ug/m3	2.4E-07
				Aroclor-1248	4E-01	mg/kg	4.3E-10	ug/m3	5.7E-04	(ug/m3) ⁻¹	2.5E-13	3.0E-08	ug/m3	N/A	N/A	N/A
				Aroclor-1254	2E-01	mg/kg	2.1E-10	ug/m3	5.7E-04	(ug/m3) ⁻¹	1.2E-13	1.4E-08	ug/m3	N/A	N/A	N/A

TABLE 7.53.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	2E-01	mg/kg	3.0E-10	ug/m3	5.7E-04	(ug/m3) ⁻¹	1.7E-13	2.1E-08	ug/m3	N/A	N/A	N/A
				Dieldrin	2E-01	mg/kg	2.1E-10	ug/m3	4.6E-03	(ug/m3) ⁻¹	9.5E-13	1.5E-08	ug/m3	N/A	N/A	N/A
				Dioxin TEQ	5E-05	mg/kg	5.4E-14	ug/m3	3.8E+01	(ug/m3) ⁻¹	2.1E-12	3.8E-12	ug/m3	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	1.0E-05	ug/m3	N/A	N/A	N/A	7.3E-04	ug/m3	N/A	N/A	N/A
				Arsenic	1E+01	mg/kg	1.6E-08	ug/m3	4.3E-03	(ug/m3) ⁻¹	6.7E-11	1.1E-06	ug/m3	1.5E-03	ug/m3	7.3E-04
				Cadmium (other media)	9E+00	mg/kg	1.1E-08	ug/m3	1.8E-03	(ug/m3) ⁻¹	1.9E-11	7.5E-07	ug/m3	1.0E-02	ug/m3	7.5E-05
				Chromium	3E+02	mg/kg	3.4E-07	ug/m3	8.4E-02	(ug/m3) ⁻¹	2.9E-08	2.4E-05	ug/m3	3.0E-01	ug/m3	8.0E-05
				Cobalt	8E+00	mg/kg	9.0E-09	ug/m3	9.0E-03	(ug/m3) ⁻¹	8.1E-11	6.3E-07	ug/m3	2.0E-02	ug/m3	3.2E-05
				Copper	3E+02	mg/kg	3.1E-07	ug/m3	N/A	N/A	N/A	2.2E-05	ug/m3	N/A	N/A	N/A
				Iron	3E+04	mg/kg	3.4E-05	ug/m3	N/A	N/A	N/A	2.4E-03	ug/m3	N/A	N/A	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	1.0E-06	ug/m3	N/A	N/A	N/A	7.1E-05	ug/m3	5.0E-02	ug/m3	1.4E-03
				Mercury (other media)	7E-01	mg/kg	8.2E-10	ug/m3	N/A	N/A	N/A	5.7E-08	ug/m3	3.0E-02	ug/m3	1.9E-06
				Thallium	2E+00	mg/kg	2.8E-09	ug/m3	N/A	N/A	N/A	1.9E-07	ug/m3	N/A	N/A	N/A
				Vanadium	3E+01	mg/kg	3.3E-08	ug/m3	N/A	N/A	N/A	2.3E-06	ug/m3	N/A	N/A	N/A
				Zinc	5E+02	mg/kg	6.4E-07	ug/m3	N/A	N/A	N/A	4.5E-05	ug/m3	N/A	N/A	N/A
				Exp. Route Total						3E-08					2E-03	
				Exposure Point Total						3E-06					4E-01	
				Exposure Medium Total						N/A					N/A	
Medium Total									N/A					N/A		
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A

TABLE 7.53.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	6.1E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.4E-08	4.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	6.0E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	4.4E-07	4.2E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	7.2E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.2E-08	5.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	3.6E-08	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	3.0E-01	mg/kg-day	8.3E-06
				Benzo(k)fluoranthene	1E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	9.2E-10	8.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	4.8E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.7E-08	3.4E-04	mg/kg-day	2.0E-02	mg/kg-day	1.7E-02
				Carbazole	5E-01	mg/kg	5.4E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.1E-10	3.8E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	5.0E-08	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	3.7E-10	3.5E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	8.4E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	6.2E-08	5.9E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.8E-09	mg/kg-day	N/A	N/A	N/A	1.9E-07	mg/kg-day	4.0E-03	mg/kg-day	4.8E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.6E-08	2.5E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	9.7E-08	mg/kg-day	N/A	N/A	N/A	6.8E-06	mg/kg-day	3.0E-01	mg/kg-day	2.3E-05
				Aroclor-1248	4E-01	mg/kg	4.1E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	4.1E-09	2.9E-07	mg/kg-day	6.0E-05	mg/kg-day	4.8E-03
				Aroclor-1254	2E-01	mg/kg	2.0E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.0E-09	1.4E-07	mg/kg-day	6.0E-05	mg/kg-day	2.3E-03
				Aroclor-1260	2E-01	mg/kg	2.8E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.8E-09	2.0E-07	mg/kg-day	6.0E-05	mg/kg-day	3.3E-03
				Dieldrin	2E-01	mg/kg	2.0E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.2E-08	1.4E-07	mg/kg-day	5.0E-05	mg/kg-day	2.8E-03
				Dioxin TEQ	4E-05	mg/kg	4.2E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	5.5E-08	3.0E-11	mg/kg-day	NA	NA	N/A
				Aluminum	9E+03	mg/kg	1.0E-04	mg/kg-day	N/A	N/A	N/A	7.0E-03	mg/kg-day	1.0E+00	mg/kg-day	7.0E-03
				Arsenic	1E+01	mg/kg	1.5E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.2E-07	1.0E-05	mg/kg-day	3.0E-04	mg/kg-day	3.5E-02
				Cadmium (other media)	9E+00	mg/kg	1.0E-07	mg/kg-day	N/A	N/A	N/A	7.2E-06	mg/kg-day	1.0E-03	mg/kg-day	7.2E-03
				Chromium	3E+02	mg/kg	3.3E-06	mg/kg-day	N/A	N/A	N/A	2.3E-04	mg/kg-day	9.0E-03	mg/kg-day	2.6E-02
				Cobalt	8E+00	mg/kg	8.6E-08	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	3.0E-03	mg/kg-day	2.0E-03
				Copper	3E+02	mg/kg	2.9E-06	mg/kg-day	N/A	N/A	N/A	2.1E-04	mg/kg-day	4.0E-02	mg/kg-day	5.1E-03
				Iron	3E+04	mg/kg	3.3E-04	mg/kg-day	N/A	N/A	N/A	2.3E-02	mg/kg-day	7.0E-01	mg/kg-day	3.3E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	9.6E-06	mg/kg-day	N/A	N/A	N/A	6.7E-04	mg/kg-day	7.0E-02	mg/kg-day	9.6E-03
				Mercury (other media)	7E-01	mg/kg	7.8E-09	mg/kg-day	N/A	N/A	N/A	5.5E-07	mg/kg-day	1.0E-04	mg/kg-day	5.5E-03
				Thallium	2E+00	mg/kg	2.6E-08	mg/kg-day	N/A	N/A	N/A	1.9E-06	mg/kg-day	8.0E-04	mg/kg-day	2.3E-03
				Vanadium	3E+01	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-05	mg/kg-day	7.0E-03	mg/kg-day	3.2E-03
				Zinc	5E+02	mg/kg	6.1E-06	mg/kg-day	N/A	N/A	N/A	4.3E-04	mg/kg-day	3.0E-01	mg/kg-day	1.4E-03
			Exp. Route Total								1E-06					2E-01
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.7E-08	1.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.3E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.7E-07	1.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.0E-08	2.0E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.4E-08	mg/kg-day	N/A	N/A	N/A	9.8E-07	mg/kg-day	3.0E-01	mg/kg-day	3.3E-06
				Benzo(k)fluoranthene	1E+00	mg/kg	4.9E-09	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.6E-10	3.5E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.4E-06	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.0E-08	1.0E-04	mg/kg-day	2.0E-02	mg/kg-day	5.1E-03
				Carbazole	5E-01	mg/kg	2.1E-09	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.2E-11	1.5E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.53.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Construction Worker
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	1.4E-10	1.4E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	3.3E-09	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.4E-08	2.3E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	8.3E-10	mg/kg-day	N/A	N/A	N/A	5.8E-08	mg/kg-day	4.0E-03	mg/kg-day	1.5E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.0E-08	9.7E-07	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	3.8E-08	mg/kg-day	N/A	N/A	N/A	2.6E-06	mg/kg-day	3.0E-01	mg/kg-day	8.8E-06
				Aroclor-1248	4E-01	mg/kg	1.7E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.7E-09	1.2E-07	mg/kg-day	6.0E-05	mg/kg-day	2.0E-03
				Aroclor-1254	2E-01	mg/kg	8.3E-10	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	8.3E-10	5.8E-08	mg/kg-day	6.0E-05	mg/kg-day	9.6E-04
				Aroclor-1260	2E-01	mg/kg	1.2E-09	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.2E-09	8.3E-08	mg/kg-day	6.0E-05	mg/kg-day	1.4E-03
				Dieldrin	2E-01	mg/kg	5.9E-10	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	9.5E-09	4.2E-08	mg/kg-day	5.0E-05	mg/kg-day	8.3E-04
				Dioxin TEQ	4E-05	mg/kg	3.8E-14	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	5.0E-09	2.7E-12	mg/kg-day	NA	NA	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.3E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.0E-08	9.4E-07	mg/kg-day	3.0E-04	mg/kg-day	3.1E-03
				Cadmium (other media)	9E+00	mg/kg	3.1E-10	mg/kg-day	N/A	N/A	N/A	2.1E-08	mg/kg-day	2.5E-05	mg/kg-day	8.6E-04
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.3E-04	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-03	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								3E-07					1E-02
			Inhalation of fugitive dust													
				Benzo(a)anthracene	5E+00	mg/kg	3.2E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	3.5E-13	2.2E-07	ug/m3	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.1E-09	ug/m3	1.1E-03	(ug/m3) ⁻¹	3.4E-12	2.2E-07	ug/m3	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	3.7E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	4.1E-13	2.6E-07	ug/m3	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.9E-09	ug/m3	N/A	N/A	N/A	1.3E-07	ug/m3	3.0E+00	ug/m3	4.3E-08
				Benzo(k)fluoranthene	1E+00	mg/kg	6.6E-10	ug/m3	1.1E-04	(ug/m3) ⁻¹	7.2E-14	4.6E-08	ug/m3	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.5E-07	ug/m3	NA	N/A	N/A	1.8E-05	ug/m3	N/A	N/A	N/A
				Carbazole	5E-01	mg/kg	2.8E-10	ug/m3	N/A	N/A	N/A	2.0E-08	ug/m3	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	2.6E-09	ug/m3	1.1E-05	(ug/m3) ⁻¹	2.9E-14	1.8E-07	ug/m3	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	4.4E-10	ug/m3	1.2E-03	(ug/m3) ⁻¹	5.3E-13	3.1E-08	ug/m3	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.4E-10	ug/m3	N/A	N/A	N/A	1.0E-08	ug/m3	N/A	N/A	N/A
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.8E-09	ug/m3	1.1E-04	(ug/m3) ⁻¹	2.0E-13	1.3E-07	ug/m3	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	5.0E-09	ug/m3	N/A	N/A	N/A	3.5E-07	ug/m3	3.0E+00	ug/m3	1.2E-07
				Aroclor-1248	4E-01	mg/kg	2.1E-10	ug/m3	5.7E-04	(ug/m3) ⁻¹	1.2E-13	1.5E-08	ug/m3	N/A	N/A	N/A
				Aroclor-1254	2E-01	mg/kg	1.0E-10	ug/m3	5.7E-04	(ug/m3) ⁻¹	5.8E-14	7.2E-09	ug/m3	N/A	N/A	N/A

TABLE 7.53.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Aroclor-1260	2E-01	mg/kg	1.5E-10	ug/m3	5.7E-04	(ug/m3) ⁻¹	8.4E-14	1.0E-08	ug/m3	N/A	N/A	N/A
				Dieldrin	2E-01	mg/kg	1.0E-10	ug/m3	4.6E-03	(ug/m3) ⁻¹	4.7E-13	7.2E-09	ug/m3	N/A	N/A	N/A
				Dioxin TEQ	4E-05	mg/kg	2.2E-14	ug/m3	3.8E+01	(ug/m3) ⁻¹	8.4E-13	1.5E-12	ug/m3	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	5.2E-06	ug/m3	N/A	N/A	N/A	3.6E-04	ug/m3	N/A	N/A	N/A
				Arsenic	1E+01	mg/kg	7.7E-09	ug/m3	4.3E-03	(ug/m3) ⁻¹	3.3E-11	5.4E-07	ug/m3	1.5E-03	ug/m3	3.6E-04
				Cadmium (other media)	9E+00	mg/kg	5.3E-09	ug/m3	1.8E-03	(ug/m3) ⁻¹	9.6E-12	3.7E-07	ug/m3	1.0E-02	ug/m3	3.7E-05
				Chromium	3E+02	mg/kg	1.7E-07	ug/m3	8.4E-02	(ug/m3) ⁻¹	1.4E-08	1.2E-05	ug/m3	3.0E-01	ug/m3	4.0E-05
				Cobalt	8E+00	mg/kg	4.5E-09	ug/m3	9.0E-03	(ug/m3) ⁻¹	4.0E-11	3.1E-07	ug/m3	2.0E-02	ug/m3	1.6E-05
				Copper	3E+02	mg/kg	1.5E-07	ug/m3	N/A	N/A	N/A	1.1E-05	ug/m3	N/A	N/A	N/A
				Iron	3E+04	mg/kg	1.7E-05	ug/m3	N/A	N/A	N/A	1.2E-03	ug/m3	N/A	N/A	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.0E-07	ug/m3	N/A	N/A	N/A	3.5E-05	ug/m3	5.0E-02	ug/m3	7.0E-04
				Mercury (other media)	7E-01	mg/kg	4.1E-10	ug/m3	N/A	N/A	N/A	2.8E-08	ug/m3	3.0E-02	ug/m3	9.5E-07
				Thallium	2E+00	mg/kg	1.4E-09	ug/m3	N/A	N/A	N/A	9.6E-08	ug/m3	N/A	N/A	N/A
				Vanadium	3E+01	mg/kg	1.6E-08	ug/m3	N/A	N/A	N/A	1.1E-06	ug/m3	N/A	N/A	N/A
				Zinc	5E+02	mg/kg	3.2E-07	ug/m3	N/A	N/A	N/A	2.2E-05	ug/m3	N/A	N/A	N/A
			Exp. Route Total							1E-08				1E-03		
			Exposure Point Total							1E-06				2E-01		
Exposure Medium Total									N/A				N/A			
Medium Total									N/A				N/A			
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A

TABLE 7.54.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations																			
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient															
							Value	Units	Value	Units		Value	Units	Value	Units																
Soil	Outdoor (Trench) Air	Nunes Parcel	Inhalation	1,1'-Biphenyl	4E-02	ug/m³	6.1E-05	ug/m3	N/A	N/A	N/A	4.3E-03	ug/m3	N/A	N/A	N/A															
				2-Methylnaphthalene	3E-01	ug/m³	4.9E-04	ug/m3	N/A	N/A	N/A	3.4E-02	ug/m3	3.0E+00	ug/m3	1.1E-02															
				Acenaphthene	8E-02	ug/m³	1.2E-04	ug/m3	N/A	N/A	N/A	8.7E-03	ug/m3	3.0E+00	ug/m3	2.9E-03															
				Acetophenone	8E-02	ug/m³	1.4E-04	ug/m3	N/A	N/A	N/A	9.6E-03	ug/m3	N/A	N/A	N/A															
				Benzaldehyde	4E-01	ug/m³	6.3E-04	ug/m3	N/A	N/A	N/A	4.4E-02	ug/m3	N/A	N/A	N/A															
				Naphthalene	7E-01	ug/m³	1.1E-03	ug/m3	3.4E-05	(ug/m3) ⁻¹	3.9E-08	8.0E-02	ug/m3	3.0E+00	ug/m3	2.7E-02															
				1,4-Dichlorobenzene	3E-01	ug/m³	4.9E-04	ug/m3	1.1E-05	(ug/m3) ⁻¹	5.4E-09	3.4E-02	ug/m3	2.4E+03	ug/m3	1.4E-05															
				Benzene	2E+02	ug/m³	2.4E-01	ug/m3	7.8E-06	(ug/m3) ⁻¹	1.9E-06	1.7E+01	ug/m3	9.0E+01	ug/m3	1.9E-01															
				Carbon disulfide	2E+02	ug/m³	2.7E-01	ug/m3	N/A	N/A	N/A	1.9E+01	ug/m3	7.0E+02	ug/m3	2.7E-02															
				Ethylbenzene	6E+00	ug/m³	9.1E-03	ug/m3	2.5E-06	(ug/m3) ⁻¹	2.3E-08	6.3E-01	ug/m3	1.0E+03	ug/m3	6.3E-04															
				Methyl acetate	5E+01	ug/m³	8.2E-02	ug/m3	N/A	N/A	N/A	5.7E+00	ug/m3	N/A	N/A	N/A															
				Tetrachloroethene	2E+01	ug/m³	3.1E-02	ug/m3	5.9E-06	(ug/m3) ⁻¹	1.8E-07	2.2E+00	ug/m3	2.7E+02	ug/m3	8.0E-03															
				Toluene	2E+03	ug/m³	3.6E+00	ug/m3	N/A	N/A	N/A	2.5E+02	ug/m3	5.0E+03	ug/m3	5.1E-02															
				Xylene (Total)	7E+01	ug/m³	1.1E-01	ug/m3	N/A	N/A	N/A	7.8E+00	ug/m3	3.0E+02	ug/m3	2.6E-02															
				Exp. Route Total									2E-06					3E-01													
				Exposure Point Total									2E-06					3E-01													
				Exposure Medium Total									N/A					N/A													
				Medium Total									N/A					N/A													
				Groundwater	Outdoor (Trench) Air	Nunes Parcel	Inhalation	Benzene	3E-01	ug/m³	4.1E-04	ug/m3	7.8E-06	(ug/m3) ⁻¹	3.2E-09	2.9E-02	ug/m3	9.0E+01	ug/m3	3.2E-04											
	Exp. Route Total																				3E-09					3E-04					
Exposure Point Total																					3E-09					3E-04					
Exposure Medium Total									N/A					N/A																	
Medium Total									N/A					N/A																	
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A															

TABLE 7.54.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations																			
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient															
							Value	Units	Value	Units		Value	Units	Value	Units																
Soil	Outdoor (Trench) Air	Nunes Parcel	Inhalation	1,1'-Biphenyl	4E-02	ug/m³	3.0E-05	ug/m3	N/A	N/A	N/A	2.1E-03	ug/m3	N/A	N/A	N/A															
				2-Methylnaphthalene	3E-01	ug/m³	2.4E-04	ug/m3	N/A	N/A	N/A	1.7E-02	ug/m3	3.0E+00	ug/m3	5.7E-03															
				Acenaphthene	8E-02	ug/m³	6.2E-05	ug/m3	N/A	N/A	N/A	4.3E-03	ug/m3	3.0E+00	ug/m3	1.4E-03															
				Acetophenone	8E-02	ug/m³	6.8E-05	ug/m3	N/A	N/A	N/A	4.8E-03	ug/m3	N/A	N/A	N/A															
				Benzaldehyde	4E-01	ug/m³	3.1E-04	ug/m3	N/A	N/A	N/A	2.2E-02	ug/m3	N/A	N/A	N/A															
				Naphthalene	7E-01	ug/m³	5.7E-04	ug/m3	3.4E-05	(ug/m3) ⁻¹	1.9E-08	4.0E-02	ug/m3	3.0E+00	ug/m3	1.3E-02															
				1,4-Dichlorobenzene	3E-01	ug/m³	2.4E-04	ug/m3	1.1E-05	(ug/m3) ⁻¹	2.7E-09	1.7E-02	ug/m3	2.4E+03	ug/m3	7.1E-06															
				Benzene	2E+02	ug/m³	1.2E-01	ug/m3	7.8E-06	(ug/m3) ⁻¹	9.5E-07	8.5E+00	ug/m3	9.0E+01	ug/m3	9.4E-02															
				Carbon disulfide	2E+02	ug/m³	1.3E-01	ug/m3	N/A	N/A	N/A	9.3E+00	ug/m3	7.0E+02	ug/m3	1.3E-02															
				Ethylbenzene	6E+00	ug/m³	4.5E-03	ug/m3	2.5E-06	(ug/m3) ⁻¹	1.1E-08	3.1E-01	ug/m3	1.0E+03	ug/m3	3.1E-04															
				Methyl acetate	5E+01	ug/m³	4.1E-02	ug/m3	N/A	N/A	N/A	2.8E+00	ug/m3	N/A	N/A	N/A															
				Tetrachloroethene	2E+01	ug/m³	1.5E-02	ug/m3	5.9E-06	(ug/m3) ⁻¹	9.1E-08	1.1E+00	ug/m3	2.7E+02	ug/m3	4.0E-03															
				Toluene	2E+03	ug/m³	1.8E+00	ug/m3	N/A	N/A	N/A	1.3E+02	ug/m3	5.0E+03	ug/m3	2.5E-02															
				Xylene (Total)	7E+01	ug/m³	5.5E-02	ug/m3	N/A	N/A	N/A	3.8E+00	ug/m3	3.0E+02	ug/m3	1.3E-02															
				Exp. Route Total									1E-06					2E-01													
				Exposure Point Total									1E-06					2E-01													
				Exposure Medium Total									N/A					N/A													
				Medium Total									N/A					N/A													
				Groundwater	Outdoor (Trench) Air	Nunes Parcel	Inhalation	Benzene	3E-01	ug/m³	2.0E-04	ug/m3	7.8E-06	(ug/m3) ⁻¹	1.6E-09	1.4E-02	ug/m3	9.0E+01	ug/m3	1.6E-04											
	Exp. Route Total																				2E-09					2E-04					
Exposure Point Total																					2E-09					2E-04					
Exposure Medium Total									N/A					N/A																	
Medium Total									N/A					N/A																	
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A															

TABLE 7.55.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
Soil/Groundwater	Ambient Air	Landfill	Inhalation	1,1-Dichloroethane	4E-03	ug/m³	1.7E-05	ug/m3	1.6E-06	(ug/m3) ⁻¹	2.7E-11	5.0E-05	ug/m3	5.0E+02	ug/m3	1.0E-07		
				1,2,4-Trimethylbenzene	5E-02	ug/m³	2.2E-04	ug/m3	N/A	N/A	N/A	6.4E-04	ug/m3	7.0E+00	ug/m3	9.2E-05		
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (R113)	7E-02	ug/m³	2.9E-04	ug/m3	N/A	N/A	N/A	8.5E-04	ug/m3	N/A	N/A	N/A		
				1,2-Dichlorobenzene	5E-02	ug/m³	2.1E-04	ug/m3	N/A	N/A	N/A	6.2E-04	ug/m3	2.0E+02	ug/m3	3.1E-06		
				1,3,5-Trimethylbenzene	1E-02	ug/m³	4.0E-05	ug/m3	N/A	N/A	N/A	1.2E-04	ug/m3	6.0E+00	ug/m3	2.0E-05		
				1,3-Dichlorobenzene	1E-01	ug/m³	4.3E-04	ug/m3	N/A	N/A	N/A	1.2E-03	ug/m3	N/A	N/A	N/A		
				1,4-Dichlorobenzene	3E-01	ug/m³	1.2E-03	ug/m3	1.1E-05	(ug/m3) ⁻¹	1.3E-08	3.4E-03	ug/m3	8.0E+02	ug/m3	4.3E-06		
				4-Ethyltoluene	5E-02	ug/m³	2.0E-04	ug/m3	N/A	N/A	N/A	5.8E-04	ug/m3	N/A	N/A	N/A		
				Benzene	7E-01	ug/m³	2.9E-03	ug/m3	7.8E-06	(ug/m3) ⁻¹	2.3E-08	8.5E-03	ug/m3	3.0E+01	ug/m3	2.8E-04		
				Carbon tetrachloride	2E-03	ug/m³	8.5E-06	ug/m3	1.5E-05	(ug/m3) ⁻¹	1.3E-10	2.5E-05	ug/m3	1.9E+02	ug/m3	1.3E-07		
				Chlorobenzene	2E+00	ug/m³	6.7E-03	ug/m3	N/A	N/A	N/A	2.0E-02	ug/m3	5.0E+01	ug/m3	3.9E-04		
				cis-1,2-Dichloroethene	9E-03	ug/m³	3.6E-05	ug/m3	N/A	N/A	N/A	1.0E-04	ug/m3	N/A	N/A	N/A		
				Dichlorodifluoromethane	2E-02	ug/m³	7.2E-05	ug/m3	N/A	N/A	N/A	2.1E-04	ug/m3	2.0E+02	ug/m3	1.0E-06		
				Ethylbenzene	6E-01	ug/m³	2.2E-03	ug/m3	2.5E-06	(ug/m3) ⁻¹	5.6E-09	6.6E-03	ug/m3	1.0E+03	ug/m3	6.6E-06		
				Methylene chloride	4E-03	ug/m³	1.7E-05	ug/m3	4.7E-07	(ug/m3) ⁻¹	7.9E-12	4.9E-05	ug/m3	1.1E+03	ug/m3	4.5E-08		
				trans-1,2-Dichloroethene	1E-02	ug/m³	4.0E-05	ug/m3	N/A	N/A	N/A	1.2E-04	ug/m3	6.0E+01	ug/m3	2.0E-06		
				Trichloroethene	2E-02	ug/m³	9.4E-05	ug/m3	2.0E-06	(ug/m3) ⁻¹	1.9E-10	2.8E-04	ug/m3	1.0E+01	ug/m3	2.8E-05		
				Vinyl Chloride	9E-02	ug/m³	3.6E-04	ug/m3	4.4E-06	(ug/m3) ⁻¹	1.6E-09	1.0E-03	ug/m3	1.0E+02	ug/m3	1.0E-05		
				Xylene (Total)	3E-01	ug/m³	1.3E-03	ug/m3	N/A	N/A	N/A	3.7E-03	ug/m3	1.0E+02	ug/m3	3.7E-05		
								Exp. Route Total						4E-08				9E-04
								Exposure Point Total						4E-08				9E-04
				Exposure Medium Total						N/A				N/A				
				Medium Total						N/A				N/A				
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A		

TABLE 7.55.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
Soil/Groundwater	Ambient Air	Landfill	Inhalation	1,1-Dichloroethane	3E-03	ug/m³	4.9E-06	ug/m3	1.6E-06	(ug/m3) ⁻¹	7.9E-12	1.7E-05	ug/m3	5.0E+02	ug/m3	3.5E-08		
				1,2,4-Trimethylbenzene	4E-02	ug/m³	6.4E-05	ug/m3	N/A	N/A	N/A	2.3E-04	ug/m3	7.0E+00	ug/m3	3.2E-05		
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (R114)	5E-02	ug/m³	8.5E-05	ug/m3	N/A	N/A	N/A	3.0E-04	ug/m3	N/A	N/A	N/A		
				1,2-Dichlorobenzene	4E-02	ug/m³	6.2E-05	ug/m3	N/A	N/A	N/A	2.2E-04	ug/m3	2.0E+02	ug/m3	1.1E-06		
				1,3,5-Trimethylbenzene	7E-03	ug/m³	1.2E-05	ug/m3	N/A	N/A	N/A	4.1E-05	ug/m3	6.0E+00	ug/m3	6.9E-06		
				1,3-Dichlorobenzene	7E-02	ug/m³	1.2E-04	ug/m3	N/A	N/A	N/A	4.4E-04	ug/m3	N/A	N/A	N/A		
				1,4-Dichlorobenzene	2E-01	ug/m³	3.4E-04	ug/m3	1.1E-05	(ug/m3) ⁻¹	3.8E-09	1.2E-03	ug/m3	8.0E+02	ug/m3	1.5E-06		
				4-Ethyltoluene	3E-02	ug/m³	5.8E-05	ug/m3	N/A	N/A	N/A	2.0E-04	ug/m3	N/A	N/A	N/A		
				Benzene	5E-01	ug/m³	8.5E-04	ug/m3	7.8E-06	(ug/m3) ⁻¹	6.7E-09	3.0E-03	ug/m3	3.0E+01	ug/m3	9.9E-05		
				Carbon tetrachloride	1E-03	ug/m³	2.5E-06	ug/m3	1.5E-05	(ug/m3) ⁻¹	3.7E-11	8.7E-06	ug/m3	1.9E+02	ug/m3	4.6E-08		
				Chlorobenzene	1E+00	ug/m³	2.0E-03	ug/m3	N/A	N/A	N/A	6.9E-03	ug/m3	5.0E+01	ug/m3	1.4E-04		
				cis-1,2-Dichloroethene	6E-03	ug/m³	1.0E-05	ug/m3	N/A	N/A	N/A	3.7E-05	ug/m3	N/A	N/A	N/A		
				Dichlorodifluoromethane	1E-02	ug/m³	2.1E-05	ug/m3	N/A	N/A	N/A	7.3E-05	ug/m3	2.0E+02	ug/m3	3.7E-07		
				Ethylbenzene	4E-01	ug/m³	6.6E-04	ug/m3	2.5E-06	(ug/m3) ⁻¹	1.6E-09	2.3E-03	ug/m3	1.0E+03	ug/m3	2.3E-06		
				Methylene chloride	3E-03	ug/m³	4.9E-06	ug/m3	4.7E-07	(ug/m3) ⁻¹	2.3E-12	1.7E-05	ug/m3	1.1E+03	ug/m3	1.6E-08		
				trans-1,2-Dichloroethene	7E-03	ug/m³	1.2E-05	ug/m3	N/A	N/A	N/A	4.1E-05	ug/m3	6.0E+01	ug/m3	6.9E-07		
				Trichloroethene	2E-02	ug/m³	2.8E-05	ug/m3	2.0E-06	(ug/m3) ⁻¹	5.5E-11	9.6E-05	ug/m3	1.0E+01	ug/m3	9.6E-06		
				Vinyl Chloride	6E-02	ug/m³	1.0E-04	ug/m3	4.4E-06	(ug/m3) ⁻¹	4.6E-10	3.7E-04	ug/m3	1.0E+02	ug/m3	3.7E-06		
				Xylene (Total)	2E-01	ug/m³	3.7E-04	ug/m3	N/A	N/A	N/A	1.3E-03	ug/m3	1.0E+02	ug/m3	1.3E-05		
							Exp. Route Total							1E-08				3E-04
							Exposure Point Total							1E-08				3E-04
				Exposure Medium Total							N/A				N/A			
Medium Total										N/A				N/A				
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media				N/A		

TABLE 7.56.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
Soil/Groundwater	Ambient Air	Landfill	Inhalation	1,1-Dichloroethane	4E-03	ug/m³	2.6E-06	ug/m3	1.6E-06	(ug/m3) ⁻¹	4.2E-12	3.1E-05	ug/m3	5.0E+02	ug/m3	6.1E-08				
				1,2,4-Trimethylbenzene	5E-02	ug/m³	3.4E-05	ug/m3	N/A	N/A	N/A	4.0E-04	ug/m3	7.0E+00	ug/m3	5.7E-05				
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (PFC-114)	7E-02	ug/m³	4.5E-05	ug/m3	N/A	N/A	N/A	5.2E-04	ug/m3	N/A	N/A	N/A				
				1,2-Dichlorobenzene	5E-02	ug/m³	3.3E-05	ug/m3	N/A	N/A	N/A	3.8E-04	ug/m3	2.0E+02	ug/m3	1.9E-06				
				1,3,5-Trimethylbenzene	1E-02	ug/m³	6.2E-06	ug/m3	N/A	N/A	N/A	7.3E-05	ug/m3	6.0E+00	ug/m3	1.2E-05				
				1,3-Dichlorobenzene	1E-01	ug/m³	6.6E-05	ug/m3	N/A	N/A	N/A	7.7E-04	ug/m3	N/A	N/A	N/A				
				1,4-Dichlorobenzene	3E-01	ug/m³	1.8E-04	ug/m3	1.1E-05	(ug/m3) ⁻¹	2.0E-09	2.1E-03	ug/m3	8.0E+02	ug/m3	2.6E-06				
				4-Ethyltoluene	5E-02	ug/m³	3.0E-05	ug/m3	N/A	N/A	N/A	3.6E-04	ug/m3	N/A	N/A	N/A				
				Benzene	7E-01	ug/m³	4.5E-04	ug/m3	7.8E-06	(ug/m3) ⁻¹	3.5E-09	5.2E-03	ug/m3	3.0E+01	ug/m3	1.7E-04				
				Carbon tetrachloride	2E-03	ug/m³	1.3E-06	ug/m3	1.5E-05	(ug/m3) ⁻¹	2.0E-11	1.5E-05	ug/m3	1.9E+02	ug/m3	8.1E-08				
				Chlorobenzene	2E+00	ug/m³	1.0E-03	ug/m3	N/A	N/A	N/A	1.2E-02	ug/m3	5.0E+01	ug/m3	2.4E-04				
				cis-1,2-Dichloroethene	9E-03	ug/m³	5.5E-06	ug/m3	N/A	N/A	N/A	6.5E-05	ug/m3	N/A	N/A	N/A				
				Dichlorodifluoromethane	2E-02	ug/m³	1.1E-05	ug/m3	N/A	N/A	N/A	1.3E-04	ug/m3	2.0E+02	ug/m3	6.5E-07				
				Ethylbenzene	6E-01	ug/m³	3.5E-04	ug/m3	2.5E-06	(ug/m3) ⁻¹	8.7E-10	4.0E-03	ug/m3	1.0E+03	ug/m3	4.0E-06				
				Methylene chloride	4E-03	ug/m³	2.6E-06	ug/m3	4.7E-07	(ug/m3) ⁻¹	1.2E-12	3.0E-05	ug/m3	1.1E+03	ug/m3	2.8E-08				
				trans-1,2-Dichloroethene	1E-02	ug/m³	6.2E-06	ug/m3	N/A	N/A	N/A	7.3E-05	ug/m3	6.0E+01	ug/m3	1.2E-06				
				Trichloroethene	2E-02	ug/m³	1.5E-05	ug/m3	2.0E-06	(ug/m3) ⁻¹	2.9E-11	1.7E-04	ug/m3	1.0E+01	ug/m3	1.7E-05				
				Vinyl Chloride	9E-02	ug/m³	5.5E-05	ug/m3	4.4E-06	(ug/m3) ⁻¹	2.4E-10	6.5E-04	ug/m3	1.0E+02	ug/m3	6.5E-06				
				Xylene (Total)	3E-01	ug/m³	1.9E-04	ug/m3	N/A	N/A	N/A	2.3E-03	ug/m3	1.0E+02	ug/m3	2.3E-05				
								Exp. Route Total							7E-09					5E-04
								Exposure Point Total							7E-09					5E-04
								Exposure Medium Total							N/A					N/A
				Medium Total										N/A					N/A	
				Total of Receptor Risks Across All Media						N/A	Total of Receptor Hazards Across All Media				N/A					

TABLE 7.56.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
Soil/Groundwater	Ambient Air	Landfill	Inhalation	1,1-Dichloroethane	3E-03	ug/m³	1.5E-06	ug/m3	1.6E-06	(ug/m3) ⁻¹	2.4E-12	1.7E-05	ug/m3	5.0E+02	ug/m3	3.5E-08				
				1,2,4-Trimethylbenzene	4E-02	ug/m³	1.9E-05	ug/m3	N/A	N/A	N/A	2.3E-04	ug/m3	7.0E+00	ug/m3	3.2E-05				
				1,2-Dichloro-1,1,2,2-tetrafluoroethane (PCE)	5E-02	ug/m³	2.6E-05	ug/m3	N/A	N/A	N/A	3.0E-04	ug/m3	N/A	N/A	N/A				
				1,2-Dichlorobenzene	4E-02	ug/m³	1.9E-05	ug/m3	N/A	N/A	N/A	2.2E-04	ug/m3	2.0E+02	ug/m3	1.1E-06				
				1,3,5-Trimethylbenzene	7E-03	ug/m³	3.5E-06	ug/m3	N/A	N/A	N/A	4.1E-05	ug/m3	6.0E+00	ug/m3	6.9E-06				
				1,3-Dichlorobenzene	7E-02	ug/m³	3.7E-05	ug/m3	N/A	N/A	N/A	4.4E-04	ug/m3	N/A	N/A	N/A				
				1,4-Dichlorobenzene	2E-01	ug/m³	1.0E-04	ug/m3	1.1E-05	(ug/m3) ⁻¹	1.1E-09	1.2E-03	ug/m3	8.0E+02	ug/m3	1.5E-06				
				4-Ethyltoluene	3E-02	ug/m³	1.7E-05	ug/m3	N/A	N/A	N/A	2.0E-04	ug/m3	N/A	N/A	N/A				
				Benzene	5E-01	ug/m³	2.6E-04	ug/m3	7.8E-06	(ug/m3) ⁻¹	2.0E-09	3.0E-03	ug/m3	3.0E+01	ug/m3	9.9E-05				
				Carbon tetrachloride	1E-03	ug/m³	7.5E-07	ug/m3	1.5E-05	(ug/m3) ⁻¹	1.1E-11	8.7E-06	ug/m3	1.9E+02	ug/m3	4.6E-08				
				Chlorobenzene	1E+00	ug/m³	5.9E-04	ug/m3	N/A	N/A	N/A	6.9E-03	ug/m3	5.0E+01	ug/m3	1.4E-04				
				cis-1,2-Dichloroethene	6E-03	ug/m³	3.1E-06	ug/m3	N/A	N/A	N/A	3.7E-05	ug/m3	N/A	N/A	N/A				
				Dichlorodifluoromethane	1E-02	ug/m³	6.3E-06	ug/m3	N/A	N/A	N/A	7.3E-05	ug/m3	2.0E+02	ug/m3	3.7E-07				
				Ethylbenzene	4E-01	ug/m³	2.0E-04	ug/m3	2.5E-06	(ug/m3) ⁻¹	4.9E-10	2.3E-03	ug/m3	1.0E+03	ug/m3	2.3E-06				
				Methylene chloride	3E-03	ug/m³	1.5E-06	ug/m3	4.7E-07	(ug/m3) ⁻¹	6.9E-13	1.7E-05	ug/m3	1.1E+03	ug/m3	1.6E-08				
				trans-1,2-Dichloroethene	7E-03	ug/m³	3.5E-06	ug/m3	N/A	N/A	N/A	4.1E-05	ug/m3	6.0E+01	ug/m3	6.9E-07				
				Trichloroethene	2E-02	ug/m³	8.3E-06	ug/m3	2.0E-06	(ug/m3) ⁻¹	1.7E-11	9.6E-05	ug/m3	1.0E+01	ug/m3	9.6E-06				
				Vinyl Chloride	6E-02	ug/m³	3.1E-05	ug/m3	4.4E-06	(ug/m3) ⁻¹	1.4E-10	3.7E-04	ug/m3	1.0E+02	ug/m3	3.7E-06				
				Xylene (Total)	2E-01	ug/m³	1.1E-04	ug/m3	N/A	N/A	N/A	1.3E-03	ug/m3	1.0E+02	ug/m3	1.3E-05				
								Exp. Route Total							4E-09					3E-04
								Exposure Point Total							4E-09					3E-04
								Exposure Medium Total							N/A					N/A
				Medium Total										N/A					N/A	
Total of Receptor Risks Across All Media							N/A		Total of Receptor Hazards Across All Media							N/A				

TABLE 7.57.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Leachate	Leachate	Landfill	Dermal	4-Methylphenol	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				Acenaphthylene	2E-02	ug/L	1.2E-08	mg/kg-day	N/A	N/A	N/A	3.4E-08	mg/kg-day	6.0E-02	mg/kg-day	5.6E-07
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	8E-01	ug/L	5.4E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	7.6E-09	1.6E-06	mg/kg-day	2.0E-02	mg/kg-day	7.9E-05
				Chrysene	ND	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenz(a,h)anthracene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	3.6E-07	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	4.0E-03	mg/kg-day	2.6E-04
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	6.7E-08	mg/kg-day	N/A	N/A	N/A	2.0E-07	mg/kg-day	2.0E-02	mg/kg-day	9.8E-06
				N-Nitrosodiphenylamine	2E+00	ug/L	3.5E-07	mg/kg-day	4.9E-03	(mg/kg-day) ⁻¹	1.7E-09	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Pentachlorophenol	ND	ug/L	N/A	N/A	1.2E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	2E+00	ug/L	5.5E-07	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	3.0E-09	1.6E-06	mg/kg-day	7.0E-02	mg/kg-day	2.3E-05
				Benzene	6E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Chlorobenzene	1E+01	ug/L	2.2E-06	mg/kg-day	N/A	N/A	N/A	6.6E-06	mg/kg-day	2.0E-02	mg/kg-day	3.3E-04
				Ethylbenzene	1E+00	ug/L	3.0E-07	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	3.3E-09	8.7E-07	mg/kg-day	1.0E-01	mg/kg-day	8.7E-06
				Xylene (total)	3E+00	ug/L	8.6E-07	mg/kg-day	N/A	N/A	N/A	2.5E-06	mg/kg-day	2.0E-01	mg/kg-day	1.2E-05
				Total PCBs	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	8.0E-10	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	5.0E-09	2.3E-09	mg/kg-day	8.0E-03	mg/kg-day	2.9E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+02	ug/L	3.1E-07	mg/kg-day	N/A	N/A	N/A	9.1E-07	mg/kg-day	1.0E-02	mg/kg-day	9.1E-05
				Antimony	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	7E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Barium	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-02	mg/kg-day	N/A
				Beryllium	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-05	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	1.3E-08	mg/kg-day	N/A	N/A	N/A	3.9E-08	mg/kg-day	7.5E-05	mg/kg-day	5.2E-04
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A

TABLE 7.57.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cyanide	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
					Exp. Route Total											2E-08
		Exposure Point Total											2E-08			1E-03
	Exposure Medium Total											N/A			N/A	
Medium Total												N/A			N/A	
							Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media		N/A	

TABLE 7.57.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Leachate	Leachate	Landfill	Dermal	4-Methylphenol	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				Acenaphthylene	2E-02	ug/L	4.8E-09	mg/kg-day	N/A	N/A	N/A	1.7E-08	mg/kg-day	6.0E-02	mg/kg-day	2.8E-07
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	8E-01	ug/L	2.2E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.1E-09	7.9E-07	mg/kg-day	2.0E-02	mg/kg-day	3.9E-05
				Chrysene	ND	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenz(a,h)anthracene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	1.5E-07	mg/kg-day	N/A	N/A	N/A	5.3E-07	mg/kg-day	4.0E-03	mg/kg-day	1.3E-04
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	2.8E-08	mg/kg-day	N/A	N/A	N/A	9.8E-08	mg/kg-day	2.0E-02	mg/kg-day	4.9E-06
				N-Nitrosodiphenylamine	2E+00	ug/L	1.5E-07	mg/kg-day	4.9E-03	(mg/kg-day) ⁻¹	7.2E-10	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Pentachlorophenol	ND	ug/L	N/A	N/A	1.2E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	2E+00	ug/L	2.3E-07	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	1.2E-09	8.1E-07	mg/kg-day	7.0E-02	mg/kg-day	1.2E-05
				Benzene	6E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Chlorobenzene	1E+01	ug/L	9.4E-07	mg/kg-day	N/A	N/A	N/A	3.3E-06	mg/kg-day	2.0E-02	mg/kg-day	1.6E-04
				Ethylbenzene	1E+00	ug/L	1.2E-07	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	1.4E-09	4.3E-07	mg/kg-day	1.0E-01	mg/kg-day	4.3E-06
				Xylene (total)	3E+00	ug/L	3.6E-07	mg/kg-day	N/A	N/A	N/A	1.2E-06	mg/kg-day	2.0E-01	mg/kg-day	6.2E-06
				Total PCBs	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	3.3E-10	mg/kg-day	6.3E+00	(mg/kg-day) ⁻¹	2.1E-09	1.2E-09	mg/kg-day	8.0E-03	mg/kg-day	1.5E-07
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+02	ug/L	1.3E-07	mg/kg-day	N/A	N/A	N/A	4.5E-07	mg/kg-day	1.0E-02	mg/kg-day	4.5E-05
				Antimony	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	7E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Barium	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-02	mg/kg-day	N/A
				Beryllium	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-05	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	5.6E-09	mg/kg-day	N/A	N/A	N/A	1.9E-08	mg/kg-day	7.5E-05	mg/kg-day	2.6E-04
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A

TABLE 7.57.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cyanide	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
						</										

TABLE 7.58.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Leachate	Leachate	Landfill	Dermal	4-Methylphenol	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				Acenaphthylene	2E-02	ug/L	3.5E-09	mg/kg-day	N/A	N/A	N/A	4.0E-08	mg/kg-day	6.0E-02	mg/kg-day	6.7E-07
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	8E-01	ug/L	1.6E-07	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.3E-09	1.9E-06	mg/kg-day	2.0E-02	mg/kg-day	9.4E-05
				Chrysene	ND	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenz(a,h)anthracene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	1.1E-07	mg/kg-day	N/A	N/A	N/A	1.3E-06	mg/kg-day	4.0E-03	mg/kg-day	3.2E-04
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	2.0E-08	mg/kg-day	N/A	N/A	N/A	2.4E-07	mg/kg-day	2.0E-02	mg/kg-day	1.2E-05
				N-Nitrosodiphenylamine	2E+00	ug/L	N/A	N/A	4.9E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Pentachlorophenol	ND	ug/L	N/A	N/A	1.2E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	2E+00	ug/L	1.7E-07	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	9.0E-10	1.9E-06	mg/kg-day	7.0E-02	mg/kg-day	2.8E-05
				Benzene	6E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Chlorobenzene	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Ethylbenzene	1E+00	ug/L	8.9E-08	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	9.8E-10	1.0E-06	mg/kg-day	1.0E-01	mg/kg-day	1.0E-05
				Xylene (total)	3E+00	ug/L	2.6E-07	mg/kg-day	N/A	N/A	N/A	3.0E-06	mg/kg-day	2.0E-01	mg/kg-day	1.5E-05
				Total PCBs	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	5E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	N/A	N/A	6.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	8.0E-03	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+02	ug/L	9.3E-08	mg/kg-day	N/A	N/A	N/A	1.1E-06	mg/kg-day	1.0E-02	mg/kg-day	1.1E-04
				Antimony	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	7E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Barium	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-02	mg/kg-day	N/A
				Beryllium	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-05	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	4.0E-09	mg/kg-day	N/A	N/A	N/A	4.7E-08	mg/kg-day	7.5E-05	mg/kg-day	6.2E-04
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A

TABLE 7.58.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Cyanide	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Iron	4E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Manganese (other media)	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A
				Silver	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A
				Thallium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
		Exp. Route Total											4E-09			1E-03
		Exposure Point Total											4E-09			1E-03
		Exposure Medium Total											N/A			N/A
	Medium Total												N/A			N/A
							Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media		N/A	

TABLE 7.58.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Recreational User
 Receptor Age: Older Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Leachate	Leachate	Landfill	Dermal	4-Methylphenol	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0E-03	mg/kg-day	N/A
				Acenaphthylene	2E-02	ug/L	1.7E-09	mg/kg-day	N/A	N/A	N/A	2.0E-08	mg/kg-day	6.0E-02	mg/kg-day	3.4E-07
				Atrazine	3E+00	ug/L	N/A	N/A	2.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.5E-02	mg/kg-day	N/A
				Benzo(a)anthracene	3E-02	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(a)pyrene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(b)fluoranthene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Benzo(g,h,i)perylene	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Benzo(k)fluoranthene	ND	ug/L	N/A	N/A	7.3E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	8E-01	ug/L	8.1E-08	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.1E-09	9.4E-07	mg/kg-day	2.0E-02	mg/kg-day	4.7E-05
				Chrysene	ND	ug/L	N/A	N/A	7.3E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenz(a,h)anthracene	ND	ug/L	N/A	N/A	7.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Dibenzofuran	4E-01	ug/L	5.4E-08	mg/kg-day	N/A	N/A	N/A	6.4E-07	mg/kg-day	4.0E-03	mg/kg-day	1.6E-04
				Indeno(1,2,3-cd)pyrene	ND	ug/L	N/A	N/A	7.3E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Naphthalene	2E-01	ug/L	1.0E-08	mg/kg-day	N/A	N/A	N/A	1.2E-07	mg/kg-day	2.0E-02	mg/kg-day	5.9E-06
				N-Nitrosodiphenylamine	2E+00	ug/L	N/A	N/A	4.9E-03	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				Pentachlorophenol	ND	ug/L	N/A	N/A	1.2E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				Phenanthrene	2E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-02	mg/kg-day	N/A
				1,4-Dichlorobenzene	2E+00	ug/L	8.3E-08	mg/kg-day	5.4E-03	(mg/kg-day) ⁻¹	4.5E-10	9.7E-07	mg/kg-day	7.0E-02	mg/kg-day	1.4E-05
				Benzene	6E+02	ug/L	N/A	N/A	5.5E-02	(mg/kg-day) ⁻¹	N/A	N/A	N/A	4.0E-03	mg/kg-day	N/A
				Chlorobenzene	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A
				Ethylbenzene	1E+00	ug/L	4.5E-08	mg/kg-day	1.1E-02	(mg/kg-day) ⁻¹	4.9E-10	5.2E-07	mg/kg-day	1.0E-01	mg/kg-day	5.2E-06
				Xylene (total)	3E+00	ug/L	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	2.0E-01	mg/kg-day	7.5E-06
				Total PCBs	2E-01	ug/L	N/A	N/A	2.0E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	2.0E-05	mg/kg-day	N/A
				4,4'-DDD	3E-03	ug/L	N/A	N/A	2.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDE	4E-03	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	N/A	N/A	N/A
				4,4'-DDT	ND	ug/L	N/A	N/A	3.4E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				alpha-BHC	4E-03	ug/L	N/A	N/A	6.3E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	8.0E-03	mg/kg-day	N/A
				alpha-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Dieldrin	ND	ug/L	N/A	N/A	1.6E+01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-05	mg/kg-day	N/A
				Gamma-Chlordane	ND	ug/L	N/A	N/A	3.5E-01	(mg/kg-day) ⁻¹	N/A	N/A	N/A	5.0E-04	mg/kg-day	N/A
				Aluminum	1E+02	ug/L	4.7E-08	mg/kg-day	N/A	N/A	N/A	5.4E-07	mg/kg-day	1.0E-02	mg/kg-day	5.4E-05
				Antimony	7E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.0E-05	mg/kg-day	N/A
				Arsenic	7E+01	ug/L	N/A	N/A	1.5E+00	(mg/kg-day) ⁻¹	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Barium	3E+02	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-02	mg/kg-day	N/A
				Beryllium	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4E-05	mg/kg-day	N/A
				Cadmium (other media)	4E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5E-05	mg/kg-day	N/A
				Chromium	2E+00	ug/L	2.0E-09	mg/kg-day	N/A	N/A	N/A	2.3E-08	mg/kg-day	7.5E-05	mg/kg-day	3.1E-04
				Cobalt	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	1E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
				Cyanide	3E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-02	mg/kg-day	N/A		
				Iron	4E+04	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A		
				Lead	8E-01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
				Manganese (other media)	2E+03	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A		
				Mercury (water)	ND	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.1E-05	mg/kg-day	N/A		
				Nickel	1E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-04	mg/kg-day	N/A		
				Silver	7E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0E-04	mg/kg-day	N/A		
				Thallium	4E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A		
				Vanadium	2E+00	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A		
				Zinc	3E+01	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A		
				Exp. Route Total										2E-09				6E-04
				Exposure Point Total										2E-09				6E-04
				Exposure Medium Total										N/A				N/A
				Medium Total										N/A				N/A
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media					N/A	

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for an older child (ages 6-12).

TABLE 7.59.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
Soil	Indoor Air	Nunes Parcel	Inhalation	1,1'-Biphenyl	6E-02	ug/m ³	5.1E-03	ug/m3	N/A	N/A	N/A	1.4E-02	ug/m3	N/A	N/A	N/A		
				2-Methylnaphthalene	5E-01	ug/m ³	3.8E-02	ug/m3	N/A	N/A	N/A	1.1E-01	ug/m3	3.0E+00	ug/m3	3.6E-02		
				Acenaphthene	1E-01	ug/m ³	1.0E-02	ug/m3	N/A	N/A	N/A	2.8E-02	ug/m3	3.0E+00	ug/m3	9.4E-03		
				Acetophenone	1E-01	ug/m ³	9.0E-03	ug/m3	N/A	N/A	N/A	2.5E-02	ug/m3	N/A	N/A	N/A		
				Benzaldehyde	5E-01	ug/m ³	3.8E-02	ug/m3	N/A	N/A	N/A	1.1E-01	ug/m3	N/A	N/A	N/A		
				Naphthalene	1E+00	ug/m ³	8.2E-02	ug/m3	3.4E-05	(ug/m3) ⁻¹	2.8E-06	2.3E-01	ug/m3	3.0E+00	ug/m3	7.6E-02		
				1,4-Dichlorobenzene	4E-01	ug/m ³	3.4E-02	ug/m3	1.1E-05	(ug/m3) ⁻¹	3.8E-07	9.6E-02	ug/m3	8.0E+02	ug/m3	1.2E-04		
				Benzene	2E+02	ug/m ³	1.2E+01	ug/m3	7.8E-06	(ug/m3) ⁻¹	9.5E-05	3.4E+01	ug/m3	3.0E+01	ug/m3	1.1E+00		
				Carbon disulfide	2E+02	ug/m ³	1.3E+01	ug/m3	N/A	N/A	N/A	3.6E+01	ug/m3	7.0E+02	ug/m3	5.1E-02		
				Ethylbenzene	6E+00	ug/m ³	5.3E-01	ug/m3	2.5E-06	(ug/m3) ⁻¹	1.3E-06	1.5E+00	ug/m3	1.0E+03	ug/m3	1.5E-03		
				Methyl acetate	5E+01	ug/m ³	3.9E+00	ug/m3	N/A	N/A	N/A	1.1E+01	ug/m3	N/A	N/A	N/A		
				Tetrachloroethene	2E+01	ug/m ³	1.8E+00	ug/m3	5.9E-06	(ug/m3) ⁻¹	1.1E-05	5.2E+00	ug/m3	2.7E+02	ug/m3	1.9E-02		
				Toluene	2E+03	ug/m ³	1.9E+02	ug/m3	N/A	N/A	N/A	5.4E+02	ug/m3	5.0E+03	ug/m3	1.1E-01		
				Xylene (Total)	8E+01	ug/m ³	6.3E+00	ug/m3	N/A	N/A	N/A	1.8E+01	ug/m3	1.0E+02	ug/m3	1.8E-01		
				Exp. Route Total						1E-04				2E+00				
				Exposure Point Total						1E-04				2E+00				
				Exposure Medium Total						N/A				N/A				
				Medium Total							N/A				N/A			
		Groundwater	Indoor Air	Nunes Parcel	Inhalation	Naphthalene	7E-02	ug/m ³	5.6E-03	ug/m3	3.4E-05	(ug/m3) ⁻¹	1.9E-07	1.6E-02	ug/m3	3.0E+00	ug/m3	5.2E-03
	1,4-Dichlorobenzene					6E-02	ug/m ³	4.8E-03	ug/m3	1.1E-05	(ug/m3) ⁻¹	5.3E-08	1.3E-02	ug/m3	8.0E+02	ug/m3	1.7E-05	
Benzene	2E+00					ug/m ³	1.2E-01	ug/m3	7.8E-06	(ug/m3) ⁻¹	9.5E-07	3.4E-01	ug/m3	3.0E+01	ug/m3	1.1E-02		
Chloroform	1E-01					ug/m ³	9.8E-03	ug/m3	2.3E-05	(ug/m3) ⁻¹	2.3E-07	2.7E-02	ug/m3	1.0E+02	ug/m3	2.7E-04		
Ethylbenzene	2E+00					ug/m ³	1.9E-01	ug/m3	2.5E-06	(ug/m3) ⁻¹	4.7E-07	5.2E-01	ug/m3	1.0E+03	ug/m3	5.2E-04		
Vinyl chloride	8E-01					ug/m ³	6.4E-02	ug/m3	4.4E-06	(ug/m3) ⁻¹	2.8E-07	1.8E-01	ug/m3	1.0E+02	ug/m3	1.8E-03		
Exp. Route Total										2E-06				2E-02				
Exposure Point Total										2E-06				2E-02				
Exposure Medium Total								N/A				N/A						
Medium Total							N/A				N/A							
Total of Receptor Risks Across All Media											N/A		Total of Receptor Hazards Across All Media				N/A	

TABLE 7.59.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Soil	Indoor Air	Nunes Parcel	Inhalation	1,1'-Biphenyl	6E-02	ug/m ³	1.6E-03	ug/m3	N/A	N/A	N/A	1.2E-02	ug/m3	N/A	N/A	N/A	
				2-Methylnaphthalene	5E-01	ug/m ³	1.2E-02	ug/m3	N/A	N/A	N/A	9.4E-02	ug/m3	3.0E+00	ug/m3	3.1E-02	
				Acenaphthene	1E-01	ug/m ³	3.2E-03	ug/m3	N/A	N/A	N/A	2.5E-02	ug/m3	3.0E+00	ug/m3	8.3E-03	
				Acetophenone	1E-01	ug/m ³	2.8E-03	ug/m3	N/A	N/A	N/A	2.2E-02	ug/m3	N/A	N/A	N/A	
				Benzaldehyde	5E-01	ug/m ³	1.2E-02	ug/m3	N/A	N/A	N/A	9.2E-02	ug/m3	N/A	N/A	N/A	
				Naphthalene	1E+00	ug/m ³	2.6E-02	ug/m3	3.4E-05	(ug/m3) ⁻¹	8.7E-07	2.0E-01	ug/m3	3.0E+00	ug/m3	6.7E-02	
				1,4-Dichlorobenzene	4E-01	ug/m ³	1.1E-02	ug/m3	1.1E-05	(ug/m3) ⁻¹	1.2E-07	8.4E-02	ug/m3	8.0E+02	ug/m3	1.1E-04	
				Benzene	2E+02	ug/m ³	3.9E+00	ug/m3	7.8E-06	(ug/m3) ⁻¹	3.0E-05	3.0E+01	ug/m3	3.0E+01	ug/m3	1.0E+00	
				Carbon disulfide	2E+02	ug/m ³	4.0E+00	ug/m3	N/A	N/A	N/A	3.1E+01	ug/m3	7.0E+02	ug/m3	4.5E-02	
				Ethylbenzene	6E+00	ug/m ³	1.7E-01	ug/m3	2.5E-06	(ug/m3) ⁻¹	4.2E-07	1.3E+00	ug/m3	1.0E+03	ug/m3	1.3E-03	
				Methyl acetate	5E+01	ug/m ³	1.2E+00	ug/m3	N/A	N/A	N/A	9.5E+00	ug/m3	N/A	N/A	N/A	
				Tetrachloroethene	2E+01	ug/m ³	5.8E-01	ug/m3	5.9E-06	(ug/m3) ⁻¹	3.4E-06	4.5E+00	ug/m3	2.7E+02	ug/m3	1.7E-02	
				Toluene	2E+03	ug/m ³	6.0E+01	ug/m3	N/A	N/A	N/A	4.7E+02	ug/m3	5.0E+03	ug/m3	9.4E-02	
				Xylene (Total)	8E+01	ug/m ³	2.0E+00	ug/m3	N/A	N/A	N/A	1.6E+01	ug/m3	1.0E+02	ug/m3	1.6E-01	
				Exp. Route Total							3E-05						1E+00
				Exposure Point Total							3E-05						1E+00
				Exposure Medium Total							N/A						N/A
				Medium Total												N/A	
		Groundwater	Indoor Air	Nunes Parcel	Inhalation	Naphthalene	7E-02	ug/m ³	1.8E-03	ug/m3	3.4E-05	(ug/m3) ⁻¹	6.0E-08	1.4E-02	ug/m3	3.0E+00	ug/m3
	1,4-Dichlorobenzene					6E-02	ug/m ³	1.5E-03	ug/m3	1.1E-05	(ug/m3) ⁻¹	1.7E-08	1.2E-02	ug/m3	8.0E+02	ug/m3	1.5E-05
Benzene	2E+00					ug/m ³	3.9E-02	ug/m3	7.8E-06	(ug/m3) ⁻¹	3.0E-07	3.0E-01	ug/m3	3.0E+01	ug/m3	1.0E-02	
Chloroform	1E-01					ug/m ³	3.1E-03	ug/m3	2.3E-05	(ug/m3) ⁻¹	7.1E-08	2.4E-02	ug/m3	1.0E+02	ug/m3	2.4E-04	
Ethylbenzene	2E-01					ug/m ³	4.1E-03	ug/m3	2.5E-06	(ug/m3) ⁻¹	1.0E-08	3.2E-02	ug/m3	1.0E+03	ug/m3	3.2E-05	
Vinyl chloride	8E-01					ug/m ³	2.0E-02	ug/m3	4.4E-06	(ug/m3) ⁻¹	8.8E-08	1.6E-01	ug/m3	1.0E+02	ug/m3	1.6E-03	
Exp. Route Total											5E-07						2E-02
Exposure Point Total											5E-07						2E-02
Exposure Medium Total									N/A						N/A		
Medium Total												N/A					
Total of Receptor Risks Across All Media											N/A	Total of Receptor Hazards Across All Media					N/A

TABLE 7.60.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	2.5E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.8E-06	7.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.4E-06	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.8E-05	7.1E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.9E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.2E-06	8.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.5E-06	mg/kg-day	N/A	N/A	N/A	4.3E-06	mg/kg-day	3.0E-02	mg/kg-day	1.4E-04
				Benzo(k)fluoranthene	1E+00	mg/kg	5.2E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	3.8E-08	1.5E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.0E-04	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	2.8E-06	5.8E-04	mg/kg-day	2.0E-02	mg/kg-day	2.9E-02
				Carbazole	5E-01	mg/kg	2.2E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	4.4E-09	6.4E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	2.1E-06	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	1.5E-08	6.0E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	3.5E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.5E-06	1.0E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.1E-07	mg/kg-day	N/A	N/A	N/A	3.3E-07	mg/kg-day	4.0E-03	mg/kg-day	8.3E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.5E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-06	4.3E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	4.0E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	3.0E-02	mg/kg-day	3.9E-04
				Aroclor-1248	4E-01	mg/kg	1.7E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.4E-07	4.9E-07	mg/kg-day	2.0E-05	mg/kg-day	2.5E-02
				Aroclor-1254	2E-01	mg/kg	8.1E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.6E-07	2.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Aroclor-1260	2E-01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.3E-07	3.4E-07	mg/kg-day	2.0E-05	mg/kg-day	1.7E-02
				Dieldrin	2E-01	mg/kg	8.1E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.3E-06	2.4E-07	mg/kg-day	5.0E-05	mg/kg-day	4.7E-03
				Dioxin TEQ	5E-05	mg/kg	2.1E-11	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	2.7E-06	6.2E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	4.1E-03	mg/kg-day	N/A	N/A	N/A	1.2E-02	mg/kg-day	1.0E+00	mg/kg-day	1.2E-02
				Arsenic	1E+01	mg/kg	6.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.2E-06	1.8E-05	mg/kg-day	3.0E-04	mg/kg-day	5.9E-02
				Cadmium (other media)	9E+00	mg/kg	4.2E-06	mg/kg-day	N/A	N/A	N/A	1.2E-05	mg/kg-day	1.0E-03	mg/kg-day	1.2E-02
				Chromium	3E+02	mg/kg	1.3E-04	mg/kg-day	N/A	N/A	N/A	3.9E-04	mg/kg-day	3.0E-03	mg/kg-day	1.3E-01
				Cobalt	8E+00	mg/kg	3.5E-06	mg/kg-day	N/A	N/A	N/A	1.0E-05	mg/kg-day	3.0E-04	mg/kg-day	3.4E-02
				Copper	3E+02	mg/kg	1.2E-04	mg/kg-day	N/A	N/A	N/A	3.5E-04	mg/kg-day	4.0E-02	mg/kg-day	8.8E-03
				Iron	3E+04	mg/kg	1.3E-02	mg/kg-day	N/A	N/A	N/A	3.9E-02	mg/kg-day	7.0E-01	mg/kg-day	5.6E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	3.9E-04	mg/kg-day	N/A	N/A	N/A	1.2E-03	mg/kg-day	7.0E-02	mg/kg-day	1.6E-02
				Mercury (other media)	7E-01	mg/kg	3.2E-07	mg/kg-day	N/A	N/A	N/A	9.3E-07	mg/kg-day	1.0E-04	mg/kg-day	9.3E-03
				Thallium	2E+00	mg/kg	1.1E-06	mg/kg-day	N/A	N/A	N/A	3.2E-06	mg/kg-day	8.0E-05	mg/kg-day	4.0E-02
				Vanadium	3E+01	mg/kg	1.3E-05	mg/kg-day	N/A	N/A	N/A	3.8E-05	mg/kg-day	7.0E-03	mg/kg-day	5.4E-03
				Zinc	5E+02	mg/kg	2.5E-04	mg/kg-day	N/A	N/A	N/A	7.4E-04	mg/kg-day	3.0E-01	mg/kg-day	2.5E-03
			Exp. Route Total								4E-05					5E-01
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	1.3E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.5E-07	3.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	1.3E-06	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	9.3E-06	3.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	1.5E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-06	4.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	7.6E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-02	mg/kg-day	7.4E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.0E-08	7.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	7.9E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.1E-06	2.3E-04	mg/kg-day	2.0E-02	mg/kg-day	1.1E-02
				Carbazole	5E-01	mg/kg	1.1E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	2.3E-09	3.3E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.60.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	1.1E-06	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	7.8E-09	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	1.8E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.3E-06	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	4.5E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	4.0E-03	mg/kg-day	3.3E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	7.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	5.5E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	2.1E-06	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	3.0E-02	mg/kg-day	2.0E-04
				Aroclor-1248	4E-01	mg/kg	9.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.9E-07	2.8E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Aroclor-1254	2E-01	mg/kg	4.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	9.0E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.6E-03
				Aroclor-1260	2E-01	mg/kg	6.5E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.3E-07	1.9E-07	mg/kg-day	2.0E-05	mg/kg-day	9.5E-03
				Dieldrin	2E-01	mg/kg	3.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	5.2E-07	9.5E-08	mg/kg-day	5.0E-05	mg/kg-day	1.9E-03
				Dioxin TEQ	5E-05	mg/kg	2.5E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	3.3E-07	7.4E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	7.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.1E-06	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	7.1E-03
				Cadmium (other media)	9E+00	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	2.5E-05	mg/kg-day	2.0E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								2E-05					5E-02
		Exposure Point Total									6E-05					5E-01
	Exposure Medium Total										N/A					N/A
	Indoor Air	Nunes Parcel	Inhalation	1,1'-Biphenyl	6E-02	ug/m ³	2.1E-02	ug/m ³	N/A	N/A	N/A	6.0E-02	ug/m ³	N/A	N/A	N/A
				2-Methylnaphthalene	5E-01	ug/m ³	1.5E-01	ug/m ³	N/A	N/A	N/A	4.5E-01	ug/m ³	3.0E+00	ug/m ³	1.5E-01
				Acenaphthene	1E-01	ug/m ³	4.1E-02	ug/m ³	N/A	N/A	N/A	1.2E-01	ug/m ³	3.0E+00	ug/m ³	4.0E-02
				Acetophenone	1E-01	ug/m ³	3.6E-02	ug/m ³	N/A	N/A	N/A	1.1E-01	ug/m ³	N/A	N/A	N/A
				Benzaldehyde	5E-01	ug/m ³	1.5E-01	ug/m ³	N/A	N/A	N/A	4.4E-01	ug/m ³	N/A	N/A	N/A
				Naphthalene	1E+00	ug/m ³	3.3E-01	ug/m ³	3.4E-05	(ug/m ³) ⁻¹	1.1E-05	9.6E-01	ug/m ³	3.0E+00	ug/m ³	3.2E-01
				1,4-Dichlorobenzene	4E-01	ug/m ³	1.4E-01	ug/m ³	1.1E-05	(ug/m ³) ⁻¹	1.5E-06	4.0E-01	ug/m ³	8.0E+02	ug/m ³	5.0E-04
				Benzene	2E+02	ug/m ³	4.9E+01	ug/m ³	7.8E-06	(ug/m ³) ⁻¹	3.8E-04	1.4E+02	ug/m ³	3.0E+01	ug/m ³	4.8E+00
				Carbon disulfide	2E+02	ug/m ³	5.1E+01	ug/m ³	N/A	N/A	N/A	1.5E+02	ug/m ³	7.0E+02	ug/m ³	2.1E-01
				Ethylbenzene	6E+00	ug/m ³	2.1E+00	ug/m ³	2.5E-06	(ug/m ³) ⁻¹	5.3E-06	6.2E+00	ug/m ³	1.0E+03	ug/m ³	6.2E-03
				Methyl acetate	5E+01	ug/m ³	1.6E+01	ug/m ³	N/A	N/A	N/A	4.5E+01	ug/m ³	N/A	N/A	N/A
				Tetrachloroethene	2E+01	ug/m ³	7.4E+00	ug/m ³	5.9E-06	(ug/m ³) ⁻¹	4.4E-05	2.2E+01	ug/m ³	2.7E+02	ug/m ³	8.0E-02
				Toluene	2E+03	ug/m ³	7.7E+02	ug/m ³	N/A	N/A	N/A	2.3E+03	ug/m ³	5.0E+03	ug/m ³	4.5E-01

TABLE 7.60.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Xylene (Total)	8E+01	ug/m³	2.6E+01	ug/m3	N/A	N/A	N/A	7.5E+01	ug/m3	1.0E+02	ug/m3	7.5E-01	
			Exp. Route Total						4E-04					7E+00			
			Exposure Point Total						4E-04					7E+00			
		Exposure Medium Total						N/A					N/A				
	Medium Total												N/A				
Groundwater	Indoor Air	Nunes Parcel	Inhalation	Naphthalene	7E-02	ug/m³	2.2E-02	ug/m3	3.4E-05	(ug/m3) ⁻¹	7.6E-07	6.5E-02	ug/m3	3.0E+00	ug/m3	2.2E-02	
				1,4-Dichlorobenzene	6E-02	ug/m³	1.9E-02	ug/m3	1.1E-05	(ug/m3) ⁻¹	2.1E-07	5.7E-02	ug/m3	8.0E+02	ug/m3	7.1E-05	
				Benzene	2E+00	ug/m³	4.9E-01	ug/m3	7.8E-06	(ug/m3) ⁻¹	3.8E-06	1.4E+00	ug/m3	3.0E+01	ug/m3	4.8E-02	
				Chloroform	1E-01	ug/m³	3.9E-02	ug/m3	2.3E-05	(ug/m3) ⁻¹	9.1E-07	1.2E-01	ug/m3	1.0E+02	ug/m3	1.2E-03	
				Ethylbenzene	2E+00	ug/m³	7.5E-01	ug/m3	2.5E-06	(ug/m3) ⁻¹	1.9E-06	2.2E+00	ug/m3	1.0E+03	ug/m3	2.2E-03	
				Vinyl chloride	8E-01	ug/m³	2.6E-01	ug/m3	4.4E-06	(ug/m3) ⁻¹	1.1E-06	7.5E-01	ug/m3	1.0E+02	ug/m3	7.5E-03	
				Exp. Route Total						9E-06					8E-02		
				Exposure Point Total						9E-06					8E-02		
				Exposure Medium Total						N/A					N/A		
	Medium Total												N/A				
Total of Receptor Risks Across All Media							N/A					Total of Receptor Hazards Across All Media					N/A

TABLE 7.60.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	3.6E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-07	3.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.6E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.6E-06	3.6E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	4.3E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.1E-07	4.3E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.1E-07	mg/kg-day	N/A	N/A	N/A	2.1E-06	mg/kg-day	3.0E-02	mg/kg-day	7.1E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.5E-09	7.6E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.9E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	4.0E-07	2.9E-04	mg/kg-day	2.0E-02	mg/kg-day	1.4E-02
				Carbazole	5E-01	mg/kg	3.2E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.4E-10	3.2E-07	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	3.0E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	2.2E-09	3.0E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.7E-07	5.1E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.7E-08	mg/kg-day	N/A	N/A	N/A	1.7E-07	mg/kg-day	4.0E-03	mg/kg-day	4.1E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	2.1E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	5.8E-07	mg/kg-day	N/A	N/A	N/A	5.8E-06	mg/kg-day	3.0E-02	mg/kg-day	1.9E-04
				Aroclor-1248	4E-01	mg/kg	2.5E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.5E-08	2.5E-07	mg/kg-day	2.0E-05	mg/kg-day	1.2E-02
				Aroclor-1254	2E-01	mg/kg	1.2E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.2E-08	1.2E-07	mg/kg-day	2.0E-05	mg/kg-day	5.9E-03
				Aroclor-1260	2E-01	mg/kg	1.7E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.7E-08	1.7E-07	mg/kg-day	2.0E-05	mg/kg-day	8.5E-03
				Dieldrin	2E-01	mg/kg	1.2E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.9E-07	1.2E-07	mg/kg-day	5.0E-05	mg/kg-day	2.4E-03
				Dioxin TEQ	4E-05	mg/kg	2.5E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	3.3E-07	2.5E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	6.0E-04	mg/kg-day	N/A	N/A	N/A	6.0E-03	mg/kg-day	1.0E+00	mg/kg-day	6.0E-03
				Arsenic	1E+01	mg/kg	8.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.3E-06	8.9E-06	mg/kg-day	3.0E-04	mg/kg-day	3.0E-02
				Cadmium (other media)	9E+00	mg/kg	6.1E-07	mg/kg-day	N/A	N/A	N/A	6.1E-06	mg/kg-day	1.0E-03	mg/kg-day	6.1E-03
				Chromium	3E+02	mg/kg	2.0E-05	mg/kg-day	N/A	N/A	N/A	2.0E-04	mg/kg-day	3.0E-03	mg/kg-day	6.6E-02
				Cobalt	8E+00	mg/kg	5.1E-07	mg/kg-day	N/A	N/A	N/A	5.1E-06	mg/kg-day	3.0E-04	mg/kg-day	1.7E-02
				Copper	3E+02	mg/kg	1.8E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	4.0E-02	mg/kg-day	4.4E-03
				Iron	3E+04	mg/kg	2.0E-03	mg/kg-day	N/A	N/A	N/A	2.0E-02	mg/kg-day	7.0E-01	mg/kg-day	2.8E-02
				Lead												
				Manganese (other media)	8E+02	mg/kg	5.8E-05	mg/kg-day	N/A	N/A	N/A	5.8E-04	mg/kg-day	7.0E-02	mg/kg-day	8.2E-03
				Mercury (other media)	7E-01	mg/kg	4.7E-08	mg/kg-day	N/A	N/A	N/A	4.7E-07	mg/kg-day	1.0E-04	mg/kg-day	4.7E-03
				Thallium	2E+00	mg/kg	1.6E-07	mg/kg-day	N/A	N/A	N/A	1.6E-06	mg/kg-day	8.0E-05	mg/kg-day	2.0E-02
				Vanadium	3E+01	mg/kg	1.9E-06	mg/kg-day	N/A	N/A	N/A	1.9E-05	mg/kg-day	7.0E-03	mg/kg-day	2.7E-03
				Zinc	5E+02	mg/kg	3.7E-05	mg/kg-day	N/A	N/A	N/A	3.7E-04	mg/kg-day	3.0E-01	mg/kg-day	1.2E-03
			Exp. Route Total								6E-06					2E-01
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	3.8E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.8E-07	3.8E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	3.7E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.7E-06	3.7E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	4.5E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	3.3E-07	4.5E-06	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	2.2E-07	mg/kg-day	N/A	N/A	N/A	2.2E-06	mg/kg-day	3.0E-02	mg/kg-day	7.4E-05
				Benzo(k)fluoranthene	1E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	5.7E-09	7.9E-07	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.3E-05	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.2E-07	2.3E-04	mg/kg-day	2.0E-02	mg/kg-day	1.1E-02
				Carbazole	5E-01	mg/kg	3.3E-08	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	6.7E-10	3.3E-07	mg/kg-day	N/A	N/A	N/A

TABLE 7.60.CT
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 CENTRAL TENDENCY
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	3.1E-07	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	2.3E-09	3.1E-06	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	5.2E-08	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.8E-07	5.2E-07	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.3E-08	mg/kg-day	N/A	N/A	N/A	1.3E-07	mg/kg-day	4.0E-03	mg/kg-day	3.3E-05
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	2.2E-07	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.6E-07	2.2E-06	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	6.0E-07	mg/kg-day	N/A	N/A	N/A	6.0E-06	mg/kg-day	3.0E-02	mg/kg-day	2.0E-04
				Aroclor-1248	4E-01	mg/kg	2.8E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.8E-08	2.8E-07	mg/kg-day	2.0E-05	mg/kg-day	1.4E-02
				Aroclor-1254	2E-01	mg/kg	1.3E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.3E-08	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	6.6E-03
				Aroclor-1260	2E-01	mg/kg	1.9E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.9E-08	1.9E-07	mg/kg-day	2.0E-05	mg/kg-day	9.5E-03
				Dieldrin	2E-01	mg/kg	9.5E-09	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-07	9.5E-08	mg/kg-day	5.0E-05	mg/kg-day	1.9E-03
				Dioxin TEQ	4E-05	mg/kg	6.1E-13	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	7.9E-08	6.1E-12	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	2.1E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.2E-07	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	7.1E-03
				Cadmium (other media)	9E+00	mg/kg	4.9E-09	mg/kg-day	N/A	N/A	N/A	4.9E-08	mg/kg-day	2.5E-05	mg/kg-day	2.0E-03
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								5E-06					5E-02
		Exposure Point Total									1E-05					3E-01
	Exposure Medium Total										N/A					N/A
	Indoor Air	Nunes Parcel	Inhalation	1,1'-Biphenyl	6E-02	ug/m ³	4.0E-03	ug/m ³	N/A	N/A	N/A	4.0E-02	ug/m ³	N/A	N/A	N/A
				2-Methylnaphthalene	5E-01	ug/m ³	3.0E-02	ug/m ³	N/A	N/A	N/A	3.0E-01	ug/m ³	3.0E+00	ug/m ³	1.0E-01
				Acenaphthene	1E-01	ug/m ³	7.9E-03	ug/m ³	N/A	N/A	N/A	7.9E-02	ug/m ³	3.0E+00	ug/m ³	2.6E-02
				Acetophenone	1E-01	ug/m ³	7.0E-03	ug/m ³	N/A	N/A	N/A	7.0E-02	ug/m ³	N/A	N/A	N/A
				Benzaldehyde	5E-01	ug/m ³	3.0E-02	ug/m ³	N/A	N/A	N/A	3.0E-01	ug/m ³	N/A	N/A	N/A
				Naphthalene	1E+00	ug/m ³	6.4E-02	ug/m ³	3.4E-05	(ug/m ³) ⁻¹	2.2E-06	6.4E-01	ug/m ³	3.0E+00	ug/m ³	2.1E-01
				1,4-Dichlorobenzene	4E-01	ug/m ³	2.7E-02	ug/m ³	1.1E-05	(ug/m ³) ⁻¹	3.0E-07	2.7E-01	ug/m ³	8.0E+02	ug/m ³	3.4E-04
				Benzene	2E+02	ug/m ³	9.6E+00	ug/m ³	7.8E-06	(ug/m ³) ⁻¹	7.5E-05	9.6E+01	ug/m ³	3.0E+01	ug/m ³	3.2E+00
				Carbon disulfide	2E+02	ug/m ³	1.0E+01	ug/m ³	N/A	N/A	N/A	1.0E+02	ug/m ³	7.0E+02	ug/m ³	1.4E-01
				Ethylbenzene	6E+00	ug/m ³	4.1E-01	ug/m ³	2.5E-06	(ug/m ³) ⁻¹	1.0E-06	4.1E+00	ug/m ³	1.0E+03	ug/m ³	4.1E-03
				Methyl acetate	5E+01	ug/m ³	3.0E+00	ug/m ³	N/A	N/A	N/A	3.0E+01	ug/m ³	N/A	N/A	N/A
				Tetrachloroethene	2E+01	ug/m ³	1.4E+00	ug/m ³	5.9E-06	(ug/m ³) ⁻¹	8.5E-06	1.4E+01	ug/m ³	2.7E+02	ug/m ³	5.4E-02
				Toluene	2E+03	ug/m ³	1.5E+02	ug/m ³	N/A	N/A	N/A	1.5E+03	ug/m ³	5.0E+03	ug/m ³	3.0E-01

TABLE 7.60.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
				Xylene (Total)	8E+01	ug/m ³	5.0E+00	ug/m3	N/A	N/A	N/A	5.0E+01	ug/m3	1.0E+02	ug/m3	5.0E-01		
			Exp. Route Total						9E-05			5E+00						
			Exposure Point Total					9E-05			5E+00							
			Exposure Medium Total				N/A			N/A								
	Medium Total							N/A			N/A							
Groundwater	Indoor Air	Nunes Parcel	Inhalation	Naphthalene	7E-02	ug/m ³	4.4E-03	ug/m3	3.4E-05	(ug/m3) ⁻¹	1.5E-07	4.4E-02	ug/m3	3.0E+00	ug/m3	1.5E-02		
				1,4-Dichlorobenzene	6E-02	ug/m ³	3.8E-03	ug/m3	1.1E-05	(ug/m3) ⁻¹	4.1E-08	3.8E-02	ug/m3	8.0E+02	ug/m3	4.7E-05		
				Benzene	2E+00	ug/m ³	9.6E-02	ug/m3	7.8E-06	(ug/m3) ⁻¹	7.5E-07	9.6E-01	ug/m3	3.0E+01	ug/m3	3.2E-02		
				Chloroform	1E-01	ug/m ³	7.7E-03	ug/m3	2.3E-05	(ug/m3) ⁻¹	1.8E-07	7.7E-02	ug/m3	1.0E+02	ug/m3	7.7E-04		
				Ethylbenzene	2E-01	ug/m ³	1.0E-02	ug/m3	2.5E-06	(ug/m3) ⁻¹	2.5E-08	1.0E-01	ug/m3	1.0E+03	ug/m3	1.0E-04		
				Vinyl chloride	8E-01	ug/m ³	5.0E-02	ug/m3	4.4E-06	(ug/m3) ⁻¹	2.2E-07	5.0E-01	ug/m3	1.0E+02	ug/m3	5.0E-03		
				Exp. Route Total						1E-06			5E-02					
				Exposure Point Total						1E-06			5E-02					
				Exposure Medium Total					N/A			N/A						
	Medium Total							N/A			N/A							
							Total of Receptor Risks Across All Media					N/A	Total of Receptor Hazards Across All Media					N/A

TABLE 7.61.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	5.8E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.3E-05	6.8E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	5.7E-06	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	2.2E-04	6.7E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	6.9E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	2.7E-05	8.0E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	4.0E-05	mg/kg-day	3.0E-02	mg/kg-day	1.3E-03
				Benzo(k)fluoranthene	1E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	4.7E-07	1.4E-05	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	4.6E-04	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	6.5E-06	5.4E-03	mg/kg-day	2.0E-02	mg/kg-day	2.7E-01
				Carbazole	5E-01	mg/kg	5.2E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	1.0E-08	6.0E-06	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	4.8E-06	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	1.9E-07	5.6E-05	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	8.1E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	3.1E-05	9.4E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	2.7E-07	mg/kg-day	N/A	N/A	N/A	3.1E-06	mg/kg-day	4.0E-03	mg/kg-day	7.7E-04
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	3.4E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-05	4.0E-05	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	9.3E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	3.0E-02	mg/kg-day	3.6E-03
				Aroclor-1248	4E-01	mg/kg	3.9E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	7.9E-07	4.6E-06	mg/kg-day	2.0E-05	mg/kg-day	2.3E-01
				Aroclor-1254	2E-01	mg/kg	1.9E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.8E-07	2.2E-06	mg/kg-day	2.0E-05	mg/kg-day	1.1E-01
				Aroclor-1260	2E-01	mg/kg	2.7E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	5.4E-07	3.2E-06	mg/kg-day	2.0E-05	mg/kg-day	1.6E-01
				Dieldrin	2E-01	mg/kg	1.9E-07	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	3.0E-06	2.2E-06	mg/kg-day	5.0E-05	mg/kg-day	4.4E-02
				Dioxin TEQ	5E-05	mg/kg	4.9E-11	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	6.4E-06	5.8E-10	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	9.6E-03	mg/kg-day	N/A	N/A	N/A	1.1E-01	mg/kg-day	1.0E+00	mg/kg-day	1.1E-01
				Arsenic	1E+01	mg/kg	1.4E-05	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	2.1E-05	1.7E-04	mg/kg-day	3.0E-04	mg/kg-day	5.5E-01
				Cadmium (other media)	9E+00	mg/kg	9.8E-06	mg/kg-day	N/A	N/A	N/A	1.1E-04	mg/kg-day	1.0E-03	mg/kg-day	1.1E-01
				Chromium	3E+02	mg/kg	3.1E-04	mg/kg-day	N/A	N/A	N/A	3.7E-03	mg/kg-day	3.0E-03	mg/kg-day	1.2E+00
				Cobalt	8E+00	mg/kg	8.2E-06	mg/kg-day	N/A	N/A	N/A	9.6E-05	mg/kg-day	3.0E-04	mg/kg-day	3.2E-01
				Copper	3E+02	mg/kg	2.8E-04	mg/kg-day	N/A	N/A	N/A	3.3E-03	mg/kg-day	4.0E-02	mg/kg-day	8.2E-02
				Iron	3E+04	mg/kg	3.1E-02	mg/kg-day	N/A	N/A	N/A	3.7E-01	mg/kg-day	7.0E-01	mg/kg-day	5.2E-01
				Lead												
				Manganese (other media)	8E+02	mg/kg	9.2E-04	mg/kg-day	N/A	N/A	N/A	1.1E-02	mg/kg-day	7.0E-02	mg/kg-day	1.5E-01
				Mercury (other media)	7E-01	mg/kg	7.5E-07	mg/kg-day	N/A	N/A	N/A	8.7E-06	mg/kg-day	1.0E-04	mg/kg-day	8.7E-02
				Thallium	2E+00	mg/kg	2.5E-06	mg/kg-day	N/A	N/A	N/A	3.0E-05	mg/kg-day	8.0E-05	mg/kg-day	3.7E-01
				Vanadium	3E+01	mg/kg	3.0E-05	mg/kg-day	N/A	N/A	N/A	3.5E-04	mg/kg-day	7.0E-03	mg/kg-day	5.0E-02
				Zinc	5E+02	mg/kg	5.9E-04	mg/kg-day	N/A	N/A	N/A	6.9E-03	mg/kg-day	3.0E-01	mg/kg-day	2.3E-02
			Exp. Route Total								4E-04					4E+00
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	2.1E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.3E-06	2.5E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.1E-06	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.1E-05	2.4E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.5E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.7E-06	2.9E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	3.0E-02	mg/kg-day	4.8E-04
				Benzo(k)fluoranthene	1E+00	mg/kg	4.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.7E-07	5.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.3E-04	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-06	1.5E-03	mg/kg-day	2.0E-02	mg/kg-day	7.5E-02
				Carbazole	5E-01	mg/kg	1.9E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.7E-09	2.2E-06	mg/kg-day	N/A	N/A	N/A

TABLE 7.61.RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
 REASONABLE MAXIMUM EXPOSURE
 PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	1.8E-06	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	6.8E-08	2.0E-05	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-05	3.4E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.4E-08	mg/kg-day	N/A	N/A	N/A	8.7E-07	mg/kg-day	4.0E-03	mg/kg-day	2.2E-04
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.8E-06	1.4E-05	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	3.9E-05	mg/kg-day	3.0E-02	mg/kg-day	1.3E-03
				Aroclor-1248	4E-01	mg/kg	1.5E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	3.1E-07	1.8E-06	mg/kg-day	2.0E-05	mg/kg-day	9.0E-02
				Aroclor-1254	2E-01	mg/kg	7.4E-08	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	1.5E-07	8.6E-07	mg/kg-day	2.0E-05	mg/kg-day	4.3E-02
				Aroclor-1260	2E-01	mg/kg	1.1E-07	mg/kg-day	2.0E+00	(mg/kg-day) ⁻¹	2.1E-07	1.2E-06	mg/kg-day	2.0E-05	mg/kg-day	6.2E-02
				Dieldrin	2E-01	mg/kg	5.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.5E-07	6.2E-07	mg/kg-day	5.0E-05	mg/kg-day	1.2E-02
				Dioxin TEQ	5E-05	mg/kg	4.1E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	5.4E-07	4.8E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.2E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.8E-06	1.4E-05	mg/kg-day	3.0E-04	mg/kg-day	4.7E-02
				Cadmium (other media)	9E+00	mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	2.5E-05	mg/kg-day	1.3E-02
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-04					3E-01
		Exposure Point Total									5E-04					5E+00
	Exposure Medium Total										N/A					N/A
	Indoor Air	Nunes Parcel	Inhalation	1,1'-Biphenyl	6E-02	ug/m³	5.1E-03	ug/m3	N/A	N/A	N/A	6.0E-02	ug/m3	N/A	N/A	N/A
				2-Methylnaphthalene	5E-01	ug/m³	3.9E-02	ug/m3	N/A	N/A	N/A	4.5E-01	ug/m3	3.0E+00	ug/m3	1.5E-01
				Acenaphthene	1E-01	ug/m³	1.0E-02	ug/m3	N/A	N/A	N/A	1.2E-01	ug/m3	3.0E+00	ug/m3	4.0E-02
				Acetophenone	1E-01	ug/m³	9.0E-03	ug/m3	N/A	N/A	N/A	1.1E-01	ug/m3	N/A	N/A	N/A
				Benzaldehyde	5E-01	ug/m³	3.8E-02	ug/m3	N/A	N/A	N/A	4.4E-01	ug/m3	N/A	N/A	N/A
				Naphthalene	1E+00	ug/m³	8.2E-02	ug/m3	3.4E-05	(ug/m3) ⁻¹	2.8E-06	9.6E-01	ug/m3	3.0E+00	ug/m3	3.2E-01
				1,4-Dichlorobenzene	4E-01	ug/m³	3.5E-02	ug/m3	1.1E-05	(ug/m3) ⁻¹	3.8E-07	4.0E-01	ug/m3	8.0E+02	ug/m3	5.0E-04
				Benzene	2E+02	ug/m³	1.2E+01	ug/m3	7.8E-06	(ug/m3) ⁻¹	9.6E-05	1.4E+02	ug/m3	3.0E+01	ug/m3	4.8E+00
				Carbon disulfide	2E+02	ug/m³	1.3E+01	ug/m3	N/A	N/A	N/A	1.5E+02	ug/m3	7.0E+02	ug/m3	2.1E-01
				Ethylbenzene	6E+00	ug/m³	5.3E-01	ug/m3	2.5E-06	(ug/m3) ⁻¹	1.3E-06	6.2E+00	ug/m3	1.0E+03	ug/m3	6.2E-03
				Methyl acetate	5E+01	ug/m³	3.9E+00	ug/m3	N/A	N/A	N/A	4.5E+01	ug/m3	N/A	N/A	N/A
				Tetrachloroethene	2E+01	ug/m³	1.9E+00	ug/m3	5.9E-06	(ug/m3) ⁻¹	1.1E-05	2.2E+01	ug/m3	2.7E+02	ug/m3	8.0E-02
				Toluene	2E+03	ug/m³	1.9E+02	ug/m3	N/A	N/A	N/A	2.3E+03	ug/m3	5.0E+03	ug/m3	4.5E-01

TABLE 7.61.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Xylene (Total)	8E+01	ug/m³	6.4E+00	ug/m3	N/A	N/A	N/A	7.5E+01	ug/m3	1.0E+02	ug/m3	7.5E-01	
			Exp. Route Total						1E-04						7E+00		
		Exposure Point Total						1E-04						7E+00			
		Exposure Medium Total						N/A						N/A			
	Medium Total						N/A						N/A				
Groundwater	Indoor Air	Nunes Parcel	Inhalation	Naphthalene	7E-02	ug/m³	5.6E-03	ug/m3	3.4E-05	(ug/m3) ⁻¹	1.9E-07	6.5E-02	ug/m3	3.0E+00	ug/m3	2.2E-02	
				1,4-Dichlorobenzene	6E-02	ug/m³	4.8E-03	ug/m3	1.1E-05	(ug/m3) ⁻¹	5.3E-08	5.7E-02	ug/m3	8.0E+02	ug/m3	7.1E-05	
				Benzene	2E+00	ug/m³	1.2E-01	ug/m3	7.8E-06	(ug/m3) ⁻¹	9.6E-07	1.4E+00	ug/m3	3.0E+01	ug/m3	4.8E-02	
				Chloroform	1E-01	ug/m³	9.9E-03	ug/m3	2.3E-05	(ug/m3) ⁻¹	2.3E-07	1.2E-01	ug/m3	1.0E+02	ug/m3	1.2E-03	
				Ethylbenzene	2E+00	ug/m³	1.9E-01	ug/m3	2.5E-06	(ug/m3) ⁻¹	4.7E-07	2.2E+00	ug/m3	1.0E+03	ug/m3	2.2E-03	
				Vinyl chloride	8E-01	ug/m³	6.4E-02	ug/m3	4.4E-06	(ug/m3) ⁻¹	3.7E-06	7.5E-01	ug/m3	1.0E+02	ug/m3	7.5E-03	
				Exp. Route Total						6E-06						8E-02	
		Exposure Point Total						6E-06						8E-02			
	Exposure Medium Total						N/A						N/A				
Medium Total						N/A						N/A					
Total of Receptor Risks Across All Media							N/A					Total of Receptor Hazards Across All Media					N/A

Notes

Early-life cancer risk calculations for vinyl chloride added to standard cancer risk calculations [chronic daily intake (CDI) x CSF or Unit Risk]. Exposure parameters noted below are defined in Table 4.10.RME for the young child (ages 1-6).

Inhalation early-life cancer risk = EPC (ug/m³) x Unit Risk (ug/m³)⁻¹ x ET (hr/day) / CF (24 hr/day)

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 7.61.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface + Subsurface Soil	Nunes Parcel	Ingestion	Benzo(a)anthracene	5E+00	mg/kg	2.9E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.1E-05	3.4E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.9E-06	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-04	3.3E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	3.4E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	1.3E-05	4.0E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.7E-06	mg/kg-day	N/A	N/A	N/A	2.0E-05	mg/kg-day	3.0E-02	mg/kg-day	6.7E-04
				Benzo(k)fluoranthene	1E+00	mg/kg	6.1E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	2.4E-07	7.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	2.3E-04	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	3.2E-06	2.7E-03	mg/kg-day	2.0E-02	mg/kg-day	1.3E-01
				Carbazole	5E-01	mg/kg	2.6E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	5.2E-09	3.0E-06	mg/kg-day	N/A	N/A	N/A
				Chrysene	4E+00	mg/kg	2.4E-06	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	9.4E-08	2.8E-05	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	4.0E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.6E-05	4.7E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	1.3E-07	mg/kg-day	N/A	N/A	N/A	1.5E-06	mg/kg-day	4.0E-03	mg/kg-day	3.9E-04
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.7E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	6.6E-06	2.0E-05	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	4.6E-06	mg/kg-day	N/A	N/A	N/A	5.4E-05	mg/kg-day	3.0E-02	mg/kg-day	1.8E-03
				Aroclor-1248	4E-01	mg/kg	2.0E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	2.0E-07	2.3E-06	mg/kg-day	2.0E-05	mg/kg-day	1.2E-01
				Aroclor-1254	2E-01	mg/kg	9.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	9.4E-08	1.1E-06	mg/kg-day	2.0E-05	mg/kg-day	5.5E-02
				Aroclor-1260	2E-01	mg/kg	1.4E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.4E-07	1.6E-06	mg/kg-day	2.0E-05	mg/kg-day	7.9E-02
				Dieldrin	2E-01	mg/kg	9.5E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	1.5E-06	1.1E-06	mg/kg-day	5.0E-05	mg/kg-day	2.2E-02
				Dioxin TEQ	4E-05	mg/kg	2.0E-11	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	2.6E-06	2.4E-10	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	4.8E-03	mg/kg-day	N/A	N/A	N/A	5.6E-02	mg/kg-day	1.0E+00	mg/kg-day	5.6E-02
				Arsenic	1E+01	mg/kg	7.1E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.1E-05	8.3E-05	mg/kg-day	3.0E-04	mg/kg-day	2.8E-01
				Cadmium (other media)	9E+00	mg/kg	4.9E-06	mg/kg-day	N/A	N/A	N/A	5.7E-05	mg/kg-day	1.0E-03	mg/kg-day	5.7E-02
				Chromium	3E+02	mg/kg	1.6E-04	mg/kg-day	N/A	N/A	N/A	1.8E-03	mg/kg-day	3.0E-03	mg/kg-day	6.1E-01
				Cobalt	8E+00	mg/kg	4.1E-06	mg/kg-day	N/A	N/A	N/A	4.8E-05	mg/kg-day	3.0E-04	mg/kg-day	1.6E-01
				Copper	3E+02	mg/kg	1.4E-04	mg/kg-day	N/A	N/A	N/A	1.6E-03	mg/kg-day	4.0E-02	mg/kg-day	4.1E-02
				Iron	3E+04	mg/kg	1.6E-02	mg/kg-day	N/A	N/A	N/A	1.8E-01	mg/kg-day	7.0E-01	mg/kg-day	2.6E-01
				Lead												
				Manganese (other media)	8E+02	mg/kg	4.6E-04	mg/kg-day	N/A	N/A	N/A	5.4E-03	mg/kg-day	7.0E-02	mg/kg-day	7.7E-02
				Mercury (other media)	7E-01	mg/kg	3.7E-07	mg/kg-day	N/A	N/A	N/A	4.4E-06	mg/kg-day	1.0E-04	mg/kg-day	4.4E-02
				Thallium	2E+00	mg/kg	1.3E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	8.0E-05	mg/kg-day	1.8E-01
				Vanadium	3E+01	mg/kg	1.5E-05	mg/kg-day	N/A	N/A	N/A	1.8E-04	mg/kg-day	7.0E-03	mg/kg-day	2.5E-02
				Zinc	5E+02	mg/kg	2.9E-04	mg/kg-day	N/A	N/A	N/A	3.4E-03	mg/kg-day	3.0E-01	mg/kg-day	1.1E-02
			Exp. Route Total								2E-04					2E+00
			Dermal	Benzo(a)anthracene	5E+00	mg/kg	2.1E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	8.3E-06	2.5E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(a)pyrene	5E+00	mg/kg	2.1E-06	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	8.1E-05	2.4E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(b)fluoranthene	6E+00	mg/kg	2.5E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	9.7E-06	2.9E-05	mg/kg-day	N/A	N/A	N/A
				Benzo(g,h,i)perylene	3E+00	mg/kg	1.2E-06	mg/kg-day	N/A	N/A	N/A	1.5E-05	mg/kg-day	3.0E-02	mg/kg-day	4.8E-04
				Benzo(k)fluoranthene	1E+00	mg/kg	4.4E-07	mg/kg-day	7.3E-02	(mg/kg-day) ⁻¹	1.7E-07	5.1E-06	mg/kg-day	N/A	N/A	N/A
				bis(2-Ethylhexyl)phthalate	4E+02	mg/kg	1.3E-04	mg/kg-day	1.4E-02	(mg/kg-day) ⁻¹	1.8E-06	1.5E-03	mg/kg-day	2.0E-02	mg/kg-day	7.5E-02
				Carbazole	5E-01	mg/kg	1.9E-07	mg/kg-day	2.0E-02	(mg/kg-day) ⁻¹	3.7E-09	2.2E-06	mg/kg-day	N/A	N/A	N/A

TABLE 7.61.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Chrysene	4E+00	mg/kg	1.8E-06	mg/kg-day	7.3E-03	(mg/kg-day) ⁻¹	6.8E-08	2.0E-05	mg/kg-day	N/A	N/A	N/A
				Dibenz(a,h)anthracene	7E-01	mg/kg	2.9E-07	mg/kg-day	7.3E+00	(mg/kg-day) ⁻¹	1.1E-05	3.4E-06	mg/kg-day	N/A	N/A	N/A
				Dibenzofuran	2E-01	mg/kg	7.4E-08	mg/kg-day	N/A	N/A	N/A	8.7E-07	mg/kg-day	4.0E-03	mg/kg-day	2.2E-04
				Indeno(1,2,3-cd)pyrene	3E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day) ⁻¹	4.8E-06	1.4E-05	mg/kg-day	N/A	N/A	N/A
				Phenanthrene	8E+00	mg/kg	3.4E-06	mg/kg-day	N/A	N/A	N/A	3.9E-05	mg/kg-day	3.0E-02	mg/kg-day	1.3E-03
				Aroclor-1248	4E-01	mg/kg	1.5E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.5E-07	1.8E-06	mg/kg-day	2.0E-05	mg/kg-day	9.0E-02
				Aroclor-1254	2E-01	mg/kg	7.4E-08	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	7.4E-08	8.6E-07	mg/kg-day	2.0E-05	mg/kg-day	4.3E-02
				Aroclor-1260	2E-01	mg/kg	1.1E-07	mg/kg-day	1.0E+00	(mg/kg-day) ⁻¹	1.1E-07	1.2E-06	mg/kg-day	2.0E-05	mg/kg-day	6.2E-02
				Dieldrin	2E-01	mg/kg	5.3E-08	mg/kg-day	1.6E+01	(mg/kg-day) ⁻¹	8.5E-07	6.2E-07	mg/kg-day	5.0E-05	mg/kg-day	1.2E-02
				Dioxin TEQ	4E-05	mg/kg	3.4E-12	mg/kg-day	1.3E+05	(mg/kg-day) ⁻¹	4.4E-07	4.0E-11	mg/kg-day	N/A	N/A	N/A
				Aluminum	9E+03	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-02	mg/kg-day	N/A
				Arsenic	1E+01	mg/kg	1.2E-06	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.8E-06	1.4E-05	mg/kg-day	3.0E-04	mg/kg-day	4.7E-02
				Cadmium (other media)	9E+00	mg/kg	2.7E-08	mg/kg-day	N/A	N/A	N/A	3.2E-07	mg/kg-day	2.5E-05	mg/kg-day	1.3E-02
				Chromium	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.5E-05	mg/kg-day	N/A
				Cobalt	8E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-04	mg/kg-day	N/A
				Copper	3E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.0E-02	mg/kg-day	N/A
				Iron	3E+04	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-01	mg/kg-day	N/A
				Lead												
				Manganese (other media)	8E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.0E-02	mg/kg-day	N/A
				Mercury (other media)	7E-01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0E-04	mg/kg-day	N/A
				Thallium	2E+00	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.0E-05	mg/kg-day	N/A
				Vanadium	3E+01	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8E-04	mg/kg-day	N/A
				Zinc	5E+02	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.0E-01	mg/kg-day	N/A
			Exp. Route Total								1E-04					3E-01
		Exposure Point Total									3E-04					3E+00
	Exposure Medium Total										N/A					N/A
	Indoor Air	Nunes Parcel	Inhalation	1,1'-Biphenyl	6E-02	ug/m³	3.4E-03	ug/m3	N/A	N/A	N/A	4.0E-02	ug/m3	N/A	N/A	N/A
				2-Methylnaphthalene	5E-01	ug/m³	2.6E-02	ug/m3	N/A	N/A	N/A	3.0E-01	ug/m3	3.0E+00	ug/m3	1.0E-01
				Acenaphthene	1E-01	ug/m³	6.8E-03	ug/m3	N/A	N/A	N/A	7.9E-02	ug/m3	3.0E+00	ug/m3	2.6E-02
				Acetophenone	1E-01	ug/m³	6.0E-03	ug/m3	N/A	N/A	N/A	7.0E-02	ug/m3	N/A	N/A	N/A
				Benzaldehyde	5E-01	ug/m³	2.5E-02	ug/m3	N/A	N/A	N/A	3.0E-01	ug/m3	N/A	N/A	N/A
				Naphthalene	1E+00	ug/m³	5.5E-02	ug/m3	3.4E-05	(ug/m3) ⁻¹	1.9E-06	6.4E-01	ug/m3	3.0E+00	ug/m3	2.1E-01
				1,4-Dichlorobenzene	4E-01	ug/m³	2.3E-02	ug/m3	1.1E-05	(ug/m3) ⁻¹	2.5E-07	2.7E-01	ug/m3	8.0E+02	ug/m3	3.4E-04
				Benzene	2E+02	ug/m³	8.2E+00	ug/m3	7.8E-06	(ug/m3) ⁻¹	6.4E-05	9.6E+01	ug/m3	3.0E+01	ug/m3	3.2E+00
				Carbon disulfide	2E+02	ug/m³	8.5E+00	ug/m3	N/A	N/A	N/A	1.0E+02	ug/m3	7.0E+02	ug/m3	1.4E-01
				Ethylbenzene	6E+00	ug/m³	3.5E-01	ug/m3	2.5E-06	(ug/m3) ⁻¹	8.8E-07	4.1E+00	ug/m3	1.0E+03	ug/m3	4.1E-03
				Methyl acetate	5E+01	ug/m³	2.6E+00	ug/m3	N/A	N/A	N/A	3.0E+01	ug/m3	N/A	N/A	N/A
				Tetrachloroethene	2E+01	ug/m³	1.2E+00	ug/m3	5.9E-06	(ug/m3) ⁻¹	7.3E-06	1.4E+01	ug/m3	2.7E+02	ug/m3	5.4E-02
				Toluene	2E+03	ug/m³	1.3E+02	ug/m3	N/A	N/A	N/A	1.5E+03	ug/m3	5.0E+03	ug/m3	3.0E-01

TABLE 7.61.CT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
				Xylene (Total)	8E+01	ug/m³	4.3E+00	ug/m3	N/A	N/A	N/A	5.0E+01	ug/m3	1.0E+02	ug/m3	5.0E-01	
			Exp. Route Total						7E-05						5E+00		
			Exposure Point Total						7E-05						5E+00		
			Exposure Medium Total						N/A						N/A		
	Medium Total						N/A						N/A				
Groundwater	Indoor Air	Nunes Parcel	Inhalation	Naphthalene	7E-02	ug/m³	3.7E-03	ug/m3	3.4E-05	(ug/m3) ⁻¹	1.3E-07	4.4E-02	ug/m3	3.0E+00	ug/m3	1.5E-02	
				1,4-Dichlorobenzene	6E-02	ug/m³	3.2E-03	ug/m3	1.1E-05	(ug/m3) ⁻¹	3.6E-08	3.8E-02	ug/m3	8.0E+02	ug/m3	4.7E-05	
				Benzene	2E+00	ug/m³	8.2E-02	ug/m3	7.8E-06	(ug/m3) ⁻¹	6.4E-07	9.6E-01	ug/m3	3.0E+01	ug/m3	3.2E-02	
				Chloroform	1E-01	ug/m³	6.6E-03	ug/m3	2.3E-05	(ug/m3) ⁻¹	1.5E-07	7.7E-02	ug/m3	1.0E+02	ug/m3	7.7E-04	
				Ethylbenzene	2E-01	ug/m³	8.7E-03	ug/m3	2.5E-06	(ug/m3) ⁻¹	2.2E-08	1.0E-01	ug/m3	1.0E+03	ug/m3	1.0E-04	
				Vinyl chloride	8E-01	ug/m³	4.3E-02	ug/m3	4.4E-06	(ug/m3) ⁻¹	2.5E-06	5.0E-01	ug/m3	1.0E+02	ug/m3	5.0E-03	
				Exp. Route Total						3E-06						5E-02	
				Exposure Point Total						3E-06						5E-02	
				Exposure Medium Total						N/A						N/A	
	Medium Total						N/A						N/A				
Total of Receptor Risks Across All Media							N/A					Total of Receptor Hazards Across All Media					N/A

Notes

Early-life cancer risk calculations for vinyl chloride added to standard cancer risk calculations [chronic daily intake (CDI) x CSF or Unit Risk]. Exposure parameters noted below are defined in Table 4.10.CT for the young child (ages 1-6).

Inhalation early-life cancer risk = EPC (ug/m³) x Unit Risk (ug/m³)⁻¹ x ET (hr/day) / CF (24 hr/day)

Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 10 for 2/6 of the result (ages 1-2) and an ADAF of 3 for 4/6 of the result (ages 3-6).

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank	Benzo(a)anthracene	6E-07	--	5E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	6E-06	--	5E-06	--	1E-05	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	8E-07	--	8E-07	--	2E-06	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	3E-08	--	2E-08	--	5E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-08	--	1E-08	--	4E-08	Liver	4E-04	--	3E-04	7E-04
			Carbazole	1E-09	--	8E-10	--	2E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-06	--	1E-06	--	2E-06	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	2E-05	3E-05
			Indeno(1,2,3-cd)pyrene	4E-07	--	3E-07	--	7E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	7E-05	--	7E-05	1E-04
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	2E-07	--	2E-07	--	4E-07	General Toxicity/Immune System	2E-02	--	3E-02	5E-02
			Dieldrin	2E-06	--	9E-07	--	3E-06	Liver	8E-03	--	7E-03	2E-02
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	7E-03	--	N/A	7E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	4E-06	--	7E-07	--	5E-06	Skin	4E-02	--	9E-03	4E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	7E-03	--	3E-03	1E-02
			Chromium	N/A	--	N/A	--	N/A	GI System	4E-02	--	N/A	4E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	N/A	--	N/A	N/A
			Copper	N/A	--	N/A	--	N/A	GI System	4E-03	--	N/A	4E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-02	--	N/A	1E-02
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	4E-03	--	N/A	4E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-02	--	N/A	2E-02
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-03	--	N/A	3E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	8E-04	--	N/A	8E-04
			Chemical Total	2E-05	--	1E-05	--	3E-05		2E-01	--	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						3E-05					2E-01
	Exposure Medium Total							3E-05					2E-01
Medium Total								3E-05					2E-01
Surface Water	Surface Water	Southern Bank	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A			
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A			
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A			
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Dieldrin	--	--	3E-08	--	3E-08	Liver	--	--	8E-05	8E-05			
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Heptachlor Epoxide	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	1E-03	1E-03			
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A			
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			Chromium	--	--	N/A	--	N/A	GI System	--	--	2E-03	2E-03			
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A			
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A			
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A			
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A			
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A			
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A			
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A			
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			Chemical Total				--	--	3E-08	--	3E-08		--	--	3E-03	3E-03
			Radionuclide Total													
		Exposure Point Total				3E-08					3E-03					
	Exposure Medium Total				3E-08					3E-03						
Medium Total				3E-08					3E-03							

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Sediment	Sediment	Southern Bank	Benzo(a)anthracene	2E-07	--	4E-07	--	5E-07	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	1E-06	--	2E-06	--	3E-06	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	6E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	4E-09	--	7E-09	--	1E-08	Liver	5E-05	--	7E-05	1E-04			
			Carbazole	6E-10	--	2E-09	--	2E-09	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	2E-07	--	3E-07	--	5E-07	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	2E-05	4E-05			
			Indeno(1,2,3-cd)pyrene	6E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	3E-05	--	5E-05	9E-05			
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A			
			Aroclor-1254	2E-08	--	4E-08	--	6E-08	General Toxicity/Immune System	2E-03	--	3E-03	4E-03			
			Aroclor-1260	3E-08	--	9E-08	--	1E-07	General Toxicity/Immune System	3E-03	--	6E-03	9E-03			
			Dieldrin	2E-08	--	4E-08	--	6E-08	Liver	1E-04	--	1E-04	2E-04			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	5E-04	--	N/A	5E-04			
			Arsenic	8E-07	--	4E-07	--	1E-06	Skin	7E-03	--	3E-03	9E-03			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	1E-03	--	7E-04	2E-03			
			Chromium	N/A	--	N/A	--	N/A	GI System	6E-03	--	N/A	6E-03			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	7E-03	--	N/A	7E-03			
			Copper	N/A	--	N/A	--	N/A	GI System	6E-04	--	N/A	6E-04			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	5E-03	--	N/A	5E-03			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	6E-04	--	N/A	6E-04			
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-03	--	N/A	1E-03			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	6E-04	--	N/A	6E-04			
						Chemical Total	2E-06	--	4E-06	--	7E-06		4E-02	--	1E-02	5E-02
						Radionuclide Total										
				Exposure Point Total			7E-06				5E-02					
		Exposure Medium Total			7E-06				5E-02							
Medium Total			7E-06				5E-02									
Receptor Total			3E-05				3E-01									

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

3E-05

Total Hazard Across All Media

3E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	8E-02
Total Immune System HI =	6E-02
Total Kidney HI =	2E-02
Total Liver HI =	5E-02
Total CNS HI =	2E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	7E-03

TABLE 9.1.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank	Benzo(a)anthracene	1E-07	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-06	--	2E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	6E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	--	1E-09	--	3E-09	Liver	2E-05	--	3E-05	5E-05
			Carbazole	3E-10	--	4E-10	--	6E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	--	4E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	4E-06	--	7E-06	1E-05
			Indeno(1,2,3-cd)pyrene	6E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-05	--	3E-05	4E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	1E-08	--	2E-08	--	4E-08	General Toxicity/Immune System	3E-03	--	7E-03	9E-03
			Dieldrin	1E-07	--	1E-07	--	2E-07	Liver	5E-04	--	9E-04	1E-03
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	1E-03	--	N/A	1E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	7E-07	--	2E-07	--	9E-07	Skin	6E-03	--	3E-03	9E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	9E-04	--	6E-04	1E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	6E-03	--	N/A	6E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	N/A	--	N/A	N/A
			Copper	N/A	--	N/A	--	N/A	GI System	6E-04	--	N/A	6E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	4E-03	--	N/A	4E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	6E-04	--	N/A	6E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-03	--	N/A	3E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	5E-04	--	N/A	5E-04
			Zinc	N/A	--	N/A	--	N/A	Blood	1E-04	--	N/A	1E-04
			Chemical Total	2E-06	--	3E-06	--	6E-06		3E-02	--	1E-02	4E-02
			Radionuclide Total										
		Exposure Point Total						6E-06					4E-02
	Exposure Medium Total							6E-06					4E-02
Medium Total								6E-06					4E-02
Surface Water	Surface Water	Southern Bank	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.1.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			bis(2-Ethylhexyl)phthalate	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A		
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A		
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A		
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Dieldrin	--	--	1E-08	--	1E-08	Liver	--	--	4E-05	4E-05		
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Heptachlor Epoxide	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	6E-04	6E-04		
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A		
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Chromium	--	--	N/A	--	N/A	GI System	--	--	8E-04	8E-04		
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A		
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A		
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A		
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A		
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A		
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A		
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A		
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Chemical Total			--	--	1E-08	--	1E-08		--	--	1E-03	1E-03
			Radionuclide Total												
		Exposure Point Total			1E-08					1E-03					
	Exposure Medium Total			1E-08					1E-03						
Medium Total			1E-08					1E-03							

TABLE 9.1.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Sediment	Sediment	Southern Bank	Benzo(a)anthracene	4E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	3E-07	--	1E-06	--	1E-06	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	3E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	1E-09	--	6E-09	--	7E-09	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	8E-10	--	3E-09	--	4E-09	Liver	1E-05	--	3E-05	5E-05			
			Carbazole	1E-10	--	7E-10	--	8E-10	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	4E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	4E-06	--	1E-05	1E-05			
			Indeno(1,2,3-cd)pyrene	1E-08	--	6E-08	--	7E-08	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	8E-06	--	3E-05	4E-05			
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A			
			Aroclor-1254	2E-09	--	9E-09	--	1E-08	General Toxicity/Immune System	4E-04	--	1E-03	2E-03			
			Aroclor-1260	4E-09	--	2E-08	--	2E-08	General Toxicity/Immune System	8E-04	--	3E-03	4E-03			
			Dieldrin	5E-09	--	2E-08	--	2E-08	Liver	3E-05	--	7E-05	1E-04			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	5E-04	--	N/A	5E-04			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	1E-04	--	N/A	1E-04			
			Arsenic	2E-07	--	2E-07	--	4E-07	Skin	2E-03	--	1E-03	3E-03			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	3E-04	--	3E-04	7E-04			
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03			
			Copper	N/A	--	N/A	--	N/A	GI System	1E-04	--	N/A	1E-04			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-03	--	N/A	1E-03			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	3E-04	--	N/A	3E-04			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-04	--	N/A	2E-04			
			Thallium	N/A	--	N/A	--	N/A	Blood	4E-04	--	N/A	4E-04			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-04	--	N/A	2E-04			
						Chemical Total	6E-07	--	2E-06	--	2E-06		1E-02	--	6E-03	2E-02
						Radionuclide Total										
				Exposure Point Total			2E-06				2E-02					
		Exposure Medium Total			2E-06				2E-02							
Medium Total				2E-06				2E-02								
Receptor Total				8E-06				6E-02								

TABLE 9.1.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Recreational User
Receptor Age: Older Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

8E-06

Total Hazard Across All Media

6E-02

Total Blood HI =	3E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-02
Total GI System HI =	1E-02
Total Immune System HI =	1E-02
Total Kidney HI =	3E-03
Total Liver HI =	7E-03
Total CNS HI =	2E-03
Total Skin HI =	1E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-03
Total Endocrine HI =	2E-03

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Nunes Parcel	Benzo(a)anthracene	7E-07	--	6E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	9E-06	--	8E-06	--	2E-05	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	9E-07	--	8E-07	--	2E-06	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	4E-08	--	3E-08	--	7E-08	N/A	N/A	--	N/A	N/A
			Carbazole	3E-09	--	3E-09	--	6E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-06	--	1E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	5E-05	--	3E-05	9E-05
			Indeno(1,2,3-cd)pyrene	4E-07	--	4E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-04	--	2E-04	4E-04
			Aroclor-1260	3E-07	--	2E-07	--	5E-07	General Toxicity/Immune System	2E-02	--	2E-02	3E-02
			Dieldrin	8E-07	--	5E-07	--	1E-06	Liver	3E-03	--	2E-03	4E-03
			Dioxin TEQ	2E-06	--	4E-07	--	2E-06	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	1E-02	--	N/A	1E-02
			Arsenic	9E-06	--	2E-06	--	1E-05	Skin	5E-02	--	1E-02	6E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	1E-02	--	3E-03	1E-02
			Chromium	N/A	--	N/A	--	N/A	GI System	7E-02	--	N/A	7E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	4E-02	--	N/A	4E-02
			Copper	N/A	--	N/A	--	N/A	GI System	8E-03	--	N/A	8E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-02	--	N/A	3E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-02	--	N/A	1E-02
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	6E-03	--	N/A	6E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-02	--	N/A	2E-02
			Chemical Total	2E-05	--	1E-05	--	4E-05		3E-01	--	3E-02	3E-01
			Radionuclide Total										
		Exposure Point Total						4E-05					3E-01
	Exposure Medium Total							4E-05					3E-01
Medium Total								4E-05					3E-01
Receptor Total								4E-05					3E-01

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

4E-05

Total Hazard Across All Media

3E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	3E-02
Total GI System HI =	1E-01
Total Immune System HI =	3E-02
Total Kidney HI =	1E-02
Total Liver HI =	4E-02
Total CNS HI =	2E-02
Total Skin HI =	6E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	4E-02

TABLE 9.2.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Nunes Parcel	Benzo(a)anthracene	1E-07	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-06	--	2E-06	--	4E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-07	--	2E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	6E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			Carbazole	5E-10	--	8E-10	--	1E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	--	4E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	3E-05	5E-05
			Indeno(1,2,3-cd)pyrene	6E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-04	--	2E-04	3E-04
			Aroclor-1260	2E-08	--	4E-08	--	6E-08	General Toxicity/Immune System	8E-03	--	1E-02	2E-02
			Dieldrin	1E-07	--	2E-07	--	3E-07	Liver	1E-03	--	2E-03	3E-03
			Dioxin TEQ	3E-07	--	1E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	5E-03	--	N/A	5E-03
			Arsenic	1E-06	--	5E-07	--	2E-06	Skin	2E-02	--	9E-03	3E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	5E-03	--	3E-03	7E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	3E-02	--	N/A	3E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-02	--	N/A	2E-02
			Copper	N/A	--	N/A	--	N/A	GI System	4E-03	--	N/A	4E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	6E-03	--	N/A	6E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	3E-03	--	N/A	3E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-02	--	N/A	1E-02
			Chemical Total	4E-06	--	4E-06	--	8E-06		1E-01	--	3E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						8E-06					2E-01
	Exposure Medium Total							8E-06					2E-01
Medium Total								8E-06					2E-01
Receptor Total								8E-06					2E-01

TABLE 9.2.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

8E-06

Total Hazard Across All Media

2E-01

Total Blood HI =	1E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-02
Total GI System HI =	5E-02
Total Immune System HI =	2E-02
Total Kidney HI =	8E-03
Total Liver HI =	2E-02
Total CNS HI =	8E-03
Total Skin HI =	3E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	5E-03
Total Endocrine HI =	2E-02

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield	Benzo(a)anthracene	3E-07	--	3E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	3E-06	--	3E-06	--	6E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	4E-07	--	4E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	2E-08	--	1E-08	--	3E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-09	--	3E-09	--	7E-09	Liver	4E-05	--	3E-05	7E-05
			Carbazole	1E-09	--	9E-10	--	2E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	5E-07	--	4E-07	--	9E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	4E-05	--	3E-05	7E-05
			Indeno(1,2,3-cd)pyrene	3E-07	--	2E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	4E-05	--	3E-05	7E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	4E-07	--	3E-07	--	7E-07	General Toxicity/Immune System	3E-02	--	2E-02	5E-02
			Dieldrin	3E-06	--	2E-06	--	4E-06	Liver	9E-03	--	6E-03	1E-02
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	8E-03	--	N/A	8E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	3E-03	--	N/A	3E-03
			Arsenic	6E-06	--	1E-06	--	7E-06	Skin	4E-02	--	8E-03	5E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	4E-03	--	1E-03	5E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	7E-02	--	N/A	7E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02
			Copper	N/A	--	N/A	--	N/A	GI System	3E-03	--	N/A	3E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	7E-03	--	N/A	7E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	8E-03	--	N/A	8E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	4E-03	--	N/A	4E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	4E-04	--	N/A	4E-04
			Chemical Total	1E-05	--	7E-06	--	2E-05		2E-01	--	4E-02	3E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					3E-01
	Exposure Medium Total							2E-05					3E-01
Medium Total								2E-05					3E-01
Receptor Total								2E-05					3E-01

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

2E-05

Total Hazard Across All Media

3E-01

Total Blood HI =	3E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-02
Total GI System HI =	1E-01
Total Immune System HI =	5E-02
Total Kidney HI =	8E-03
Total Liver HI =	4E-02
Total CNS HI =	1E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	8E-03
Total Endocrine HI =	1E-02

TABLE 9.3.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield	Benzo(a)anthracene	5E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	5E-07	--	8E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	7E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	3E-09	--	5E-09	--	7E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-10	--	9E-10	--	2E-09	Liver	2E-05	--	2E-05	4E-05
			Carbazole	2E-10	--	3E-10	--	4E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	7E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	4E-08	--	7E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-05	--	3E-05	5E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	3E-08	--	5E-08	--	8E-08	General Toxicity/Immune System	1E-02	--	2E-02	3E-02
			Dieldrin	4E-07	--	5E-07	--	9E-07	Liver	4E-03	--	5E-03	9E-03
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	3E-03	--	N/A	3E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	1E-03	--	N/A	1E-03
			Arsenic	1E-06	--	4E-07	--	1E-06	Skin	2E-02	--	7E-03	2E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	9E-04	3E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	3E-02	--	N/A	3E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	6E-03	--	N/A	6E-03
			Copper	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-02	--	N/A	1E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	3E-03	--	N/A	3E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	3E-03	--	N/A	3E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-03	--	N/A	1E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-03	--	N/A	2E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	2E-04	--	N/A	2E-04
			Chemical Total	2E-06	--	2E-06	--	4E-06		1E-01	--	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						4E-06					1E-01
	Exposure Medium Total							4E-06					1E-01
Medium Total								4E-06					1E-01
Receptor Total								4E-06					1E-01

TABLE 9.3.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

4E-06

Total Hazard Across All Media

1E-01

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	3E-02
Total GI System HI =	4E-02
Total Immune System HI =	3E-02
Total Kidney HI =	4E-03
Total Liver HI =	2E-02
Total CNS HI =	6E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-03
Total Endocrine HI =	6E-03

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Nunes Parcel	Benzo(a)anthracene	4E-07	--	2E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	5E-06	--	3E-06	--	8E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	5E-07	--	3E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	2E-08	--	1E-08	--	4E-08	N/A	N/A	--	N/A	N/A
			Carbazole	7E-10	--	4E-10	--	1E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	8E-07	--	4E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	3E-05	--	1E-05	4E-05
			Indeno(1,2,3-cd)pyrene	2E-07	--	1E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-04	--	7E-05	2E-04
			Aroclor-1260	6E-08	--	3E-08	--	9E-08	General Toxicity/Immune System	1E-02	--	6E-03	2E-02
			Dieldrin	2E-07	--	7E-08	--	2E-07	Liver	2E-03	--	6E-04	2E-03
			Dioxin TEQ	5E-07	--	6E-08	--	5E-07	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	6E-03	--	N/A	6E-03
			Arsenic	2E-06	--	3E-07	--	2E-06	Skin	3E-02	--	4E-03	4E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	6E-03	--	1E-03	8E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	4E-02	--	N/A	4E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-02	--	N/A	2E-02
			Copper	N/A	--	N/A	--	N/A	GI System	5E-03	--	N/A	5E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	8E-03	--	N/A	8E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	4E-03	--	N/A	4E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-02	--	N/A	1E-02
			Chemical Total	1E-05	--	4E-06	--	1E-05		2E-01	--	1E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						1E-05					2E-01
	Exposure Medium Total							1E-05					2E-01
Medium Total								1E-05					2E-01
Surface Water	Surface Water	Downstream of Landfill	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	1E-05	1E-05
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	2E-08	--	2E-08	Liver	--	--	2E-04	2E-04
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Heptachlor Epoxide	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	6E-04	6E-04
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	5E-04	5E-04
			Chromium	--	--	N/A	--	N/A	GI System	--	--	2E-03	2E-03
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	2E-04	2E-04
			Chemical Total	--	--	2E-08	--	2E-08		--	--	3E-03	3E-03
			Radionuclide Total										
		Exposure Point Total						2E-08					3E-03
	Exposure Medium Total							2E-08					3E-03
Medium Total								2E-08					3E-03
Sediment	Sediment	Downstream of Landfill	Benzo(a)anthracene	2E-07	--	6E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	2E-06	--	6E-06	--	9E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-07	--	7E-07	--	9E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	1E-08	--	4E-08	--	6E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	--	4E-09	--	5E-09	Liver	4E-05	--	9E-05	1E-04
			Carbazole	2E-10	--	7E-10	--	1E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	4E-07	--	1E-06	--	2E-06	N/A	N/A	--	N/A	N/A

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	7E-06	--	1E-05	2E-05			
			Indeno(1,2,3-cd)pyrene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-05	--	7E-05	1E-04			
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A			
			Aroclor-1254	9E-08	--	3E-07	--	4E-07	General Toxicity/Immune System	2E-02	--	5E-02	7E-02			
			Aroclor-1260	3E-08	--	1E-07	--	1E-07	General Toxicity/Immune System	5E-03	--	2E-02	2E-02			
			Dieldrin	4E-09	--	1E-08	--	1E-08	Liver	4E-05	--	9E-05	1E-04			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	1E-03	--	N/A	1E-03			
			Arsenic	6E-07	--	4E-07	--	1E-06	Skin	9E-03	--	6E-03	2E-02			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	5E-03	--	5E-03	1E-02			
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-02	--	N/A	1E-02			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	6E-03	--	N/A	6E-03			
			Copper	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	8E-03	--	N/A	8E-03			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03			
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-03	--	N/A	1E-03			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	8E-04	--	N/A	8E-04			
			Chemical Total	4E-06	--	1E-05	--	1E-05		7E-02	--	8E-02	2E-01			
			Radionuclide Total													
			Exposure Point Total				1E-05					2E-01				
			Exposure Medium Total				1E-05					2E-01				
			Medium Total				1E-05					2E-01				
Receptor Total				3E-05					3E-01							

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

3E-05

Total Hazard Across All Media

3E-01

Total Blood HI =	1E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-01
Total GI System HI =	9E-02
Total Immune System HI =	1E-01
Total Kidney HI =	2E-02
Total Liver HI =	3E-02
Total CNS HI =	1E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	9E-03
Total Endocrine HI =	3E-02

TABLE 9.4.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Nunes Parcel	Benzo(a)anthracene	1E-07	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-06	--	1E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-07	--	1E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	6E-09	--	6E-09	--	1E-08	N/A	N/A	--	N/A	N/A
			Carbazole	2E-10	--	2E-10	--	4E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	--	2E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	8E-06	--	6E-06	1E-05
			Indeno(1,2,3-cd)pyrene	6E-08	--	7E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	3E-05	--	3E-05	7E-05
			Aroclor-1260	7E-09	--	9E-09	--	2E-08	General Toxicity/Immune System	3E-03	--	3E-03	6E-03
			Dieldrin	4E-08	--	4E-08	--	8E-08	Liver	4E-04	--	3E-04	7E-04
			Dioxin TEQ	1E-07	--	2E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03
			Arsenic	5E-07	--	1E-07	--	6E-07	Skin	8E-03	--	2E-03	1E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	5E-04	2E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-02	--	N/A	1E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	5E-03	--	N/A	5E-03
			Copper	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	5E-03	--	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	9E-04	--	N/A	9E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-03	--	N/A	3E-03
			Chemical Total	2E-06	--	2E-06	--	5E-06		4E-02	--	6E-03	5E-02
			Radionuclide Total										
		Exposure Point Total			5E-06					5E-02			
	Exposure Medium Total			5E-06					5E-02				
Medium Total			5E-06					5E-02					
Surface Water	Surface Water	Downstream of Landfill	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.4.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	3E-06	3E-06
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	1E-08	--	1E-08	Liver	--	--	9E-05	9E-05
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Heptachlor Epoxide	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	3E-04	3E-04
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	2E-04	2E-04
			Chromium	--	--	N/A	--	N/A	GI System	--	--	1E-03	1E-03
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	1E-04	1E-04
			Chemical Total	--	--	1E-08	--	1E-08		--	--	2E-03	2E-03
			Radionuclide Total										
		Exposure Point Total						1E-08					2E-03
	Exposure Medium Total							1E-08					2E-03
Medium Total								1E-08					2E-03
Sediment	Sediment	Downstream of Landfill	Benzo(a)anthracene	5E-08	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	5E-07	--	3E-06	--	4E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	6E-08	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	4E-09	--	2E-08	--	3E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-10	--	2E-09	--	2E-09	Liver	1E-05	--	5E-05	6E-05
			Carbazole	6E-11	--	4E-10	--	4E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	--	6E-07	--	7E-07	N/A	N/A	--	N/A	N/A

TABLE 9.4.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-06	--	7E-06	9E-06
			Indeno(1,2,3-cd)pyrene	3E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	6E-06	--	4E-05	4E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	1E-08	--	7E-08	--	9E-08	General Toxicity/Immune System	4E-03	--	3E-02	3E-02
			Aroclor-1260	4E-09	--	2E-08	--	3E-08	General Toxicity/Immune System	1E-03	--	9E-03	1E-02
			Dieldrin	1E-09	--	5E-09	--	6E-09	Liver	1E-05	--	4E-05	5E-05
			Aluminum	N/A	--	N/A	--	N/A	Developmental	6E-04	--	N/A	6E-04
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	3E-04	--	N/A	3E-04
			Arsenic	1E-07	--	2E-07	--	3E-07	Skin	2E-03	--	3E-03	5E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	1E-03	--	2E-03	4E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	3E-03	--	N/A	3E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03
			Copper	N/A	--	N/A	--	N/A	GI System	3E-04	--	N/A	3E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-03	--	N/A	2E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	3E-04	--	N/A	3E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	4E-04	--	N/A	4E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	4E-04	--	N/A	4E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-04	--	N/A	2E-04
			Chemical Total	9E-07	--	5E-06	--	6E-06		2E-02	--	4E-02	6E-02
			Radionuclide Total										
		Exposure Point Total						6E-06					6E-02
	Exposure Medium Total							6E-06					6E-02
Medium Total								6E-06					6E-02
Receptor Total								1E-05					1E-01

TABLE 9.4.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

1E-05

Total Hazard Across All Media

1E-01

Total Blood HI =	4E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-02
Total GI System HI =	2E-02
Total Immune System HI =	5E-02
Total Kidney HI =	6E-03
Total Liver HI =	8E-03
Total CNS HI =	3E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-03
Total Endocrine HI =	7E-03

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield	Benzo(a)anthracene	2E-07	--	1E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	2E-06	--	1E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	3E-07	--	1E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	1E-08	--	6E-09	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	--	4E-10	--	1E-09	Liver	2E-05	--	1E-05	3E-05
			Carbazole	2E-10	--	1E-10	--	4E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	3E-07	--	2E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	1E-05	3E-05
			Indeno(1,2,3-cd)pyrene	2E-07	--	8E-08	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-05	--	1E-05	3E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	8E-08	--	5E-08	--	1E-07	General Toxicity/Immune System	1E-02	--	9E-03	2E-02
			Dieldrin	6E-07	--	2E-07	--	8E-07	Liver	5E-03	--	2E-03	7E-03
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	4E-03	--	N/A	4E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	2E-03	--	N/A	2E-03
			Arsenic	1E-06	--	2E-07	--	2E-06	Skin	2E-02	--	3E-03	3E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	4E-04	3E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	4E-02	--	N/A	4E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	8E-03	--	N/A	8E-03
			Copper	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-02	--	N/A	1E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	4E-03	--	N/A	4E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	4E-03	--	N/A	4E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-03	--	N/A	1E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-03	--	N/A	2E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	2E-04	--	N/A	2E-04
			Chemical Total	5E-06	--	2E-06	--	7E-06		1E-01	--	1E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						7E-06					1E-01
	Exposure Medium Total							7E-06					1E-01
Medium Total								7E-06					1E-01
Surface Water	Surface Water	Upstream of Landfill	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	--	--	1E-07	--	1E-07	Liver	--	--	2E-03	2E-03			
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A			
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A			
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A			
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			alpha-Chlordane	--	--	1E-09	--	1E-09	Liver	--	--	6E-05	6E-05			
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Heptachlor Epoxide	--	--	2E-08	--	2E-08	Liver	--	--	1E-03	1E-03			
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	4E-03	4E-03			
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A			
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	4E-04	4E-04			
			Chromium	--	--	N/A	--	N/A	GI System	--	--	5E-03	5E-03			
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A			
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A			
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A			
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A			
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A			
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A			
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A			
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	5E-04	5E-04			
			Chemical Total				--	--	1E-07	--	1E-07		--	--	1E-02	1E-02
			Radionuclide Total													
		Exposure Point Total				1E-07					1E-02					
	Exposure Medium Total				1E-07					1E-02						
Medium Total				1E-07					1E-02							
Sediment	Sediment	Upstream of Landfill	Benzo(a)anthracene	8E-08	--	3E-07	--	3E-07	N/A	N/A	--	N/A	N/A			

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	8E-07	--	2E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	9E-08	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	4E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-09	--	2E-08	--	2E-08	Liver	2E-04	--	4E-04	6E-04
			Carbazole	1E-10	--	3E-10	--	4E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	8E-08	--	3E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	5E-06	--	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	3E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-05	--	3E-05	4E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	5E-09	--	2E-08	--	2E-08	General Toxicity/Immune System	8E-04	--	3E-03	4E-03
			Aroclor-1260	4E-08	--	1E-07	--	2E-07	General Toxicity/Immune System	8E-03	--	3E-02	3E-02
			Dieldrin	5E-08	--	1E-07	--	2E-07	Liver	4E-04	--	1E-03	1E-03
			Aluminum	N/A	--	N/A	--	N/A	Developmental	3E-03	--	N/A	3E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	5E-07	--	4E-07	--	9E-07	Skin	9E-03	--	6E-03	1E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	4E-03	--	4E-03	8E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02
			Copper	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	5E-03	--	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	3E-03	--	N/A	3E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-03	--	N/A	1E-03
			Chemical Total	2E-06	--	4E-06	--	6E-06		6E-02	--	4E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						6E-06					1E-01
	Exposure Medium Total							6E-06					1E-01
Medium Total								6E-06					1E-01
Receptor Total								1E-05					3E-01

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

1E-05

Total Hazard Across All Media

3E-01

Total Blood HI =	4E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	8E-02
Total Immune System HI =	6E-02
Total Kidney HI =	1E-02
Total Liver HI =	3E-02
Total CNS HI =	1E-02
Total Skin HI =	4E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	2E-02

TABLE 9.5.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield	Benzo(a)anthracene	5E-08	--	5E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	5E-07	--	5E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	7E-08	--	7E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	3E-09	--	3E-09	--	5E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-10	--	2E-10	--	4E-10	Liver	6E-06	--	5E-06	1E-05
			Carbazole	6E-11	--	6E-11	--	1E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	7E-08	--	8E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	6E-06	--	5E-06	1E-05
			Indeno(1,2,3-cd)pyrene	4E-08	--	4E-08	--	8E-08	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	6E-06	--	6E-06	1E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	1E-08	--	1E-08	--	2E-08	General Toxicity/Immune System	4E-03	--	4E-03	8E-03
			Dieldrin	1E-07	--	1E-07	--	3E-07	Liver	1E-03	--	1E-03	2E-03
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	1E-03	--	N/A	1E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	4E-04	--	N/A	4E-04
			Arsenic	4E-07	--	9E-08	--	4E-07	Skin	6E-03	--	1E-03	7E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	5E-04	--	2E-04	7E-04
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-02	--	N/A	1E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03
			Copper	N/A	--	N/A	--	N/A	GI System	5E-04	--	N/A	5E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-03	--	N/A	3E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-04	--	N/A	3E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	5E-04	--	N/A	5E-04
			Zinc	N/A	--	N/A	--	N/A	Blood	6E-05	--	N/A	6E-05
			Chemical Total	1E-06	--	1E-06	--	2E-06		3E-02	--	7E-03	4E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					4E-02
	Exposure Medium Total							2E-06					4E-02
Medium Total								2E-06					4E-02
Surface Water	Surface Water	Upstream of Landfill	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.5.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	--	--	2E-08	--	2E-08	Liver	--	--	6E-04	6E-04			
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A			
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A			
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A			
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			alpha-Chlordane	--	--	3E-10	--	3E-10	Liver	--	--	1E-05	1E-05			
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Heptachlor Epoxide	--	--	6E-09	--	6E-09	Liver	--	--	3E-04	3E-04			
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	8E-04	8E-04			
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A			
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	2E-04	2E-04			
			Chromium	--	--	N/A	--	N/A	GI System	--	--	1E-03	1E-03			
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A			
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A			
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A			
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A			
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A			
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A			
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A			
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	1E-04	1E-04			
			Chemical Total				--	--	3E-08	--	3E-08		--	--	3E-03	3E-03
			Radionuclide Total													
		Exposure Point Total									3E-08					3E-03
	Exposure Medium Total									3E-08					3E-03	
Medium Total									3E-08					3E-03		
Sediment	Sediment	Upstream of Landfill	Benzo(a)anthracene	1E-08	--	8E-08	--	9E-08	N/A	N/A	--	N/A	N/A			

TABLE 9.5.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-07	--	7E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	6E-10	--	4E-09	--	4E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	8E-10	--	4E-09	--	5E-09	Liver	2E-05	--	9E-05	1E-04
			Carbazole	3E-11	--	2E-10	--	2E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-08	--	8E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	1E-06	--	6E-06	7E-06
			Indeno(1,2,3-cd)pyrene	6E-09	--	3E-08	--	4E-08	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-06	--	9E-06	1E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	2E-10	--	1E-09	--	2E-09	General Toxicity/Immune System	8E-05	--	5E-04	6E-04
			Aroclor-1260	2E-09	--	1E-08	--	1E-08	General Toxicity/Immune System	7E-04	--	4E-03	5E-03
			Dieldrin	4E-09	--	2E-08	--	2E-08	Liver	4E-05	--	2E-04	2E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	4E-04	--	N/A	4E-04
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	9E-08	--	1E-07	--	2E-07	Skin	1E-03	--	2E-03	3E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	4E-04	--	7E-04	1E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-03	--	N/A	1E-03
			Copper	N/A	--	N/A	--	N/A	GI System	2E-04	--	N/A	2E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-03	--	N/A	1E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	4E-04	--	N/A	4E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-04	--	N/A	2E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	4E-04	--	N/A	4E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-04	--	N/A	1E-04
			Chemical Total	3E-07	--	1E-06	--	1E-06		8E-03	--	8E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						1E-06					2E-02
	Exposure Medium Total							1E-06					2E-02
Medium Total								1E-06					2E-02
Receptor Total								4E-06					6E-02

TABLE 9.5.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

4E-06

Total Hazard Across All Media

6E-02

Total Blood HI =	7E-04
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-02
Total GI System HI =	2E-02
Total Immune System HI =	1E-02
Total Kidney HI =	3E-03
Total Liver HI =	8E-03
Total CNS HI =	3E-03
Total Skin HI =	1E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-03
Total Endocrine HI =	3E-03

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Benzo(a)anthracene	4E-07	--	2E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	3E-06	--	2E-06	--	5E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	5E-07	--	3E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	2E-08	--	1E-08	--	3E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	5E-09	--	2E-09	--	8E-09	Liver	1E-04	--	6E-05	2E-04
			Carbazole	3E-10	--	2E-10	--	5E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	8E-07	--	4E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	1E-05	--	6E-06	2E-05
			Indeno(1,2,3-cd)pyrene	2E-07	--	1E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	4E-05	--	2E-05	7E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	4E-08	--	2E-08	--	6E-08	General Toxicity/Immune System	7E-03	--	4E-03	1E-02
			Aroclor-1260	6E-08	--	3E-08	--	9E-08	General Toxicity/Immune System	1E-02	--	6E-03	2E-02
			Dieldrin	2E-07	--	6E-08	--	2E-07	Liver	1E-03	--	6E-04	2E-03
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	6E-03	--	N/A	6E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	2E-06	--	2E-07	--	2E-06	Skin	3E-02	--	4E-03	3E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	5E-03	--	8E-04	6E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	3E-02	--	N/A	3E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	N/A	--	N/A	N/A
			Copper	N/A	--	N/A	--	N/A	GI System	3E-03	--	N/A	3E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	8E-03	--	N/A	8E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	3E-03	--	N/A	3E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-02	--	N/A	1E-02
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-03	--	N/A	3E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	5E-04	--	N/A	5E-04
			Chemical Total	7E-06	--	3E-06	--	1E-05		1E-01	--	1E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						1E-05					2E-01
	Exposure Medium Total							1E-05					2E-01
Medium Total								1E-05					2E-01
Surface Water	Surface Water	Upstream of Landfill	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	1E-07	--	1E-07	Liver	--	--	2E-03	2E-03
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-Chlordane	--	--	1E-09	--	1E-09	Liver	--	--	6E-05	6E-05
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Heptachlor Epoxide	--	--	2E-08	--	2E-08	Liver	--	--	1E-03	1E-03
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	4E-03	4E-03
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	4E-04	4E-04
			Chromium	--	--	N/A	--	N/A	GI System	--	--	5E-03	5E-03
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	5E-04	5E-04
			Chemical Total	--	--	1E-07	--	1E-07		--	--	1E-02	1E-02
			Radionuclide Total										
		Exposure Point Total						1E-07					1E-02
	Exposure Medium Total							1E-07					1E-02
Medium Total								1E-07					1E-02
Sediment	Sediment	Upstream of Landfill											

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	8E-08	--	3E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	8E-07	--	2E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	9E-08	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	4E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-09	--	2E-08	--	2E-08	Liver	2E-04	--	4E-04	6E-04
			Carbazole	1E-10	--	3E-10	--	4E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	8E-08	--	3E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	5E-06	--	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	3E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-05	--	3E-05	4E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	5E-09	--	2E-08	--	2E-08	General Toxicity/Immune System	8E-04	--	3E-03	4E-03
			Aroclor-1260	4E-08	--	1E-07	--	2E-07	General Toxicity/Immune System	8E-03	--	3E-02	3E-02
			Dieldrin	5E-08	--	1E-07	--	2E-07	Liver	4E-04	--	1E-03	1E-03
			Aluminum	N/A	--	N/A	--	N/A	Developmental	3E-03	--	N/A	3E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	5E-07	--	4E-07	--	9E-07	Skin	9E-03	--	6E-03	1E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	4E-03	--	4E-03	8E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02
			Copper	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	5E-03	--	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	3E-03	--	N/A	3E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-03	--	N/A	1E-03
			Chemical Total	2E-06	--	4E-06	--	6E-06		6E-02	--	4E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						6E-06					1E-01
	Exposure Medium Total							6E-06					1E-01
Medium Total								6E-06					1E-01
Receptor Total								2E-05					3E-01

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

2E-05

Total Hazard Across All Media

3E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	8E-02
Total Immune System HI =	6E-02
Total Kidney HI =	2E-02
Total Liver HI =	3E-02
Total CNS HI =	2E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	1E-02

TABLE 9.6.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Benzo(a)anthracene	5E-08	--	5E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	4E-07	--	5E-07	--	9E-07	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	8E-08	--	8E-08	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	5E-09	--	5E-09	--	1E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-10	--	4E-10	--	8E-10	Liver	1E-05	--	9E-06	2E-05
			Carbazole	9E-11	--	9E-11	--	2E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	3E-06	--	3E-06	6E-06
			Indeno(1,2,3-cd)pyrene	3E-08	--	3E-08	--	6E-08	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	7E-06	--	7E-06	1E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	2E-09	--	2E-09	--	3E-09	General Toxicity/Immune System	6E-04	--	6E-04	1E-03
			Aroclor-1260	2E-09	--	3E-09	--	5E-09	General Toxicity/Immune System	9E-04	--	1E-03	2E-03
			Dieldrin	2E-08	--	1E-08	--	3E-08	Liver	1E-04	--	1E-04	3E-04
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	1E-03	--	N/A	1E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	3E-07	--	7E-08	--	3E-07	Skin	4E-03	--	1E-03	5E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	5E-04	--	2E-04	7E-04
			Chromium	N/A	--	N/A	--	N/A	GI System	4E-03	--	N/A	4E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	N/A	--	N/A	N/A
			Copper	N/A	--	N/A	--	N/A	GI System	4E-04	--	N/A	4E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-03	--	N/A	3E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	7E-04	--	N/A	7E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	5E-04	--	N/A	5E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	4E-04	--	N/A	4E-04
			Zinc	N/A	--	N/A	--	N/A	Blood	7E-05	--	N/A	7E-05
			Chemical Total	1E-06	--	8E-07	--	2E-06		2E-02	--	3E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Surface Water	Surface Water	Upstream of Landfill	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.6.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	2E-08	--	2E-08	Liver	--	--	6E-04	6E-04
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-Chlordane	--	--	3E-10	--	3E-10	Liver	--	--	1E-05	1E-05
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Heptachlor Epoxide	--	--	6E-09	--	6E-09	Liver	--	--	3E-04	3E-04
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	8E-04	8E-04
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	2E-04	2E-04
			Chromium	--	--	N/A	--	N/A	GI System	--	--	1E-03	1E-03
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	1E-04	1E-04
			Chemical Total	--	--	3E-08	--	3E-08		--	--	3E-03	3E-03
			Radionuclide Total										
		Exposure Point Total						3E-08					3E-03
	Exposure Medium Total							3E-08					3E-03
Medium Total								3E-08					3E-03
Sediment	Sediment	Upstream of Landfill											

TABLE 9.6.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	1E-08	--	8E-08	--	9E-08	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-07	--	7E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	6E-10	--	4E-09	--	4E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	8E-10	--	4E-09	--	5E-09	Liver	2E-05	--	9E-05	1E-04
			Carbazole	3E-11	--	2E-10	--	2E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-08	--	8E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	1E-06	--	6E-06	7E-06
			Indeno(1,2,3-cd)pyrene	6E-09	--	3E-08	--	4E-08	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-06	--	9E-06	1E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	2E-10	--	1E-09	--	2E-09	General Toxicity/Immune System	8E-05	--	5E-04	6E-04
			Aroclor-1260	2E-09	--	1E-08	--	1E-08	General Toxicity/Immune System	7E-04	--	4E-03	5E-03
			Dieldrin	4E-09	--	2E-08	--	2E-08	Liver	4E-05	--	2E-04	2E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	4E-04	--	N/A	4E-04
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	9E-08	--	1E-07	--	2E-07	Skin	1E-03	--	2E-03	3E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	4E-04	--	7E-04	1E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-03	--	N/A	1E-03
			Copper	N/A	--	N/A	--	N/A	GI System	2E-04	--	N/A	2E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-03	--	N/A	1E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	4E-04	--	N/A	4E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-04	--	N/A	2E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	4E-04	--	N/A	4E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-04	--	N/A	1E-04
			Chemical Total	3E-07	--	1E-06	--	1E-06		8E-03	--	8E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						1E-06					2E-02
	Exposure Medium Total							1E-06					2E-02
Medium Total								1E-06					2E-02
Receptor Total								3E-06					4E-02

TABLE 9.6.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

3E-06

Total Hazard Across All Media

4E-02

Total Blood HI =	2E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	9E-03
Total GI System HI =	1E-02
Total Immune System HI =	9E-03
Total Kidney HI =	3E-03
Total Liver HI =	6E-03
Total CNS HI =	2E-03
Total Skin HI =	8E-03
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-03
Total Endocrine HI =	1E-03

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Wetlands	Benzo(a)pyrene	2E-07	--	1E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-08	--	1E-08	--	4E-08	N/A	N/A	--	N/A	N/A
			Arsenic	9E-07	--	1E-07	--	1E-06	Skin	1E-02	--	2E-03	2E-02
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	8E-03	--	N/A	8E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	7E-03	--	N/A	7E-03
			Chemical Total	1E-06	--	2E-07	--	1E-06		3E-02	--	2E-03	3E-02
			Radionuclide Total										
		Exposure Point Total					1E-06	3E-02					
		Exposure Medium Total					1E-06	3E-02					
Medium Total				1E-06					3E-02				
Surface Water	Surface Water	Wetlands	Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	2E-08	--	2E-08	Liver	--	--	5E-04	5E-04
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			beta-BHC	--	--	2E-09	--	2E-09	Liver	--	--	1E-05	1E-05
			Arsenic	--	--	7E-09	--	7E-09	Skin	--	--	1E-04	1E-04
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	1E-04	1E-04
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	5E-05	5E-05
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Chemical Total	--	--	3E-08	--	3E-08		--	--	7E-04	7E-04
			Radionuclide Total										
		Exposure Point Total					3E-08	7E-04					
		Exposure Medium Total					3E-08	7E-04					
Medium Total				3E-08					7E-04				
Sediment	Sediment	Wetlands	Benzo(a)anthracene	9E-08	--	3E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-06	--	3E-06	--	5E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-07	--	4E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	1E-08	--	3E-08	--	4E-08	N/A	N/A	--	N/A	N/A
			Carbazole	1E-10	--	4E-10	--	6E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	--	6E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	8E-08	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Aroclor-1260	6E-09	--	2E-08	--	3E-08	General Toxicity/Immune System	1E-03	--	3E-03	4E-03

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Aluminum	N/A	--	N/A	--	N/A	Developmental	5E-03	--	N/A	5E-03		
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	8E-04	--	N/A	8E-04		
			Arsenic	5E-07	--	3E-07	--	8E-07	Skin	7E-03	--	5E-03	1E-02		
			Chromium	N/A	--	N/A	--	N/A	GI System	5E-03	--	N/A	5E-03		
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02		
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-02	--	N/A	1E-02		
			Lead												
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	3E-03	--	N/A	3E-03		
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-03	--	N/A	1E-03		
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-03	--	N/A	2E-03		
			Chemical Total	2E-06	--	5E-06	--	7E-06		5E-02	--	8E-03	6E-02		
			Radionuclide Total												
			Exposure Point Total			7E-06					6E-02				
			Exposure Medium Total			7E-06					6E-02				
	Medium Total			7E-06					6E-02						
Receptor Total			9E-06					9E-02							

-- = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media

9E-06

Total Hazard Across All Media

9E-02

Total Blood HI =	8E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-03
Total GI System HI =	2E-02
Total Immune System HI =	4E-03
Total Kidney HI =	2E-03
Total Liver HI =	2E-02
Total CNS HI =	3E-03
Total Skin HI =	3E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	5E-03
Total Endocrine HI =	1E-02

TABLE 9.7.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
Soil	Surface Soil	Wetlands	Benzo(a)pyrene	4E-08	--	5E-08	--	9E-08	N/A	N/A	--	N/A	N/A		
			Benzo(b)fluoranthene	6E-09	--	7E-09	--	1E-08	N/A	N/A	--	N/A	N/A		
			Arsenic	1E-07	--	3E-08	--	2E-07	Skin	2E-03	--	5E-04	2E-03		
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-03	--	N/A	2E-03		
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-03	--	N/A	1E-03		
			Chemical Total	2E-07	--	8E-08	--	3E-07		5E-03	--	5E-04	5E-03		
			Radionuclide Total												
		Exposure Point Total					3E-07						5E-03		
		Exposure Medium Total					3E-07						5E-03		
Medium Total									3E-07						5E-03
Surface Water	Surface Water	Wetlands	Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			bis(2-Ethylhexyl)phthalate	--	--	9E-09	--	9E-09	Liver	--	--	2E-04	2E-04		
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			beta-BHC	--	--	1E-09	--	1E-09	Liver	--	--	6E-06	6E-06		
			Arsenic	--	--	4E-09	--	4E-09	Skin	--	--	6E-05	6E-05		
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A		
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	5E-05	5E-05		
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	3E-05	3E-05		
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A		
			Chemical Total	--	--	1E-08	--	1E-08		--	--	4E-04	4E-04		
			Radionuclide Total												
		Exposure Point Total					1E-08						4E-04		
		Exposure Medium Total					1E-08						4E-04		
Medium Total									1E-08						4E-04
Sediment	Sediment	Wetlands	Benzo(a)anthracene	2E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A		
			Benzo(a)pyrene	3E-07	--	2E-06	--	2E-06	N/A	N/A	--	N/A	N/A		
			Benzo(b)fluoranthene	3E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A		
			Benzo(k)fluoranthene	2E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A		
			Carbazole	4E-11	--	2E-10	--	2E-10	N/A	N/A	--	N/A	N/A		
			Dibenz(a,h)anthracene	5E-08	--	3E-07	--	3E-07	N/A	N/A	--	N/A	N/A		
			Indeno(1,2,3-cd)pyrene	2E-08	--	1E-07	--	1E-07	N/A	N/A	--	N/A	N/A		
			Aroclor-1260	8E-10	--	5E-09	--	6E-09	General Toxicity/Immune System	3E-04	--	2E-03	2E-03		

TABLE 9.7.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total	
			Aluminum	N/A	--	N/A	--	N/A	Developmental	1E-03	--	N/A	1E-03	
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	2E-04	--	N/A	2E-04	
			Arsenic	1E-07	--	2E-07	--	3E-07	Skin	2E-03	--	2E-03	4E-03	
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03	
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	3E-03	--	N/A	3E-03	
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-03	--	N/A	3E-03	
			Lead											
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	6E-04	--	N/A	6E-04	
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-04	--	N/A	3E-04	
			Vanadium	N/A	--	N/A	--	N/A	Kidney	4E-04	--	N/A	4E-04	
		Chemical Total	5E-07	--	3E-06	--	3E-06		1E-02	--	4E-03	2E-02		
		Radionuclide Total												
		Exposure Point Total			3E-06					2E-02				
		Exposure Medium Total			3E-06					2E-02				
Medium Total			3E-06					2E-02						
Receptor Total			3E-06					2E-02						

-- = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media

3E-06

Total Hazard Across All Media

2E-02

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-03
Total GI System HI =	6E-03
Total Immune System HI =	2E-03
Total Kidney HI =	4E-04
Total Liver HI =	5E-03
Total CNS HI =	7E-04
Total Skin HI =	7E-03
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-03
Total Endocrine HI =	3E-03

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Soil	Surface Soil	Landfill	Benzo(a)anthracene	3E-07	--	2E-07	--	5E-07	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	5E-06	--	3E-06	--	8E-06	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	4E-07	--	2E-07	--	6E-07	N/A	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	1E-08	--	7E-09	--	2E-08	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	3E-09	--	1E-09	--	4E-09	Liver	6E-05	--	3E-05	9E-05			
			Carbazole	4E-10	--	2E-10	--	5E-10	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	5E-07	--	3E-07	--	8E-07	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	8E-06	3E-05			
			Indeno(1,2,3-cd)pyrene	2E-07	--	8E-08	--	2E-07	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-04	--	7E-05	2E-04			
			Aroclor-1248	1E-06	--	6E-07	--	2E-06	General Toxicity/Immune System	2E-01	--	1E-01	3E-01			
			Aroclor-1254	9E-08	--	5E-08	--	1E-07	General Toxicity/Immune System	2E-02	--	9E-03	2E-02			
			Aroclor-1260	3E-08	--	2E-08	--	5E-08	General Toxicity/Immune System	5E-03	--	3E-03	8E-03			
			Dieldrin	3E-08	--	1E-08	--	4E-08	Liver	2E-04	--	9E-05	3E-04			
			Dioxin TEQ	6E-07	--	8E-08	--	7E-07	N/A	N/A	--	N/A	N/A			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	5E-03	--	N/A	5E-03			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A			
			Arsenic	2E-06	--	2E-07	--	2E-06	Skin	3E-02	--	4E-03	3E-02			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	6E-03	--	1E-03	7E-03			
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	7E-03	--	N/A	7E-03			
			Copper	N/A	--	N/A	--	N/A	GI System	3E-03	--	N/A	3E-03			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	6E-03	--	N/A	6E-03			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	3E-03	--	N/A	3E-03			
			Thallium	N/A	--	N/A	--	N/A	Blood	8E-03	--	N/A	8E-03			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-03	--	N/A	2E-03			
			Zinc	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03			
						Chemical Total	1E-05	--	4E-06	--	1E-05		3E-01	--	1E-01	4E-01
						Radionuclide Total										
						Exposure Point Total					1E-05					4E-01
			Exposure Medium Total					1E-05					4E-01			
Medium Total								1E-05					4E-01			
Surface Water	Surface Water	Adjacent to Landfill	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			bis(2-Ethylhexyl)phthalate	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A		
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			1,4-Dichlorobenzene	--	--	9E-10	--	9E-10	Liver	--	--	2E-05	2E-05		
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A		
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A		
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Dieldrin	--	--	7E-08	--	7E-08	Liver	--	--	6E-04	6E-04		
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Heptachlor Epoxide	--	--	2E-08	--	2E-08	Liver	--	--	1E-03	1E-03		
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	4E-02	4E-02		
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A		
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	1E-02	1E-02		
			Chromium	--	--	N/A	--	N/A	GI System	--	--	1E-01	1E-01		
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A		
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A		
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A		
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A		
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A		
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A		
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A		
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	6E-03	6E-03		
					Chemical Total	--	--	1E-07	--	1E-07		--	--	2E-01	2E-01
					Radionuclide Total										
				Exposure Point Total						1E-07					2E-01
			Exposure Medium Total						1E-07					2E-01	
Medium Total								1E-07					2E-01		
Sediment	Sediment	Adjacent to Landfill	Benzo(a)anthracene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A		

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-06	--	4E-06	--	5E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-07	--	3E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	6E-09	--	2E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-08	--	3E-08	--	4E-08	Liver	3E-04	--	7E-04	1E-03
			Carbazole	2E-10	--	6E-10	--	8E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	--	5E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	1E-05	--	3E-05	4E-05
			Indeno(1,2,3-cd)pyrene	5E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-05	--	6E-05	8E-05
			Aroclor-1242	2E-08	--	6E-08	--	8E-08	General Toxicity/Immune System	3E-03	--	1E-02	1E-02
			Aroclor-1254	3E-08	--	8E-08	--	1E-07	General Toxicity/Immune System	4E-03	--	1E-02	2E-02
			Aroclor-1260	1E-08	--	3E-08	--	4E-08	General Toxicity/Immune System	2E-03	--	5E-03	7E-03
			Dieldrin	1E-08	--	2E-08	--	4E-08	Liver	1E-04	--	2E-04	3E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	1E-03	--	N/A	1E-03
			Arsenic	2E-06	--	2E-06	--	4E-06	Skin	4E-02	--	3E-02	6E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	3E-03	--	3E-03	5E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-02	--	N/A	1E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	5E-03	--	N/A	5E-03
			Copper	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	9E-03	--	N/A	9E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	8E-04	--	N/A	8E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-03	--	N/A	3E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	9E-04	--	N/A	9E-04
			Chemical Total	4E-06	--	7E-06	--	1E-05		9E-02	--	6E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						1E-05					1E-01
	Exposure Medium Total							1E-05					1E-01
Medium Total								1E-05					1E-01
Leachate	Leachate	Landfill	4-Methylphenol	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Acenaphthylene	--	--	N/A	--	N/A	Liver	--	--	6E-07	6E-07
			Atrazine	--	--	N/A	--	N/A	General Toxicity/Cardiovascular	--	--	N/A	N/A
			Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	4E-09	--	4E-09	Liver	--	--	9E-05	9E-05
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Dibenz(a,h)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Dibenzofuran	--	--	N/A	--	N/A	Kidney	--	--	3E-04	3E-04
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	1E-05	1E-05
			N-Nitrosodiphenylamine	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Pentachlorophenol	--	--	N/A	--	N/A	Liver/Kidney	--	--	N/A	N/A
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	1E-09	--	1E-09	Liver	--	--	3E-05	3E-05
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Chlorobenzene	--	--	N/A	--	N/A	Liver/Kidney	--	--	N/A	N/A
			Ethylbenzene	--	--	2E-09	--	2E-09	Liver/Kidney	--	--	1E-05	1E-05
			Xylene (total)	--	--	N/A	--	N/A	General Toxicity	--	--	1E-05	1E-05
			Total PCBs	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-BHC	--	--	2E-09	--	2E-09	Liver	--	--	3E-07	3E-07
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	1E-04	1E-04
			Antimony	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Barium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Beryllium	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chromium	--	--	N/A	--	N/A	GI System	--	--	6E-04	6E-04
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Nickel	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Silver	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A		
			Thallium	--	--	N/A	--	N/A	Blood	--	--	N/A	N/A		
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Zinc	--	--	N/A	--	N/A	Blood	--	--	N/A	N/A		
			Chemical Total	--	--	9E-09	--	9E-09		--	--	1E-03	1E-03		
		Radionuclide Total													
		Exposure Point Total						9E-09						1E-03	
	Exposure Medium Total								9E-09						1E-03
	Medium Total								9E-09						1E-03
	Soil/Groundwater	Ambient Air	Landfill	1,1-Dichloroethane	--	1E-11	--	--	1E-11	Kidney	--	1E-07	--	1E-07	
1,2,4-Trimethylbenzene				--	N/A	--	--	N/A	Blood	--	9E-05	--	9E-05		
1,2-Dichloro-1,1,2,2-tetrafluoroethane				--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
1,2-Dichlorobenzene				--	N/A	--	--	N/A	General Toxicity	--	3E-06	--	3E-06		
1,3,5-Trimethylbenzene				--	N/A	--	--	N/A	Respiratory/CNS/Blood	--	2E-05	--	2E-05		
1,3-Dichlorobenzene				--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
1,4-Dichlorobenzene				--	5E-09	--	--	5E-09	Liver	--	4E-06	--	4E-06		
4-Ethyltoluene				--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
Benzene				--	1E-08	--	--	1E-08	Immune System	--	3E-04	--	3E-04		
Carbon tetrachloride				--	5E-11	--	--	5E-11	Liver	--	1E-07	--	1E-07		
Chlorobenzene				--	N/A	--	--	N/A	Liver/Kidney	--	4E-04	--	4E-04		
cis-1,2-Dichloroethene				--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
Dichlorodifluoromethane				--	N/A	--	--	N/A	Liver	--	1E-06	--	1E-06		
Ethylbenzene				--	2E-09	--	--	2E-09	Developmental	--	7E-06	--	7E-06		
Methylene chloride				--	3E-12	--	--	3E-12	Liver	--	4E-08	--	4E-08		
trans-1,2-Dichloroethene				--	N/A	--	--	N/A	Respiratory/Liver	--	2E-06	--	2E-06		
Trichloroethene				--	8E-11	--	--	8E-11	CNS	--	3E-05	--	3E-05		
Vinyl Chloride				--	7E-10	--	--	7E-10	Liver	--	1E-05	--	1E-05		
Xylene (Total)				--	N/A	--	--	N/A	CNS	--	4E-05	--	4E-05		
				Chemical Total	--	2E-08	--	--	2E-08		--	9E-04	--	9E-04	
	Radionuclide Total														
	Exposure Point Total						2E-08						9E-04		
Exposure Medium Total								2E-08						9E-04	
Medium Total								2E-08						9E-04	
Receptor Total								3E-05						8E-01	

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

3E-05

Total Hazard Across All Media

8E-01

Total Blood HI =	1E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	4E-01
Total GI System HI =	2E-01
Total Immune System HI =	4E-01
Total Kidney HI =	4E-02
Total Liver HI =	4E-02
Total CNS HI =	1E-02
Total Skin HI =	1E-01
Total Spleen HI =	N/A
Total Respiratory HI =	2E-05
Total Developmental HI =	4E-02
Total Endocrine HI =	1E-02

TABLE 9.8.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Benzo(a)anthracene	7E-08	--	8E-08	--	2E-07	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	1E-06	--	1E-06	--	3E-06	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	9E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	3E-09	--	3E-09	--	6E-09	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	6E-10	--	5E-10	--	1E-09	Liver	2E-05	--	1E-05	3E-05			
			Carbazole	9E-11	--	1E-10	--	2E-10	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	1E-07	--	1E-07	--	3E-07	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	5E-06	--	4E-06	9E-06			
			Indeno(1,2,3-cd)pyrene	4E-08	--	4E-08	--	8E-08	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	3E-05	--	3E-05	7E-05			
			Aroclor-1248	1E-07	--	1E-07	--	3E-07	General Toxicity/Immune System	4E-02	--	5E-02	1E-01			
			Aroclor-1254	1E-08	--	1E-08	--	2E-08	General Toxicity/Immune System	4E-03	--	4E-03	8E-03			
			Aroclor-1260	4E-09	--	4E-09	--	8E-09	General Toxicity/Immune System	1E-03	--	1E-03	3E-03			
			Dieldrin	6E-09	--	5E-09	--	1E-08	Liver	6E-05	--	5E-05	1E-04			
			Dioxin TEQ	8E-08	--	2E-08	--	1E-07	N/A	N/A	--	N/A	N/A			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	1E-03	--	N/A	1E-03			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A			
			Arsenic	5E-07	--	1E-07	--	6E-07	Skin	7E-03	--	2E-03	9E-03			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	5E-04	2E-03			
			Chromium	N/A	--	N/A	--	N/A	GI System	6E-03	--	N/A	6E-03			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03			
			Copper	N/A	--	N/A	--	N/A	GI System	7E-04	--	N/A	7E-04			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	6E-03	--	N/A	6E-03			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	7E-04	--	N/A	7E-04			
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	6E-04	--	N/A	6E-04			
			Zinc	N/A	--	N/A	--	N/A	Blood	4E-04	--	N/A	4E-04			
						Chemical Total	2E-06	--	2E-06	--	4E-06		8E-02	--	6E-02	1E-01
						Radionuclide Total										
						Exposure Point Total					4E-06					1E-01
	Exposure Medium Total							4E-06					1E-01			
Medium Total								4E-06					1E-01			
Surface Water	Surface Water	Adjacent to Landfill	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			

TABLE 9.8.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	2E-10	--	2E-10	Liver	--	--	4E-06	4E-06
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	4E-08	--	4E-08	Liver	--	--	3E-04	3E-04
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Heptachlor Epoxide	--	--	1E-08	--	1E-08	Liver	--	--	7E-04	7E-04
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	2E-02	2E-02
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	7E-03	7E-03
			Chromium	--	--	N/A	--	N/A	GI System	--	--	6E-02	6E-02
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	3E-03	3E-03
			Chemical Total	--	--	5E-08	--	5E-08		--	--	9E-02	9E-02
			Radionuclide Total										
		Exposure Point Total						5E-08					9E-02
	Exposure Medium Total							5E-08					9E-02
Medium Total								5E-08					9E-02
Sediment	Sediment	Adjacent to Landfill											

TABLE 9.8.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	3E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	3E-07	--	2E-06	--	2E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	3E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	1E-09	--	9E-09	--	1E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-09	--	1E-08	--	2E-08	Liver	8E-05	--	4E-04	4E-04
			Carbazole	5E-11	--	3E-10	--	3E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	4E-08	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	3E-06	--	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	1E-08	--	7E-08	--	9E-08	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	5E-06	--	3E-05	3E-05
			Aroclor-1242	2E-09	--	2E-08	--	2E-08	General Toxicity/Immune System	9E-04	--	6E-03	6E-03
			Aroclor-1254	3E-09	--	2E-08	--	2E-08	General Toxicity/Immune System	1E-03	--	7E-03	8E-03
			Aroclor-1260	1E-09	--	8E-09	--	9E-09	General Toxicity/Immune System	4E-04	--	3E-03	3E-03
			Dieldrin	3E-09	--	1E-08	--	2E-08	Liver	2E-05	--	1E-04	1E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	6E-04	--	N/A	6E-04
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	3E-04	--	N/A	3E-04
			Arsenic	6E-07	--	8E-07	--	1E-06	Skin	9E-03	--	1E-02	2E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	7E-04	--	1E-03	2E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	3E-03	--	N/A	3E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-03	--	N/A	1E-03
			Copper	N/A	--	N/A	--	N/A	GI System	4E-04	--	N/A	4E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-03	--	N/A	2E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	3E-04	--	N/A	3E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-04	--	N/A	2E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	6E-04	--	N/A	6E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-04	--	N/A	2E-04
			Chemical Total	1E-06	--	3E-06	--	4E-06		2E-02	--	3E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						4E-06					5E-02
	Exposure Medium Total						4E-06					5E-02	
Medium Total						4E-06					5E-02		
Leachate	Leachate	Landfill											
			4-Methylphenol	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Acenaphthylene	--	--	N/A	--	N/A	Liver	--	--	3E-07	3E-07
			Atrazine	--	--	N/A	--	N/A	General Toxicity/Cardiovascular	--	--	N/A	N/A
			Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.8.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	2E-09	--	2E-09	Liver	--	--	5E-05	5E-05
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Dibenz(a,h)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Dibenzofuran	--	--	N/A	--	N/A	Kidney	--	--	2E-04	2E-04
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	6E-06	6E-06
			N-Nitrosodiphenylamine	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Pentachlorophenol	--	--	N/A	--	N/A	Liver/Kidney	--	--	N/A	N/A
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	7E-10	--	7E-10	Liver	--	--	1E-05	1E-05
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Chlorobenzene	--	--	N/A	--	N/A	Liver/Kidney	--	--	N/A	N/A
			Ethylbenzene	--	--	8E-10	--	8E-10	Liver/Kidney	--	--	5E-06	5E-06
			Xylene (total)	--	--	N/A	--	N/A	General Toxicity	--	--	7E-06	7E-06
			Total PCBs	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-BHC	--	--	1E-09	--	1E-09	Liver	--	--	2E-07	2E-07
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	5E-05	5E-05
			Antimony	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Barium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Beryllium	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chromium	--	--	N/A	--	N/A	GI System	--	--	3E-04	3E-04
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A

TABLE 9.8.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Nickel	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A		
			Silver	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A		
			Thallium	--	--	N/A	--	N/A	Blood	--	--	N/A	N/A		
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Zinc	--	--	N/A	--	N/A	Blood	--	--	N/A	N/A		
			Chemical Total	--	--	5E-09	--	5E-09		--	--	6E-04	6E-04		
		Radionuclide Total													
		Exposure Point Total						5E-09						6E-04	
		Exposure Medium Total						5E-09						6E-04	
Medium Total									5E-09						6E-04
Soil/Groundwater	Ambient Air	Landfill	1,1-Dichloroethane	--	4E-12	--	--	4E-12	Kidney	--	3E-08	--	3E-08		
			1,2,4-Trimethylbenzene	--	N/A	--	--	N/A	Blood	--	3E-05	--	3E-05		
			1,2-Dichloro-1,1,2,2-tetrafluoroethane	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			1,2-Dichlorobenzene	--	N/A	--	--	N/A	General Toxicity	--	1E-06	--	1E-06		
			1,3,5-Trimethylbenzene	--	N/A	--	--	N/A	Respiratory/CNS/Blood	--	7E-06	--	7E-06		
			1,3-Dichlorobenzene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			1,4-Dichlorobenzene	--	2E-09	--	--	2E-09	Liver	--	1E-06	--	1E-06		
			4-Ethyltoluene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			Benzene	--	3E-09	--	--	3E-09	Immune System	--	1E-04	--	1E-04		
			Carbon tetrachloride	--	2E-11	--	--	2E-11	Liver	--	5E-08	--	5E-08		
			Chlorobenzene	--	N/A	--	--	N/A	Liver/Kidney	--	1E-04	--	1E-04		
			cis-1,2-Dichloroethene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			Dichlorodifluoromethane	--	N/A	--	--	N/A	Liver	--	4E-07	--	4E-07		
			Ethylbenzene	--	8E-10	--	--	8E-10	Developmental	--	2E-06	--	2E-06		
			Methylene chloride	--	1E-12	--	--	1E-12	Liver	--	2E-08	--	2E-08		
			trans-1,2-Dichloroethene	--	N/A	--	--	N/A	Respiratory/Liver	--	7E-07	--	7E-07		
			Trichloroethene	--	3E-11	--	--	3E-11	CNS	--	1E-05	--	1E-05		
			Vinyl Chloride	--	2E-10	--	--	2E-10	Liver	--	4E-06	--	4E-06		
			Xylene (Total)	--	N/A	--	--	N/A	CNS	--	1E-05	--	1E-05		
			Chemical Total	--	6E-09	--	--	6E-09		--	3E-04	--	3E-04		
			Radionuclide Total												
		Exposure Point Total						6E-09						3E-04	
	Exposure Medium Total								6E-09						3E-04
Medium Total									6E-09						3E-04
Receptor Total									9E-06						3E-01

TABLE 9.8.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

9E-06

Total Hazard Across All Media

3E-01

Total Blood HI =	3E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-01
Total GI System HI =	8E-02
Total Immune System HI =	1E-01
Total Kidney HI =	2E-02
Total Liver HI =	1E-02
Total CNS HI =	3E-03
Total Skin HI =	3E-02
Total Spleen HI =	N/A
Total Respiratory HI =	8E-06
Total Developmental HI =	2E-02
Total Endocrine HI =	3E-03

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Southern Bank	Benzo(a)anthracene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	7E-07	--	2E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	9E-08	--	3E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	4E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	--	3E-09	--	5E-09	Liver	4E-05	--	8E-05	1E-04
			Carbazole	2E-10	--	7E-10	--	1E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	1E-05	--	3E-05	4E-05
			Indeno(1,2,3-cd)pyrene	4E-08	--	1E-07	--	1E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-05	--	7E-05	9E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	6E-09	--	2E-08	--	3E-08	General Toxicity/Immune System	1E-03	--	3E-03	5E-03
			Aroclor-1260	1E-08	--	4E-08	--	5E-08	General Toxicity/Immune System	2E-03	--	7E-03	1E-02
			Dieldrin	9E-09	--	2E-08	--	3E-08	Liver	8E-05	--	2E-04	3E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	1E-03	--	N/A	1E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	3E-04	--	N/A	3E-04
			Arsenic	3E-07	--	2E-07	--	5E-07	Skin	5E-03	--	3E-03	8E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	1E-03	--	9E-04	2E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	4E-03	--	N/A	4E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	5E-03	--	N/A	5E-03
			Copper	N/A	--	N/A	--	N/A	GI System	4E-04	--	N/A	4E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-03	--	N/A	3E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	7E-04	--	N/A	7E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	4E-04	--	N/A	4E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-03	--	N/A	1E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	4E-04	--	N/A	4E-04
			Chemical Total	1E-06	--	3E-06	--	5E-06		3E-02	--	2E-02	4E-02
			Radionuclide Total										
		Exposure Point Total						5E-06					4E-02
	Exposure Medium Total							5E-06					4E-02
Medium Total								5E-06					4E-02
Receptor Total								5E-06					4E-02

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

5E-06

Total Hazard Across All Media

4E-02

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-02
Total GI System HI =	8E-03
Total Immune System HI =	1E-02
Total Kidney HI =	2E-03
Total Liver HI =	4E-03
Total CNS HI =	1E-03
Total Skin HI =	8E-03
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-03
Total Endocrine HI =	5E-03

TABLE 9.9.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Southern Bank	Benzo(a)anthracene	3E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	2E-07	--	1E-06	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	9E-10	--	6E-09	--	7E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-10	--	2E-09	--	2E-09	Liver	9E-06	--	4E-05	5E-05
			Carbazole	6E-11	--	4E-10	--	4E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	3E-06	--	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	9E-09	--	5E-08	--	6E-08	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	6E-06	--	3E-05	4E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	8E-10	--	5E-09	--	6E-09	General Toxicity/Immune System	3E-04	--	2E-03	2E-03
			Aroclor-1260	2E-09	--	1E-08	--	1E-08	General Toxicity/Immune System	6E-04	--	4E-03	4E-03
			Dieldrin	2E-09	--	1E-08	--	1E-08	Liver	2E-05	--	9E-05	1E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	3E-04	--	N/A	3E-04
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	9E-05	--	N/A	9E-05
			Arsenic	8E-08	--	1E-07	--	2E-07	Skin	1E-03	--	2E-03	3E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-04	--	4E-04	7E-04
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-03	--	N/A	1E-03
			Copper	N/A	--	N/A	--	N/A	GI System	1E-04	--	N/A	1E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	9E-04	--	N/A	9E-04
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	2E-04	--	N/A	2E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	1E-04	--	N/A	1E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-04	--	N/A	3E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-04	--	N/A	1E-04
			Chemical Total	3E-07	--	2E-06	--	2E-06		7E-03	--	8E-03	1E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					1E-02
	Exposure Medium Total							2E-06					1E-02
Medium Total								2E-06					1E-02
Receptor Total								2E-06					1E-02

TABLE 9.9.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

2E-06

Total Hazard Across All Media

1E-02

Total Blood HI =	3E-04
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-03
Total GI System HI =	2E-03
Total Immune System HI =	6E-03
Total Kidney HI =	8E-04
Total Liver HI =	1E-03
Total CNS HI =	3E-04
Total Skin HI =	3E-03
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-04
Total Endocrine HI =	1E-03

TABLE 9.10.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Groundwater	Ambient Air	Landfill	1,1-Dichloroethane	--	3E-10	--	--	3E-10	Kidney	--	1E-06	--	1E-06
			1,2,4-Trimethylbenzene	--	N/A	--	--	N/A	Blood	--	1E-03	--	1E-03
			1,2-Dichloro-1,1,2,2-tetrafluoroethane	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			1,2-Dichlorobenzene	--	N/A	--	--	N/A	General Toxicity	--	4E-05	--	4E-05
			1,3,5-Trimethylbenzene	--	N/A	--	--	N/A	Respiratory/CNS/Blood	--	2E-04	--	2E-04
			1,3-Dichlorobenzene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			1,4-Dichlorobenzene	--	2E-07	--	--	2E-07	Liver	--	5E-05	--	5E-05
			4-Ethyltoluene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Benzene	--	3E-07	--	--	3E-07	Immune System	--	3E-03	--	3E-03
			Carbon tetrachloride	--	2E-09	--	--	2E-09	Liver	--	2E-06	--	2E-06
			Chlorobenzene	--	N/A	--	--	N/A	Liver/Kidney	--	5E-03	--	5E-03
			cis-1,2-Dichloroethene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Dichlorodifluoromethane	--	N/A	--	--	N/A	Liver	--	1E-05	--	1E-05
			Ethylbenzene	--	7E-08	--	--	7E-08	Developmental	--	8E-05	--	8E-05
			Methylene chloride	--	1E-10	--	--	1E-10	Liver	--	5E-07	--	5E-07
			trans-1,2-Dichloroethene	--	N/A	--	--	N/A	Respiratory/Liver	--	2E-05	--	2E-05
			Trichloroethene	--	2E-09	--	--	2E-09	CNS	--	3E-04	--	3E-04
			Vinyl Chloride	--	2E-08	--	--	2E-08	Liver	--	1E-04	--	1E-04
			Xylene (Total)	--	N/A	--	--	N/A	CNS	--	4E-04	--	4E-04
			Chemical Total	--	5E-07	--	--	5E-07		--	1E-02	--	1E-02
		Radionuclide Total											
	Exposure Point Total			5E-07					1E-02				
Exposure Medium Total			5E-07					1E-02					
Medium Total			5E-07					1E-02					
Receptor Total			5E-07					1E-02					

TABLE 9.10.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media

5E-07

Total Hazard Across All Media

1E-02

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	4E-05
Total GI System HI =	N/A
Total Immune System HI =	3E-03
Total Kidney HI =	5E-03
Total Liver HI =	5E-03
Total CNS HI =	1E-03
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	2E-04
Total Developmental HI =	8E-05
Total Endocrine HI =	N/A

TABLE 9.10.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Groundwater	Ambient Air	Landfill	1,1-Dichloroethane	--	8E-11	--	--	8E-11	Kidney	--	8E-07	--	8E-07
			1,2,4-Trimethylbenzene	--	N/A	--	--	N/A	Blood	--	7E-04	--	7E-04
			1,2-Dichloro-1,1,2,2-tetrafluoroethane	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			1,2-Dichlorobenzene	--	N/A	--	--	N/A	General Toxicity	--	2E-05	--	2E-05
			1,3,5-Trimethylbenzene	--	N/A	--	--	N/A	Respiratory/CNS/Blood	--	2E-04	--	2E-04
			1,3-Dichlorobenzene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			1,4-Dichlorobenzene	--	4E-08	--	--	4E-08	Liver	--	3E-05	--	3E-05
			4-Ethyltoluene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Benzene	--	7E-08	--	--	7E-08	Immune System	--	2E-03	--	2E-03
			Carbon tetrachloride	--	4E-10	--	--	4E-10	Liver	--	1E-06	--	1E-06
			Chlorobenzene	--	N/A	--	--	N/A	Liver/Kidney	--	3E-03	--	3E-03
			cis-1,2-Dichloroethene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Dichlorodifluoromethane	--	N/A	--	--	N/A	Liver	--	8E-06	--	8E-06
			Ethylbenzene	--	2E-08	--	--	2E-08	Developmental	--	5E-05	--	5E-05
			Methylene chloride	--	2E-11	--	--	2E-11	Liver	--	4E-07	--	4E-07
			trans-1,2-Dichloroethene	--	N/A	--	--	N/A	Respiratory/Liver	--	2E-05	--	2E-05
			Trichloroethene	--	6E-10	--	--	6E-10	CNS	--	2E-04	--	2E-04
			Vinyl Chloride	--	5E-09	--	--	5E-09	Liver	--	8E-05	--	8E-05
			Xylene (Total)	--	N/A	--	--	N/A	CNS	--	3E-04	--	3E-04
			Chemical Total	--	1E-07	--	--	1E-07		--	7E-03	--	7E-03
		Radionuclide Total											
	Exposure Point Total			1E-07					7E-03				
Exposure Medium Total			1E-07					7E-03					
Medium Total			1E-07					7E-03					
Receptor Total			1E-07					7E-03					

TABLE 9.10.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

1E-07

Total Hazard Across All Media

7E-03

Total Blood HI =	9E-04
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-05
Total GI System HI =	N/A
Total Immune System HI =	2E-03
Total Kidney HI =	3E-03
Total Liver HI =	3E-03
Total CNS HI =	7E-04
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	2E-04
Total Developmental HI =	5E-05
Total Endocrine HI =	N/A

TABLE 9.11.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2	4-Chloro-3-methylphenol	N/A	--	--	--	N/A	Kidney	1E-04	--	--	1E-04
			4-Nitrophenol	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A
			Benzaldehyde	N/A	--	--	--	N/A	Kidney	1E-03	--	--	1E-03
			Benzo(a)anthracene	2E-06	--	--	--	2E-06	N/A	N/A	--	--	N/A
			Benzo(a)pyrene	2E-05	--	--	--	2E-05	N/A	N/A	--	--	N/A
			Benzo(b)fluoranthene	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A
			bis(2-Ethylhexyl)phthalate	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A
			Dibenz(a,h)anthracene	2E-05	--	--	--	2E-05	N/A	N/A	--	--	N/A
			Hexachlorobenzene	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A
			Indeno(1,2,3-cd)pyrene	2E-06	--	--	--	2E-06	N/A	N/A	--	--	N/A
			Isophorone	3E-08	--	--	--	3E-08	Kidney	6E-04	--	--	6E-04
			Total PCB Homologs	1E-04	--	--	--	1E-04	General Toxicity/Immune System	1E+01	--	--	1E+01
			4,4'-DDD	3E-07	--	--	--	3E-07	N/A	N/A	--	--	N/A
			4,4'-DDE	6E-07	--	--	--	6E-07	N/A	N/A	--	--	N/A
			4,4'-DDT	7E-08	--	--	--	7E-08	Liver	2E-03	--	--	2E-03
			Aldrin	2E-06	--	--	--	2E-06	Liver	1E-02	--	--	1E-02
			alpha-Chlordane	2E-07	--	--	--	2E-07	Liver	6E-03	--	--	6E-03
			Dieldrin	2E-05	--	--	--	2E-05	Liver	1E-01	--	--	1E-01
			Endosulfan I	N/A	--	--	--	N/A	General Toxicity/Kidney	7E-05	--	--	7E-05
			Endosulfan II	N/A	--	--	--	N/A	General Toxicity/Kidney	2E-05	--	--	2E-05
			Endosulfan Sulfate	N/A	--	--	--	N/A	General Toxicity/Kidney	3E-04	--	--	3E-04
			Gamma-Chlordane	1E-07	--	--	--	1E-07	Liver	3E-03	--	--	3E-03
			Heptachlor	1E-06	--	--	--	1E-06	Liver	2E-03	--	--	2E-03
			Heptachlor Epoxide	4E-07	--	--	--	4E-07	Liver	1E-02	--	--	1E-02
			Arsenic	6E-06	--	--	--	6E-06	Skin	5E-02	--	--	5E-02
			Cadmium (other media)	N/A	--	--	--	N/A	Kidney	8E-03	--	--	8E-03
			Chromium	N/A	--	--	--	N/A	GI System	4E-01	--	--	4E-01
			Cobalt	N/A	--	--	--	N/A	Endocrine	4E-02	--	--	4E-02
			Iron	N/A	--	--	--	N/A	Liver/GI System	2E-02	--	--	2E-02
			Lead	N/A	--	--	--	N/A	CNS	N/A	--	--	N/A
			Mercury (other media)	N/A	--	--	--	N/A	CNS	4E-01	--	--	4E-01
			Nickel	N/A	--	--	--	N/A	General Toxicity	3E-02	--	--	3E-02
		Selenium	N/A	--	--	--	N/A	Liver	4E-02	--	--	4E-02	
		Chemical Total	2E-04	--	--	--	2E-04			1E+01	--	--	1E+01
		Radionuclide Total											
Exposure Point Total				2E-04					1E+01				

TABLE 9.11.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							2E-04					1E+01
Medium Total								2E-04					1E+01
Receptor Total								2E-04					1E+01

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

2E-04

Total Hazard Across All Media

1E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E+01
Total GI System HI =	4E-01
Total Immune System HI =	1E+01
Total Kidney HI =	1E-02
Total Liver HI =	2E-01
Total CNS HI =	4E-01
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	4E-02

TABLE 9.11.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2	4-Chloro-3-methylphenol	N/A	--	--	--	N/A	Kidney	5E-05	--	--	5E-05		
			4-Nitrophenol	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A		
			Benzaldehyde	N/A	--	--	--	N/A	Kidney	7E-04	--	--	7E-04		
			Benzo(a)anthracene	3E-07	--	--	--	3E-07	N/A	N/A	--	--	N/A		
			Benzo(a)pyrene	3E-06	--	--	--	3E-06	N/A	N/A	--	--	N/A		
			Benzo(b)fluoranthene	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A		
			bis(2-Ethylhexyl)phthalate	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A		
			Dibenz(a,h)anthracene	3E-06	--	--	--	3E-06	N/A	N/A	--	--	N/A		
			Hexachlorobenzene	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A		
			Indeno(1,2,3-cd)pyrene	4E-07	--	--	--	4E-07	N/A	N/A	--	--	N/A		
			Isophorone	6E-09	--	--	--	6E-09	Kidney	4E-04	--	--	4E-04		
			Total PCB Homologs	2E-05	--	--	--	2E-05	General Toxicity/Immune System	7E+00	--	--	7E+00		
			4,4'-DDD	5E-08	--	--	--	5E-08	N/A	N/A	--	--	N/A		
			4,4'-DDE	1E-07	--	--	--	1E-07	N/A	N/A	--	--	N/A		
			4,4'-DDT	1E-08	--	--	--	1E-08	Liver	9E-04	--	--	9E-04		
			Aldrin	6E-08	--	--	--	6E-08	Liver	1E-03	--	--	1E-03		
			alpha-Chlordane	5E-08	--	--	--	5E-08	Liver	3E-03	--	--	3E-03		
			Dieldrin	4E-06	--	--	--	4E-06	Liver	7E-02	--	--	7E-02		
			Endosulfan I	N/A	--	--	--	N/A	General Toxicity/Kidney	4E-05	--	--	4E-05		
			Endosulfan II	N/A	--	--	--	N/A	General Toxicity/Kidney	1E-05	--	--	1E-05		
			Endosulfan Sulfate	N/A	--	--	--	N/A	General Toxicity/Kidney	2E-04	--	--	2E-04		
			Gamma-Chlordane	3E-08	--	--	--	3E-08	Liver	2E-03	--	--	2E-03		
			Heptachlor	2E-08	--	--	--	2E-08	Liver	1E-04	--	--	1E-04		
			Heptachlor Epoxide	7E-08	--	--	--	7E-08	Liver	8E-03	--	--	8E-03		
			Arsenic	1E-06	--	--	--	1E-06	Skin	3E-02	--	--	3E-02		
			Cadmium (other media)	N/A	--	--	--	N/A	Kidney	5E-03	--	--	5E-03		
			Chromium	N/A	--	--	--	N/A	GI System	2E-01	--	--	2E-01		
			Cobalt	N/A	--	--	--	N/A	Endocrine	2E-02	--	--	2E-02		
			Iron	N/A	--	--	--	N/A	Liver/GI System	1E-02	--	--	1E-02		
			Lead	N/A	--	--	--	N/A	CNS	N/A	--	--	N/A		
			Mercury (other media)	N/A	--	--	--	N/A	CNS	2E-01	--	--	2E-01		
			Nickel	N/A	--	--	--	N/A	General Toxicity	2E-02	--	--	2E-02		
		Selenium	N/A	--	--	--	N/A	Liver	2E-02	--	--	2E-02			
		Chemical Total				4E-05	--	--	--	4E-05		8E+00	--	--	8E+00
		Radionuclide Total													
Exposure Point Total				4E-05					8E+00						

TABLE 9.11.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							4E-05					8E+00
Medium Total								4E-05					8E+00
Receptor Total								4E-05					8E+00

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

4E-05

Total Hazard Across All Media

8E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E+00
Total GI System HI =	2E-01
Total Immune System HI =	7E+00
Total Kidney HI =	6E-03
Total Liver HI =	1E-01
Total CNS HI =	2E-01
Total Skin HI =	3E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	2E-02

TABLE 9.12.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient							
				Young Child + Adult					Young Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1	4-Chloro-3-methylphenol	N/A	--	--	--	N/A	Kidney	N/A	--	--	N/A			
			4-Nitrophenol	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A			
			Benzaldehyde	N/A	--	--	--	N/A	Kidney	4E-04	--	--	4E-04			
			Benzo(a)anthracene	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A			
			Benzo(a)pyrene	2E-05	--	--	--	2E-05	N/A	N/A	--	--	N/A			
			Benzo(b)fluoranthene	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A			
			bis(2-Ethylhexyl)phthalate	2E-07	--	--	--	2E-07	Liver	3E-03	--	--	3E-03			
			Dibenz(a,h)anthracene	2E-05	--	--	--	2E-05	N/A	N/A	--	--	N/A			
			Hexachlorobenzene	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A			
			Indeno(1,2,3-cd)pyrene	2E-06	--	--	--	2E-06	N/A	N/A	--	--	N/A			
			Isophorone	1E-08	--	--	--	1E-08	Kidney	3E-04	--	--	3E-04			
			Total PCB Homologs	1E-04	--	--	--	1E-04	General Toxicity/Immune System	9E+00	--	--	9E+00			
			4,4'-DDD	1E-07	--	--	--	1E-07	N/A	N/A	--	--	N/A			
			4,4'-DDE	7E-07	--	--	--	7E-07	N/A	N/A	--	--	N/A			
			4,4'-DDT	3E-07	--	--	--	3E-07	Liver	7E-03	--	--	7E-03			
			Aldrin	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A			
			alpha-Chlordane	2E-07	--	--	--	2E-07	Liver	4E-03	--	--	4E-03			
			Dieldrin	2E-05	--	--	--	2E-05	Liver	8E-02	--	--	8E-02			
			Endosulfan I	N/A	--	--	--	N/A	General Toxicity/Kidney	2E-04	--	--	2E-04			
			Endosulfan II	N/A	--	--	--	N/A	General Toxicity/Kidney	3E-05	--	--	3E-05			
			Endosulfan Sulfate	N/A	--	--	--	N/A	General Toxicity/Kidney	2E-04	--	--	2E-04			
			Gamma-Chlordane	1E-07	--	--	--	1E-07	Liver	3E-03	--	--	3E-03			
			Heptachlor	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A			
			Heptachlor Epoxide	2E-06	--	--	--	2E-06	Liver	6E-02	--	--	6E-02			
			Arsenic	1E-05	--	--	--	1E-05	Skin	1E-01	--	--	1E-01			
			Cadmium (other media)	N/A	--	--	--	N/A	Kidney	1E-02	--	--	1E-02			
			Chromium	N/A	--	--	--	N/A	GI System	3E-01	--	--	3E-01			
			Cobalt	N/A	--	--	--	N/A	Endocrine	2E-02	--	--	2E-02			
			Iron	N/A	--	--	--	N/A	Liver/GI System	1E-02	--	--	1E-02			
			Lead	N/A	--	--	--	N/A	CNS	N/A	--	--	N/A			
			Mercury (other media)	N/A	--	--	--	N/A	CNS	5E-01	--	--	5E-01			
			Nickel	N/A	--	--	--	N/A	General Toxicity	2E-02	--	--	2E-02			
			Selenium	N/A	--	--	--	N/A	Liver	5E-02	--	--	5E-02			
			Chemical Total				2E-04	--	--	--	2E-04		1E+01	--	--	1E+01
			Radionuclide Total													
Exposure Point Total				2E-04					1E+01							

TABLE 9.12.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							2E-04					1E+01
Medium Total								2E-04					1E+01
Receptor Total								2E-04					1E+01

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

2E-04

Total Hazard Across All Media

1E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	9E+00
Total GI System HI =	3E-01
Total Immune System HI =	9E+00
Total Kidney HI =	1E-02
Total Liver HI =	2E-01
Total CNS HI =	5E-01
Total Skin HI =	1E-01
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	2E-02

TABLE 9.12.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient							
				Young Child + Adult					Young Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1	4-Chloro-3-methylphenol	N/A	--	--	--	N/A	Kidney	N/A	--	--	N/A			
			4-Nitrophenol	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A			
			Benzaldehyde	N/A	--	--	--	N/A	Kidney	3E-04	--	--	3E-04			
			Benzo(a)anthracene	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A			
			Benzo(a)pyrene	3E-06	--	--	--	3E-06	N/A	N/A	--	--	N/A			
			Benzo(b)fluoranthene	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A			
			bis(2-Ethylhexyl)phthalate	4E-08	--	--	--	4E-08	Liver	2E-03	--	--	2E-03			
			Dibenz(a,h)anthracene	4E-06	--	--	--	4E-06	N/A	N/A	--	--	N/A			
			Hexachlorobenzene	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A			
			Indeno(1,2,3-cd)pyrene	3E-07	--	--	--	3E-07	N/A	N/A	--	--	N/A			
			Isophorone	3E-09	--	--	--	3E-09	Kidney	2E-04	--	--	2E-04			
			Total PCB Homologs	2E-05	--	--	--	2E-05	General Toxicity/Immune System	6E+00	--	--	6E+00			
			4,4'-DDD	3E-08	--	--	--	3E-08	N/A	N/A	--	--	N/A			
			4,4'-DDE	1E-07	--	--	--	1E-07	N/A	N/A	--	--	N/A			
			4,4'-DDT	6E-08	--	--	--	6E-08	Liver	4E-03	--	--	4E-03			
			Aldrin	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A			
			alpha-Chlordane	3E-08	--	--	--	3E-08	Liver	2E-03	--	--	2E-03			
			Dieldrin	3E-06	--	--	--	3E-06	Liver	5E-02	--	--	5E-02			
			Endosulfan I	N/A	--	--	--	N/A	General Toxicity/Kidney	1E-04	--	--	1E-04			
			Endosulfan II	N/A	--	--	--	N/A	General Toxicity/Kidney	7E-06	--	--	7E-06			
			Endosulfan Sulfate	N/A	--	--	--	N/A	General Toxicity/Kidney	1E-04	--	--	1E-04			
			Gamma-Chlordane	2E-08	--	--	--	2E-08	Liver	2E-03	--	--	2E-03			
			Heptachlor	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A			
			Heptachlor Epoxide	3E-07	--	--	--	3E-07	Liver	4E-02	--	--	4E-02			
			Arsenic	3E-06	--	--	--	3E-06	Skin	7E-02	--	--	7E-02			
			Cadmium (other media)	N/A	--	--	--	N/A	Kidney	6E-03	--	--	6E-03			
			Chromium	N/A	--	--	--	N/A	GI System	2E-01	--	--	2E-01			
			Cobalt	N/A	--	--	--	N/A	Endocrine	1E-02	--	--	1E-02			
			Iron	N/A	--	--	--	N/A	Liver/GI System	7E-03	--	--	7E-03			
			Lead	N/A	--	--	--	N/A	CNS	N/A	--	--	N/A			
			Mercury (other media)	N/A	--	--	--	N/A	CNS	3E-01	--	--	3E-01			
			Nickel	N/A	--	--	--	N/A	General Toxicity	1E-02	--	--	1E-02			
			Selenium	N/A	--	--	--	N/A	Liver	3E-02	--	--	3E-02			
			Chemical Total				3E-05	--	--	--	3E-05		6E+00	--	--	6E+00
			Radionuclide Total													
Exposure Point Total				3E-05					6E+00							

TABLE 9.12.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							3E-05					6E+00
Medium Total								3E-05					6E+00
Receptor Total								3E-05					6E+00

-- = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media

3E-05

Total Hazard Across All Media

6E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E+00
Total GI System HI =	2E-01
Total Immune System HI =	6E+00
Total Kidney HI =	7E-03
Total Liver HI =	1E-01
Total CNS HI =	3E-01
Total Skin HI =	7E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	1E-02

TABLE 9.13.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child					
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2	4-Chloro-3-methylphenol	N/A	--	--	--	N/A	Kidney	N/A	--	--	N/A	
			4-Nitrophenol	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A	
			Benzaldehyde	N/A	--	--	--	N/A	Kidney	N/A	--	--	N/A	
			Benzo(a)anthracene	5E-06	--	--	--	5E-06	N/A	N/A	--	--	N/A	
			Benzo(a)pyrene	5E-05	--	--	--	5E-05	N/A	N/A	--	--	N/A	
			Benzo(b)fluoranthene	2E-06	--	--	--	2E-06	N/A	N/A	--	--	N/A	
			bis(2-Ethylhexyl)phthalate	4E-07	--	--	--	4E-07	Liver	5E-03	--	--	5E-03	
			Dibenz(a,h)anthracene	2E-05	--	--	--	2E-05	N/A	N/A	--	--	N/A	
			Hexachlorobenzene	1E-06	--	--	--	1E-06	Liver	4E-03	--	--	4E-03	
			Indeno(1,2,3-cd)pyrene	2E-06	--	--	--	2E-06	N/A	N/A	--	--	N/A	
			Isophorone	3E-08	--	--	--	3E-08	Kidney	7E-04	--	--	7E-04	
			Total PCB Homologs	2E-04	--	--	--	2E-04	General Toxicity/Immune System	2E+01	--	--	2E+01	
			4,4'-DDD	3E-07	--	--	--	3E-07	N/A	N/A	--	--	N/A	
			4,4'-DDE	1E-06	--	--	--	1E-06	N/A	N/A	--	--	N/A	
			4,4'-DDT	1E-07	--	--	--	1E-07	Liver	2E-03	--	--	2E-03	
			Aldrin	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A	
			alpha-Chlordane	2E-07	--	--	--	2E-07	Liver	6E-03	--	--	6E-03	
			Dieldrin	3E-05	--	--	--	3E-05	Liver	1E-01	--	--	1E-01	
			Endosulfan I	N/A	--	--	--	N/A	General Toxicity/Kidney	N/A	--	--	N/A	
			Endosulfan II	N/A	--	--	--	N/A	General Toxicity/Kidney	3E-05	--	--	3E-05	
			Endosulfan Sulfate	N/A	--	--	--	N/A	General Toxicity/Kidney	7E-04	--	--	7E-04	
			Gamma-Chlordane	2E-07	--	--	--	2E-07	Liver	5E-03	--	--	5E-03	
			Heptachlor	5E-07	--	--	--	5E-07	Liver	8E-04	--	--	8E-04	
			Heptachlor Epoxide	4E-07	--	--	--	4E-07	Liver	1E-02	--	--	1E-02	
			Arsenic	1E-05	--	--	--	1E-05	Skin	9E-02	--	--	9E-02	
			Cadmium (other media)	N/A	--	--	--	N/A	Kidney	5E-03	--	--	5E-03	
			Chromium	N/A	--	--	--	N/A	GI System	4E-01	--	--	4E-01	
			Cobalt	N/A	--	--	--	N/A	Endocrine	3E-02	--	--	3E-02	
			Iron	N/A	--	--	--	N/A	Liver/GI System	1E-02	--	--	1E-02	
			Lead	N/A	--	--	--	N/A	CNS	N/A	--	--	N/A	
			Mercury (other media)	N/A	--	--	--	N/A	CNS	5E-01	--	--	5E-01	
			Nickel	N/A	--	--	--	N/A	General Toxicity	3E-02	--	--	3E-02	
			Selenium	N/A	--	--	--	N/A	Liver	5E-02	--	--	5E-02	
			Chemical Total	3E-04	--	--	--	3E-04			2E+01	--	--	2E+01
			Radionuclide Total											
Exposure Point Total				3E-04					2E+01					

TABLE 9.13.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							3E-04					2E+01
Medium Total								3E-04					2E+01
Receptor Total								3E-04					2E+01

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

3E-04

Total Hazard Across All Media

2E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E+01
Total GI System HI =	4E-01
Total Immune System HI =	2E+01
Total Kidney HI =	7E-03
Total Liver HI =	2E-01
Total CNS HI =	5E-01
Total Skin HI =	9E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	3E-02

TABLE 9.13.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient							
				Young Child + Adult					Young Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2	4-Chloro-3-methylphenol	N/A	--	--	--	N/A	Kidney	N/A	--	--	N/A			
			4-Nitrophenol	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A			
			Benzaldehyde	N/A	--	--	--	N/A	Kidney	N/A	--	--	N/A			
			Benzo(a)anthracene	1E-06	--	--	--	1E-06	N/A	N/A	--	--	N/A			
			Benzo(a)pyrene	1E-05	--	--	--	1E-05	N/A	N/A	--	--	N/A			
			Benzo(b)fluoranthene	3E-07	--	--	--	3E-07	N/A	N/A	--	--	N/A			
			bis(2-Ethylhexyl)phthalate	7E-08	--	--	--	7E-08	Liver	3E-03	--	--	3E-03			
			Dibenz(a,h)anthracene	3E-06	--	--	--	3E-06	N/A	N/A	--	--	N/A			
			Hexachlorobenzene	1E-07	--	--	--	1E-07	Liver	1E-03	--	--	1E-03			
			Indeno(1,2,3-cd)pyrene	4E-07	--	--	--	4E-07	N/A	N/A	--	--	N/A			
			Isophorone	6E-09	--	--	--	6E-09	Kidney	4E-04	--	--	4E-04			
			Total PCB Homologs	4E-05	--	--	--	4E-05	General Toxicity/Immune System	1E+01	--	--	1E+01			
			4,4'-DDD	6E-08	--	--	--	6E-08	N/A	N/A	--	--	N/A			
			4,4'-DDE	3E-07	--	--	--	3E-07	N/A	N/A	--	--	N/A			
			4,4'-DDT	2E-08	--	--	--	2E-08	Liver	1E-03	--	--	1E-03			
			Aldrin	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A			
			alpha-Chlordane	5E-08	--	--	--	5E-08	Liver	3E-03	--	--	3E-03			
			Dieldrin	5E-06	--	--	--	5E-06	Liver	8E-02	--	--	8E-02			
			Endosulfan I	N/A	--	--	--	N/A	General Toxicity/Kidney	N/A	--	--	N/A			
			Endosulfan II	N/A	--	--	--	N/A	General Toxicity/Kidney	7E-06	--	--	7E-06			
			Endosulfan Sulfate	N/A	--	--	--	N/A	General Toxicity/Kidney	4E-04	--	--	4E-04			
			Gamma-Chlordane	4E-08	--	--	--	4E-08	Liver	3E-03	--	--	3E-03			
			Heptachlor	2E-08	--	--	--	2E-08	Liver	1E-04	--	--	1E-04			
			Heptachlor Epoxide	8E-08	--	--	--	8E-08	Liver	9E-03	--	--	9E-03			
			Arsenic	2E-06	--	--	--	2E-06	Skin	6E-02	--	--	6E-02			
			Cadmium (other media)	N/A	--	--	--	N/A	Kidney	3E-03	--	--	3E-03			
			Chromium	N/A	--	--	--	N/A	GI System	2E-01	--	--	2E-01			
			Cobalt	N/A	--	--	--	N/A	Endocrine	2E-02	--	--	2E-02			
			Iron	N/A	--	--	--	N/A	Liver/GI System	7E-03	--	--	7E-03			
			Lead	N/A	--	--	--	N/A	CNS	N/A	--	--	N/A			
			Mercury (other media)	N/A	--	--	--	N/A	CNS	3E-01	--	--	3E-01			
			Nickel	N/A	--	--	--	N/A	General Toxicity	2E-02	--	--	2E-02			
			Selenium	N/A	--	--	--	N/A	Liver	3E-02	--	--	3E-02			
			Chemical Total				6E-05	--	--	--	6E-05		1E+01	--	--	1E+01
			Radionuclide Total													
Exposure Point Total				6E-05					1E+01							

TABLE 9.13.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							6E-05					1E+01
Medium Total								6E-05					1E+01
Receptor Total								6E-05					1E+01

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

6E-05

Total Hazard Across All Media

1E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E+01
Total GI System HI =	2E-01
Total Immune System HI =	1E+01
Total Kidney HI =	4E-03
Total Liver HI =	1E-01
Total CNS HI =	3E-01
Total Skin HI =	6E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	2E-02

TABLE 9.14.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6	4-Chloro-3-methylphenol	N/A	--	--	--	N/A	Kidney	N/A	--	--	N/A
			4-Nitrophenol	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A
			Benzaldehyde	N/A	--	--	--	N/A	Kidney	6E-04	--	--	6E-04
			Benzo(a)anthracene	1E-06	--	--	--	1E-06	N/A	N/A	--	--	N/A
			Benzo(a)pyrene	1E-05	--	--	--	1E-05	N/A	N/A	--	--	N/A
			Benzo(b)fluoranthene	1E-06	--	--	--	1E-06	N/A	N/A	--	--	N/A
			bis(2-Ethylhexyl)phthalate	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A
			Dibenz(a,h)anthracene	2E-05	--	--	--	2E-05	N/A	N/A	--	--	N/A
			Hexachlorobenzene	1E-06	--	--	--	1E-06	Liver	3E-03	--	--	3E-03
			Indeno(1,2,3-cd)pyrene	2E-06	--	--	--	2E-06	N/A	N/A	--	--	N/A
			Isophorone	N/A	--	--	--	N/A	Kidney	N/A	--	--	N/A
			Total PCB Homologs	2E-05	--	--	--	2E-05	General Toxicity/Immune System	2E+00	--	--	2E+00
			4,4'-DDD	2E-08	--	--	--	2E-08	N/A	N/A	--	--	N/A
			4,4'-DDE	1E-07	--	--	--	1E-07	N/A	N/A	--	--	N/A
			4,4'-DDT	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A
			Aldrin	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A
			alpha-Chlordane	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A
			Dieldrin	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A
			Endosulfan I	N/A	--	--	--	N/A	General Toxicity/Kidney	N/A	--	--	N/A
			Endosulfan II	N/A	--	--	--	N/A	General Toxicity/Kidney	N/A	--	--	N/A
			Endosulfan Sulfate	N/A	--	--	--	N/A	General Toxicity/Kidney	7E-05	--	--	7E-05
			Gamma-Chlordane	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A
			Heptachlor	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A
			Heptachlor Epoxide	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A
			Arsenic	N/A	--	--	--	N/A	Skin	N/A	--	--	N/A
			Cadmium (other media)	N/A	--	--	--	N/A	Kidney	N/A	--	--	N/A
			Chromium	N/A	--	--	--	N/A	GI System	7E-02	--	--	7E-02
			Cobalt	N/A	--	--	--	N/A	Endocrine	9E-03	--	--	9E-03
			Iron	N/A	--	--	--	N/A	Liver/GI System	5E-03	--	--	5E-03
			Lead	N/A	--	--	--	N/A	CNS	N/A	--	--	N/A
			Mercury (other media)	N/A	--	--	--	N/A	CNS	2E+00	--	--	2E+00
			Nickel	N/A	--	--	--	N/A	General Toxicity	5E-03	--	--	5E-03
			Selenium	N/A	--	--	--	N/A	Liver	2E-02	--	--	2E-02
			Chemical Total	5E-05	--	--	--	5E-05		4E+00	--	--	4E+00
			Radionuclide Total										
			Exposure Point Total					5E-05					4E+00

TABLE 9.14.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							5E-05					4E+00
Medium Total								5E-05					4E+00
Receptor Total								5E-05					4E+00

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

5E-05

Total Hazard Across All Media

4E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E+00
Total GI System HI =	8E-02
Total Immune System HI =	2E+00
Total Kidney HI =	7E-04
Total Liver HI =	3E-02
Total CNS HI =	2E+00
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	9E-03

TABLE 9.14.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Young Child + Adult					Young Child					
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6	4-Chloro-3-methylphenol	N/A	--	--	--	N/A	Kidney	N/A	--	--	N/A	
			4-Nitrophenol	N/A	--	--	--	N/A	N/A	N/A	--	--	N/A	
			Benzaldehyde	N/A	--	--	--	N/A	Kidney	4E-04	--	--	4E-04	
			Benzo(a)anthracene	3E-07	--	--	--	3E-07	N/A	N/A	--	--	N/A	
			Benzo(a)pyrene	3E-06	--	--	--	3E-06	N/A	N/A	--	--	N/A	
			Benzo(b)fluoranthene	3E-07	--	--	--	3E-07	N/A	N/A	--	--	N/A	
			bis(2-Ethylhexyl)phthalate	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A	
			Dibenz(a,h)anthracene	3E-06	--	--	--	3E-06	N/A	N/A	--	--	N/A	
			Hexachlorobenzene	2E-07	--	--	--	2E-07	Liver	2E-03	--	--	2E-03	
			Indeno(1,2,3-cd)pyrene	3E-07	--	--	--	3E-07	N/A	N/A	--	--	N/A	
			Isophorone	N/A	--	--	--	N/A	Kidney	N/A	--	--	N/A	
			Total PCB Homologs	3E-06	--	--	--	3E-06	General Toxicity/Immune System	1E+00	--	--	1E+00	
			4,4'-DDD	3E-09	--	--	--	3E-09	N/A	N/A	--	--	N/A	
			4,4'-DDE	2E-08	--	--	--	2E-08	N/A	N/A	--	--	N/A	
			4,4'-DDT	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A	
			Aldrin	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A	
			alpha-Chlordane	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A	
			Dieldrin	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A	
			Endosulfan I	N/A	--	--	--	N/A	General Toxicity/Kidney	N/A	--	--	N/A	
			Endosulfan II	N/A	--	--	--	N/A	General Toxicity/Kidney	N/A	--	--	N/A	
			Endosulfan Sulfate	N/A	--	--	--	N/A	General Toxicity/Kidney	5E-05	--	--	5E-05	
			Gamma-Chlordane	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A	
			Heptachlor	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A	
			Heptachlor Epoxide	N/A	--	--	--	N/A	Liver	N/A	--	--	N/A	
			Arsenic	N/A	--	--	--	N/A	Skin	N/A	--	--	N/A	
			Cadmium (other media)	N/A	--	--	--	N/A	Kidney	N/A	--	--	N/A	
			Chromium	N/A	--	--	--	N/A	GI System	4E-02	--	--	4E-02	
			Cobalt	N/A	--	--	--	N/A	Endocrine	5E-03	--	--	5E-03	
			Iron	N/A	--	--	--	N/A	Liver/GI System	3E-03	--	--	3E-03	
			Lead	N/A	--	--	--	N/A	CNS	N/A	--	--	N/A	
			Mercury (other media)	N/A	--	--	--	N/A	CNS	1E+00	--	--	1E+00	
			Nickel	N/A	--	--	--	N/A	General Toxicity	3E-03	--	--	3E-03	
			Selenium	N/A	--	--	--	N/A	Liver	1E-02	--	--	1E-02	
			Chemical Total	1E-05	--	--	--	1E-05			2E+00	--	--	2E+00
			Radionuclide Total											
Exposure Point Total				1E-05					2E+00					

TABLE 9.14.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total							1E-05					2E+00
Medium Total								1E-05					2E+00
Receptor Total								1E-05					2E+00

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

1E-05

Total Hazard Across All Media

2E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E+00
Total GI System HI =	5E-02
Total Immune System HI =	1E+00
Total Kidney HI =	4E-04
Total Liver HI =	2E-02
Total CNS HI =	1E+00
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	5E-03

TABLE 9.15.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	On-site Monitoring Wells	1,4-Dioxane	1E-05	N/A	N/A	--	1E-05	Liver	5E-02	N/A	N/A	5E-02
			2,4-Dimethylphenol	N/A	N/A	N/A	--	N/A	Blood/CNS	4E-02	N/A	N/A	4E-02
			2-Chlorophenol	N/A	N/A	N/A	--	N/A	Reproductive	7E-03	N/A	N/A	7E-03
			4-Chloroaniline	5E-06	N/A	N/A	--	5E-06	Spleen	3E-02	N/A	N/A	3E-02
			Atrazine	1E-05	N/A	9E-07	--	1E-05	General Toxicity/Cardiovascular	9E-03	N/A	N/A	9E-03
			Benzaldehyde	N/A	N/A	N/A	--	N/A	Kidney	1E-03	N/A	N/A	1E-03
			Benzo(a)anthracene	1E-05	N/A	N/A	--	1E-05	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	1E-04	N/A	N/A	--	1E-04	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	1E-05	N/A	N/A	--	1E-05	N/A	N/A	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	N/A	N/A	--	N/A	Kidney	5E-04	N/A	N/A	5E-04
			bis(2-Ethylhexyl)phthalate	1E-05	N/A	2E-05	--	3E-05	Liver	2E-01	N/A	2E-01	5E-01
			Carbazole	2E-07	N/A	1E-07	--	3E-07	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	--	N/A	Kidney	7E-02	N/A	8E-02	1E-01
			Indeno(1,2,3-cd)pyrene	5E-06	N/A	N/A	--	5E-06	N/A	N/A	N/A	N/A	N/A
			Naphthalene	N/A	1E-04	N/A	--	1E-04	General Toxicity	7E-02	2E+00	3E-02	2E+00
			Phenanthrene	N/A	N/A	N/A	--	N/A	Kidney	2E-02	9E-01	N/A	1E+00
			1,2,4-Trichlorobenzene	2E-08	N/A	2E-08	--	3E-08	Endocrine	2E-03	3E-02	2E-03	3E-02
			1,2-Dichlorobenzene	N/A	N/A	N/A	--	N/A	Liver	5E-03	1E-02	2E-03	2E-02
			1,3-Dichlorobenzene	N/A	N/A	N/A	--	N/A	Endocrine	3E-03	N/A	2E-03	5E-03
			1,4-Dichlorobenzene	8E-07	2E-05	4E-07	--	2E-05	Liver	1E-02	5E-03	5E-03	2E-02
			2-Butanone	N/A	N/A	N/A	--	N/A	Developmental	2E-04	1E-04	N/A	3E-04
			Benzene	1E-03	2E-03	9E-05	--	3E-03	Immune System	3E+01	2E+01	N/A	4E+01
			Bromodichloromethane	3E-07	N/A	N/A	--	3E-07	Kidney	2E-03	N/A	N/A	2E-03
			Chlorobenzene	N/A	N/A	N/A	--	N/A	Liver/Kidney	4E-01	9E-01	1E-01	1E+00
			Chloroethane	N/A	N/A	N/A	--	N/A	CNS/Liver	2E-03	1E-04	N/A	2E-03
			Chloroform	2E-06	2E-05	N/A	--	2E-05	Liver	4E-02	2E-02	N/A	6E-02
			Ethylbenzene	3E-06	9E-06	2E-06	--	1E-05	Liver/Kidney	2E-02	8E-03	6E-03	3E-02
			Isopropylbenzene	N/A	N/A	N/A	--	N/A	Kidney	2E-01	2E-01	9E-02	4E-01
			Methyl tert-butyl ether	7E-07	1E-06	N/A	--	2E-06	Liver	7E-03	3E-03	N/A	1E-02
			Tetrachloroethene	2E-05	3E-06	1E-05	--	4E-05	Liver	2E-02	4E-03	9E-03	4E-02
			Toluene	N/A	N/A	N/A	--	N/A	Kidney	6E-03	5E-04	1E-03	8E-03
			Trichloroethene	9E-07	2E-06	8E-08	--	3E-06	N/A	N/A	2E-01	N/A	2E-01
			Vinyl Chloride	1E-04	1E-06	N/A	--	1E-04	Liver	4E-02	6E-03	N/A	4E-02
			Xylene (Total)	N/A	N/A	N/A	--	N/A	General Toxicity	2E-02	2E-01	1E-02	3E-01
			Aroclor-1242	1E-05	N/A	N/A	--	1E-05	General Toxicity/Immune System	2E+00	N/A	N/A	2E+00
			Aroclor-1248	6E-06	N/A	N/A	--	6E-06	General Toxicity/Immune System	9E-01	N/A	N/A	9E-01
			Aroclor-1254	2E-05	N/A	N/A	--	2E-05	General Toxicity/Immune System	3E+00	N/A	N/A	3E+00
			4,4'-DDD	3E-08	N/A	N/A	--	3E-08	N/A	N/A	N/A	N/A	N/A
			4,4'-DDE	3E-08	N/A	N/A	--	3E-08	N/A	N/A	N/A	N/A	N/A

TABLE 9.15.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child					
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total	
			4,4'-DDT	2E-08	N/A	N/A	--	2E-08	Liver	7E-04	N/A	N/A	7E-04	
			Aldrin	2E-06	N/A	N/A	--	2E-06	Liver	2E-02	N/A	N/A	2E-02	
			alpha-BHC	4E-07	N/A	2E-07	--	5E-07	Liver	4E-05	N/A	1E-05	6E-05	
			Dieldrin	2E-06	N/A	1E-06	--	4E-06	Liver	2E-02	N/A	7E-03	2E-02	
			Endosulfan Sulfate	N/A	N/A	N/A	--	N/A	General Toxicity/Kidney	1E-04	N/A	N/A	1E-04	
			Gamma-BHC (Lindane)	3E-07	N/A	1E-07	--	4E-07	Liver/Kidney	5E-03	N/A	1E-03	6E-03	
			Heptachlor	4E-07	N/A	1E-07	--	5E-07	Liver	9E-04	N/A	3E-04	1E-03	
			Aluminum	N/A	N/A	N/A	--	N/A	Developmental	1E+00	N/A	6E-01	2E+00	
			Arsenic	3E-03	N/A	N/A	--	3E-03	Skin	4E+01	N/A	N/A	4E+01	
			Cadmium (drinking water)	N/A	N/A	N/A	--	N/A	Kidney	5E+00	N/A	5E-01	6E+00	
			Chromium	N/A	N/A	N/A	--	N/A	GI System	4E-01	N/A	2E-01	6E-01	
			Cobalt	N/A	N/A	N/A	--	N/A	Endocrine	1E+01	N/A	N/A	1E+01	
			Iron	N/A	N/A	N/A	--	N/A	Liver/GI System	1E+01	N/A	N/A	1E+01	
			Lead	N/A	N/A	N/A	--	N/A	CNS	N/A	N/A	N/A	N/A	
			Manganese (drinking water)	N/A	N/A	N/A	--	N/A	CNS	2E+01	N/A	N/A	2E+01	
			Nickel	N/A	N/A	N/A	--	N/A	General Toxicity	4E-01	N/A	N/A	4E-01	
			Silver	N/A	N/A	N/A	--	N/A	Skin	3E-01	N/A	N/A	3E-01	
			Thallium	N/A	N/A	N/A	--	N/A	Blood	1E+01	N/A	N/A	1E+01	
			Zinc	N/A	N/A	N/A	--	N/A	Blood	1E+00	N/A	N/A	1E+00	
			Chemical Total	5E-03	2E-03	1E-04	--	7E-03		1E+02	2E+01	2E+00	2E+02	
			Radionuclide Total											
			Exposure Point Total									2E+02		
	Exposure Medium Total									2E+02				
Medium Total									2E+02					
Receptor Total									2E+02					

TABLE 9.15.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media

7E-03

Total Hazard Across All Media

2E+02

Total Blood HI =	1E+01
Total Cardiovascular HI =	9E-03
Total Reproductive HI =	7E-03
Total General Toxicity HI =	8E+00
Total GI System HI =	1E+01
Total Immune System HI =	5E+01
Total Kidney HI =	9E+00
Total Liver HI =	1E+01
Total CNS HI =	2E+01
Total Skin HI =	4E+01
Total Spleen HI =	3E-02
Total Respiratory HI =	N/A
Total Developmental HI =	2E+00
Total Endocrine HI =	1E+01

TABLE 9.15.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	On-site Monitoring Wells	1,4-Dioxane	2E-07	N/A	N/A	--	2E-07	Liver	3E-03	N/A	N/A	3E-03
			2,4-Dimethylphenol	N/A	N/A	N/A	--	N/A	Blood/CNS	6E-03	N/A	N/A	6E-03
			2-Chlorophenol	N/A	N/A	N/A	--	N/A	Reproductive	4E-03	N/A	N/A	4E-03
			4-Chloroaniline	1E-06	N/A	N/A	--	1E-06	Spleen	2E-02	N/A	N/A	2E-02
			Atrazine	1E-06	N/A	N/A	--	1E-06	General Toxicity/Cardiovascular	3E-03	N/A	N/A	3E-03
			Benzaldehyde	N/A	N/A	N/A	--	N/A	Kidney	6E-04	N/A	N/A	6E-04
			Benzo(a)anthracene	3E-07	N/A	N/A	--	3E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	3E-06	N/A	N/A	--	3E-06	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	3E-07	N/A	N/A	--	3E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	N/A	N/A	--	N/A	Kidney	3E-04	N/A	N/A	3E-04
			bis(2-Ethylhexyl)phthalate	1E-07	N/A	1E-07	--	3E-07	Liver	7E-03	N/A	6E-03	1E-02
			Carbazole	2E-08	N/A	1E-08	--	3E-08	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	--	N/A	Kidney	3E-02	N/A	3E-02	6E-02
			Indeno(1,2,3-cd)pyrene	3E-07	N/A	N/A	--	3E-07	N/A	N/A	N/A	N/A	N/A
			Naphthalene	N/A	5E-07	N/A	--	5E-07	General Toxicity	6E-04	3E-02	3E-04	4E-02
			Phenanthrene	N/A	N/A	N/A	--	N/A	Kidney	2E-04	2E-02	N/A	2E-02
			1,2,4-Trichlorobenzene	3E-09	N/A	3E-09	--	6E-09	Endocrine	1E-03	3E-02	1E-03	3E-02
			1,2-Dichlorobenzene	N/A	N/A	N/A	--	N/A	Liver	2E-04	1E-03	1E-04	1E-03
			1,3-Dichlorobenzene	N/A	N/A	N/A	--	N/A	Endocrine	8E-04	N/A	4E-04	1E-03
			1,4-Dichlorobenzene	2E-08	6E-07	9E-09	--	7E-07	Liver	7E-04	6E-04	3E-04	2E-03
			2-Butanone	N/A	N/A	N/A	--	N/A	Developmental	1E-04	1E-04	N/A	2E-04
			Benzene	4E-06	1E-05	N/A	--	1E-05	Immune System	3E-01	4E-01	N/A	7E-01
			Bromodichloromethane	6E-08	N/A	N/A	--	6E-08	Kidney	8E-04	N/A	N/A	8E-04
			Chlorobenzene	N/A	N/A	N/A	--	N/A	Liver/Kidney	2E-02	5E-02	N/A	7E-02
			Chloroethane	N/A	N/A	N/A	--	N/A	CNS/Liver	2E-04	2E-05	N/A	2E-04
			Chloroform	5E-08	7E-07	N/A	--	7E-07	Liver	3E-03	2E-03	N/A	5E-03
			Ethylbenzene	2E-08	7E-08	8E-09	--	9E-08	Liver/Kidney	2E-04	2E-04	9E-05	6E-04
			Isopropylbenzene	N/A	N/A	N/A	--	N/A	Kidney	2E-03	4E-03	1E-03	7E-03
			Methyl tert-butyl ether	3E-09	9E-09	N/A	--	1E-08	Liver	1E-04	9E-05	N/A	2E-04
			Tetrachloroethene	6E-07	1E-07	3E-07	--	1E-06	Liver	2E-03	5E-04	6E-04	3E-03
			Toluene	N/A	N/A	N/A	--	N/A	Kidney	2E-04	3E-05	N/A	3E-04
			Trichloroethene	2E-08	4E-08	1E-09	--	6E-08	N/A	N/A	2E-02	N/A	2E-02
			Vinyl Chloride	1E-05	1E-07	N/A	--	1E-05	Liver	5E-03	1E-03	N/A	7E-03
			Xylene (Total)	N/A	N/A	N/A	--	N/A	General Toxicity	5E-04	9E-03	2E-04	1E-02
			Aroclor-1242	2E-07	N/A	N/A	--	2E-07	General Toxicity/Immune System	1E-01	N/A	N/A	1E-01
			Aroclor-1248	2E-07	N/A	N/A	--	2E-07	General Toxicity/Immune System	1E-01	N/A	N/A	1E-01
			Aroclor-1254	2E-07	N/A	N/A	--	2E-07	General Toxicity/Immune System	2E-01	N/A	N/A	2E-01
			4,4'-DDD	2E-09	N/A	N/A	--	2E-09	N/A	N/A	N/A	N/A	N/A
			4,4'-DDE	3E-09	N/A	N/A	--	3E-09	N/A	N/A	N/A	N/A	N/A

TABLE 9.15.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child					
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total	
			4,4'-DDT	3E-09	N/A	N/A	--	3E-09	Liver	3E-04	N/A	N/A	3E-04	
			Aldrin	1E-07	N/A	N/A	--	1E-07	Liver	3E-03	N/A	N/A	3E-03	
			alpha-BHC	4E-08	N/A	2E-08	--	5E-08	Liver	1E-05	N/A	4E-06	2E-05	
			Dieldrin	2E-07	N/A	9E-08	--	2E-07	Liver	3E-03	N/A	1E-03	4E-03	
			Endosulfan Sulfate	N/A	N/A	N/A	--	N/A	General Toxicity/Kidney	2E-05	N/A	N/A	2E-05	
			Gamma-BHC (Lindane)	8E-09	N/A	2E-09	--	1E-08	Liver/Kidney	4E-04	N/A	9E-05	5E-04	
			Heptachlor	3E-08	N/A	1E-08	--	4E-08	Liver	2E-04	N/A	6E-05	3E-04	
			Aluminum	N/A	N/A	N/A	--	N/A	Developmental	2E-02	N/A	4E-03	2E-02	
			Arsenic	8E-05	N/A	N/A	--	8E-05	Skin	3E+00	N/A	N/A	3E+00	
			Cadmium (drinking water)	N/A	N/A	N/A	--	N/A	Kidney	1E-01	N/A	6E-03	1E-01	
			Chromium	N/A	N/A	N/A	--	N/A	GI System	3E-02	N/A	5E-03	3E-02	
			Cobalt	N/A	N/A	N/A	--	N/A	Endocrine	3E+00	N/A	N/A	3E+00	
			Iron	N/A	N/A	N/A	--	N/A	Liver/GI System	1E+00	N/A	N/A	1E+00	
			Lead	N/A	N/A	N/A	--	N/A	CNS	N/A	N/A	N/A	N/A	
			Manganese (drinking water)	N/A	N/A	N/A	--	N/A	CNS	2E+00	N/A	N/A	2E+00	
			Nickel	N/A	N/A	N/A	--	N/A	General Toxicity	4E-02	N/A	N/A	4E-02	
			Silver	N/A	N/A	N/A	--	N/A	Skin	3E-02	N/A	N/A	3E-02	
			Thallium	N/A	N/A	N/A	--	N/A	Blood	1E+00	N/A	N/A	1E+00	
			Zinc	N/A	N/A	N/A	--	N/A	Blood	2E-02	N/A	N/A	2E-02	
			Chemical Total	1E-04	1E-05	6E-07	--	1E-04		1E+01	5E-01	6E-02	1E+01	
			Radionuclide Total											
		Exposure Point Total									1E+01			
	Exposure Medium Total									1E+01				
Medium Total									1E+01					
Receptor Total									1E+01					

TABLE 9.15.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media

1E-04

Total Hazard Across All Media

1E+01

Total Blood HI =	1E+00
Total Cardiovascular HI =	3E-03
Total Reproductive HI =	4E-03
Total General Toxicity HI =	5E-01
Total GI System HI =	1E+00
Total Immune System HI =	1E+00
Total Kidney HI =	3E-01
Total Liver HI =	1E+00
Total CNS HI =	2E+00
Total Skin HI =	3E+00
Total Spleen HI =	2E-02
Total Respiratory HI =	N/A
Total Developmental HI =	2E-02
Total Endocrine HI =	3E+00

TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank	Benzo(a)anthracene	6E-07	--	5E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	6E-06	--	5E-06	--	1E-05	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	8E-07	--	8E-07	--	2E-06	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	3E-08	--	2E-08	--	5E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-08	--	1E-08	--	4E-08	Liver	4E-04	--	3E-04	7E-04
			Carbazole	1E-09	--	8E-10	--	2E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-06	--	1E-06	--	2E-06	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	2E-05	3E-05
			Indeno(1,2,3-cd)pyrene	4E-07	--	3E-07	--	7E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	7E-05	--	7E-05	1E-04
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	2E-07	--	2E-07	--	4E-07	General Toxicity/Immune System	2E-02	--	3E-02	5E-02
			Dieldrin	2E-06	--	9E-07	--	3E-06	Liver	8E-03	--	7E-03	2E-02
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	7E-03	--	N/A	7E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	4E-06	--	7E-07	--	5E-06	Skin	4E-02	--	9E-03	4E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	7E-03	--	3E-03	1E-02
			Chromium	N/A	--	N/A	--	N/A	GI System	4E-02	--	N/A	4E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	N/A	--	N/A	N/A
			Copper	N/A	--	N/A	--	N/A	GI System	4E-03	--	N/A	4E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-02	--	N/A	1E-02
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	4E-03	--	N/A	4E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-02	--	N/A	2E-02
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-03	--	N/A	3E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	8E-04	--	N/A	8E-04
			Chemical Total	2E-05	--	1E-05	--	3E-05		2E-01	--	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						3E-05					2E-01
	Exposure Medium Total							3E-05					2E-01
Medium Total								3E-05					2E-01
Surface Water	Surface Water	Southern Bank (wading)	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A			
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A			
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A			
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Dieldrin	--	--	3E-08	--	3E-08	Liver	--	--	8E-05	8E-05			
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Heptachlor Epoxide	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	1E-03	1E-03			
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A			
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			Chromium	--	--	N/A	--	N/A	GI System	--	--	2E-03	2E-03			
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A			
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A			
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A			
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A			
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A			
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A			
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A			
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			Chemical Total				--	--	3E-08	--	3E-08		--	--	3E-03	3E-03
			Radionuclide Total													
		Exposure Point Total				3E-08					3E-03					
	Exposure Medium Total				3E-08					3E-03						
Medium Total				3E-08					3E-03							
Sediment	Sediment	Southern Bank	Benzo(a)anthracene	2E-07	--	4E-07	--	5E-07	N/A	N/A	--	N/A	N/A			

TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-06	--	2E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	6E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-09	--	7E-09	--	1E-08	Liver	5E-05	--	7E-05	1E-04
			Carbazole	6E-10	--	2E-09	--	2E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	--	3E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	6E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	3E-05	--	5E-05	9E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	2E-08	--	4E-08	--	6E-08	General Toxicity/Immune System	2E-03	--	3E-03	4E-03
			Aroclor-1260	3E-08	--	9E-08	--	1E-07	General Toxicity/Immune System	3E-03	--	6E-03	9E-03
			Dieldrin	2E-08	--	4E-08	--	6E-08	Liver	1E-04	--	1E-04	2E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	5E-04	--	N/A	5E-04
			Arsenic	8E-07	--	4E-07	--	1E-06	Skin	7E-03	--	3E-03	9E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	1E-03	--	7E-04	2E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	6E-03	--	N/A	6E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	7E-03	--	N/A	7E-03
			Copper	N/A	--	N/A	--	N/A	GI System	6E-04	--	N/A	6E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	5E-03	--	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	6E-04	--	N/A	6E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-03	--	N/A	1E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	6E-04	--	N/A	6E-04
			Chemical Total	2E-06	--	4E-06	--	7E-06		4E-02	--	1E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						7E-06					5E-02
	Exposure Medium Total							7E-06					5E-02
Medium Total								7E-06					5E-02
Receptor Total								3E-05					3E-01

TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

3E-05

Total Hazard Across All Media

3E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	8E-02
Total Immune System HI =	6E-02
Total Kidney HI =	2E-02
Total Liver HI =	5E-02
Total CNS HI =	2E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	7E-03

TABLE 9.16.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank	Benzo(a)anthracene	1E-07	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-06	--	2E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	6E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	--	1E-09	--	3E-09	Liver	2E-05	--	3E-05	5E-05
			Carbazole	3E-10	--	4E-10	--	6E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	--	4E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	4E-06	--	8E-06	1E-05
			Indeno(1,2,3-cd)pyrene	6E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-05	--	3E-05	4E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	1E-08	--	2E-08	--	4E-08	General Toxicity/Immune System	3E-03	--	8E-03	1E-02
			Dieldrin	1E-07	--	1E-07	--	2E-07	Liver	6E-04	--	1E-03	2E-03
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	7E-07	--	2E-07	--	9E-07	Skin	7E-03	--	4E-03	1E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	1E-03	--	7E-04	2E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	8E-03	--	N/A	8E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	N/A	--	N/A	N/A
			Copper	N/A	--	N/A	--	N/A	GI System	8E-04	--	N/A	8E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	5E-03	--	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	8E-04	--	N/A	8E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-03	--	N/A	3E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	6E-04	--	N/A	6E-04
			Zinc	N/A	--	N/A	--	N/A	Blood	1E-04	--	N/A	1E-04
			Chemical Total	2E-06	--	3E-06	--	6E-06		3E-02	--	1E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						6E-06					5E-02
	Exposure Medium Total							6E-06					5E-02
Medium Total								6E-06					5E-02
Surface Water	Surface Water	Southern Bank (wading)	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.16.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			bis(2-Ethylhexyl)phthalate	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A		
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A		
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A		
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Dieldrin	--	--	1E-08	--	1E-08	Liver	--	--	4E-05	4E-05		
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Heptachlor Epoxide	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	6E-04	6E-04		
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A		
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Chromium	--	--	N/A	--	N/A	GI System	--	--	8E-04	8E-04		
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A		
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A		
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A		
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A		
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A		
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A		
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A		
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
					Chemical Total	--	--	1E-08	--	1E-08		--	--	1E-03	1E-03
					Radionuclide Total										
				Exposure Point Total						1E-08					1E-03
		Exposure Medium Total							1E-08					1E-03	
Medium Total								1E-08					1E-03		
Sediment	Sediment	Southern Bank	Benzo(a)anthracene	4E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A		

TABLE 9.16.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	3E-07	--	1E-06	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	3E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	1E-09	--	6E-09	--	7E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	8E-10	--	3E-09	--	4E-09	Liver	1E-05	--	3E-05	5E-05
			Carbazole	1E-10	--	7E-10	--	8E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	4E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	4E-06	--	1E-05	1E-05
			Indeno(1,2,3-cd)pyrene	1E-08	--	6E-08	--	7E-08	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	8E-06	--	3E-05	4E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	2E-09	--	9E-09	--	1E-08	General Toxicity/Immune System	4E-04	--	1E-03	2E-03
			Aroclor-1260	4E-09	--	2E-08	--	2E-08	General Toxicity/Immune System	8E-04	--	3E-03	4E-03
			Dieldrin	5E-09	--	2E-08	--	2E-08	Liver	3E-05	--	7E-05	1E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	5E-04	--	N/A	5E-04
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	1E-04	--	N/A	1E-04
			Arsenic	2E-07	--	2E-07	--	4E-07	Skin	2E-03	--	1E-03	3E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	3E-04	--	3E-04	7E-04
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03
			Copper	N/A	--	N/A	--	N/A	GI System	1E-04	--	N/A	1E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-03	--	N/A	1E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	3E-04	--	N/A	3E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-04	--	N/A	2E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	4E-04	--	N/A	4E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-04	--	N/A	2E-04
			Chemical Total	6E-07	--	2E-06	--	2E-06		1E-02	--	6E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Receptor Total								8E-06					6E-02

TABLE 9.16.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

8E-06

Total Hazard Across All Media

6E-02

Total Blood HI =	4E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-02
Total GI System HI =	2E-02
Total Immune System HI =	2E-02
Total Kidney HI =	3E-03
Total Liver HI =	8E-03
Total CNS HI =	3E-03
Total Skin HI =	1E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-03
Total Endocrine HI =	2E-03

TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank	Benzo(a)anthracene	6E-07	--	5E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	6E-06	--	5E-06	--	1E-05	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	8E-07	--	8E-07	--	2E-06	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	3E-08	--	2E-08	--	5E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-08	--	1E-08	--	4E-08	Liver	4E-04	--	3E-04	7E-04
			Carbazole	1E-09	--	8E-10	--	2E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-06	--	1E-06	--	2E-06	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	2E-05	3E-05
			Indeno(1,2,3-cd)pyrene	4E-07	--	3E-07	--	7E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	7E-05	--	7E-05	1E-04
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	2E-07	--	2E-07	--	4E-07	General Toxicity/Immune System	2E-02	--	3E-02	5E-02
			Dieldrin	2E-06	--	9E-07	--	3E-06	Liver	8E-03	--	7E-03	2E-02
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	7E-03	--	N/A	7E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	4E-06	--	7E-07	--	5E-06	Skin	4E-02	--	9E-03	4E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	7E-03	--	3E-03	1E-02
			Chromium	N/A	--	N/A	--	N/A	GI System	4E-02	--	N/A	4E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	N/A	--	N/A	N/A
			Copper	N/A	--	N/A	--	N/A	GI System	4E-03	--	N/A	4E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-02	--	N/A	1E-02
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	4E-03	--	N/A	4E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-02	--	N/A	2E-02
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-03	--	N/A	3E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	8E-04	--	N/A	8E-04
			Chemical Total	2E-05	--	1E-05	--	3E-05		2E-01	--	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						3E-05					2E-01
	Exposure Medium Total							3E-05					2E-01
Medium Total								3E-05					2E-01
Surface Water	Surface Water	Southern Bank (swimming)	Benzo(a)anthracene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	7E-08	--	N/A	--	7E-08	N/A	N/A	--	N/A	N/A

TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
			Benzo(b)fluoranthene	6E-09	--	N/A	--	6E-09	N/A	N/A	--	N/A	N/A			
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Chrysene	5E-11	--	N/A	--	5E-11	N/A	N/A	--	N/A	N/A			
			Indeno(1,2,3-cd)pyrene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	5E-07	--	N/A	5E-07			
			1,4-Dichlorobenzene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Benzene	N/A	--	N/A	--	N/A	Immune System	N/A	--	N/A	N/A			
			Aroclor-1260	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A			
			4,4'-DDD	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			4,4'-DDE	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			4,4'-DDT	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			alpha-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			beta-BHC	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Dieldrin	1E-09	--	4E-08	--	4E-08	Liver	6E-06	--	1E-04	1E-04			
			Gamma-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Heptachlor Epoxide	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	8E-03	--	2E-03	1E-02			
			Arsenic	8E-08	--	N/A	--	8E-08	Skin	7E-04	--	N/A	7E-04			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	3E-03	--	7E-04	4E-03			
			Chromium	N/A	--	N/A	--	N/A	GI System	6E-03	--	2E-03	8E-03			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	3E-04	--	N/A	3E-04			
			Copper	N/A	--	N/A	--	N/A	GI System	N/A	--	N/A	N/A			
			Cyanide	N/A	--	N/A	--	N/A	Endocrine/CNS	3E-05	--	N/A	3E-05			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	4E-04	--	N/A	4E-04			
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A			
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	8E-04	--	N/A	8E-04			
			Mercury (water)	N/A	--	N/A	--	N/A	Immune System	N/A	--	N/A	N/A			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	9E-04	--	2E-04	1E-03			
						Chemical Total	2E-07	--	4E-08	--	2E-07		2E-02	--	5E-03	3E-02
					Radionuclide Total											
			Exposure Point Total							2E-07					3E-02	
	Exposure Medium Total								2E-07					3E-02		
Medium Total										2E-07					3E-02	
Sediment	Sediment	Southern Bank	Benzo(a)anthracene	2E-07	--	4E-07	--	5E-07	N/A	N/A	--	N/A	N/A			

TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-06	--	2E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	6E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-09	--	7E-09	--	1E-08	Liver	5E-05	--	7E-05	1E-04
			Carbazole	6E-10	--	2E-09	--	2E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	--	3E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	6E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	3E-05	--	5E-05	9E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	2E-08	--	4E-08	--	6E-08	General Toxicity/Immune System	2E-03	--	3E-03	4E-03
			Aroclor-1260	3E-08	--	9E-08	--	1E-07	General Toxicity/Immune System	3E-03	--	6E-03	9E-03
			Dieldrin	2E-08	--	4E-08	--	6E-08	Liver	1E-04	--	1E-04	2E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	5E-04	--	N/A	5E-04
			Arsenic	8E-07	--	4E-07	--	1E-06	Skin	7E-03	--	3E-03	9E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	1E-03	--	7E-04	2E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	6E-03	--	N/A	6E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	7E-03	--	N/A	7E-03
			Copper	N/A	--	N/A	--	N/A	GI System	6E-04	--	N/A	6E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	5E-03	--	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	6E-04	--	N/A	6E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-03	--	N/A	1E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	6E-04	--	N/A	6E-04
			Chemical Total	2E-06	--	4E-06	--	7E-06		4E-02	--	1E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						7E-06					5E-02
	Exposure Medium Total							7E-06					5E-02
Medium Total								7E-06					5E-02
Receptor Total								3E-05					3E-01

TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

3E-05

Total Hazard Across All Media

3E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	9E-02
Total Immune System HI =	6E-02
Total Kidney HI =	2E-02
Total Liver HI =	5E-02
Total CNS HI =	2E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-02
Total Endocrine HI =	8E-03

TABLE 9.17.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank	Benzo(a)anthracene	1E-07	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-06	--	2E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	6E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	--	1E-09	--	3E-09	Liver	2E-05	--	3E-05	5E-05
			Carbazole	3E-10	--	4E-10	--	6E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-07	--	4E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	4E-06	--	8E-06	1E-05
			Indeno(1,2,3-cd)pyrene	6E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-05	--	3E-05	4E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	1E-08	--	2E-08	--	4E-08	General Toxicity/Immune System	3E-03	--	8E-03	1E-02
			Dieldrin	1E-07	--	1E-07	--	2E-07	Liver	6E-04	--	1E-03	2E-03
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	7E-07	--	2E-07	--	9E-07	Skin	7E-03	--	4E-03	1E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	1E-03	--	7E-04	2E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	8E-03	--	N/A	8E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	N/A	--	N/A	N/A
			Copper	N/A	--	N/A	--	N/A	GI System	8E-04	--	N/A	8E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	5E-03	--	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	8E-04	--	N/A	8E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-03	--	N/A	3E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	6E-04	--	N/A	6E-04
			Zinc	N/A	--	N/A	--	N/A	Blood	1E-04	--	N/A	1E-04
			Chemical Total	2E-06	--	3E-06	--	6E-06		3E-02	--	1E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						6E-06					5E-02
	Exposure Medium Total							6E-06					5E-02
Medium Total								6E-06					5E-02
Surface Water	Surface Water	Southern Bank (swimming)	Benzo(a)anthracene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	3E-08	--	N/A	--	3E-08	N/A	N/A	--	N/A	N/A

TABLE 9.17.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
			Benzo(b)fluoranthene	3E-09	--	N/A	--	3E-09	N/A	N/A	--	N/A	N/A			
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Chrysene	3E-11	--	N/A	--	3E-11	N/A	N/A	--	N/A	N/A			
			Indeno(1,2,3-cd)pyrene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-07	--	N/A	2E-07			
			1,4-Dichlorobenzene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Benzene	N/A	--	N/A	--	N/A	Immune System	N/A	--	N/A	N/A			
			Aroclor-1260	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A			
			4,4'-DDD	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			4,4'-DDE	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			4,4'-DDT	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			alpha-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			beta-BHC	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Dieldrin	5E-10	--	2E-08	--	2E-08	Liver	3E-06	--	7E-05	7E-05			
			Gamma-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Heptachlor Epoxide	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	4E-03	--	9E-04	5E-03			
			Arsenic	4E-08	--	N/A	--	4E-08	Skin	4E-04	--	N/A	4E-04			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	4E-04	2E-03			
			Chromium	N/A	--	N/A	--	N/A	GI System	3E-03	--	1E-03	4E-03			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-04	--	N/A	2E-04			
			Copper	N/A	--	N/A	--	N/A	GI System	N/A	--	N/A	N/A			
			Cyanide	N/A	--	N/A	--	N/A	Endocrine/CNS	1E-05	--	N/A	1E-05			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-04	--	N/A	2E-04			
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A			
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	4E-04	--	N/A	4E-04			
			Mercury (water)	N/A	--	N/A	--	N/A	Immune System	N/A	--	N/A	N/A			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	5E-04	--	1E-04	6E-04			
			Chemical Total				7E-08	--	2E-08	--	9E-08		1E-02	--	3E-03	1E-02
			Radionuclide Total													
		Exposure Point Total				9E-08					1E-02					
	Exposure Medium Total				9E-08					1E-02						
Medium Total				9E-08					1E-02							
Sediment	Sediment	Southern Bank	Benzo(a)anthracene	4E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A			

TABLE 9.17.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	3E-07	--	1E-06	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	3E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	1E-09	--	6E-09	--	7E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	8E-10	--	3E-09	--	4E-09	Liver	1E-05	--	3E-05	5E-05
			Carbazole	1E-10	--	7E-10	--	8E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	4E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	4E-06	--	1E-05	1E-05
			Indeno(1,2,3-cd)pyrene	1E-08	--	6E-08	--	7E-08	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	8E-06	--	3E-05	4E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	2E-09	--	9E-09	--	1E-08	General Toxicity/Immune System	4E-04	--	1E-03	2E-03
			Aroclor-1260	4E-09	--	2E-08	--	2E-08	General Toxicity/Immune System	8E-04	--	3E-03	4E-03
			Dieldrin	5E-09	--	2E-08	--	2E-08	Liver	3E-05	--	7E-05	1E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	5E-04	--	N/A	5E-04
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	1E-04	--	N/A	1E-04
			Arsenic	2E-07	--	2E-07	--	4E-07	Skin	2E-03	--	1E-03	3E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	3E-04	--	3E-04	7E-04
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03
			Copper	N/A	--	N/A	--	N/A	GI System	1E-04	--	N/A	1E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-03	--	N/A	1E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	3E-04	--	N/A	3E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-04	--	N/A	2E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	4E-04	--	N/A	4E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-04	--	N/A	2E-04
			Chemical Total	6E-07	--	2E-06	--	2E-06		1E-02	--	6E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Receptor Total								8E-06					7E-02

TABLE 9.17.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

8E-06

Total Hazard Across All Media

7E-02

Total Blood HI =	4E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-02
Total GI System HI =	2E-02
Total Immune System HI =	2E-02
Total Kidney HI =	6E-03
Total Liver HI =	8E-03
Total CNS HI =	3E-03
Total Skin HI =	1E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	7E-03
Total Endocrine HI =	2E-03

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Landfill	Benzo(a)anthracene	5E-07	--	4E-07	--	9E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	9E-06	--	8E-06	--	2E-05	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	6E-07	--	5E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	2E-08	--	2E-08	--	4E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-09	--	4E-09	--	1E-08	Liver	9E-05	--	8E-05	2E-04
			Carbazole	9E-10	--	7E-10	--	2E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	8E-07	--	8E-07	--	2E-06	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	3E-05	--	2E-05	5E-05
			Indeno(1,2,3-cd)pyrene	3E-07	--	2E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-04	--	2E-04	4E-04
			Aroclor-1248	3E-06	--	2E-06	--	5E-06	General Toxicity/Immune System	3E-01	--	3E-01	6E-01
			Aroclor-1254	2E-07	--	2E-07	--	4E-07	General Toxicity/Immune System	2E-02	--	3E-02	5E-02
			Aroclor-1260	8E-08	--	6E-08	--	1E-07	General Toxicity/Immune System	7E-03	--	9E-03	2E-02
			Dieldrin	7E-08	--	4E-08	--	1E-07	Liver	3E-04	--	3E-04	6E-04
			Dioxin TEQ	2E-06	--	3E-07	--	2E-06	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	7E-03	--	N/A	7E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	5E-06	--	8E-07	--	6E-06	Skin	4E-02	--	1E-02	5E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	9E-03	--	3E-03	1E-02
			Chromium	N/A	--	N/A	--	N/A	GI System	3E-02	--	N/A	3E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02
			Copper	N/A	--	N/A	--	N/A	GI System	4E-03	--	N/A	4E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-02	--	N/A	3E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	8E-03	--	N/A	8E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	4E-03	--	N/A	4E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-02	--	N/A	1E-02
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-03	--	N/A	3E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03
			Chemical Total	2E-05	--	1E-05	--	3E-05		4E-01	--	4E-01	8E-01
			Radionuclide Total										
		Exposure Point Total						3E-05					8E-01
	Exposure Medium Total							3E-05					8E-01
Medium Total								3E-05					8E-01
Surface Water	Surface Water	Adjacent to Landfill (wading)	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A			
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			1,4-Dichlorobenzene	--	--	2E-09	--	2E-09	Liver	--	--	1E-05	1E-05			
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A			
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A			
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Dieldrin	--	--	2E-07	--	2E-07	Liver	--	--	5E-04	5E-04			
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A			
			Heptachlor Epoxide	--	--	5E-08	--	5E-08	Liver	--	--	1E-03	1E-03			
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	3E-02	3E-02			
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A			
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			Chromium	--	--	N/A	--	N/A	GI System	--	--	1E-01	1E-01			
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A			
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A			
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A			
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A			
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A			
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A			
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A			
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A			
			Chemical Total				--	--	2E-07	--	2E-07		--	--	1E-01	1E-01
			Radionuclide Total													
		Exposure Point Total				2E-07					1E-01					
	Exposure Medium Total				2E-07					1E-01						
Medium Total				2E-07					1E-01							
Sediment	Sediment	Adjacent to Landfill	Benzo(a)anthracene	2E-07	--	3E-07	--	5E-07	N/A	N/A	--	N/A	N/A			

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	2E-06	--	4E-06	--	6E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-07	--	4E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	1E-08	--	2E-08	--	3E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-08	--	6E-08	--	9E-08	Liver	5E-04	--	6E-04	1E-03
			Carbazole	5E-10	--	1E-09	--	2E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	3E-07	--	5E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	8E-08	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	3E-05	--	5E-05	7E-05
			Aroclor-1242	5E-08	--	1E-07	--	2E-07	General Toxicity/Immune System	5E-03	--	9E-03	1E-02
			Aroclor-1254	7E-08	--	2E-07	--	2E-07	General Toxicity/Immune System	6E-03	--	1E-02	2E-02
			Aroclor-1260	3E-08	--	7E-08	--	9E-08	General Toxicity/Immune System	2E-03	--	4E-03	7E-03
			Dieldrin	3E-08	--	5E-08	--	8E-08	Liver	1E-04	--	2E-04	3E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	4E-03	--	N/A	4E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	2E-03	--	N/A	2E-03
			Arsenic	6E-06	--	3E-06	--	1E-05	Skin	5E-02	--	2E-02	7E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	4E-03	--	2E-03	6E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	7E-03	--	N/A	7E-03
			Copper	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-02	--	N/A	1E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	4E-03	--	N/A	4E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-03	--	N/A	1E-03
			Chemical Total	9E-06	--	1E-05	--	2E-05		1E-01	--	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					2E-01
	Exposure Medium Total							2E-05					2E-01
Medium Total								2E-05					2E-01
Leachate	Leachate	Landfill	4-Methylphenol	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Acenaphthylene	--	--	N/A	--	N/A	Liver	--	--	7E-07	7E-07
			Atrazine	--	--	N/A	--	N/A	General Toxicity/Cardiovascular	--	--	N/A	N/A
			Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Older Child + Adult					Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	1E-08	--	1E-08	Liver	--	--	9E-05	9E-05
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Dibenz(a,h)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Dibenzofuran	--	--	N/A	--	N/A	Kidney	--	--	3E-04	3E-04
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	1E-05	1E-05
			N-Nitrosodiphenylamine	--	--	2E-09	--	2E-09	N/A	--	--	N/A	N/A
			Pentachlorophenol	--	--	N/A	--	N/A	Liver/Kidney	--	--	N/A	N/A
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	4E-09	--	4E-09	Liver	--	--	3E-05	3E-05
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Chlorobenzene	--	--	N/A	--	N/A	Liver/Kidney	--	--	N/A	N/A
			Ethylbenzene	--	--	4E-09	--	4E-09	Liver/Kidney	--	--	1E-05	1E-05
			Xylene (total)	--	--	N/A	--	N/A	General Toxicity	--	--	1E-05	1E-05
			Total PCBs	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-BHC	--	--	5E-09	--	5E-09	Liver	--	--	N/A	N/A
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	1E-04	1E-04
			Antimony	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Barium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Beryllium	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chromium	--	--	N/A	--	N/A	GI System	--	--	6E-04	6E-04
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Nickel	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Silver	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A		
			Thallium	--	--	N/A	--	N/A	Blood	--	--	N/A	N/A		
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Zinc	--	--	N/A	--	N/A	Blood	--	--	N/A	N/A		
			Chemical Total	--	--	2E-08	--	2E-08		--	--	1E-03	1E-03		
			Radionuclide Total												
		Exposure Point Total						2E-08						1E-03	
		Exposure Medium Total						2E-08						1E-03	
Medium Total									2E-08						1E-03
Soil/Groundwater	Ambient Air	Landfill	1,1-Dichloroethane	--	3E-11	--	--	3E-11	Kidney	--	6E-08	--	6E-08		
			1,2,4-Trimethylbenzene	--	N/A	--	--	N/A	Blood	--	6E-05	--	6E-05		
			1,2-Dichloro-1,1,2,2-tetrafluoroethane	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			1,2-Dichlorobenzene	--	N/A	--	--	N/A	General Toxicity	--	2E-06	--	2E-06		
			1,3,5-Trimethylbenzene	--	N/A	--	--	N/A	Respiratory/CNS/Blood	--	1E-05	--	1E-05		
			1,3-Dichlorobenzene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			1,4-Dichlorobenzene	--	1E-08	--	--	1E-08	Liver	--	3E-06	--	3E-06		
			4-Ethyltoluene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			Benzene	--	3E-08	--	--	3E-08	Immune System	--	2E-04	--	2E-04		
			Carbon tetrachloride	--	1E-10	--	--	1E-10	Liver	--	8E-08	--	8E-08		
			Chlorobenzene	--	N/A	--	--	N/A	Liver/Kidney	--	2E-04	--	2E-04		
			cis-1,2-Dichloroethene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			Dichlorodifluoromethane	--	N/A	--	--	N/A	Liver	--	6E-07	--	6E-07		
			Ethylbenzene	--	6E-09	--	--	6E-09	Developmental	--	4E-06	--	4E-06		
			Methylene chloride	--	9E-12	--	--	9E-12	Liver	--	3E-08	--	3E-08		
			trans-1,2-Dichloroethene	--	N/A	--	--	N/A	Respiratory/Liver	--	1E-06	--	1E-06		
			Trichloroethene	--	2E-10	--	--	2E-10	CNS	--	2E-05	--	2E-05		
			Vinyl Chloride	--	2E-09	--	--	2E-09	Liver	--	6E-06	--	6E-06		
			Xylene (Total)	--	N/A	--	--	N/A	CNS	--	2E-05	--	2E-05		
			Chemical Total	--	5E-08	--	--	5E-08		--	5E-04	--	5E-04		
Radionuclide Total															
Exposure Point Total						5E-08						5E-04			
Exposure Medium Total									5E-08						5E-04
Medium Total									5E-08						5E-04
Receptor Total									5E-05						1E+00

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

5E-05

Total Hazard Across All Media

1E+00

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E-01
Total GI System HI =	2E-01
Total Immune System HI =	7E-01
Total Kidney HI =	2E-02
Total Liver HI =	5E-02
Total CNS HI =	1E-02
Total Skin HI =	1E-01
Total Spleen HI =	N/A
Total Respiratory HI =	1E-05
Total Developmental HI =	4E-02
Total Endocrine HI =	2E-02

TABLE 9.18.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Soil	Surface Soil	Landfill	Benzo(a)anthracene	1E-07	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	2E-06	--	4E-06	--	6E-06	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	5E-09	--	9E-09	--	1E-08	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	1E-09	--	2E-09	--	3E-09	Liver	2E-05	--	4E-05	6E-05			
			Carbazole	2E-10	--	3E-10	--	5E-10	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	2E-07	--	4E-07	--	6E-07	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	7E-06	--	1E-05	2E-05			
			Indeno(1,2,3-cd)pyrene	6E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	5E-05	--	1E-04	2E-04			
			Aroclor-1248	3E-07	--	5E-07	--	8E-07	General Toxicity/Immune System	6E-02	--	2E-01	2E-01			
			Aroclor-1254	3E-08	--	4E-08	--	7E-08	General Toxicity/Immune System	6E-03	--	1E-02	2E-02			
			Aroclor-1260	8E-09	--	1E-08	--	2E-08	General Toxicity/Immune System	2E-03	--	5E-03	6E-03			
			Dieldrin	1E-08	--	2E-08	--	3E-08	Liver	8E-05	--	1E-04	2E-04			
			Dioxin TEQ	2E-07	--	7E-08	--	3E-07	N/A	N/A	--	N/A	N/A			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A			
			Arsenic	1E-06	--	4E-07	--	1E-06	Skin	1E-02	--	6E-03	2E-02			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	2E-03	4E-03			
			Chromium	N/A	--	N/A	--	N/A	GI System	8E-03	--	N/A	8E-03			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03			
			Copper	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	8E-03	--	N/A	8E-03			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03			
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-03	--	N/A	3E-03			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	8E-04	--	N/A	8E-04			
			Zinc	N/A	--	N/A	--	N/A	Blood	6E-04	--	N/A	6E-04			
						Chemical Total	4E-06	--	6E-06	--	1E-05		1E-01	--	2E-01	3E-01
						Radionuclide Total										
					Exposure Point Total			1E-05				3E-01				
		Exposure Medium Total			1E-05				3E-01							
Medium Total				1E-05				3E-01								
Surface Water	Surface Water	Adjacent to Landfill (wading)	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			

TABLE 9.18.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			bis(2-Ethylhexyl)phthalate	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A		
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			1,4-Dichlorobenzene	--	--	4E-10	--	4E-10	Liver	--	--	3E-06	3E-06		
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A		
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A		
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Dieldrin	--	--	7E-08	--	7E-08	Liver	--	--	2E-04	2E-04		
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Heptachlor Epoxide	--	--	2E-08	--	2E-08	Liver	--	--	6E-04	6E-04		
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	1E-02	1E-02		
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A		
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Chromium	--	--	N/A	--	N/A	GI System	--	--	5E-02	5E-02		
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A		
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A		
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A		
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A		
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A		
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A		
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A		
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
					Chemical Total	--	--	9E-08	--	9E-08		--	--	6E-02	6E-02
					Radionuclide Total										
				Exposure Point Total						9E-08					6E-02
		Exposure Medium Total								9E-08					6E-02
Medium Total									9E-08					6E-02	
Sediment	Sediment	Adjacent to Landfill	Benzo(a)anthracene	4E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A		

TABLE 9.18.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	5E-07	--	2E-06	--	2E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	4E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	2E-09	--	9E-09	--	1E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-09	--	3E-08	--	3E-08	Liver	1E-04	--	3E-04	4E-04
			Carbazole	1E-10	--	5E-10	--	7E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	6E-08	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	4E-06	--	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	2E-08	--	8E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	7E-06	--	2E-05	3E-05
			Aroclor-1242	6E-09	--	3E-08	--	3E-08	General Toxicity/Immune System	1E-03	--	4E-03	6E-03
			Aroclor-1254	7E-09	--	4E-08	--	4E-08	General Toxicity/Immune System	2E-03	--	6E-03	7E-03
			Aroclor-1260	3E-09	--	1E-08	--	2E-08	General Toxicity/Immune System	6E-04	--	2E-03	3E-03
			Dieldrin	6E-09	--	2E-08	--	3E-08	Liver	3E-05	--	8E-05	1E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	9E-04	--	N/A	9E-04
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	5E-04	--	N/A	5E-04
			Arsenic	1E-06	--	1E-06	--	3E-06	Skin	1E-02	--	1E-02	2E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	1E-03	--	1E-03	2E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	5E-03	--	N/A	5E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03
			Copper	N/A	--	N/A	--	N/A	GI System	5E-04	--	N/A	5E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-03	--	N/A	3E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	4E-04	--	N/A	4E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	3E-04	--	N/A	3E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	9E-04	--	N/A	9E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-04	--	N/A	3E-04
			Chemical Total	2E-06	--	4E-06	--	6E-06		3E-02	--	2E-02	5E-02
			Radionuclide Total										
		Exposure Point Total						6E-06					5E-02
	Exposure Medium Total							6E-06					5E-02
Medium Total								6E-06					5E-02
Leachate	Leachate	Landfill	4-Methylphenol	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Acenaphthylene	--	--	N/A	--	N/A	Liver	--	--	3E-07	3E-07
			Atrazine	--	--	N/A	--	N/A	General Toxicity/Cardiovascular	--	--	N/A	N/A
			Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A

TABLE 9.18.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Older Child + Adult					Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	4E-09	--	4E-09	Liver	--	--	5E-05	5E-05
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Dibenz(a,h)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Dibenzofuran	--	--	N/A	--	N/A	Kidney	--	--	2E-04	2E-04
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	6E-06	6E-06
			N-Nitrosodiphenylamine	--	--	7E-10	--	7E-10	N/A	--	--	N/A	N/A
			Pentachlorophenol	--	--	N/A	--	N/A	Liver/Kidney	--	--	N/A	N/A
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	2E-09	--	2E-09	Liver	--	--	1E-05	1E-05
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Chlorobenzene	--	--	N/A	--	N/A	Liver/Kidney	--	--	N/A	N/A
			Ethylbenzene	--	--	2E-09	--	2E-09	Liver/Kidney	--	--	5E-06	5E-06
			Xylene (total)	--	--	N/A	--	N/A	General Toxicity	--	--	7E-06	7E-06
			Total PCBs	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-BHC	--	--	2E-09	--	2E-09	Liver	--	--	N/A	N/A
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	5E-05	5E-05
			Antimony	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Barium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Beryllium	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chromium	--	--	N/A	--	N/A	GI System	--	--	3E-04	3E-04
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Nickel	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A

TABLE 9.18.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Silver	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A		
			Thallium	--	--	N/A	--	N/A	Blood	--	--	N/A	N/A		
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Zinc	--	--	N/A	--	N/A	Blood	--	--	N/A	N/A		
			Chemical Total	--	--	1E-08	--	1E-08		--	--	6E-04	6E-04		
		Radionuclide Total													
		Exposure Point Total								1E-08					6E-04
		Exposure Medium Total								1E-08					6E-04
		Medium Total								1E-08					6E-04
Soil/Groundwater	Ambient Air	Landfill	1,1-Dichloroethane	--	1E-11	--	--	1E-11	Kidney	--	3E-08	--	3E-08		
			1,2,4-Trimethylbenzene	--	N/A	--	--	N/A	Blood	--	3E-05	--	3E-05		
			1,2-Dichloro-1,1,2,2-tetrafluoroethane	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			1,2-Dichlorobenzene	--	N/A	--	--	N/A	General Toxicity	--	1E-06	--	1E-06		
			1,3,5-Trimethylbenzene	--	N/A	--	--	N/A	Respiratory/CNS/Blood	--	7E-06	--	7E-06		
			1,3-Dichlorobenzene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			1,4-Dichlorobenzene	--	5E-09	--	--	5E-09	Liver	--	1E-06	--	1E-06		
			4-Ethyltoluene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			Benzene	--	9E-09	--	--	9E-09	Immune System	--	1E-04	--	1E-04		
			Carbon tetrachloride	--	5E-11	--	--	5E-11	Liver	--	5E-08	--	5E-08		
			Chlorobenzene	--	N/A	--	--	N/A	Liver/Kidney	--	1E-04	--	1E-04		
			cis-1,2-Dichloroethene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			Dichlorodifluoromethane	--	N/A	--	--	N/A	Liver	--	4E-07	--	4E-07		
			Ethylbenzene	--	2E-09	--	--	2E-09	Developmental	--	2E-06	--	2E-06		
			Methylene chloride	--	3E-12	--	--	3E-12	Liver	--	2E-08	--	2E-08		
			trans-1,2-Dichloroethene	--	N/A	--	--	N/A	Respiratory/Liver	--	7E-07	--	7E-07		
			Trichloroethene	--	7E-11	--	--	7E-11	CNS	--	1E-05	--	1E-05		
			Vinyl Chloride	--	6E-10	--	--	6E-10	Liver	--	4E-06	--	4E-06		
			Xylene (Total)	--	N/A	--	--	N/A	CNS	--	1E-05	--	1E-05		
			Chemical Total			--	2E-08	--	--	2E-08		--	3E-04	--	3E-04
Radionuclide Total															
Exposure Point Total								2E-08					3E-04		
Exposure Medium Total								2E-08					3E-04		
Medium Total								2E-08					3E-04		
Receptor Total								2E-05					4E-01		

TABLE 9.18.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

2E-05

Total Hazard Across All Media

4E-01

Total Blood HI =	4E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	3E-01
Total GI System HI =	7E-02
Total Immune System HI =	3E-01
Total Kidney HI =	7E-03
Total Liver HI =	1E-02
Total CNS HI =	4E-03
Total Skin HI =	4E-02
Total Spleen HI =	N/A
Total Respiratory HI =	8E-06
Total Developmental HI =	2E-02
Total Endocrine HI =	4E-03

TABLE 9.19.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Soil	Surface Soil	Landfill	Benzo(a)anthracene	5E-07	--	4E-07	--	9E-07	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	9E-06	--	8E-06	--	2E-05	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	6E-07	--	5E-07	--	1E-06	N/A	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	2E-08	--	2E-08	--	4E-08	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	7E-09	--	4E-09	--	1E-08	Liver	9E-05	--	8E-05	2E-04			
			Carbazole	9E-10	--	7E-10	--	2E-09	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	8E-07	--	8E-07	--	2E-06	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	3E-05	--	2E-05	5E-05			
			Indeno(1,2,3-cd)pyrene	3E-07	--	2E-07	--	5E-07	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-04	--	2E-04	4E-04			
			Aroclor-1248	3E-06	--	2E-06	--	5E-06	General Toxicity/Immune System	3E-01	--	3E-01	6E-01			
			Aroclor-1254	2E-07	--	2E-07	--	4E-07	General Toxicity/Immune System	2E-02	--	3E-02	5E-02			
			Aroclor-1260	8E-08	--	6E-08	--	1E-07	General Toxicity/Immune System	7E-03	--	9E-03	2E-02			
			Dieldrin	7E-08	--	4E-08	--	1E-07	Liver	3E-04	--	3E-04	6E-04			
			Dioxin TEQ	2E-06	--	3E-07	--	2E-06	N/A	N/A	--	N/A	N/A			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	7E-03	--	N/A	7E-03			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A			
			Arsenic	5E-06	--	8E-07	--	6E-06	Skin	4E-02	--	1E-02	5E-02			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	9E-03	--	3E-03	1E-02			
			Chromium	N/A	--	N/A	--	N/A	GI System	3E-02	--	N/A	3E-02			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02			
			Copper	N/A	--	N/A	--	N/A	GI System	4E-03	--	N/A	4E-03			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-02	--	N/A	3E-02			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	8E-03	--	N/A	8E-03			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	4E-03	--	N/A	4E-03			
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-02	--	N/A	1E-02			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-03	--	N/A	3E-03			
			Zinc	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03			
						Chemical Total	2E-05	--	1E-05	--	3E-05		4E-01	--	4E-01	8E-01
						Radionuclide Total										
				Exposure Point Total						3E-05					8E-01	
		Exposure Medium Total							3E-05					8E-01		
Medium Total								3E-05					8E-01			
Surface Water	Surface Water	Adjacent to Landfill (swimming)	Benzo(a)anthracene	8E-09	--	N/A	--	8E-09	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	1E-07	--	N/A	--	1E-07	N/A	N/A	--	N/A	N/A			

TABLE 9.19.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	1E-08	--	N/A	--	1E-08	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	1E-06	--	N/A	1E-06
			Benzo(k)fluoranthene	1E-09	--	N/A	--	1E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Chrysene	1E-10	--	N/A	--	1E-10	N/A	N/A	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	7E-09	--	N/A	--	7E-09	N/A	N/A	--	N/A	N/A
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	8E-07	--	N/A	8E-07
			1,4-Dichlorobenzene	9E-11	--	3E-09	--	3E-09	Liver	1E-06	--	2E-05	2E-05
			Benzene	1E-09	--	1E-08	--	1E-08	Immune System	3E-05	--	1E-04	2E-04
			Aroclor-1260	2E-08	--	N/A	--	2E-08	General Toxicity/Immune System	2E-03	--	N/A	2E-03
			4,4'-DDD	2E-10	--	N/A	--	2E-10		N/A	--	N/A	N/A
			4,4'-DDE	2E-10	--	N/A	--	2E-10	N/A	N/A	--	N/A	N/A
			4,4'-DDT	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			alpha-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			beta-BHC	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Dieldrin	7E-09	--	2E-07	--	2E-07	Liver	4E-05	--	8E-04	8E-04
			Gamma-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Heptachlor Epoxide	1E-09	--	8E-08	--	8E-08	Liver	4E-05	--	2E-03	2E-03
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-01	--	5E-02	3E-01
			Arsenic	5E-07	--	N/A	--	5E-07	Skin	5E-03	--	N/A	5E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	8E-02	--	2E-02	1E-01
			Chromium	N/A	--	N/A	--	N/A	GI System	4E-01	--	2E-01	5E-01
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	4E-03	--	N/A	4E-03
			Copper	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03
			Cyanide	N/A	--	N/A	--	N/A	Endocrine/CNS	7E-05	--	N/A	7E-05
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	8E-03	--	N/A	8E-03
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Mercury (water)	N/A	--	N/A	--	N/A	Immune System	2E-03	--	N/A	2E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-02	--	7E-03	4E-02
			Chemical Total	7E-07	--	3E-07	--	1E-06		7E-01	--	2E-01	9E-01
			Radionuclide Total										
		Exposure Point Total											9E-01
	Exposure Medium Total							1E-06					9E-01
Medium Total								1E-06					9E-01
Sediment	Sediment	Adjacent to Landfill	Benzo(a)anthracene	2E-07	--	3E-07	--	5E-07	N/A	N/A	--	N/A	N/A

TABLE 9.19.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	2E-06	--	4E-06	--	6E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-07	--	4E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	1E-08	--	2E-08	--	3E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-08	--	6E-08	--	9E-08	Liver	5E-04	--	6E-04	1E-03
			Carbazole	5E-10	--	1E-09	--	2E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	3E-07	--	5E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	8E-08	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	3E-05	--	5E-05	7E-05
			Aroclor-1242	5E-08	--	1E-07	--	2E-07	General Toxicity/Immune System	5E-03	--	9E-03	1E-02
			Aroclor-1254	7E-08	--	2E-07	--	2E-07	General Toxicity/Immune System	6E-03	--	1E-02	2E-02
			Aroclor-1260	3E-08	--	7E-08	--	9E-08	General Toxicity/Immune System	2E-03	--	4E-03	7E-03
			Dieldrin	3E-08	--	5E-08	--	8E-08	Liver	1E-04	--	2E-04	3E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	4E-03	--	N/A	4E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	2E-03	--	N/A	2E-03
			Arsenic	6E-06	--	3E-06	--	1E-05	Skin	5E-02	--	2E-02	7E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	4E-03	--	2E-03	6E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	7E-03	--	N/A	7E-03
			Copper	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-02	--	N/A	1E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	4E-03	--	N/A	4E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-03	--	N/A	1E-03
			Chemical Total	9E-06	--	1E-05	--	2E-05		1E-01	--	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					2E-01
	Exposure Medium Total							2E-05					2E-01
Medium Total								2E-05					2E-01
Leachate	Leachate	Landfill	4-Methylphenol	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Acenaphthylene	--	--	N/A	--	N/A	Liver	--	--	7E-07	7E-07
			Atrazine	--	--	N/A	--	N/A	General Toxicity/Cardiovascular	--	--	N/A	N/A
			Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A

TABLE 9.19.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Older Child + Adult					Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	1E-08	--	1E-08	Liver	--	--	9E-05	9E-05
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Dibenz(a,h)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Dibenzofuran	--	--	N/A	--	N/A	Kidney	--	--	3E-04	3E-04
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	1E-05	1E-05
			N-Nitrosodiphenylamine	--	--	2E-09	--	2E-09	N/A	--	--	N/A	N/A
			Pentachlorophenol	--	--	N/A	--	N/A	Liver/Kidney	--	--	N/A	N/A
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	4E-09	--	4E-09	Liver	--	--	3E-05	3E-05
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Chlorobenzene	--	--	N/A	--	N/A	Liver/Kidney	--	--	N/A	N/A
			Ethylbenzene	--	--	4E-09	--	4E-09	Liver/Kidney	--	--	1E-05	1E-05
			Xylene (total)	--	--	N/A	--	N/A	General Toxicity	--	--	1E-05	1E-05
			Total PCBs	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-BHC	--	--	5E-09	--	5E-09	Liver	--	--	N/A	N/A
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	1E-04	1E-04
			Antimony	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Barium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Beryllium	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chromium	--	--	N/A	--	N/A	GI System	--	--	6E-04	6E-04
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Nickel	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A

TABLE 9.19.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Silver	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A		
			Thallium	--	--	N/A	--	N/A	Blood	--	--	N/A	N/A		
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Zinc	--	--	N/A	--	N/A	Blood	--	--	N/A	N/A		
			Chemical Total	--	--	2E-08	--	2E-08		--	--	1E-03	1E-03		
		Radionuclide Total													
		Exposure Point Total						2E-08						1E-03	
		Exposure Medium Total						2E-08						1E-03	
		Medium Total									2E-08				
Soil/Groundwater	Ambient Air	Landfill	1,1-Dichloroethane	--	3E-11	--	--	3E-11	Kidney	--	6E-08	--	6E-08		
			1,2,4-Trimethylbenzene	--	N/A	--	--	N/A	Blood	--	6E-05	--	6E-05		
			1,2-Dichloro-1,1,2,2-tetrafluoroethane	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			1,2-Dichlorobenzene	--	N/A	--	--	N/A	General Toxicity	--	2E-06	--	2E-06		
			1,3,5-Trimethylbenzene	--	N/A	--	--	N/A	Respiratory/CNS/Blood	--	1E-05	--	1E-05		
			1,3-Dichlorobenzene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			1,4-Dichlorobenzene	--	1E-08	--	--	1E-08	Liver	--	3E-06	--	3E-06		
			4-Ethyltoluene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			Benzene	--	3E-08	--	--	3E-08	Immune System	--	2E-04	--	2E-04		
			Carbon tetrachloride	--	1E-10	--	--	1E-10	Liver	--	8E-08	--	8E-08		
			Chlorobenzene	--	N/A	--	--	N/A	Liver/Kidney	--	2E-04	--	2E-04		
			cis-1,2-Dichloroethene	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A		
			Dichlorodifluoromethane	--	N/A	--	--	N/A	Liver	--	6E-07	--	6E-07		
			Ethylbenzene	--	6E-09	--	--	6E-09	Developmental	--	4E-06	--	4E-06		
			Methylene chloride	--	9E-12	--	--	9E-12	Liver	--	3E-08	--	3E-08		
			trans-1,2-Dichloroethene	--	N/A	--	--	N/A	Respiratory/Liver	--	1E-06	--	1E-06		
			Trichloroethene	--	2E-10	--	--	2E-10	CNS	--	2E-05	--	2E-05		
			Vinyl Chloride	--	2E-09	--	--	2E-09	Liver	--	6E-06	--	6E-06		
			Xylene (Total)	--	N/A	--	--	N/A	CNS	--	2E-05	--	2E-05		
			Chemical Total	--	5E-08	--	--	5E-08		--	5E-04	--	5E-04		
Radionuclide Total															
Exposure Point Total						5E-08						5E-04			
Exposure Medium Total									5E-08						5E-04
Medium Total									5E-08						5E-04
Receptor Total									5E-05						2E+00

TABLE 9.19.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

5E-05

Total Hazard Across All Media

2E+00

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E-01
Total GI System HI =	6E-01
Total Immune System HI =	7E-01
Total Kidney HI =	2E-01
Total Liver HI =	6E-02
Total CNS HI =	2E-02
Total Skin HI =	1E-01
Total Spleen HI =	N/A
Total Respiratory HI =	1E-05
Total Developmental HI =	3E-01
Total Endocrine HI =	2E-02

TABLE 9.19.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Soil	Surface Soil	Landfill	Benzo(a)anthracene	1E-07	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	2E-06	--	4E-06	--	6E-06	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	5E-09	--	9E-09	--	1E-08	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	1E-09	--	2E-09	--	3E-09	Liver	2E-05	--	4E-05	6E-05			
			Carbazole	2E-10	--	3E-10	--	5E-10	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	2E-07	--	4E-07	--	6E-07	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	7E-06	--	1E-05	2E-05			
			Indeno(1,2,3-cd)pyrene	6E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	5E-05	--	1E-04	2E-04			
			Aroclor-1248	3E-07	--	5E-07	--	8E-07	General Toxicity/Immune System	6E-02	--	2E-01	2E-01			
			Aroclor-1254	3E-08	--	4E-08	--	7E-08	General Toxicity/Immune System	6E-03	--	1E-02	2E-02			
			Aroclor-1260	8E-09	--	1E-08	--	2E-08	General Toxicity/Immune System	2E-03	--	5E-03	6E-03			
			Dieldrin	1E-08	--	2E-08	--	3E-08	Liver	8E-05	--	1E-04	2E-04			
			Dioxin TEQ	2E-07	--	7E-08	--	3E-07	N/A	N/A	--	N/A	N/A			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A			
			Arsenic	1E-06	--	4E-07	--	1E-06	Skin	1E-02	--	6E-03	2E-02			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	2E-03	4E-03			
			Chromium	N/A	--	N/A	--	N/A	GI System	8E-03	--	N/A	8E-03			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03			
			Copper	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	8E-03	--	N/A	8E-03			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03			
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-03	--	N/A	3E-03			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	8E-04	--	N/A	8E-04			
			Zinc	N/A	--	N/A	--	N/A	Blood	6E-04	--	N/A	6E-04			
						Chemical Total	4E-06	--	6E-06	--	1E-05		1E-01	--	2E-01	3E-01
						Radionuclide Total										
				Exposure Point Total							1E-05					3E-01
		Exposure Medium Total							1E-05					3E-01		
Medium Total								1E-05					3E-01			
Surface Water	Surface Water	Adjacent to Landfill (swimming)	Benzo(a)anthracene	4E-09	--	N/A	--	4E-09	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	6E-08	--	N/A	--	6E-08	N/A	N/A	--	N/A	N/A			

TABLE 9.19.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child					
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total	
			Benzo(b)fluoranthene	7E-09	--	N/A	--	7E-09	N/A	N/A	--	N/A	N/A	
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	1E-07	--	N/A	1E-07	
			Benzo(k)fluoranthene	5E-10	--	N/A	--	5E-10	N/A	N/A	--	N/A	N/A	
			bis(2-Ethylhexyl)phthalate	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A	
			Chrysene	5E-11	--	N/A	--	5E-11	N/A	N/A	--	N/A	N/A	
			Indeno(1,2,3-cd)pyrene	3E-09	--	N/A	--	3E-09	N/A	N/A	--	N/A	N/A	
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A	
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-07	--	N/A	1E-07	
			1,4-Dichlorobenzene	2E-11	--	7E-10	--	7E-10	Liver	3E-07	--	5E-06	6E-06	
			Benzene	4E-10	--	3E-09	--	4E-09	Immune System	9E-06	--	5E-05	5E-05	
			Aroclor-1260	4E-09	--	N/A	--	4E-09	General Toxicity/Immune System	9E-04	--	N/A	9E-04	
			4,4'-DDD	5E-11	--	N/A	--	5E-11	N/A	N/A	--	N/A	N/A	
			4,4'-DDE	7E-11	--	N/A	--	7E-11	N/A	N/A	--	N/A	N/A	
			4,4'-DDT	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A	
			alpha-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A	
			beta-BHC	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A	
			Dieldrin	3E-09	--	1E-07	--	1E-07	Liver	2E-05	--	4E-04	4E-04	
			Gamma-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A	
			Heptachlor Epoxide	5E-10	--	3E-08	--	3E-08	Liver	2E-05	--	9E-04	9E-04	
			Aluminum	N/A	--	N/A	--	N/A	Developmental	1E-01	--	2E-02	1E-01	
			Arsenic	2E-07	--	N/A	--	2E-07	Skin	2E-03	--	N/A	2E-03	
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	4E-02	--	9E-03	5E-02	
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-01	--	8E-02	3E-01	
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03	
			Copper	N/A	--	N/A	--	N/A	GI System	7E-04	--	N/A	7E-04	
			Cyanide	N/A	--	N/A	--	N/A	Endocrine/CNS	3E-05	--	N/A	3E-05	
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	4E-03	--	N/A	4E-03	
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A	
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	7E-04	--	N/A	7E-04	
			Mercury (water)	N/A	--	N/A	--	N/A	Immune System	1E-03	--	N/A	1E-03	
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-02	--	4E-03	2E-02	
			Chemical Total	3E-07	--	1E-07	--	5E-07		4E-01	--	1E-01	5E-01	
			Radionuclide Total											
		Exposure Point Total								5E-07				
	Exposure Medium Total								5E-07					5E-01
Medium Total								5E-07					5E-01	
Sediment	Sediment	Adjacent to Landfill	Benzo(a)anthracene	4E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A	

TABLE 9.19.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child					
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total	
			Benzo(a)pyrene	5E-07	--	2E-06	--	2E-06	N/A	N/A	--	N/A	N/A	
			Benzo(b)fluoranthene	4E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A	
			Benzo(k)fluoranthene	2E-09	--	9E-09	--	1E-08	N/A	N/A	--	N/A	N/A	
			bis(2-Ethylhexyl)phthalate	7E-09	--	3E-08	--	3E-08	Liver	1E-04	--	3E-04	4E-04	
			Carbazole	1E-10	--	5E-10	--	7E-10	N/A	N/A	--	N/A	N/A	
			Dibenz(a,h)anthracene	6E-08	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A	
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	4E-06	--	1E-05	2E-05	
			Indeno(1,2,3-cd)pyrene	2E-08	--	8E-08	--	1E-07	N/A	N/A	--	N/A	N/A	
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	7E-06	--	2E-05	3E-05	
			Aroclor-1242	6E-09	--	3E-08	--	3E-08	General Toxicity/Immune System	1E-03	--	4E-03	6E-03	
			Aroclor-1254	7E-09	--	4E-08	--	4E-08	General Toxicity/Immune System	2E-03	--	6E-03	7E-03	
			Aroclor-1260	3E-09	--	1E-08	--	2E-08	General Toxicity/Immune System	6E-04	--	2E-03	3E-03	
			Dieldrin	6E-09	--	2E-08	--	3E-08	Liver	3E-05	--	8E-05	1E-04	
			Aluminum	N/A	--	N/A	--	N/A	Developmental	9E-04	--	N/A	9E-04	
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	5E-04	--	N/A	5E-04	
			Arsenic	1E-06	--	1E-06	--	3E-06	Skin	1E-02	--	1E-02	2E-02	
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	1E-03	--	1E-03	2E-03	
			Chromium	N/A	--	N/A	--	N/A	GI System	5E-03	--	N/A	5E-03	
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03	
			Copper	N/A	--	N/A	--	N/A	GI System	5E-04	--	N/A	5E-04	
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-03	--	N/A	3E-03	
			Lead											
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	4E-04	--	N/A	4E-04	
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	3E-04	--	N/A	3E-04	
			Thallium	N/A	--	N/A	--	N/A	Blood	9E-04	--	N/A	9E-04	
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-04	--	N/A	3E-04	
			Chemical Total	2E-06	--	4E-06	--	6E-06			3E-02	--	2E-02	5E-02
			Radionuclide Total											
		Exposure Point Total						6E-06						5E-02
	Exposure Medium Total							6E-06					5E-02	
Medium Total							6E-06					5E-02		
Leachate	Leachate	Landfill	4-Methylphenol	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A	
			Acenaphthylene	--	--	N/A	--	N/A	Liver	--	--	3E-07	3E-07	
			Atrazine	--	--	N/A	--	N/A	General Toxicity/Cardiovascular	--	--	N/A	N/A	
			Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A	
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A	
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A	
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A	

TABLE 9.19.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	4E-09	--	4E-09	Liver	--	--	5E-05	5E-05
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Dibenz(a,h)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Dibenzofuran	--	--	N/A	--	N/A	Kidney	--	--	2E-04	2E-04
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	6E-06	6E-06
			N-Nitrosodiphenylamine	--	--	7E-10	--	7E-10	N/A	--	--	N/A	N/A
			Pentachlorophenol	--	--	N/A	--	N/A	Liver/Kidney	--	--	N/A	N/A
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	2E-09	--	2E-09	Liver	--	--	1E-05	1E-05
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Chlorobenzene	--	--	N/A	--	N/A	Liver/Kidney	--	--	N/A	N/A
			Ethylbenzene	--	--	2E-09	--	2E-09	Liver/Kidney	--	--	5E-06	5E-06
			Xylene (total)	--	--	N/A	--	N/A	General Toxicity	--	--	7E-06	7E-06
			Total PCBs	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-BHC	--	--	2E-09	--	2E-09	Liver	--	--	N/A	N/A
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	5E-05	5E-05
			Antimony	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Barium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Beryllium	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chromium	--	--	N/A	--	N/A	GI System	--	--	3E-04	3E-04
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Nickel	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A

TABLE 9.19.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child					
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total	
			Silver	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A	
			Thallium	--	--	N/A	--	N/A	Blood	--	--	N/A	N/A	
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A	
			Zinc	--	--	N/A	--	N/A	Blood	--	--	N/A	N/A	
			Chemical Total	--	--	1E-08	--	1E-08		--	--	6E-04	6E-04	
			Radionuclide Total											
		Exposure Point Total						1E-08						6E-04
		Exposure Medium Total						1E-08						6E-04
		Medium Total						1E-08						6E-04
		Soil/Groundwater	Ambient Air	Landfill	1,1-Dichloroethane	--	1E-11	--	--	1E-11	Kidney	--	3E-08	--
1,2,4-Trimethylbenzene	--				N/A	--	--	N/A	Blood	--	3E-05	--	3E-05	
1,2-Dichloro-1,1,2,2-tetrafluoroethane	--				N/A	--	--	N/A	N/A	--	N/A	--	N/A	
1,2-Dichlorobenzene	--				N/A	--	--	N/A	General Toxicity	--	1E-06	--	1E-06	
1,3,5-Trimethylbenzene	--				N/A	--	--	N/A	Respiratory/CNS/Blood	--	7E-06	--	7E-06	
1,3-Dichlorobenzene	--				N/A	--	--	N/A	N/A	--	N/A	--	N/A	
1,4-Dichlorobenzene	--				5E-09	--	--	5E-09	Liver	--	1E-06	--	1E-06	
4-Ethyltoluene	--				N/A	--	--	N/A	N/A	--	N/A	--	N/A	
Benzene	--				9E-09	--	--	9E-09	Immune System	--	1E-04	--	1E-04	
Carbon tetrachloride	--				5E-11	--	--	5E-11	Liver	--	5E-08	--	5E-08	
Chlorobenzene	--				N/A	--	--	N/A	Liver/Kidney	--	1E-04	--	1E-04	
cis-1,2-Dichloroethene	--				N/A	--	--	N/A	N/A	--	N/A	--	N/A	
Dichlorodifluoromethane	--				N/A	--	--	N/A	Liver	--	4E-07	--	4E-07	
Ethylbenzene	--				2E-09	--	--	2E-09	Developmental	--	2E-06	--	2E-06	
Methylene chloride	--				3E-12	--	--	3E-12	Liver	--	2E-08	--	2E-08	
trans-1,2-Dichloroethene	--				N/A	--	--	N/A	Respiratory/Liver	--	7E-07	--	7E-07	
Trichloroethene	--				7E-11	--	--	7E-11	CNS	--	1E-05	--	1E-05	
Vinyl Chloride	--				6E-10	--	--	6E-10	Liver	--	4E-06	--	4E-06	
Xylene (Total)	--				N/A	--	--	N/A	CNS	--	1E-05	--	1E-05	
Chemical Total	--				2E-08	--	--	2E-08		--	3E-04	--	3E-04	
Radionuclide Total														
Exposure Point Total						2E-08						3E-04		
Exposure Medium Total						2E-08						3E-04		
Medium Total						2E-08						3E-04		
Receptor Total						2E-05						8E-01		

TABLE 9.19.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

Total Risk Across All Media

2E-05

Total Hazard Across All Media

8E-01

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Blood HI =	4E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	3E-01
Total GI System HI =	3E-01
Total Immune System HI =	3E-01
Total Kidney HI =	8E-02
Total Liver HI =	2E-02
Total CNS HI =	4E-03
Total Skin HI =	4E-02
Total Spleen HI =	N/A
Total Respiratory HI =	8E-06
Total Developmental HI =	1E-01
Total Endocrine HI =	6E-03

TABLE 9.20.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Soil	Surface + Subsurface Soil	Nunes Parcel	Benzo(a)anthracene	1E-06	--	1E-06	--	3E-06	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	1E-05	--	1E-05	--	3E-05	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	2E-06	--	1E-06	--	3E-06	N/A	N/A	--	N/A	N/A			
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	8E-05	--	1E-04	2E-04			
			Benzo(k)fluoranthene	3E-08	--	3E-08	--	5E-08	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	1E-06	--	7E-07	--	2E-06	Liver	2E-02	--	2E-02	3E-02			
			Carbazole	2E-09	--	1E-09	--	3E-09	N/A	N/A	--	N/A	N/A			
			Chrysene	1E-08	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	2E-06	--	2E-06	--	4E-06	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	5E-05	--	4E-05	9E-05			
			Indeno(1,2,3-cd)pyrene	8E-07	--	7E-07	--	1E-06	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-04	--	3E-04	5E-04			
			Aroclor-1248	2E-07	--	1E-07	--	3E-07	General Toxicity/Immune System	1E-02	--	2E-02	3E-02			
			Aroclor-1254	7E-08	--	6E-08	--	1E-07	General Toxicity/Immune System	7E-03	--	9E-03	2E-02			
			Aroclor-1260	1E-07	--	8E-08	--	2E-07	General Toxicity/Immune System	1E-02	--	1E-02	2E-02			
			Dieldrin	6E-07	--	3E-07	--	9E-07	Liver	3E-03	--	2E-03	5E-03			
			Dioxin TEQ	1E-06	--	2E-07	--	1E-06	N/A	N/A	--	N/A	N/A			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	7E-03	--	N/A	7E-03			
			Arsenic	4E-06	--	7E-07	--	5E-06	Skin	4E-02	--	9E-03	4E-02			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	7E-03	--	3E-03	1E-02			
			Chromium	N/A	--	N/A	--	N/A	GI System	8E-02	--	N/A	8E-02			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-02	--	N/A	2E-02			
			Copper	N/A	--	N/A	--	N/A	GI System	5E-03	--	N/A	5E-03			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-02	--	N/A	3E-02			
			Lead	0E+00	--	0E+00	--	N/A	CNS	0E+00	--	0E+00	N/A			
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-02	--	N/A	1E-02			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	6E-03	--	N/A	6E-03			
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-02	--	N/A	2E-02			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-03	--	N/A	3E-03			
			Zinc	N/A	--	N/A	--	N/A	Blood	1E-03	--	N/A	1E-03			
			Chemical Total				3E-05	--	2E-05	--	5E-05		3E-01	--	7E-02	4E-01
			Radionuclide Total													
			Exposure Point Total				5E-05					4E-01				
Exposure Medium Total				5E-05					4E-01							
Medium Total				5E-05					4E-01							
Surface Water	Surface Water	Downstream of Landfill (wading)														

TABLE 9.20.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	1E-05	1E-05
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	4E-08	--	4E-08	Liver	--	--	1E-04	1E-04
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Heptachlor Epoxide	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	5E-04	5E-04
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chromium	--	--	N/A	--	N/A	GI System	--	--	2E-03	2E-03
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chemical Total	--	--	4E-08	--	4E-08		--	--	2E-03	2E-03
			Radionuclide Total										
		Exposure Point Total						4E-08					2E-03
	Exposure Medium Total							4E-08					2E-03
Medium Total								4E-08					2E-03

TABLE 9.20.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Sediment	Sediment	Downstream of Landfill	Benzo(a)anthracene	3E-07	--	7E-07	--	1E-06	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	4E-06	--	8E-06	--	1E-05	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	4E-07	--	8E-07	--	1E-06	N/A	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	2E-08	--	5E-08	--	8E-08	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	4E-09	--	8E-09	--	1E-08	Liver	6E-05	--	7E-05	1E-04			
			Carbazole	6E-10	--	2E-09	--	2E-09	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	6E-07	--	1E-06	--	2E-06	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	9E-06	--	1E-05	2E-05			
			Indeno(1,2,3-cd)pyrene	2E-07	--	4E-07	--	6E-07	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	3E-05	--	6E-05	9E-05			
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A			
			Aroclor-1254	2E-07	--	6E-07	--	9E-07	General Toxicity/Immune System	2E-02	--	4E-02	6E-02			
			Aroclor-1260	8E-08	--	2E-07	--	3E-07	General Toxicity/Immune System	8E-03	--	1E-02	2E-02			
			Dieldrin	1E-08	--	2E-08	--	3E-08	Liver	6E-05	--	7E-05	1E-04			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	3E-03	--	N/A	3E-03			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	2E-03	--	N/A	2E-03			
			Arsenic	1E-06	--	8E-07	--	2E-06	Skin	1E-02	--	5E-03	2E-02			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	7E-03	--	4E-03	1E-02			
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	9E-03	--	N/A	9E-03			
			Copper	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-02	--	N/A	1E-02			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03			
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-03	--	N/A	1E-03			
						Chemical Total	7E-06	--	1E-05	--	2E-05		1E-01	--	6E-02	2E-01
						Radionuclide Total										
				Exposure Point Total						2E-05					2E-01	
		Exposure Medium Total							2E-05					2E-01		
Medium Total								2E-05					2E-01			
Receptor Total								7E-05					5E-01			

TABLE 9.20.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

7E-05

Total Hazard Across All Media

5E-01

Total Blood HI =	3E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-01
Total GI System HI =	1E-01
Total Immune System HI =	2E-01
Total Kidney HI =	3E-02
Total Liver HI =	8E-02
Total CNS HI =	2E-02
Total Skin HI =	6E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	3E-02

TABLE 9.20.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel	Benzo(a)anthracene	3E-07	--	6E-07	--	9E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	3E-06	--	6E-06	--	9E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	4E-07	--	7E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	2E-05	--	5E-05	7E-05
			Benzo(k)fluoranthene	7E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-07	--	3E-07	--	6E-07	Liver	4E-03	--	8E-03	1E-02
			Carbazole	4E-10	--	7E-10	--	1E-09	N/A	N/A	--	N/A	N/A
			Chrysene	3E-09	--	5E-09	--	7E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	4E-07	--	8E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	1E-05	--	2E-05	3E-05
			Indeno(1,2,3-cd)pyrene	2E-07	--	3E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	6E-05	--	1E-04	2E-04
			Aroclor-1248	2E-08	--	3E-08	--	4E-08	General Toxicity/Immune System	4E-03	--	9E-03	1E-02
			Aroclor-1254	8E-09	--	1E-08	--	2E-08	General Toxicity/Immune System	2E-03	--	4E-03	6E-03
			Aroclor-1260	1E-08	--	2E-08	--	3E-08	General Toxicity/Immune System	3E-03	--	6E-03	9E-03
			Dieldrin	1E-07	--	1E-07	--	3E-07	Liver	7E-04	--	1E-03	2E-03
			Dioxin TEQ	2E-07	--	8E-08	--	3E-07	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03
			Arsenic	9E-07	--	3E-07	--	1E-06	Skin	9E-03	--	5E-03	1E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	1E-03	3E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	5E-03	--	N/A	5E-03
			Copper	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	8E-03	--	N/A	8E-03
			Lead	0E+00	--	0E+00	--	N/A	CNS	0E+00	--	0E+00	N/A
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	6E-03	--	N/A	6E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	8E-04	--	N/A	8E-04
			Zinc	N/A	--	N/A	--	N/A	Blood	4E-04	--	N/A	4E-04
			Chemical Total	6E-06	--	9E-06	--	2E-05		7E-02	--	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					1E-01
	Exposure Medium Total							2E-05					1E-01
Medium Total								2E-05					1E-01
Surface Water	Surface Water	Downstream of Landfill (wading)											

TABLE 9.20.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	2E-06	2E-06
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	2E-08	--	2E-08	Liver	--	--	7E-05	7E-05
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Heptachlor Epoxide	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	2E-04	2E-04
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chromium	--	--	N/A	--	N/A	GI System	--	--	8E-04	8E-04
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chemical Total	--	--	2E-08	--	2E-08		--	--	1E-03	1E-03
			Radionuclide Total										
		Exposure Point Total						2E-08					1E-03
	Exposure Medium Total							2E-08					1E-03
Medium Total								2E-08					1E-03

TABLE 9.20.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
Sediment	Sediment	Downstream of Landfill	Benzo(a)anthracene	8E-08	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A		
			Benzo(a)pyrene	8E-07	--	3E-06	--	4E-06	N/A	N/A	--	N/A	N/A		
			Benzo(b)fluoranthene	9E-08	--	4E-07	--	4E-07	N/A	N/A	--	N/A	N/A		
			Benzo(k)fluoranthene	6E-09	--	2E-08	--	3E-08	N/A	N/A	--	N/A	N/A		
			bis(2-Ethylhexyl)phthalate	1E-09	--	3E-09	--	4E-09	Liver	1E-05	--	4E-05	5E-05		
			Carbazole	1E-10	--	7E-10	--	8E-10	N/A	N/A	--	N/A	N/A		
			Dibenz(a,h)anthracene	2E-07	--	6E-07	--	8E-07	N/A	N/A	--	N/A	N/A		
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-06	--	6E-06	8E-06		
			Indeno(1,2,3-cd)pyrene	4E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A		
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	9E-06	--	3E-05	4E-05		
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A		
			Aroclor-1254	3E-08	--	1E-07	--	2E-07	General Toxicity/Immune System	6E-03	--	2E-02	3E-02		
			Aroclor-1260	9E-09	--	5E-08	--	5E-08	General Toxicity/Immune System	2E-03	--	7E-03	9E-03		
			Dieldrin	3E-09	--	9E-09	--	1E-08	Liver	1E-05	--	3E-05	5E-05		
			Aluminum	N/A	--	N/A	--	N/A	Developmental	8E-04	--	N/A	8E-04		
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	4E-04	--	N/A	4E-04		
			Arsenic	3E-07	--	4E-07	--	7E-07	Skin	3E-03	--	2E-03	6E-03		
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	2E-03	4E-03		
			Chromium	N/A	--	N/A	--	N/A	GI System	4E-03	--	N/A	4E-03		
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03		
		Copper	N/A	--	N/A	--	N/A	GI System	4E-04	--	N/A	4E-04			
		Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-03	--	N/A	3E-03			
		Lead													
		Manganese (other media)	N/A	--	N/A	--	N/A	CNS	4E-04	--	N/A	4E-04			
		Mercury (other media)	N/A	--	N/A	--	N/A	CNS	5E-04	--	N/A	5E-04			
		Thallium	N/A	--	N/A	--	N/A	Blood	5E-04	--	N/A	5E-04			
		Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-04	--	N/A	3E-04			
					Chemical Total	2E-06	--	6E-06	--	7E-06		3E-02	--	3E-02	6E-02
					Radionuclide Total										
				Exposure Point Total			7E-06				6E-02				
			Exposure Medium Total			7E-06				6E-02					
Medium Total				7E-06				6E-02							
Receptor Total				2E-05				2E-01							

TABLE 9.20.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

2E-05

Total Hazard Across All Media

2E-01

Total Blood HI =	7E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	4E-02
Total Immune System HI =	6E-02
Total Kidney HI =	8E-03
Total Liver HI =	3E-02
Total CNS HI =	5E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-03
Total Endocrine HI =	7E-03

TABLE 9.21.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
Soil	Surface + Subsurface Soil	Nunes Parcel	Benzo(a)anthracene	1E-06	--	1E-06	--	3E-06	N/A	N/A	--	N/A	N/A		
			Benzo(a)pyrene	1E-05	--	1E-05	--	3E-05	N/A	N/A	--	N/A	N/A		
			Benzo(b)fluoranthene	2E-06	--	1E-06	--	3E-06	N/A	N/A	--	N/A	N/A		
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	8E-05	--	1E-04	2E-04		
			Benzo(k)fluoranthene	3E-08	--	3E-08	--	5E-08	N/A	N/A	--	N/A	N/A		
			bis(2-Ethylhexyl)phthalate	1E-06	--	7E-07	--	2E-06	Liver	2E-02	--	2E-02	3E-02		
			Carbazole	2E-09	--	1E-09	--	3E-09	N/A	N/A	--	N/A	N/A		
			Chrysene	1E-08	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A		
			Dibenz(a,h)anthracene	2E-06	--	2E-06	--	4E-06	N/A	N/A	--	N/A	N/A		
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	5E-05	--	4E-05	9E-05		
			Indeno(1,2,3-cd)pyrene	8E-07	--	7E-07	--	1E-06	N/A	N/A	--	N/A	N/A		
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-04	--	3E-04	5E-04		
			Aroclor-1248	2E-07	--	1E-07	--	3E-07	General Toxicity/Immune System	1E-02	--	2E-02	3E-02		
			Aroclor-1254	7E-08	--	6E-08	--	1E-07	General Toxicity/Immune System	7E-03	--	9E-03	2E-02		
			Aroclor-1260	1E-07	--	8E-08	--	2E-07	General Toxicity/Immune System	1E-02	--	1E-02	2E-02		
			Dieldrin	6E-07	--	3E-07	--	9E-07	Liver	3E-03	--	2E-03	5E-03		
			Dioxin TEQ	1E-06	--	2E-07	--	1E-06	N/A	N/A	--	N/A	N/A		
			Aluminum	N/A	--	N/A	--	N/A	Developmental	7E-03	--	N/A	7E-03		
			Arsenic	4E-06	--	7E-07	--	5E-06	Skin	4E-02	--	9E-03	4E-02		
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	7E-03	--	3E-03	1E-02		
			Chromium	N/A	--	N/A	--	N/A	GI System	8E-02	--	N/A	8E-02		
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-02	--	N/A	2E-02		
			Copper	N/A	--	N/A	--	N/A	GI System	5E-03	--	N/A	5E-03		
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-02	--	N/A	3E-02		
			Lead	0E+00	--	0E+00	--	N/A	CNS	0E+00	--	0E+00	N/A		
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-02	--	N/A	1E-02		
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	6E-03	--	N/A	6E-03		
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-02	--	N/A	2E-02		
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-03	--	N/A	3E-03		
			Zinc	N/A	--	N/A	--	N/A	Blood	1E-03	--	N/A	1E-03		
			Chemical Total			3E-05	--	2E-05	--	5E-05		3E-01	--	7E-02	4E-01
			Radionuclide Total												
			Exposure Point Total			5E-05					4E-01				
Exposure Medium Total			5E-05					4E-01							
Medium Total			5E-05					4E-01							
Surface Water	Surface Water	Downstream of Landfill (swimming)													

TABLE 9.21.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	5E-09	--	N/A	--	5E-09	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	6E-09	--	N/A	--	6E-09	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	4E-07	--	N/A	4E-07
			Benzo(k)fluoranthene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Chrysene	4E-11	--	N/A	--	4E-11	N/A	N/A	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	9E-07	--	2E-05	2E-05
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	4E-07	--	N/A	4E-07
			1,4-Dichlorobenzene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Benzene	4E-09	--	3E-08	--	4E-08	Immune System	8E-05	--	4E-04	5E-04
			Aroclor-1260	8E-09	--	N/A	--	8E-09	General Toxicity/Immune System	8E-04	--	N/A	8E-04
			4,4'-DDD	4E-11	--	N/A	--	4E-11	N/A	N/A	--	N/A	N/A
			4,4'-DDE	2E-11	--	N/A	--	2E-11	N/A	N/A	--	N/A	N/A
			4,4'-DDT	2E-11	--	N/A	--	2E-11	Liver	4E-07	--	N/A	4E-07
			alpha-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			beta-BHC	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Dieldrin	2E-09	--	7E-08	--	7E-08	Liver	1E-05	--	2E-04	2E-04
			Gamma-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Heptachlor Epoxide	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	3E-03	--	8E-04	4E-03
			Arsenic	1E-07	--	N/A	--	1E-07	Skin	1E-03	--	N/A	1E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	3E-03	--	6E-04	3E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	6E-03	--	2E-03	8E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	3E-04	--	N/A	3E-04
			Copper	N/A	--	N/A	--	N/A	GI System	3E-05	--	N/A	3E-05
			Cyanide	N/A	--	N/A	--	N/A	Endocrine/CNS	N/A	--	N/A	N/A
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-03	--	N/A	1E-03
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	6E-04	--	N/A	6E-04
			Mercury (water)	N/A	--	N/A	--	N/A	Immune System	1E-04	--	N/A	1E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-03	--	3E-04	2E-03
			Chemical Total	2E-07	--	1E-07	--	3E-07		2E-02	--	5E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						3E-07					2E-02
	Exposure Medium Total							3E-07					2E-02
Medium Total								3E-07					2E-02

TABLE 9.21.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Sediment	Sediment	Downstream of Landfill	Benzo(a)anthracene	3E-07	--	7E-07	--	1E-06	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	4E-06	--	8E-06	--	1E-05	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	4E-07	--	8E-07	--	1E-06	N/A	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	2E-08	--	5E-08	--	8E-08	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	4E-09	--	8E-09	--	1E-08	Liver	6E-05	--	7E-05	1E-04			
			Carbazole	6E-10	--	2E-09	--	2E-09	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	6E-07	--	1E-06	--	2E-06	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	9E-06	--	1E-05	2E-05			
			Indeno(1,2,3-cd)pyrene	2E-07	--	4E-07	--	6E-07	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	3E-05	--	6E-05	9E-05			
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A			
			Aroclor-1254	2E-07	--	6E-07	--	9E-07	General Toxicity/Immune System	2E-02	--	4E-02	6E-02			
			Aroclor-1260	8E-08	--	2E-07	--	3E-07	General Toxicity/Immune System	8E-03	--	1E-02	2E-02			
			Dieldrin	1E-08	--	2E-08	--	3E-08	Liver	6E-05	--	7E-05	1E-04			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	3E-03	--	N/A	3E-03			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	2E-03	--	N/A	2E-03			
			Arsenic	1E-06	--	8E-07	--	2E-06	Skin	1E-02	--	5E-03	2E-02			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	7E-03	--	4E-03	1E-02			
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	9E-03	--	N/A	9E-03			
			Copper	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-02	--	N/A	1E-02			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03			
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-03	--	N/A	1E-03			
						Chemical Total	7E-06	--	1E-05	--	2E-05		1E-01	--	6E-02	2E-01
						Radionuclide Total										
				Exposure Point Total						2E-05					2E-01	
		Exposure Medium Total							2E-05					2E-01		
Medium Total								2E-05					2E-01			
Receptor Total								7E-05					5E-01			

TABLE 9.21.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

7E-05

Total Hazard Across All Media

5E-01

Total Blood HI =	3E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-01
Total GI System HI =	2E-01
Total Immune System HI =	2E-01
Total Kidney HI =	3E-02
Total Liver HI =	8E-02
Total CNS HI =	2E-02
Total Skin HI =	6E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	3E-02

TABLE 9.21.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel	Benzo(a)anthracene	3E-07	--	6E-07	--	9E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	3E-06	--	6E-06	--	9E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	4E-07	--	7E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	2E-05	--	5E-05	7E-05
			Benzo(k)fluoranthene	7E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-07	--	3E-07	--	6E-07	Liver	4E-03	--	8E-03	1E-02
			Carbazole	4E-10	--	7E-10	--	1E-09	N/A	N/A	--	N/A	N/A
			Chrysene	3E-09	--	5E-09	--	7E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	4E-07	--	8E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	1E-05	--	2E-05	3E-05
			Indeno(1,2,3-cd)pyrene	2E-07	--	3E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	6E-05	--	1E-04	2E-04
			Aroclor-1248	2E-08	--	3E-08	--	4E-08	General Toxicity/Immune System	4E-03	--	9E-03	1E-02
			Aroclor-1254	8E-09	--	1E-08	--	2E-08	General Toxicity/Immune System	2E-03	--	4E-03	6E-03
			Aroclor-1260	1E-08	--	2E-08	--	3E-08	General Toxicity/Immune System	3E-03	--	6E-03	9E-03
			Dieldrin	1E-07	--	1E-07	--	3E-07	Liver	7E-04	--	1E-03	2E-03
			Dioxin TEQ	2E-07	--	8E-08	--	3E-07	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03
			Arsenic	9E-07	--	3E-07	--	1E-06	Skin	9E-03	--	5E-03	1E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	1E-03	3E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	5E-03	--	N/A	5E-03
			Copper	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	8E-03	--	N/A	8E-03
			Lead	0E+00	--	0E+00	--	N/A	CNS	0E+00	--	0E+00	N/A
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	6E-03	--	N/A	6E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	8E-04	--	N/A	8E-04
			Zinc	N/A	--	N/A	--	N/A	Blood	4E-04	--	N/A	4E-04
			Chemical Total	6E-06	--	9E-06	--	2E-05		7E-02	--	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					1E-01
	Exposure Medium Total							2E-05					1E-01
Medium Total								2E-05					1E-01
Surface Water	Surface Water	Downstream of Landfill (swimming)											

TABLE 9.21.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	2E-09	--	N/A	--	2E-09	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	3E-09	--	N/A	--	3E-09	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	1E-07	--	N/A	1E-07
			Benzo(k)fluoranthene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Chrysene	2E-11	--	N/A	--	2E-11	N/A	N/A	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	2E-07	--	3E-06	3E-06
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-07	--	N/A	2E-07
			1,4-Dichlorobenzene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Benzene	2E-09	--	1E-08	--	2E-08	Immune System	4E-05	--	2E-04	2E-04
			Aroclor-1260	2E-09	--	N/A	--	2E-09	General Toxicity/Immune System	4E-04	--	N/A	4E-04
			4,4'-DDD	2E-11	--	N/A	--	2E-11	N/A	N/A	--	N/A	N/A
			4,4'-DDE	7E-12	--	N/A	--	7E-12	N/A	N/A	--	N/A	N/A
			4,4'-DDT	8E-12	--	N/A	--	8E-12	Liver	2E-07	--	N/A	2E-07
			alpha-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			beta-BHC	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Dieldrin	9E-10	--	3E-08	--	3E-08	Liver	5E-06	--	1E-04	1E-04
			Gamma-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Heptachlor Epoxide	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	4E-04	2E-03
			Arsenic	6E-08	--	N/A	--	6E-08	Skin	6E-04	--	N/A	6E-04
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	1E-03	--	3E-04	2E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	3E-03	--	1E-03	4E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-04	--	N/A	2E-04
			Copper	N/A	--	N/A	--	N/A	GI System	1E-05	--	N/A	1E-05
			Cyanide	N/A	--	N/A	--	N/A	Endocrine/CNS	N/A	--	N/A	N/A
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	7E-04	--	N/A	7E-04
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	3E-04	--	N/A	3E-04
			Mercury (water)	N/A	--	N/A	--	N/A	Immune System	5E-05	--	N/A	5E-05
			Vanadium	N/A	--	N/A	--	N/A	Kidney	6E-04	--	1E-04	8E-04
			Chemical Total	7E-08	--	4E-08	--	1E-07		9E-03	--	2E-03	1E-02
			Radionuclide Total										
		Exposure Point Total						1E-07					1E-02
	Exposure Medium Total							1E-07					1E-02
Medium Total								1E-07					1E-02

TABLE 9.21.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Sediment	Sediment	Downstream of Landfill	Benzo(a)anthracene	8E-08	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	8E-07	--	3E-06	--	4E-06	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	9E-08	--	4E-07	--	4E-07	N/A	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	6E-09	--	2E-08	--	3E-08	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	1E-09	--	3E-09	--	4E-09	Liver	1E-05	--	4E-05	5E-05			
			Carbazole	1E-10	--	7E-10	--	8E-10	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	2E-07	--	6E-07	--	8E-07	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-06	--	6E-06	8E-06			
			Indeno(1,2,3-cd)pyrene	4E-08	--	2E-07	--	2E-07	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	9E-06	--	3E-05	4E-05			
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A			
			Aroclor-1254	3E-08	--	1E-07	--	2E-07	General Toxicity/Immune System	6E-03	--	2E-02	3E-02			
			Aroclor-1260	9E-09	--	5E-08	--	5E-08	General Toxicity/Immune System	2E-03	--	7E-03	9E-03			
			Dieldrin	3E-09	--	9E-09	--	1E-08	Liver	1E-05	--	3E-05	5E-05			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	8E-04	--	N/A	8E-04			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	4E-04	--	N/A	4E-04			
			Arsenic	3E-07	--	4E-07	--	7E-07	Skin	3E-03	--	2E-03	6E-03			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	2E-03	4E-03			
			Chromium	N/A	--	N/A	--	N/A	GI System	4E-03	--	N/A	4E-03			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03			
			Copper	N/A	--	N/A	--	N/A	GI System	4E-04	--	N/A	4E-04			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-03	--	N/A	3E-03			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	4E-04	--	N/A	4E-04			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	5E-04	--	N/A	5E-04			
			Thallium	N/A	--	N/A	--	N/A	Blood	5E-04	--	N/A	5E-04			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-04	--	N/A	3E-04			
						Chemical Total	2E-06	--	6E-06	--	7E-06		3E-02	--	3E-02	6E-02
						Radionuclide Total										
				Exposure Point Total		7E-06						6E-02				
		Exposure Medium Total			7E-06						6E-02					
Medium Total				7E-06						6E-02						
Receptor Total				2E-05						2E-01						

TABLE 9.21.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

2E-05

Total Hazard Across All Media

2E-01

Total Blood HI =	7E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E-02
Total GI System HI =	4E-02
Total Immune System HI =	6E-02
Total Kidney HI =	1E-02
Total Liver HI =	3E-02
Total CNS HI =	5E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	5E-03
Total Endocrine HI =	7E-03

TABLE 9.22.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield	Benzo(a)anthracene	3E-07	--	3E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	3E-06	--	3E-06	--	6E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	4E-07	--	4E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	2E-08	--	2E-08	--	3E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	--	1E-09	--	4E-09	Liver	3E-05	--	3E-05	7E-05
			Carbazole	6E-10	--	4E-10	--	1E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	5E-07	--	4E-07	--	9E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	3E-05	--	3E-05	6E-05
			Indeno(1,2,3-cd)pyrene	3E-07	--	2E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	3E-05	--	4E-05	7E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	2E-07	--	2E-07	--	4E-07	General Toxicity/Immune System	2E-02	--	3E-02	5E-02
			Dieldrin	2E-06	--	8E-07	--	2E-06	Liver	7E-03	--	6E-03	1E-02
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	6E-03	--	N/A	6E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	2E-03	--	N/A	2E-03
			Arsenic	4E-06	--	6E-07	--	4E-06	Skin	3E-02	--	8E-03	4E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	3E-03	--	1E-03	4E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	6E-02	--	N/A	6E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02
			Copper	N/A	--	N/A	--	N/A	GI System	3E-03	--	N/A	3E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	5E-03	--	N/A	5E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	6E-03	--	N/A	6E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-03	--	N/A	3E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	3E-04	--	N/A	3E-04
			Chemical Total	1E-05	--	6E-06	--	2E-05		2E-01	--	4E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					2E-01
	Exposure Medium Total							2E-05					2E-01
Medium Total								2E-05					2E-01
Surface Water	Surface Water	Upstream of Landfill (wading)	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.22.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	2E-07	--	2E-07	Liver	--	--	2E-03	2E-03
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-Chlordane	--	--	3E-09	--	3E-09	Liver	--	--	4E-05	4E-05
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Heptachlor Epoxide	--	--	4E-08	--	4E-08	Liver	--	--	9E-04	9E-04
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	4E-03	4E-03
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chromium	--	--	N/A	--	N/A	GI System	--	--	4E-03	4E-03
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chemical Total	--	--	2E-07	--	2E-07		--	--	1E-02	1E-02
			Radionuclide Total										
		Exposure Point Total						2E-07					1E-02
	Exposure Medium Total							2E-07					1E-02
Medium Total								2E-07					1E-02
Sediment	Sediment	Upstream of Landfill	Benzo(a)anthracene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A

TABLE 9.22.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-06	--	3E-06	--	4E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-07	--	3E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	7E-09	--	2E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-08	--	4E-08	--	5E-08	Liver	3E-04	--	3E-04	6E-04
			Carbazole	3E-10	--	7E-10	--	9E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	7E-06	--	9E-06	2E-05
			Indeno(1,2,3-cd)pyrene	5E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-05	--	2E-05	4E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	1E-08	--	3E-08	--	4E-08	General Toxicity/Immune System	1E-03	--	2E-03	3E-03
			Aroclor-1260	1E-07	--	3E-07	--	4E-07	General Toxicity/Immune System	1E-02	--	2E-02	3E-02
			Dieldrin	1E-07	--	2E-07	--	4E-07	Liver	6E-04	--	8E-04	1E-03
			Aluminum	N/A	--	N/A	--	N/A	Developmental	4E-03	--	N/A	4E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	1E-06	--	8E-07	--	2E-06	Skin	1E-02	--	5E-03	2E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	6E-03	--	3E-03	8E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02
			Copper	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	7E-03	--	N/A	7E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	5E-03	--	N/A	5E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-03	--	N/A	3E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-03	--	N/A	1E-03
			Chemical Total	3E-06	--	5E-06	--	9E-06		9E-02	--	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						9E-06					1E-01
	Exposure Medium Total							9E-06					1E-01
Medium Total								9E-06					1E-01
Receptor Total								2E-05					4E-01

TABLE 9.22.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

2E-05

Total Hazard Across All Media

4E-01

Total Blood HI =	5E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	8E-02
Total GI System HI =	1E-01
Total Immune System HI =	8E-02
Total Kidney HI =	2E-02
Total Liver HI =	4E-02
Total CNS HI =	2E-02
Total Skin HI =	6E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	3E-02

TABLE 9.22.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield	Benzo(a)anthracene	7E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	7E-07	--	1E-06	--	2E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-07	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	4E-09	--	7E-09	--	1E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	6E-10	--	6E-10	--	1E-09	Liver	9E-06	--	2E-05	2E-05
			Carbazole	1E-10	--	2E-10	--	3E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	8E-06	--	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	6E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	8E-06	--	2E-05	3E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	2E-08	--	4E-08	--	6E-08	General Toxicity/Immune System	5E-03	--	1E-02	2E-02
			Dieldrin	3E-07	--	4E-07	--	7E-07	Liver	2E-03	--	3E-03	5E-03
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	6E-04	--	N/A	6E-04
			Arsenic	8E-07	--	3E-07	--	1E-06	Skin	8E-03	--	4E-03	1E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	8E-04	--	5E-04	1E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	3E-03	--	N/A	3E-03
			Copper	N/A	--	N/A	--	N/A	GI System	7E-04	--	N/A	7E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	5E-03	--	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	5E-04	--	N/A	5E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	7E-04	--	N/A	7E-04
			Zinc	N/A	--	N/A	--	N/A	Blood	8E-05	--	N/A	8E-05
			Chemical Total	2E-06	--	3E-06	--	5E-06		5E-02	--	2E-02	7E-02
			Radionuclide Total										
		Exposure Point Total						5E-06					7E-02
	Exposure Medium Total							5E-06					7E-02
Medium Total								5E-06					7E-02
Surface Water	Surface Water	Upstream of Landfill (wading)	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A

TABLE 9.22.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			bis(2-Ethylhexyl)phthalate	--	--	4E-08	--	4E-08	Liver	--	--	5E-04	5E-04		
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A		
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A		
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A		
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			alpha-Chlordane	--	--	6E-10	--	6E-10	Liver	--	--	1E-05	1E-05		
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Heptachlor Epoxide	--	--	1E-08	--	1E-08	Liver	--	--	3E-04	3E-04		
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	6E-04	6E-04		
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A		
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Chromium	--	--	N/A	--	N/A	GI System	--	--	7E-04	7E-04		
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A		
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A		
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A		
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A		
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A		
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A		
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A		
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Chemical Total				--	--	6E-08	--	6E-08	--	--	2E-03	2E-03
			Radionuclide Total												
		Exposure Point Total				6E-08					2E-03				
	Exposure Medium Total				6E-08					2E-03					
Medium Total				6E-08					2E-03						
Sediment	Sediment	Upstream of Landfill	Benzo(a)anthracene	2E-08	--	8E-08	--	1E-07	N/A	N/A	--	N/A	N/A		

TABLE 9.22.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	2E-07	--	8E-07	--	9E-07	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	9E-10	--	4E-09	--	5E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	--	7E-09	--	9E-09	Liver	3E-05	--	7E-05	1E-04
			Carbazole	6E-11	--	3E-10	--	3E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-06	--	5E-06	6E-06
			Indeno(1,2,3-cd)pyrene	8E-09	--	3E-08	--	4E-08	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-06	--	7E-06	9E-06
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	5E-10	--	3E-09	--	3E-09	General Toxicity/Immune System	1E-04	--	4E-04	5E-04
			Aroclor-1260	4E-09	--	2E-08	--	3E-08	General Toxicity/Immune System	9E-04	--	3E-03	4E-03
			Dieldrin	1E-08	--	4E-08	--	5E-08	Liver	5E-05	--	1E-04	2E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	6E-04	--	N/A	6E-04
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	2E-07	--	2E-07	--	4E-07	Skin	2E-03	--	1E-03	3E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	6E-04	--	6E-04	1E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03
			Copper	N/A	--	N/A	--	N/A	GI System	2E-04	--	N/A	2E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-03	--	N/A	2E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	6E-04	--	N/A	6E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-04	--	N/A	2E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	5E-04	--	N/A	5E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-04	--	N/A	2E-04
			Chemical Total	5E-07	--	1E-06	--	2E-06		1E-02	--	6E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Receptor Total								7E-06					9E-02

TABLE 9.22.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

7E-06

Total Hazard Across All Media

9E-02

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-02
Total GI System HI =	3E-02
Total Immune System HI =	2E-02
Total Kidney HI =	3E-03
Total Liver HI =	1E-02
Total CNS HI =	4E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-03
Total Endocrine HI =	5E-03

TABLE 9.23.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield	Benzo(a)anthracene	3E-07	--	3E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	3E-06	--	3E-06	--	6E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	4E-07	--	4E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	2E-08	--	2E-08	--	3E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	--	1E-09	--	4E-09	Liver	3E-05	--	3E-05	7E-05
			Carbazole	6E-10	--	4E-10	--	1E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	5E-07	--	4E-07	--	9E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	3E-05	--	3E-05	6E-05
			Indeno(1,2,3-cd)pyrene	3E-07	--	2E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	3E-05	--	4E-05	7E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	2E-07	--	2E-07	--	4E-07	General Toxicity/Immune System	2E-02	--	3E-02	5E-02
			Dieldrin	2E-06	--	8E-07	--	2E-06	Liver	7E-03	--	6E-03	1E-02
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	6E-03	--	N/A	6E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	2E-03	--	N/A	2E-03
			Arsenic	4E-06	--	6E-07	--	4E-06	Skin	3E-02	--	8E-03	4E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	3E-03	--	1E-03	4E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	6E-02	--	N/A	6E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02
			Copper	N/A	--	N/A	--	N/A	GI System	3E-03	--	N/A	3E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	5E-03	--	N/A	5E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	6E-03	--	N/A	6E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-03	--	N/A	3E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	3E-04	--	N/A	3E-04
			Chemical Total	1E-05	--	6E-06	--	2E-05		2E-01	--	4E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					2E-01
	Exposure Medium Total							2E-05					2E-01
Medium Total								2E-05					2E-01
Surface Water	Surface Water	Upstream of Landfill (swimming)	Benzo(a)anthracene	4E-09	--	N/A	--	4E-09	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	5E-08	--	N/A	--	5E-08	N/A	N/A	--	N/A	N/A

TABLE 9.23.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
			Benzo(b)fluoranthene	8E-09	--	N/A	--	8E-09	N/A	N/A	--	N/A	N/A			
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	4E-07	--	N/A	4E-07			
			Benzo(k)fluoranthene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	5E-09	--	3E-07	--	3E-07	Liver	6E-05	--	3E-03	3E-03			
			Chrysene	6E-11	--	N/A	--	6E-11	N/A	N/A	--	N/A	N/A			
			Indeno(1,2,3-cd)pyrene	4E-09	--	N/A	--	4E-09	N/A	N/A	--	N/A	N/A			
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	7E-07	--	N/A	7E-07			
			1,4-Dichlorobenzene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Benzene	N/A	--	N/A	--	N/A	Immune System	N/A	--	N/A	N/A			
			Aroclor-1260	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A			
			4,4'-DDD	4E-11	--	N/A	--	4E-11	N/A	N/A	--	N/A	N/A			
			4,4'-DDE	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			4,4'-DDT	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			alpha-Chlordane	5E-11	--	5E-09	--	5E-09	Liver	1E-06	--	7E-05	7E-05			
			beta-BHC	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Dieldrin	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Gamma-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Heptachlor Epoxide	8E-10	--	6E-08	--	6E-08	Liver	3E-05	--	1E-03	1E-03			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	3E-02	--	6E-03	3E-02			
			Arsenic	2E-07	--	N/A	--	2E-07	Skin	2E-03	--	N/A	2E-03			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	5E-04	3E-03			
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-02	--	6E-03	2E-02			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	3E-04	--	N/A	3E-04			
			Copper	N/A	--	N/A	--	N/A	GI System	N/A	--	N/A	N/A			
			Cyanide	N/A	--	N/A	--	N/A	Endocrine/CNS	N/A	--	N/A	N/A			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	7E-04	--	N/A	7E-04			
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A			
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	5E-04	--	N/A	5E-04			
			Mercury (water)	N/A	--	N/A	--	N/A	Immune System	N/A	--	N/A	N/A			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-03	--	6E-04	4E-03			
			Chemical Total				3E-07	--	4E-07	--	7E-07		5E-02	--	2E-02	7E-02
			Radionuclide Total													
		Exposure Point Total				7E-07					7E-02					
	Exposure Medium Total				7E-07					7E-02						
Medium Total				7E-07					7E-02							
Sediment	Sediment	Upstream of Landfill	Benzo(a)anthracene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A			

TABLE 9.23.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-06	--	3E-06	--	4E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-07	--	3E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	7E-09	--	2E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-08	--	4E-08	--	5E-08	Liver	3E-04	--	3E-04	6E-04
			Carbazole	3E-10	--	7E-10	--	9E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	7E-06	--	9E-06	2E-05
			Indeno(1,2,3-cd)pyrene	5E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-05	--	2E-05	4E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	1E-08	--	3E-08	--	4E-08	General Toxicity/Immune System	1E-03	--	2E-03	3E-03
			Aroclor-1260	1E-07	--	3E-07	--	4E-07	General Toxicity/Immune System	1E-02	--	2E-02	3E-02
			Dieldrin	1E-07	--	2E-07	--	4E-07	Liver	6E-04	--	8E-04	1E-03
			Aluminum	N/A	--	N/A	--	N/A	Developmental	4E-03	--	N/A	4E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	1E-06	--	8E-07	--	2E-06	Skin	1E-02	--	5E-03	2E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	6E-03	--	3E-03	8E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02
			Copper	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	7E-03	--	N/A	7E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	5E-03	--	N/A	5E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-03	--	N/A	3E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-03	--	N/A	1E-03
			Chemical Total	3E-06	--	5E-06	--	9E-06		9E-02	--	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						9E-06					1E-01
	Exposure Medium Total							9E-06					1E-01
Medium Total								9E-06					1E-01
Receptor Total								2E-05					4E-01

TABLE 9.23.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

2E-05

Total Hazard Across All Media

4E-01

Total Blood HI =	5E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	8E-02
Total GI System HI =	1E-01
Total Immune System HI =	8E-02
Total Kidney HI =	2E-02
Total Liver HI =	5E-02
Total CNS HI =	2E-02
Total Skin HI =	6E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	4E-02
Total Endocrine HI =	3E-02

TABLE 9.23.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield	Benzo(a)anthracene	7E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	7E-07	--	1E-06	--	2E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-07	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	4E-09	--	7E-09	--	1E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	6E-10	--	6E-10	--	1E-09	Liver	9E-06	--	2E-05	2E-05
			Carbazole	1E-10	--	2E-10	--	3E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	8E-06	--	1E-05	2E-05
			Indeno(1,2,3-cd)pyrene	6E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	8E-06	--	2E-05	3E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	2E-08	--	4E-08	--	6E-08	General Toxicity/Immune System	5E-03	--	1E-02	2E-02
			Dieldrin	3E-07	--	4E-07	--	7E-07	Liver	2E-03	--	3E-03	5E-03
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	6E-04	--	N/A	6E-04
			Arsenic	8E-07	--	3E-07	--	1E-06	Skin	8E-03	--	4E-03	1E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	8E-04	--	5E-04	1E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	3E-03	--	N/A	3E-03
			Copper	N/A	--	N/A	--	N/A	GI System	7E-04	--	N/A	7E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	5E-03	--	N/A	5E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	5E-04	--	N/A	5E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	7E-04	--	N/A	7E-04
			Zinc	N/A	--	N/A	--	N/A	Blood	8E-05	--	N/A	8E-05
			Chemical Total	2E-06	--	3E-06	--	5E-06		5E-02	--	2E-02	7E-02
			Radionuclide Total										
		Exposure Point Total						5E-06					7E-02
	Exposure Medium Total							5E-06					7E-02
Medium Total								5E-06					7E-02
Surface Water	Surface Water	Upstream of Landfill (swimming)	Benzo(a)anthracene	1E-09	--	N/A	--	1E-09	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-08	--	N/A	--	1E-08	N/A	N/A	--	N/A	N/A

TABLE 9.23.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
			Benzo(b)fluoranthene	2E-09	--	N/A	--	2E-09	N/A	N/A	--	N/A	N/A			
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	1E-07	--	N/A	1E-07			
			Benzo(k)fluoranthene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	1E-09	--	7E-08	--	7E-08	Liver	2E-05	--	8E-04	8E-04			
			Chrysene	1E-11	--	N/A	--	1E-11	N/A	N/A	--	N/A	N/A			
			Indeno(1,2,3-cd)pyrene	1E-09	--	N/A	--	1E-09	N/A	N/A	--	N/A	N/A			
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-07	--	N/A	2E-07			
			1,4-Dichlorobenzene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Benzene	N/A	--	N/A	--	N/A	Immune System	N/A	--	N/A	N/A			
			Aroclor-1260	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A			
			4,4'-DDD	1E-11	--	N/A	--	1E-11	N/A	N/A	--	N/A	N/A			
			4,4'-DDE	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			4,4'-DDT	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			alpha-Chlordane	1E-11	--	9E-10	--	9E-10	Liver	3E-07	--	2E-05	2E-05			
			beta-BHC	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Dieldrin	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Gamma-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A			
			Heptachlor Epoxide	2E-10	--	2E-08	--	2E-08	Liver	9E-06	--	4E-04	4E-04			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	5E-03	--	1E-03	6E-03			
			Arsenic	7E-08	--	N/A	--	7E-08	Skin	7E-04	--	N/A	7E-04			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	9E-04	--	2E-04	1E-03			
			Chromium	N/A	--	N/A	--	N/A	GI System	3E-03	--	1E-03	4E-03			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-04	--	N/A	1E-04			
			Copper	N/A	--	N/A	--	N/A	GI System	N/A	--	N/A	N/A			
			Cyanide	N/A	--	N/A	--	N/A	Endocrine/CNS	N/A	--	N/A	N/A			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-04	--	N/A	1E-04			
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A			
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	2E-04	--	N/A	2E-04			
			Mercury (water)	N/A	--	N/A	--	N/A	Immune System	N/A	--	N/A	N/A			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	7E-04	--	1E-04	8E-04			
						Chemical Total	9E-08	--	9E-08	--	2E-07		1E-02	--	4E-03	1E-02
					Radionuclide Total											
				Exposure Point Total						2E-07					1E-02	
			Exposure Medium Total						2E-07					1E-02		
Medium Total									2E-07					1E-02		
Sediment	Sediment	Upstream of Landfill	Benzo(a)anthracene	2E-08	--	8E-08	--	1E-07	N/A	N/A	--	N/A	N/A			

TABLE 9.23.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	2E-07	--	8E-07	--	9E-07	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	9E-10	--	4E-09	--	5E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	--	7E-09	--	9E-09	Liver	3E-05	--	7E-05	1E-04
			Carbazole	6E-11	--	3E-10	--	3E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-06	--	5E-06	6E-06
			Indeno(1,2,3-cd)pyrene	8E-09	--	3E-08	--	4E-08	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-06	--	7E-06	9E-06
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	5E-10	--	3E-09	--	3E-09	General Toxicity/Immune System	1E-04	--	4E-04	5E-04
			Aroclor-1260	4E-09	--	2E-08	--	3E-08	General Toxicity/Immune System	9E-04	--	3E-03	4E-03
			Dieldrin	1E-08	--	4E-08	--	5E-08	Liver	5E-05	--	1E-04	2E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	6E-04	--	N/A	6E-04
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	2E-07	--	2E-07	--	4E-07	Skin	2E-03	--	1E-03	3E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	6E-04	--	6E-04	1E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03
			Copper	N/A	--	N/A	--	N/A	GI System	2E-04	--	N/A	2E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-03	--	N/A	2E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	6E-04	--	N/A	6E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-04	--	N/A	2E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	5E-04	--	N/A	5E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-04	--	N/A	2E-04
			Chemical Total	5E-07	--	1E-06	--	2E-06		1E-02	--	6E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Receptor Total								7E-06					1E-01

TABLE 9.23.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

7E-06

Total Hazard Across All Media

1E-01

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-02
Total GI System HI =	3E-02
Total Immune System HI =	2E-02
Total Kidney HI =	5E-03
Total Liver HI =	1E-02
Total CNS HI =	4E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	8E-03
Total Endocrine HI =	5E-03

TABLE 9.24.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Benzo(a)anthracene	6E-07	--	5E-07	--	1E-06	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	5E-06	--	5E-06	--	1E-05	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	9E-07	--	8E-07	--	2E-06	N/A	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	3E-08	--	3E-08	--	6E-08	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	1E-08	--	8E-09	--	2E-08	Liver	2E-04	--	2E-04	4E-04			
			Carbazole	9E-10	--	6E-10	--	2E-09	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	1E-06	--	1E-06	--	2E-06	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	2E-05	4E-05			
			Indeno(1,2,3-cd)pyrene	4E-07	--	3E-07	--	7E-07	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	6E-05	--	7E-05	1E-04			
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A			
			Aroclor-1254	1E-07	--	8E-08	--	2E-07	General Toxicity/Immune System	1E-02	--	1E-02	2E-02			
			Aroclor-1260	1E-07	--	1E-07	--	3E-07	General Toxicity/Immune System	1E-02	--	2E-02	3E-02			
			Dieldrin	4E-07	--	2E-07	--	6E-07	Liver	2E-03	--	2E-03	4E-03			
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	9E-03	--	N/A	9E-03			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A			
			Arsenic	5E-06	--	8E-07	--	6E-06	Skin	4E-02	--	1E-02	5E-02			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	7E-03	--	3E-03	1E-02			
			Chromium	N/A	--	N/A	--	N/A	GI System	5E-02	--	N/A	5E-02			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	N/A	--	N/A	N/A			
			Copper	N/A	--	N/A	--	N/A	GI System	5E-03	--	N/A	5E-03			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-02	--	N/A	3E-02			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-02	--	N/A	1E-02			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	5E-03	--	N/A	5E-03			
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-02	--	N/A	2E-02			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	4E-03	--	N/A	4E-03			
			Zinc	N/A	--	N/A	--	N/A	Blood	7E-04	--	N/A	7E-04			
						Chemical Total	1E-05	--	9E-06	--	2E-05		2E-01	--	5E-02	2E-01
						Radionuclide Total										
						Exposure Point Total					2E-05					2E-01
			Exposure Medium Total					2E-05					2E-01			
Medium Total								2E-05					2E-01			
Surface Water	Surface Water	Upstream of Landfill (wading)	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			

TABLE 9.24.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	2E-07	--	2E-07	Liver	--	--	2E-03	2E-03
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			alpha-Chlordane	--	--	3E-09	--	3E-09	Liver	--	--	4E-05	4E-05
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A
			Heptachlor Epoxide	--	--	4E-08	--	4E-08	Liver	--	--	9E-04	9E-04
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	4E-03	4E-03
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chromium	--	--	N/A	--	N/A	GI System	--	--	4E-03	4E-03
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A
			Chemical Total	--	--	2E-07	--	2E-07		--	--	1E-02	1E-02
			Radionuclide Total										
		Exposure Point Total						2E-07					1E-02
	Exposure Medium Total							2E-07					1E-02
Medium Total								2E-07					1E-02
Sediment	Sediment	Upstream of Landfill											

TABLE 9.24.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-06	--	3E-06	--	4E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-07	--	3E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	7E-09	--	2E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-08	--	4E-08	--	5E-08	Liver	3E-04	--	3E-04	6E-04
			Carbazole	3E-10	--	7E-10	--	9E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	7E-06	--	9E-06	2E-05
			Indeno(1,2,3-cd)pyrene	5E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-05	--	2E-05	4E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	1E-08	--	3E-08	--	4E-08	General Toxicity/Immune System	1E-03	--	2E-03	3E-03
			Aroclor-1260	1E-07	--	3E-07	--	4E-07	General Toxicity/Immune System	1E-02	--	2E-02	3E-02
			Dieldrin	1E-07	--	2E-07	--	4E-07	Liver	6E-04	--	8E-04	1E-03
			Aluminum	N/A	--	N/A	--	N/A	Developmental	4E-03	--	N/A	4E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	1E-06	--	8E-07	--	2E-06	Skin	1E-02	--	5E-03	2E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	6E-03	--	3E-03	8E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02
			Copper	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	7E-03	--	N/A	7E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	5E-03	--	N/A	5E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-03	--	N/A	3E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-03	--	N/A	1E-03
			Chemical Total	3E-06	--	5E-06	--	9E-06		9E-02	--	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						9E-06					1E-01
	Exposure Medium Total							9E-06					1E-01
Medium Total								9E-06					1E-01
Receptor Total								3E-05					4E-01

TABLE 9.24.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

3E-05

Total Hazard Across All Media

4E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	9E-02
Total GI System HI =	1E-01
Total Immune System HI =	9E-02
Total Kidney HI =	2E-02
Total Liver HI =	5E-02
Total CNS HI =	2E-02
Total Skin HI =	7E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-02
Total Endocrine HI =	1E-02

TABLE 9.24.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Benzo(a)anthracene	8E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	7E-07	--	1E-06	--	2E-06	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	1E-07	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	7E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	1E-09	--	1E-09	--	2E-09	Liver	2E-05	--	3E-05	4E-05			
			Carbazole	2E-10	--	3E-10	--	5E-10	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	2E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	5E-06	--	8E-06	1E-05			
			Indeno(1,2,3-cd)pyrene	4E-08	--	8E-08	--	1E-07	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	9E-06	--	2E-05	3E-05			
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A			
			Aroclor-1254	4E-09	--	6E-09	--	1E-08	General Toxicity/Immune System	8E-04	--	2E-03	3E-03			
			Aroclor-1260	6E-09	--	9E-09	--	1E-08	General Toxicity/Immune System	1E-03	--	3E-03	4E-03			
			Dieldrin	4E-08	--	5E-08	--	8E-08	Liver	2E-04	--	4E-04	6E-04			
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	1E-03	--	N/A	1E-03			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A			
			Arsenic	6E-07	--	2E-07	--	8E-07	Skin	6E-03	--	3E-03	9E-03			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	7E-04	--	5E-04	1E-03			
			Chromium	N/A	--	N/A	--	N/A	GI System	6E-03	--	N/A	6E-03			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	N/A	--	N/A	N/A			
			Copper	N/A	--	N/A	--	N/A	GI System	6E-04	--	N/A	6E-04			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	4E-03	--	N/A	4E-03			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	7E-04	--	N/A	7E-04			
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	6E-04	--	N/A	6E-04			
			Zinc	N/A	--	N/A	--	N/A	Blood	1E-04	--	N/A	1E-04			
						Chemical Total	2E-06	--	2E-06	--	4E-06		3E-02	--	9E-03	4E-02
						Radionuclide Total										
						Exposure Point Total					4E-06					4E-02
			Exposure Medium Total					4E-06					4E-02			
Medium Total								4E-06					4E-02			
Surface Water	Surface Water	Upstream of Landfill (wading)	Benzo(a)anthracene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A			

TABLE 9.24.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Benzo(a)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Benzo(g,h,i)perylene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Benzo(k)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			bis(2-Ethylhexyl)phthalate	--	--	4E-08	--	4E-08	Liver	--	--	5E-04	5E-04		
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Indeno(1,2,3-cd)pyrene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			Naphthalene	--	--	N/A	--	N/A	General Toxicity	--	--	N/A	N/A		
			Phenanthrene	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			1,4-Dichlorobenzene	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Benzene	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A		
			Aroclor-1260	--	--	N/A	--	N/A	General Toxicity/Immune System	--	--	N/A	N/A		
			4,4'-DDD	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			4,4'-DDE	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A		
			4,4'-DDT	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			alpha-Chlordane	--	--	6E-10	--	6E-10	Liver	--	--	1E-05	1E-05		
			beta-BHC	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Dieldrin	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Gamma-Chlordane	--	--	N/A	--	N/A	Liver	--	--	N/A	N/A		
			Heptachlor Epoxide	--	--	1E-08	--	1E-08	Liver	--	--	3E-04	3E-04		
			Aluminum	--	--	N/A	--	N/A	Developmental	--	--	6E-04	6E-04		
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A		
			Cadmium (other media)	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Chromium	--	--	N/A	--	N/A	GI System	--	--	7E-04	7E-04		
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A		
			Copper	--	--	N/A	--	N/A	GI System	--	--	N/A	N/A		
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A		
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A		
			Lead	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A		
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A		
			Mercury (water)	--	--	N/A	--	N/A	Immune System	--	--	N/A	N/A		
			Vanadium	--	--	N/A	--	N/A	Kidney	--	--	N/A	N/A		
			Chemical Total			--	--	6E-08	--	6E-08		--	--	2E-03	2E-03
			Radionuclide Total												
		Exposure Point Total			6E-08					2E-03					
	Exposure Medium Total			6E-08					2E-03						
Medium Total			6E-08					2E-03							
Sediment	Sediment	Upstream of Landfill													

TABLE 9.24.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	2E-08	--	8E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	2E-07	--	8E-07	--	9E-07	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	9E-10	--	4E-09	--	5E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	--	7E-09	--	9E-09	Liver	3E-05	--	7E-05	1E-04
			Carbazole	6E-11	--	3E-10	--	3E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-06	--	5E-06	6E-06
			Indeno(1,2,3-cd)pyrene	8E-09	--	3E-08	--	4E-08	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-06	--	7E-06	9E-06
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	5E-10	--	3E-09	--	3E-09	General Toxicity/Immune System	1E-04	--	4E-04	5E-04
			Aroclor-1260	4E-09	--	2E-08	--	3E-08	General Toxicity/Immune System	9E-04	--	3E-03	4E-03
			Dieldrin	1E-08	--	4E-08	--	5E-08	Liver	5E-05	--	1E-04	2E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	6E-04	--	N/A	6E-04
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	2E-07	--	2E-07	--	4E-07	Skin	2E-03	--	1E-03	3E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	6E-04	--	6E-04	1E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03
			Copper	N/A	--	N/A	--	N/A	GI System	2E-04	--	N/A	2E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-03	--	N/A	2E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	6E-04	--	N/A	6E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-04	--	N/A	2E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	5E-04	--	N/A	5E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-04	--	N/A	2E-04
			Chemical Total	5E-07	--	1E-06	--	2E-06		1E-02	--	6E-03	2E-02
			Radionuclide Total										
			Exposure Point Total					2E-06					2E-02
Exposure Medium Total					2E-06					2E-02			
Medium Total					2E-06					2E-02			
Receptor Total					6E-06					6E-02			

TABLE 9.24.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

6E-06

Total Hazard Across All Media

6E-02

Total Blood HI =	3E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-02
Total GI System HI =	2E-02
Total Immune System HI =	1E-02
Total Kidney HI =	3E-03
Total Liver HI =	7E-03
Total CNS HI =	2E-03
Total Skin HI =	1E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-03
Total Endocrine HI =	2E-03

TABLE 9.25.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Benzo(a)anthracene	6E-07	--	5E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	5E-06	--	5E-06	--	1E-05	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	9E-07	--	8E-07	--	2E-06	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	3E-08	--	3E-08	--	6E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-08	--	8E-09	--	2E-08	Liver	2E-04	--	2E-04	4E-04
			Carbazole	9E-10	--	6E-10	--	2E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-06	--	1E-06	--	2E-06	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	4E-07	--	3E-07	--	7E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	6E-05	--	7E-05	1E-04
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	1E-07	--	8E-08	--	2E-07	General Toxicity/Immune System	1E-02	--	1E-02	2E-02
			Aroclor-1260	1E-07	--	1E-07	--	3E-07	General Toxicity/Immune System	1E-02	--	2E-02	3E-02
			Dieldrin	4E-07	--	2E-07	--	6E-07	Liver	2E-03	--	2E-03	4E-03
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	9E-03	--	N/A	9E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	5E-06	--	8E-07	--	6E-06	Skin	4E-02	--	1E-02	5E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	7E-03	--	3E-03	1E-02
			Chromium	N/A	--	N/A	--	N/A	GI System	5E-02	--	N/A	5E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	N/A	--	N/A	N/A
			Copper	N/A	--	N/A	--	N/A	GI System	5E-03	--	N/A	5E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-02	--	N/A	3E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-02	--	N/A	1E-02
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	5E-03	--	N/A	5E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-02	--	N/A	2E-02
			Vanadium	N/A	--	N/A	--	N/A	Kidney	4E-03	--	N/A	4E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	7E-04	--	N/A	7E-04
			Chemical Total	1E-05	--	9E-06	--	2E-05		2E-01	--	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					2E-01
	Exposure Medium Total							2E-05					2E-01
Medium Total								2E-05					2E-01
Surface Water	Surface Water	Upstream of Landfill (swimming)	Benzo(a)anthracene	4E-09	--	N/A	--	4E-09	N/A	N/A	--	N/A	N/A

TABLE 9.25.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	5E-08	--	N/A	--	5E-08	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	8E-09	--	N/A	--	8E-09	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	4E-07	--	N/A	4E-07
			Benzo(k)fluoranthene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	5E-09	--	3E-07	--	3E-07	Liver	6E-05	--	3E-03	3E-03
			Chrysene	6E-11	--	N/A	--	6E-11	N/A	N/A	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	4E-09	--	N/A	--	4E-09	N/A	N/A	--	N/A	N/A
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	7E-07	--	N/A	7E-07
			1,4-Dichlorobenzene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Benzene	N/A	--	N/A	--	N/A	Immune System	N/A	--	N/A	N/A
			Aroclor-1260	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			4,4'-DDD	4E-11	--	N/A	--	4E-11	N/A	N/A	--	N/A	N/A
			4,4'-DDE	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			4,4'-DDT	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			alpha-Chlordane	5E-11	--	5E-09	--	5E-09	Liver	1E-06	--	7E-05	7E-05
			beta-BHC	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Dieldrin	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Gamma-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Heptachlor Epoxide	8E-10	--	6E-08	--	6E-08	Liver	3E-05	--	1E-03	1E-03
			Aluminum	N/A	--	N/A	--	N/A	Developmental	3E-02	--	6E-03	3E-02
			Arsenic	2E-07	--	N/A	--	2E-07	Skin	2E-03	--	N/A	2E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	5E-04	3E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-02	--	6E-03	2E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	3E-04	--	N/A	3E-04
			Copper	N/A	--	N/A	--	N/A	GI System	N/A	--	N/A	N/A
			Cyanide	N/A	--	N/A	--	N/A	Endocrine/CNS	N/A	--	N/A	N/A
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	7E-04	--	N/A	7E-04
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	5E-04	--	N/A	5E-04
			Mercury (water)	N/A	--	N/A	--	N/A	Immune System	N/A	--	N/A	N/A
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-03	--	6E-04	4E-03
			Chemical Total	3E-07	--	4E-07	--	7E-07		5E-02	--	2E-02	7E-02
			Radionuclide Total										
		Exposure Point Total						7E-07					7E-02
	Exposure Medium Total							7E-07					7E-02
Medium Total								7E-07					7E-02
Sediment	Sediment	Upstream of Landfill											

TABLE 9.25.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-06	--	3E-06	--	4E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-07	--	3E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	7E-09	--	2E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-08	--	4E-08	--	5E-08	Liver	3E-04	--	3E-04	6E-04
			Carbazole	3E-10	--	7E-10	--	9E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	7E-06	--	9E-06	2E-05
			Indeno(1,2,3-cd)pyrene	5E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-05	--	2E-05	4E-05
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	1E-08	--	3E-08	--	4E-08	General Toxicity/Immune System	1E-03	--	2E-03	3E-03
			Aroclor-1260	1E-07	--	3E-07	--	4E-07	General Toxicity/Immune System	1E-02	--	2E-02	3E-02
			Dieldrin	1E-07	--	2E-07	--	4E-07	Liver	6E-04	--	8E-04	1E-03
			Aluminum	N/A	--	N/A	--	N/A	Developmental	4E-03	--	N/A	4E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	1E-06	--	8E-07	--	2E-06	Skin	1E-02	--	5E-03	2E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	6E-03	--	3E-03	8E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-02	--	N/A	2E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02
			Copper	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	7E-03	--	N/A	7E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	5E-03	--	N/A	5E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-03	--	N/A	2E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-03	--	N/A	3E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	1E-03	--	N/A	1E-03
			Chemical Total	3E-06	--	5E-06	--	9E-06		9E-02	--	3E-02	1E-01
			Radionuclide Total										
	Exposure Point Total	9E-06					1E-01						
Exposure Medium Total	9E-06					1E-01							
Medium Total	9E-06					1E-01							
Receptor Total	3E-05					4E-01							

TABLE 9.25.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

3E-05

Total Hazard Across All Media

4E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	9E-02
Total GI System HI =	1E-01
Total Immune System HI =	9E-02
Total Kidney HI =	3E-02
Total Liver HI =	5E-02
Total CNS HI =	2E-02
Total Skin HI =	7E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	4E-02
Total Endocrine HI =	2E-02

TABLE 9.25.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Soil	Surface Soil	Upstream of Landfill (Debris Fields)	Benzo(a)anthracene	8E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A			
			Benzo(a)pyrene	7E-07	--	1E-06	--	2E-06	N/A	N/A	--	N/A	N/A			
			Benzo(b)fluoranthene	1E-07	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A			
			Benzo(k)fluoranthene	7E-09	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A			
			bis(2-Ethylhexyl)phthalate	1E-09	--	1E-09	--	2E-09	Liver	2E-05	--	3E-05	4E-05			
			Carbazole	2E-10	--	3E-10	--	5E-10	N/A	N/A	--	N/A	N/A			
			Dibenz(a,h)anthracene	2E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A			
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	5E-06	--	8E-06	1E-05			
			Indeno(1,2,3-cd)pyrene	4E-08	--	8E-08	--	1E-07	N/A	N/A	--	N/A	N/A			
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	9E-06	--	2E-05	3E-05			
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A			
			Aroclor-1254	4E-09	--	6E-09	--	1E-08	General Toxicity/Immune System	8E-04	--	2E-03	3E-03			
			Aroclor-1260	6E-09	--	9E-09	--	1E-08	General Toxicity/Immune System	1E-03	--	3E-03	4E-03			
			Dieldrin	4E-08	--	5E-08	--	8E-08	Liver	2E-04	--	4E-04	6E-04			
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A			
			Aluminum	N/A	--	N/A	--	N/A	Developmental	1E-03	--	N/A	1E-03			
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A			
			Arsenic	6E-07	--	2E-07	--	8E-07	Skin	6E-03	--	3E-03	9E-03			
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	7E-04	--	5E-04	1E-03			
			Chromium	N/A	--	N/A	--	N/A	GI System	6E-03	--	N/A	6E-03			
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	N/A	--	N/A	N/A			
			Copper	N/A	--	N/A	--	N/A	GI System	6E-04	--	N/A	6E-04			
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	4E-03	--	N/A	4E-03			
			Lead													
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-03	--	N/A	1E-03			
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	7E-04	--	N/A	7E-04			
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03			
			Vanadium	N/A	--	N/A	--	N/A	Kidney	6E-04	--	N/A	6E-04			
			Zinc	N/A	--	N/A	--	N/A	Blood	1E-04	--	N/A	1E-04			
						Chemical Total	2E-06	--	2E-06	--	4E-06		3E-02	--	9E-03	4E-02
						Radionuclide Total										
					Exposure Point Total						4E-06				4E-02	
	Exposure Medium Total						4E-06				4E-02					
Medium Total							4E-06				4E-02					
Surface Water	Surface Water	Upstream of Landfill (swimming)	Benzo(a)anthracene	1E-09	--	N/A	--	1E-09	N/A	N/A	--	N/A	N/A			

TABLE 9.25.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	1E-08	--	N/A	--	1E-08	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-09	--	N/A	--	2E-09	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	1E-07	--	N/A	1E-07
			Benzo(k)fluoranthene	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-09	--	7E-08	--	7E-08	Liver	2E-05	--	8E-04	8E-04
			Chrysene	1E-11	--	N/A	--	1E-11	N/A	N/A	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	1E-09	--	N/A	--	1E-09	N/A	N/A	--	N/A	N/A
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-07	--	N/A	2E-07
			1,4-Dichlorobenzene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Benzene	N/A	--	N/A	--	N/A	Immune System	N/A	--	N/A	N/A
			Aroclor-1260	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			4,4'-DDD	1E-11	--	N/A	--	1E-11	N/A	N/A	--	N/A	N/A
			4,4'-DDE	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			4,4'-DDT	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			alpha-Chlordane	1E-11	--	9E-10	--	9E-10	Liver	3E-07	--	2E-05	2E-05
			beta-BHC	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Dieldrin	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Gamma-Chlordane	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Heptachlor Epoxide	2E-10	--	2E-08	--	2E-08	Liver	9E-06	--	4E-04	4E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	5E-03	--	1E-03	6E-03
			Arsenic	7E-08	--	N/A	--	7E-08	Skin	7E-04	--	N/A	7E-04
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	9E-04	--	2E-04	1E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	3E-03	--	1E-03	4E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-04	--	N/A	1E-04
			Copper	N/A	--	N/A	--	N/A	GI System	N/A	--	N/A	N/A
			Cyanide	N/A	--	N/A	--	N/A	Endocrine/CNS	N/A	--	N/A	N/A
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-04	--	N/A	1E-04
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	2E-04	--	N/A	2E-04
			Mercury (water)	N/A	--	N/A	--	N/A	Immune System	N/A	--	N/A	N/A
			Vanadium	N/A	--	N/A	--	N/A	Kidney	7E-04	--	1E-04	8E-04
			Chemical Total	9E-08	--	9E-08	--	2E-07		1E-02	--	4E-03	1E-02
			Radionuclide Total										
		Exposure Point Total						2E-07					1E-02
	Exposure Medium Total							2E-07					1E-02
Medium Total								2E-07					1E-02
Sediment	Sediment	Upstream of Landfill											

TABLE 9.25.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)anthracene	2E-08	--	8E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	2E-07	--	8E-07	--	9E-07	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	9E-10	--	4E-09	--	5E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-09	--	7E-09	--	9E-09	Liver	3E-05	--	7E-05	1E-04
			Carbazole	6E-11	--	3E-10	--	3E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-06	--	5E-06	6E-06
			Indeno(1,2,3-cd)pyrene	8E-09	--	3E-08	--	4E-08	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-06	--	7E-06	9E-06
			Aroclor-1242	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	5E-10	--	3E-09	--	3E-09	General Toxicity/Immune System	1E-04	--	4E-04	5E-04
			Aroclor-1260	4E-09	--	2E-08	--	3E-08	General Toxicity/Immune System	9E-04	--	3E-03	4E-03
			Dieldrin	1E-08	--	4E-08	--	5E-08	Liver	5E-05	--	1E-04	2E-04
			Aluminum	N/A	--	N/A	--	N/A	Developmental	6E-04	--	N/A	6E-04
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	N/A	--	N/A	N/A
			Arsenic	2E-07	--	2E-07	--	4E-07	Skin	2E-03	--	1E-03	3E-03
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	6E-04	--	6E-04	1E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-03	--	N/A	2E-03
			Copper	N/A	--	N/A	--	N/A	GI System	2E-04	--	N/A	2E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-03	--	N/A	2E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	6E-04	--	N/A	6E-04
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	2E-04	--	N/A	2E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	5E-04	--	N/A	5E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-04	--	N/A	2E-04
			Chemical Total	5E-07	--	1E-06	--	2E-06		1E-02	--	6E-03	2E-02
			Radionuclide Total										
		Exposure Point Total						2E-06					2E-02
	Exposure Medium Total							2E-06					2E-02
Medium Total								2E-06					2E-02
Receptor Total								6E-06					7E-02

TABLE 9.25.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

6E-06

Total Hazard Across All Media

7E-02

Total Blood HI =	3E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E-02
Total GI System HI =	2E-02
Total Immune System HI =	1E-02
Total Kidney HI =	5E-03
Total Liver HI =	8E-03
Total CNS HI =	3E-03
Total Skin HI =	1E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	8E-03
Total Endocrine HI =	2E-03

TABLE 9.26.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Wetlands	Benzo(a)pyrene	4E-07	--	3E-07	--	7E-07	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	4E-08	--	4E-08	--	8E-08	N/A	N/A	--	N/A	N/A
			Arsenic	2E-06	--	4E-07	--	3E-06	Skin	2E-02	--	5E-03	2E-02
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-02	--	N/A	1E-02
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-02	--	N/A	1E-02
			Chemical Total	3E-06	--	7E-07	--	3E-06		4E-02	--	5E-03	5E-02
			Radionuclide Total										
			Exposure Point Total					3E-06					5E-02
			Exposure Medium Total					3E-06					5E-02
			Medium Total					3E-06					5E-02
Surface Water	Surface Water	Wetlands (wading)	Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	4E-08	--	4E-08	Liver	--	--	4E-04	4E-04
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			beta-BHC	--	--	4E-09	--	4E-09	Liver	--	--	1E-05	1E-05
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Chemical Total	--	--	4E-08	--	4E-08		--	--	4E-04	4E-04
			Radionuclide Total										
			Exposure Point Total					4E-08					4E-04
			Exposure Medium Total					4E-08					4E-04
			Medium Total					4E-08					4E-04
Sediment	Sediment	Wetlands	Benzo(a)anthracene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	2E-06	--	4E-06	--	6E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-07	--	5E-07	--	7E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	2E-08	--	3E-08	--	5E-08	N/A	N/A	--	N/A	N/A
			Carbazole	4E-10	--	9E-10	--	1E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	3E-07	--	7E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Aroclor-1260	2E-08	--	4E-08	--	6E-08	General Toxicity/Immune System	2E-03	--	3E-03	4E-03
			Chemical Total										
			Radionuclide Total										

TABLE 9.26.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Aluminum	N/A	--	N/A	--	N/A	Developmental	7E-03	--	N/A	7E-03		
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	1E-03	--	N/A	1E-03		
			Arsenic	1E-06	--	7E-07	--	2E-06	Skin	1E-02	--	4E-03	1E-02		
			Chromium	N/A	--	N/A	--	N/A	GI System	7E-03	--	N/A	7E-03		
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-02	--	N/A	2E-02		
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02		
			Lead												
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	4E-03	--	N/A	4E-03		
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03		
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-03	--	N/A	2E-03		
			Chemical Total	4E-06	--	7E-06	--	1E-05		7E-02	--	7E-03	8E-02		
			Radionuclide Total												
			Exposure Point Total			1E-05					8E-02				
			Exposure Medium Total			1E-05					8E-02				
			Medium Total			1E-05					8E-02				
			Receptor Total			1E-05					1E-01				

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

1E-05

Total Hazard Across All Media

1E-01

Total Blood HI =	1E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-03
Total GI System HI =	3E-02
Total Immune System HI =	4E-03
Total Kidney HI =	2E-03
Total Liver HI =	3E-02
Total CNS HI =	4E-03
Total Skin HI =	4E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	7E-03
Total Endocrine HI =	2E-02

TABLE 9.26.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Wetlands	Benzo(a)pyrene	7E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-08	--	2E-08	--	3E-08	N/A	N/A	--	N/A	N/A
			Arsenic	3E-07	--	1E-07	--	4E-07	Skin	3E-03	--	1E-03	4E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-03	--	N/A	2E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03
			Chemical Total	4E-07	--	2E-07	--	6E-07		7E-03	--	1E-03	8E-03
			Radionuclide Total										
		Exposure Point Total					6E-07	8E-03					
		Exposure Medium Total					6E-07	8E-03					
Medium Total				6E-07					8E-03				
Surface Water	Surface Water	Wetlands (wading)	Benzo(b)fluoranthene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	--	--	2E-08	--	2E-08	Liver	--	--	2E-04	2E-04
			Chrysene	--	--	N/A	--	N/A	N/A	--	--	N/A	N/A
			beta-BHC	--	--	2E-09	--	2E-09	Liver	--	--	5E-06	5E-06
			Arsenic	--	--	N/A	--	N/A	Skin	--	--	N/A	N/A
			Cobalt	--	--	N/A	--	N/A	Endocrine	--	--	N/A	N/A
			Cyanide	--	--	N/A	--	N/A	Endocrine/CNS	--	--	N/A	N/A
			Iron	--	--	N/A	--	N/A	Liver/GI System	--	--	N/A	N/A
			Manganese (other media)	--	--	N/A	--	N/A	CNS	--	--	N/A	N/A
			Chemical Total	--	--	2E-08	--	2E-08		--	--	2E-04	2E-04
			Radionuclide Total										
		Exposure Point Total					2E-08	2E-04					
Exposure Medium Total					2E-08	2E-04							
Medium Total				2E-08					2E-04				
Sediment	Sediment	Wetlands	Benzo(a)anthracene	3E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	4E-07	--	2E-06	--	2E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	5E-08	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	4E-09	--	2E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			Carbazole	8E-11	--	4E-10	--	5E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	7E-08	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	3E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Aroclor-1260	2E-09	--	9E-09	--	1E-08	General Toxicity/Immune System	4E-04	--	1E-03	2E-03

TABLE 9.26.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (wading)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	3E-04	--	N/A	3E-04
			Arsenic	3E-07	--	3E-07	--	6E-07	Skin	3E-03	--	2E-03	5E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	5E-03	--	N/A	5E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	4E-03	--	N/A	4E-03
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	9E-04	--	N/A	9E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	5E-04	--	N/A	5E-04
			Vanadium	N/A	--	N/A	--	N/A	Kidney	6E-04	--	N/A	6E-04
			Chemical Total	9E-07	--	3E-06	--	4E-06		2E-02	--	3E-03	2E-02
			Radionuclide Total										
Exposure Point Total			4E-06					2E-02					
Exposure Medium Total			4E-06					2E-02					
Medium Total			4E-06					2E-02					
Receptor Total			4E-06					3E-02					

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

4E-06

Total Hazard Across All Media

3E-02

Total Blood HI =	2E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-03
Total GI System HI =	8E-03
Total Immune System HI =	2E-03
Total Kidney HI =	6E-04
Total Liver HI =	6E-03
Total CNS HI =	9E-04
Total Skin HI =	9E-03
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-03
Total Endocrine HI =	5E-03

TABLE 9.27.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Wetlands	Benzo(a)pyrene	4E-07	--	3E-07	--	7E-07	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	4E-08	--	4E-08	--	8E-08	N/A	N/A	--	N/A	N/A
			Arsenic	2E-06	--	4E-07	--	3E-06	Skin	2E-02	--	5E-03	2E-02
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-02	--	N/A	1E-02
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-02	--	N/A	1E-02
			Chemical Total	3E-06	--	7E-07	--	3E-06		4E-02	--	5E-03	5E-02
			Radionuclide Total										
		Exposure Point Total					3E-06	5E-02					
		Exposure Medium Total					3E-06	5E-02					
Medium Total				3E-06					5E-02				
Surface Water	Surface Water	Wetlands (swimming)	Benzo(b)fluoranthene	4E-09	--	N/A	--	4E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	9E-10	--	6E-08	--	6E-08	Liver	1E-05	--	6E-04	6E-04
			Chrysene	4E-11	--	N/A	--	4E-11	N/A	N/A	--	N/A	N/A
			beta-BHC	3E-10	--	6E-09	--	7E-09	Liver	1E-06	--	2E-05	2E-05
			Arsenic	8E-08	--	N/A	--	8E-08	Skin	7E-04	--	N/A	7E-04
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	9E-04	--	N/A	9E-04
			Cyanide	N/A	--	N/A	--	N/A	Endocrine/CNS	6E-04	--	N/A	6E-04
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-04	--	N/A	3E-04
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	6E-04	--	N/A	6E-04
			Chemical Total	8E-08	--	7E-08	--	1E-07		3E-03	--	6E-04	4E-03
		Radionuclide Total											
		Exposure Point Total					1E-07	4E-03					
Exposure Medium Total					1E-07	4E-03							
Medium Total				1E-07					4E-03				
Sediment	Sediment	Wetlands	Benzo(a)anthracene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	2E-06	--	4E-06	--	6E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-07	--	5E-07	--	7E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	2E-08	--	3E-08	--	5E-08	N/A	N/A	--	N/A	N/A
			Carbazole	4E-10	--	9E-10	--	1E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	3E-07	--	7E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	1E-07	--	3E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Aroclor-1260	2E-08	--	4E-08	--	6E-08	General Toxicity/Immune System	2E-03	--	3E-03	4E-03

TABLE 9.27.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Aluminum	N/A	--	N/A	--	N/A	Developmental	7E-03	--	N/A	7E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	1E-03	--	N/A	1E-03
			Arsenic	1E-06	--	7E-07	--	2E-06	Skin	1E-02	--	4E-03	1E-02
			Chromium	N/A	--	N/A	--	N/A	GI System	7E-03	--	N/A	7E-03
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-02	--	N/A	2E-02
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	4E-03	--	N/A	4E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-03	--	N/A	2E-03
			Chemical Total	4E-06	--	7E-06	--	1E-05		7E-02	--	7E-03	8E-02
			Radionuclide Total										
		Exposure Point Total							1E-05				
Exposure Medium Total							1E-05					8E-02	
Medium Total				1E-05					8E-02				
Receptor Total				1E-05					1E-01				

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

1E-05

Total Hazard Across All Media

1E-01

Total Blood HI =	1E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-03
Total GI System HI =	3E-02
Total Immune System HI =	4E-03
Total Kidney HI =	2E-03
Total Liver HI =	3E-02
Total CNS HI =	5E-03
Total Skin HI =	4E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	7E-03
Total Endocrine HI =	2E-02

TABLE 9.27.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child									
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total					
Soil	Surface Soil	Wetlands	Benzo(a)pyrene	7E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A					
			Benzo(b)fluoranthene	1E-08	--	2E-08	--	3E-08						N/A	N/A	--	N/A	N/A
			Arsenic	3E-07	--	1E-07	--	4E-07	Skin Liver/GI System Blood	3E-03	--	1E-03	4E-03					
			Iron	N/A	--	N/A	--	N/A		2E-03	--	N/A	2E-03					
			Thallium	N/A	--	N/A	--	N/A		2E-03	--	N/A	2E-03					
			Chemical Total	4E-07	--	2E-07	--	6E-07		7E-03	--	1E-03	8E-03					
			Radionuclide Total															
		Exposure Point Total						6E-07						8E-03				
		Exposure Medium Total						6E-07						8E-03				
Medium Total									6E-07						8E-03			
Surface Water	Surface Water	Wetlands (swimming)	Benzo(b)fluoranthene	2E-09	--	N/A	--	2E-09	N/A	N/A	--	N/A	N/A					
			bis(2-Ethylhexyl)phthalate	4E-10	--	3E-08	--	3E-08						Liver	6E-06	--	3E-04	3E-04
			Chrysene	1E-11	--	N/A	--	1E-11						N/A	N/A	--	N/A	N/A
			beta-BHC	1E-10	--	3E-09	--	3E-09	Liver	5E-07	--	8E-06	9E-06					
			Arsenic	3E-08	--	N/A	--	3E-08						Skin	3E-04	--	N/A	3E-04
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	4E-04	--	N/A	4E-04					
			Cyanide	N/A	--	N/A	--	N/A	Endocrine/CNS	3E-04	--	N/A	3E-04					
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-04	--	N/A	1E-04					
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	3E-04	--	N/A	3E-04					
			Chemical Total	4E-08	--	3E-08	--	7E-08		1E-03	--	3E-04	2E-03					
			Radionuclide Total															
		Exposure Point Total						7E-08						2E-03				
Exposure Medium Total						7E-08						2E-03						
Medium Total									7E-08						2E-03			
Sediment	Sediment	Wetlands	Benzo(a)anthracene	3E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A					
			Benzo(a)pyrene	4E-07	--	2E-06	--	2E-06						N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	5E-08	--	2E-07	--	3E-07						N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	4E-09	--	2E-08	--	2E-08						N/A	N/A	--	N/A	N/A
			Carbazole	8E-11	--	4E-10	--	5E-10						N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	7E-08	--	3E-07	--	4E-07						N/A	N/A	--	N/A	N/A
			Indeno(1,2,3-cd)pyrene	3E-08	--	1E-07	--	2E-07						N/A	N/A	--	N/A	N/A
			Aroclor-1260	2E-09	--	9E-09	--	1E-08						General Toxicity/Immune System	4E-04	--	1E-03	2E-03

TABLE 9.27.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Older Child/Adult (swimming)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Older Child + Adult					Non-Carcinogenic Hazard Quotient Older Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-03	--	N/A	2E-03		
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	3E-04	--	N/A	3E-04		
			Arsenic	3E-07	--	3E-07	--	6E-07	Skin	3E-03	--	2E-03	5E-03		
			Chromium	N/A	--	N/A	--	N/A	GI System	2E-03	--	N/A	2E-03		
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	5E-03	--	N/A	5E-03		
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	4E-03	--	N/A	4E-03		
			Lead												
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	9E-04	--	N/A	9E-04		
			Thallium	N/A	--	N/A	--	N/A	Blood	5E-04	--	N/A	5E-04		
			Vanadium	N/A	--	N/A	--	N/A	Kidney	6E-04	--	N/A	6E-04		
			Chemical Total	9E-07	--	3E-06	--	4E-06		2E-02	--	3E-03	2E-02		
			Radionuclide Total												
			Exposure Point Total			4E-06					2E-02				
			Exposure Medium Total			4E-06					2E-02				
			Medium Total			4E-06					2E-02				
			Receptor Total			5E-06					3E-02				

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

5E-06

Total Hazard Across All Media

3E-02

Total Blood HI =	2E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E-03
Total GI System HI =	8E-03
Total Immune System HI =	2E-03
Total Kidney HI =	6E-04
Total Liver HI =	7E-03
Total CNS HI =	1E-03
Total Skin HI =	9E-03
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E-03
Total Endocrine HI =	5E-03

TABLE 9.28.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel	Benzo(a)anthracene	1E-06	--	1E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-05	--	1E-05	--	2E-05	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	2E-06	--	1E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	1E-04	--	9E-05	2E-04
			Benzo(k)fluoranthene	3E-08	--	2E-08	--	5E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	2E-06	--	1E-06	--	3E-06	Liver	2E-02	--	1E-02	3E-02
			Carbazole	3E-09	--	3E-09	--	6E-09	N/A	N/A	--	N/A	N/A
			Chrysene	1E-08	--	1E-08	--	2E-08	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-06	--	2E-06	--	3E-06	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	6E-05	--	4E-05	1E-04
			Indeno(1,2,3-cd)pyrene	8E-07	--	7E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	3E-04	--	2E-04	5E-04
			Aroclor-1248	3E-07	--	2E-07	--	5E-07	General Toxicity/Immune System	2E-02	--	2E-02	3E-02
			Aroclor-1254	1E-07	--	1E-07	--	2E-07	General Toxicity/Immune System	8E-03	--	8E-03	2E-02
			Aroclor-1260	2E-07	--	2E-07	--	3E-07	General Toxicity/Immune System	1E-02	--	1E-02	2E-02
			Dieldrin	1E-06	--	6E-07	--	2E-06	Liver	3E-03	--	2E-03	6E-03
			Dioxin TEQ	2E-06	--	4E-07	--	2E-06	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	9E-03	--	N/A	9E-03
			Arsenic	7E-06	--	1E-06	--	8E-06	Skin	4E-02	--	8E-03	5E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	9E-03	--	2E-03	1E-02
			Chromium	N/A	--	N/A	--	N/A	GI System	9E-02	--	N/A	9E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-02	--	N/A	2E-02
			Copper	N/A	--	N/A	--	N/A	GI System	6E-03	--	N/A	6E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	4E-02	--	N/A	4E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	1E-02	--	N/A	1E-02
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	7E-03	--	N/A	7E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	3E-02	--	N/A	3E-02
			Vanadium	N/A	--	N/A	--	N/A	Kidney	4E-03	--	N/A	4E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03
			Chemical Total	3E-05	--	2E-05	--	5E-05		3E-01	--	6E-02	4E-01
			Radionuclide Total										
		Exposure Point Total						5E-05					4E-01
	Exposure Medium Total							5E-05					4E-01
	Indoor Air	Nunes Parcel	1,1'-Biphenyl	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A

TABLE 9.28.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Methylnaphthalene	--	N/A	--	--	N/A	Respiratory	--	4E-02	--	4E-02
			Acenaphthene	--	N/A	--	--	N/A	Respiratory	--	9E-03	--	9E-03
			Acetophenone	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Benzaldehyde	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Naphthalene	--	3E-06	--	--	3E-06	Respiratory	--	8E-02	--	8E-02
			1,4-Dichlorobenzene	--	4E-07	--	--	4E-07	Liver	--	1E-04	--	1E-04
			Benzene	--	1E-04	--	--	1E-04	Immune System	--	1E+00	--	1E+00
			Carbon disulfide	--	N/A	--	--	N/A	CNS	--	5E-02	--	5E-02
			Ethylbenzene	--	1E-06	--	--	1E-06	Developmental	--	1E-03	--	1E-03
			Methyl acetate	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Tetrachloroethene	--	1E-05	--	--	1E-05	CNS	--	2E-02	--	2E-02
			Toluene	--	N/A	--	--	N/A	CNS	--	1E-01	--	1E-01
			Xylene (Total)	--	N/A	--	--	N/A	CNS	--	2E-01	--	2E-01
			Chemical Total	--	1E-04	--	--	1E-04		--	2E+00	--	2E+00
			Radionuclide Total										
			Exposure Point Total					1E-04					2E+00
			Exposure Medium Total					1E-04					2E+00
			Medium Total					2E-04					2E+00
	Groundwater	Indoor Air	Nunes Parcel	Naphthalene	--	2E-07	--	--	2E-07	Respiratory	--	5E-03	--
1,4-Dichlorobenzene				--	5E-08	--	--	5E-08	Liver	--	2E-05	--	2E-05
Benzene				--	1E-06	--	--	1E-06	Immune System	--	1E-02	--	1E-02
Chloroform				--	2E-07	--	--	2E-07	Liver	--	3E-04	--	3E-04
Ethylbenzene				--	5E-07	--	--	5E-07	Developmental	--	5E-04	--	5E-04
Vinyl chloride				--	3E-07	--	--	3E-07	Liver	--	2E-03	--	2E-03
Chemical Total				--	2E-06	--	--	2E-06		--	2E-02	--	2E-02
Radionuclide Total													
Exposure Point Total								2E-06					2E-02
Exposure Medium Total						2E-06					2E-02		
Medium Total					2E-06					2E-02			
Receptor Total					2E-04					2E+00			

TABLE 9.28.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

2E-04

Total Hazard Across All Media

2E+00

Total Blood HI =	3E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E-02
Total GI System HI =	1E-01
Total Immune System HI =	1E+00
Total Kidney HI =	2E-02
Total Liver HI =	8E-02
Total CNS HI =	4E-01
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	1E-01
Total Developmental HI =	1E-02
Total Endocrine HI =	2E-02

TABLE 9.28.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel	Benzo(a)anthracene	2E-07	--	4E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	2E-06	--	4E-06	--	6E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	3E-07	--	4E-07	--	7E-07	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	4E-05	--	8E-05	1E-04
			Benzo(k)fluoranthene	4E-09	--	8E-09	--	1E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-07	--	4E-07	--	8E-07	Liver	9E-03	--	1E-02	2E-02
			Carbazole	5E-10	--	9E-10	--	1E-09	N/A	N/A	--	N/A	N/A
			Chrysene	2E-09	--	3E-09	--	5E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	3E-07	--	5E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	3E-05	--	3E-05	6E-05
			Indeno(1,2,3-cd)pyrene	1E-07	--	2E-07	--	3E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	1E-04	--	2E-04	3E-04
			Aroclor-1248	2E-08	--	4E-08	--	6E-08	General Toxicity/Immune System	8E-03	--	1E-02	2E-02
			Aroclor-1254	9E-09	--	2E-08	--	3E-08	General Toxicity/Immune System	4E-03	--	7E-03	1E-02
			Aroclor-1260	1E-08	--	3E-08	--	4E-08	General Toxicity/Immune System	5E-03	--	1E-02	2E-02
			Dieldrin	2E-07	--	2E-07	--	4E-07	Liver	1E-03	--	2E-03	3E-03
			Dioxin TEQ	3E-07	--	1E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	4E-03	--	N/A	4E-03
			Arsenic	1E-06	--	4E-07	--	1E-06	Skin	2E-02	--	7E-03	3E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	4E-03	--	2E-03	6E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	4E-02	--	N/A	4E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02
			Copper	N/A	--	N/A	--	N/A	GI System	3E-03	--	N/A	3E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	5E-03	--	N/A	5E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	3E-03	--	N/A	3E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-02	--	N/A	1E-02
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-03	--	N/A	2E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	8E-04	--	N/A	8E-04
			Chemical Total	5E-06	--	6E-06	--	1E-05		1E-01	--	5E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						1E-05					2E-01
	Exposure Medium Total							1E-05					2E-01
	Indoor Air	Nunes Parcel	1,1'-Biphenyl	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A

TABLE 9.28.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Methylnaphthalene	--	N/A	--	--	N/A	Respiratory	--	3E-02	--	3E-02
			Acenaphthene	--	N/A	--	--	N/A	Respiratory	--	8E-03	--	8E-03
			Acetophenone	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Benzaldehyde	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Naphthalene	--	9E-07	--	--	9E-07	Respiratory	--	7E-02	--	7E-02
			1,4-Dichlorobenzene	--	1E-07	--	--	1E-07	Liver	--	1E-04	--	1E-04
			Benzene	--	3E-05	--	--	3E-05	Immune System	--	1E+00	--	1E+00
			Carbon disulfide	--	N/A	--	--	N/A	CNS	--	4E-02	--	4E-02
			Ethylbenzene	--	4E-07	--	--	4E-07	Developmental	--	1E-03	--	1E-03
			Methyl acetate	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Tetrachloroethene	--	3E-06	--	--	3E-06	CNS	--	2E-02	--	2E-02
			Toluene	--	N/A	--	--	N/A	CNS	--	9E-02	--	9E-02
			Xylene (Total)	--	N/A	--	--	N/A	CNS	--	2E-01	--	2E-01
			Chemical Total	--	3E-05	--	--	3E-05		--	1E+00	--	1E+00
			Radionuclide Total										
			Exposure Point Total									1E+00	
Exposure Medium Total									1E+00				
Medium Total									2E+00				
Groundwater	Indoor Air	Nunes Parcel	Naphthalene	--	6E-08	--	--	6E-08	Respiratory	--	5E-03	--	5E-03
			1,4-Dichlorobenzene	--	2E-08	--	--	2E-08	Liver	--	1E-05	--	1E-05
			Benzene	--	3E-07	--	--	3E-07	Immune System	--	1E-02	--	1E-02
			Chloroform	--	7E-08	--	--	7E-08	Liver	--	2E-04	--	2E-04
			Ethylbenzene	--	1E-08	--	--	1E-08	Developmental	--	3E-05	--	3E-05
			Vinyl chloride	--	9E-08	--	--	9E-08	Liver	--	2E-03	--	2E-03
			Chemical Total	--	5E-07	--	--	5E-07		--	2E-02	--	2E-02
			Radionuclide Total										
			Exposure Point Total									2E-02	
Exposure Medium Total									2E-02				
Medium Total									2E-02				
Receptor Total									2E+00				

TABLE 9.28.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

5E-05

Total Hazard Across All Media

2E+00

Total Blood HI =	1E-02
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-02
Total GI System HI =	6E-02
Total Immune System HI =	1E+00
Total Kidney HI =	8E-03
Total Liver HI =	4E-02
Total CNS HI =	3E-01
Total Skin HI =	3E-02
Total Spleen HI =	N/A
Total Respiratory HI =	1E-01
Total Developmental HI =	5E-03
Total Endocrine HI =	1E-02

TABLE 9.29.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield	Benzo(a)anthracene	3E-07	--	3E-07	--	6E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	3E-06	--	3E-06	--	6E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	4E-07	--	4E-07	--	8E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	2E-08	--	1E-08	--	3E-08	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-09	--	3E-09	--	7E-09	Liver	4E-05	--	3E-05	7E-05
			Carbazole	1E-09	--	9E-10	--	2E-09	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	5E-07	--	4E-07	--	9E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	4E-05	--	3E-05	7E-05
			Indeno(1,2,3-cd)pyrene	3E-07	--	2E-07	--	5E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	4E-05	--	3E-05	7E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	4E-07	--	3E-07	--	7E-07	General Toxicity/Immune System	3E-02	--	2E-02	5E-02
			Dieldrin	3E-06	--	2E-06	--	4E-06	Liver	9E-03	--	6E-03	1E-02
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	8E-03	--	N/A	8E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	3E-03	--	N/A	3E-03
			Arsenic	6E-06	--	1E-06	--	7E-06	Skin	4E-02	--	8E-03	5E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	4E-03	--	1E-03	5E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	7E-02	--	N/A	7E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	1E-02	--	N/A	1E-02
			Copper	N/A	--	N/A	--	N/A	GI System	3E-03	--	N/A	3E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	2E-02	--	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	7E-03	--	N/A	7E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	8E-03	--	N/A	8E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-03	--	N/A	2E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	4E-03	--	N/A	4E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	4E-04	--	N/A	4E-04
			Chemical Total	1E-05	--	7E-06	--	2E-05		2E-01	--	4E-02	3E-01
			Radionuclide Total										
		Exposure Point Total						2E-05					3E-01
	Exposure Medium Total							2E-05					3E-01
Medium Total								2E-05					3E-01
Receptor Total								2E-05					3E-01

TABLE 9.29.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

2E-05

Total Hazard Across All Media

3E-01

Total Blood HI =	3E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	5E-02
Total GI System HI =	1E-01
Total Immune System HI =	5E-02
Total Kidney HI =	8E-03
Total Liver HI =	4E-02
Total CNS HI =	1E-02
Total Skin HI =	5E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	8E-03
Total Endocrine HI =	1E-02

TABLE 9.29.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield	Benzo(a)anthracene	5E-08	--	9E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	5E-07	--	8E-07	--	1E-06	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	7E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Benzo(k)fluoranthene	3E-09	--	5E-09	--	7E-09	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-10	--	9E-10	--	2E-09	Liver	2E-05	--	2E-05	4E-05
			Carbazole	2E-10	--	3E-10	--	4E-10	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	7E-08	--	1E-07	--	2E-07	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	2E-05	--	2E-05	4E-05
			Indeno(1,2,3-cd)pyrene	4E-08	--	7E-08	--	1E-07	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-05	--	3E-05	5E-05
			Aroclor-1248	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1254	N/A	--	N/A	--	N/A	General Toxicity/Immune System	N/A	--	N/A	N/A
			Aroclor-1260	3E-08	--	5E-08	--	8E-08	General Toxicity/Immune System	1E-02	--	2E-02	3E-02
			Dieldrin	4E-07	--	5E-07	--	9E-07	Liver	4E-03	--	5E-03	9E-03
			Dioxin TEQ	N/A	--	N/A	--	N/A	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	3E-03	--	N/A	3E-03
			Antimony	N/A	--	N/A	--	N/A	General Toxicity	1E-03	--	N/A	1E-03
			Arsenic	1E-06	--	4E-07	--	1E-06	Skin	2E-02	--	7E-03	2E-02
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	2E-03	--	9E-04	3E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	3E-02	--	N/A	3E-02
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	6E-03	--	N/A	6E-03
			Copper	N/A	--	N/A	--	N/A	GI System	1E-03	--	N/A	1E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	1E-02	--	N/A	1E-02
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	3E-03	--	N/A	3E-03
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	3E-03	--	N/A	3E-03
			Thallium	N/A	--	N/A	--	N/A	Blood	1E-03	--	N/A	1E-03
			Vanadium	N/A	--	N/A	--	N/A	Kidney	2E-03	--	N/A	2E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	2E-04	--	N/A	2E-04
			Chemical Total	2E-06	--	2E-06	--	4E-06		1E-01	--	3E-02	1E-01
			Radionuclide Total										
		Exposure Point Total						4E-06					1E-01
	Exposure Medium Total							4E-06					1E-01
Medium Total								4E-06					1E-01
Receptor Total								4E-06					1E-01

TABLE 9.29.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

4E-06

Total Hazard Across All Media

1E-01

Total Blood HI =	1E-03
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	3E-02
Total GI System HI =	4E-02
Total Immune System HI =	3E-02
Total Kidney HI =	4E-03
Total Liver HI =	2E-02
Total CNS HI =	6E-03
Total Skin HI =	2E-02
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	3E-03
Total Endocrine HI =	6E-03

TABLE 9.30.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield	Benzo(a)anthracene	2E-08	2E-13	8E-09	--	3E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	2E-07	2E-12	8E-08	--	3E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	3E-08	2E-13	1E-08	--	4E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(k)fluoranthene	1E-09	9E-14	4E-10	--	2E-09	N/A	N/A	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-10	N/A	8E-11	--	4E-10	Liver	7E-05	N/A	2E-05	9E-05
			Carbazole	7E-11	N/A	3E-11	--	9E-11	N/A	N/A	N/A	N/A	N/A
			Dibenz(a,h)anthracene	3E-08	3E-13	1E-08	--	4E-08	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	--	N/A	Kidney	7E-05	N/A	2E-05	9E-05
			Indeno(1,2,3-cd)pyrene	2E-08	1E-13	7E-09	--	2E-08	N/A	N/A	N/A	N/A	N/A
			Phenanthrene	N/A	N/A	N/A	--	N/A	Kidney	6E-06	3E-08	2E-06	9E-06
			Aroclor-1248	N/A	N/A	N/A	--	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1254	N/A	N/A	N/A	--	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1260	2E-08	4E-13	1E-08	--	3E-08	General Toxicity/Immune System	1E-02	N/A	6E-03	2E-02
			Dieldrin	2E-07	2E-12	5E-08	--	2E-07	Liver	1E-02	N/A	4E-03	2E-02
			Dioxin TEQ	N/A	N/A	N/A	--	N/A	NA	N/A	N/A	N/A	N/A
			Aluminum	N/A	N/A	N/A	--	N/A	Developmental	1E-02	N/A	N/A	1E-02
			Antimony	N/A	N/A	N/A	--	N/A	General Toxicity	5E-03	N/A	N/A	5E-03
			Arsenic	4E-07	6E-11	4E-08	--	4E-07	Skin	6E-02	7E-04	6E-03	7E-02
			Cadmium (other media)	N/A	8E-12	N/A	--	8E-12	Kidney	6E-03	3E-05	7E-04	7E-03
			Chromium	N/A	2E-08	N/A	--	2E-08	GI System	4E-02	6E-05	N/A	4E-02
			Cobalt	N/A	5E-11	N/A	--	5E-11	Endocrine	2E-03	2E-05	N/A	2E-03
			Copper	N/A	N/A	N/A	--	N/A	GI System	5E-03	N/A	N/A	5E-03
			Iron	N/A	N/A	N/A	--	N/A	Liver/GI System	4E-02	N/A	N/A	4E-02
			Lead										
			Manganese (other media)	N/A	N/A	N/A	--	N/A	CNS	1E-02	8E-04	N/A	1E-02
			Mercury (other media)	N/A	N/A	N/A	--	N/A	CNS	1E-02	2E-06	N/A	1E-02
			Thallium	N/A	N/A	N/A	--	N/A	Blood	4E-04	N/A	N/A	4E-04
			Vanadium	N/A	N/A	N/A	--	N/A	Kidney	6E-03	N/A	N/A	6E-03
			Zinc	N/A	N/A	N/A	--	N/A	Blood	6E-04	N/A	N/A	6E-04
			Chemical Total	9E-07	2E-08	2E-07	--	1E-06		2E-01	2E-03	2E-02	2E-01
			Radionuclide Total										
		Exposure Point Total						1E-06					2E-01
	Exposure Medium Total							1E-06					2E-01
Medium Total								1E-06					2E-01
Groundwater	Groundwater	Shallow Monitoring Wells	1,4-Dioxane	3E-10	--	N/A	--	3E-10	Liver	2E-05	--	N/A	2E-05
			2,4-Dimethylphenol	N/A	--	N/A	--	N/A	Blood/CNS	4E-05	--	N/A	4E-05

TABLE 9.30.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Chlorophenol	N/A	--	N/A	--	N/A	Reproductive	2E-05	--	N/A	2E-05
			4-Chloroaniline	1E-09	--	N/A	--	1E-09	Spleen	9E-05	--	N/A	9E-05
			Atrazine	3E-09	--	N/A	--	3E-09	General Toxicity/Cardiovascular	2E-05	--	N/A	2E-05
			Benzaldehyde	N/A	--	N/A	--	N/A	Kidney	3E-06	--	N/A	3E-06
			Benzo(a)anthracene	8E-11	--	N/A	--	8E-11	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	3E-09	--	N/A	--	3E-09	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	7E-11	--	N/A	--	7E-11	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	1E-06	--	N/A	1E-06
			bis(2-Ethylhexyl)phthalate	2E-10	--	9E-10	--	1E-09	Liver	5E-05	--	2E-04	3E-04
			Carbazole	3E-11	--	N/A	--	3E-11	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	3E-05	--	1E-04	2E-04
			Indeno(1,2,3-cd)pyrene	4E-10	--	N/A	--	4E-10	N/A	N/A	--	N/A	N/A
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	1E-05	--	N/A	1E-05
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-06	--	N/A	2E-06
			1,2,4-Trichlorobenzene	3E-12	--	N/A	--	3E-12	Endocrine	6E-06	--	N/A	6E-06
			1,2-Dichlorobenzene	N/A	--	N/A	--	N/A	Liver	2E-06	--	N/A	2E-06
			1,3-Dichlorobenzene	N/A	--	N/A	--	N/A	Endocrine	8E-06	--	N/A	8E-06
			1,4-Dichlorobenzene	2E-11	--	N/A	--	2E-11	Liver	3E-06	--	N/A	3E-06
			2-Butanone	N/A	--	N/A	--	N/A	Developmental	5E-07	--	N/A	5E-07
			Benzene	2E-08	--	N/A	--	2E-08	Immune System	6E-03	--	N/A	6E-03
			Bromodichloromethane	N/A	--	N/A	--	N/A	Kidney	N/A	--	N/A	N/A
			Chlorobenzene	N/A	--	N/A	--	N/A	Liver/Kidney	7E-05	--	N/A	7E-05
			Chloroethane	N/A	--	N/A	--	N/A	CNS/Liver	5E-06	--	N/A	5E-06
			Chloroform	7E-11	--	N/A	--	7E-11	Liver	2E-05	--	N/A	2E-05
			Ethylbenzene	5E-11	--	N/A	--	5E-11	Liver/Kidney	3E-06	--	N/A	3E-06
			Isopropylbenzene	N/A	--	N/A	--	N/A	Kidney	2E-05	--	N/A	2E-05
			Methyl tert-butyl ether	1E-11	--	N/A	--	1E-11	Liver	1E-06	--	N/A	1E-06
			Tetrachloroethene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Toluene	N/A	--	N/A	--	N/A	Kidney	2E-06	--	N/A	2E-06
			Trichloroethene	3E-11	--	N/A	--	3E-11	N/A	N/A	--	N/A	N/A
			Vinyl Chloride	2E-09	--	N/A	--	2E-09	Liver	5E-05	--	N/A	5E-05
			Xylene (Total)	N/A	--	N/A	--	N/A	General Toxicity	2E-06	--	N/A	2E-06
			Aroclor-1242	2E-09	--	N/A	--	2E-09	General Toxicity/Immune System	4E-03	--	N/A	4E-03
			Aroclor-1248	1E-09	--	N/A	--	1E-09	General Toxicity/Immune System	2E-03	--	N/A	2E-03
			Aroclor-1254	4E-09	--	N/A	--	4E-09	General Toxicity/Immune System	7E-03	--	N/A	7E-03
			4,4'-DDD	4E-12	--	N/A	--	4E-12	N/A	N/A	--	N/A	N/A
			4,4'-DDE	5E-12	--	N/A	--	5E-12	N/A	N/A	--	N/A	N/A
			4,4'-DDT	5E-12	--	N/A	--	5E-12	Liver	2E-06	--	N/A	2E-06
			Aldrin	4E-10	--	N/A	--	4E-10	Liver	5E-05	--	N/A	5E-05
			alpha-BHC	8E-11	--	N/A	--	8E-11	Liver	1E-07	--	N/A	1E-07

TABLE 9.30.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dieldrin	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Endosulfan Sulfate	N/A	--	N/A	--	N/A	General Toxicity/Kidney	N/A	--	N/A	N/A
			Gamma-BHC (Lindane)	3E-11	--	N/A	--	3E-11	Liver/Kidney	7E-06	--	N/A	7E-06
			Heptachlor	7E-11	--	N/A	--	7E-11	Liver	2E-06	--	N/A	2E-06
			Aluminum	N/A	--	N/A	--	N/A	Developmental	3E-04	--	N/A	3E-04
			Arsenic	2E-07	--	N/A	--	2E-07	Skin	2E-02	--	N/A	2E-02
			Cadmium (drinking water)	N/A	--	N/A	--	N/A	Kidney	1E-03	--	N/A	1E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-04	--	N/A	1E-04
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	6E-03	--	N/A	6E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	8E-03	--	N/A	8E-03
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A
			Manganese (drinking water)	N/A	--	N/A	--	N/A	CNS	1E-02	--	N/A	1E-02
			Nickel	N/A	--	N/A	--	N/A	General Toxicity	1E-04	--	N/A	1E-04
			Silver	N/A	--	N/A	--	N/A	Skin	1E-04	--	N/A	1E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	8E-03	--	N/A	8E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	2E-04	--	N/A	2E-04
			Chemical Total	2E-07	--	9E-10	--	2E-07		8E-02	--	4E-04	8E-02
			Radionuclide Total										
		Exposure Point Total						2E-07					8E-02
	Exposure Medium Total							2E-07					8E-02
Medium Total								2E-07					8E-02
Receptor Total								1E-06					3E-01

-- = Not Evaluated

Total Risk Across All Media

1E-06

Total Hazard Across All Media

3E-01

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Blood HI =	9E-03
Total Cardiovascular HI =	2E-05
Total Reproductive HI =	2E-05
Total General Toxicity HI =	4E-02
Total GI System HI =	9E-02
Total Immune System HI =	4E-02
Total Kidney HI =	1E-02
Total Liver HI =	6E-02
Total CNS HI =	3E-02
Total Skin HI =	9E-02
Total Spleen HI =	9E-05
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	8E-03

TABLE 9.30.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Quinnville Wellfield	Benzo(a)anthracene	1E-08	8E-14	4E-09	--	1E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	1E-07	8E-13	4E-08	--	1E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	1E-08	1E-13	6E-09	--	2E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(k)fluoranthene	6E-10	4E-14	2E-10	--	8E-10	N/A	N/A	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalate	1E-10	N/A	4E-11	--	2E-10	Liver	3E-05	N/A	1E-05	4E-05
			Carbazole	3E-11	N/A	1E-11	--	5E-11	N/A	N/A	N/A	N/A	N/A
			Dibenz(a,h)anthracene	2E-08	1E-13	6E-09	--	2E-08	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	--	N/A	Kidney	3E-05	N/A	1E-05	4E-05
			Indeno(1,2,3-cd)pyrene	9E-09	7E-14	3E-09	--	1E-08	N/A	N/A	N/A	N/A	N/A
			Phenanthrene	N/A	N/A	N/A	--	N/A	Kidney	3E-06	2E-08	1E-06	4E-06
			Aroclor-1248	N/A	N/A	N/A	--	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1254	N/A	N/A	N/A	--	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1260	6E-09	2E-13	3E-09	--	8E-09	General Toxicity/Immune System	7E-03	N/A	3E-03	1E-02
			Dieldrin	8E-08	1E-12	2E-08	--	1E-07	Liver	7E-03	N/A	2E-03	9E-03
			Dioxin TEQ	N/A	N/A	N/A	--	N/A	NA	N/A	N/A	N/A	N/A
			Aluminum	N/A	N/A	N/A	--	N/A	Developmental	6E-03	N/A	N/A	6E-03
			Antimony	N/A	N/A	N/A	--	N/A	General Toxicity	2E-03	N/A	N/A	2E-03
			Arsenic	2E-07	3E-11	2E-08	--	2E-07	Skin	3E-02	3E-04	3E-03	3E-02
			Cadmium (other media)	N/A	4E-12	N/A	--	4E-12	Kidney	3E-03	2E-05	4E-04	3E-03
			Chromium	N/A	1E-08	N/A	--	1E-08	GI System	2E-02	3E-05	N/A	2E-02
			Cobalt	N/A	2E-11	N/A	--	2E-11	Endocrine	1E-03	9E-06	N/A	1E-03
			Copper	N/A	N/A	N/A	--	N/A	GI System	3E-03	N/A	N/A	3E-03
			Iron	N/A	N/A	N/A	--	N/A	Liver/GI System	2E-02	N/A	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	N/A	N/A	--	N/A	CNS	5E-03	4E-04	N/A	6E-03
			Mercury (other media)	N/A	N/A	N/A	--	N/A	CNS	6E-03	1E-06	N/A	6E-03
			Thallium	N/A	N/A	N/A	--	N/A	Blood	2E-04	N/A	N/A	2E-04
			Vanadium	N/A	N/A	N/A	--	N/A	Kidney	3E-03	N/A	N/A	3E-03
			Zinc	N/A	N/A	N/A	--	N/A	Blood	3E-04	N/A	N/A	3E-04
			Chemical Total	4E-07	1E-08	1E-07	--	6E-07		1E-01	8E-04	8E-03	1E-01
			Radionuclide Total										
		Exposure Point Total						6E-07					1E-01
	Exposure Medium Total							6E-07					1E-01
Medium Total								6E-07					1E-01
Groundwater	Groundwater	Shallow Monitoring Wells	1,4-Dioxane	1E-10	--	N/A	--	1E-10	Liver	8E-06	--	N/A	8E-06
			2,4-Dimethylphenol	N/A	--	N/A	--	N/A	Blood/CNS	2E-05	--	N/A	2E-05

TABLE 9.30.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Chlorophenol	N/A	--	N/A	--	N/A	Reproductive	8E-06	--	N/A	8E-06
			4-Chloroaniline	5E-10	--	N/A	--	5E-10	Spleen	4E-05	--	N/A	4E-05
			Atrazine	7E-10	--	N/A	--	7E-10	General Toxicity/Cardiovascular	6E-06	--	N/A	6E-06
			Benzaldehyde	N/A	--	N/A	--	N/A	Kidney	1E-06	--	N/A	1E-06
			Benzo(a)anthracene	4E-11	--	N/A	--	4E-11	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-09	--	N/A	--	1E-09	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	4E-11	--	N/A	--	4E-11	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	6E-07	--	N/A	6E-07
			bis(2-Ethylhexyl)phthalate	1E-10	--	4E-10	--	6E-10	Liver	3E-05	--	1E-04	1E-04
			Carbazole	1E-11	--	N/A	--	1E-11	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	1E-05	--	7E-05	8E-05
			Indeno(1,2,3-cd)pyrene	2E-10	--	N/A	--	2E-10	N/A	N/A	--	N/A	N/A
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	5E-06	--	N/A	5E-06
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	8E-07	--	N/A	8E-07
			1,2,4-Trichlorobenzene	1E-12	--	N/A	--	1E-12	Endocrine	3E-06	--	N/A	3E-06
			1,2-Dichlorobenzene	N/A	--	N/A	--	N/A	Liver	1E-06	--	N/A	1E-06
			1,3-Dichlorobenzene	N/A	--	N/A	--	N/A	Endocrine	2E-06	--	N/A	2E-06
			1,4-Dichlorobenzene	9E-12	--	N/A	--	9E-12	Liver	2E-06	--	N/A	2E-06
			2-Butanone	N/A	--	N/A	--	N/A	Developmental	3E-07	--	N/A	3E-07
			Benzene	1E-08	--	N/A	--	1E-08	Immune System	3E-03	--	N/A	3E-03
			Bromodichloromethane	N/A	--	N/A	--	N/A	Kidney	N/A	--	N/A	N/A
			Chlorobenzene	N/A	--	N/A	--	N/A	Liver/Kidney	3E-05	--	N/A	3E-05
			Chloroethane	N/A	--	N/A	--	N/A	CNS/Liver	6E-07	--	N/A	6E-07
			Chloroform	3E-11	--	N/A	--	3E-11	Liver	8E-06	--	N/A	8E-06
			Ethylbenzene	2E-11	--	N/A	--	2E-11	Liver/Kidney	2E-06	--	N/A	2E-06
			Isopropylbenzene	N/A	--	N/A	--	N/A	Kidney	1E-05	--	N/A	1E-05
			Methyl tert-butyl ether	5E-12	--	N/A	--	5E-12	Liver	7E-07	--	N/A	7E-07
			Tetrachloroethene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Toluene	N/A	--	N/A	--	N/A	Kidney	9E-07	--	N/A	9E-07
			Trichloroethene	1E-11	--	N/A	--	1E-11	N/A	N/A	--	N/A	N/A
			Vinyl Chloride	8E-10	--	N/A	--	8E-10	Liver	3E-05	--	N/A	3E-05
			Xylene (Total)	N/A	--	N/A	--	N/A	General Toxicity	1E-06	--	N/A	1E-06
			Aroclor-1242	6E-10	--	N/A	--	6E-10	General Toxicity/Immune System	2E-03	--	N/A	2E-03
			Aroclor-1248	9E-11	--	N/A	--	9E-11	General Toxicity/Immune System	3E-04	--	N/A	3E-04
			Aroclor-1254	1E-09	--	N/A	--	1E-09	General Toxicity/Immune System	4E-03	--	N/A	4E-03
			4,4'-DDD	1E-12	--	N/A	--	1E-12	N/A	N/A	--	N/A	N/A
			4,4'-DDE	2E-12	--	N/A	--	2E-12	N/A	N/A	--	N/A	N/A
			4,4'-DDT	2E-12	--	N/A	--	2E-12	Liver	7E-07	--	N/A	7E-07
			Aldrin	6E-11	--	N/A	--	6E-11	Liver	8E-06	--	N/A	8E-06
			alpha-BHC	2E-11	--	N/A	--	2E-11	Liver	3E-08	--	N/A	3E-08

TABLE 9.30.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dieldrin	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Endosulfan Sulfate	N/A	--	N/A	--	N/A	General Toxicity/Kidney	N/A	--	N/A	N/A
			Gamma-BHC (Lindane)	2E-11	--	N/A	--	2E-11	Liver/Kidney	3E-06	--	N/A	3E-06
			Heptachlor	1E-11	--	N/A	--	1E-11	Liver	5E-07	--	N/A	5E-07
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-04	--	N/A	2E-04
			Arsenic	8E-08	--	N/A	--	8E-08	Skin	1E-02	--	N/A	1E-02
			Cadmium (drinking water)	N/A	--	N/A	--	N/A	Kidney	5E-04	--	N/A	5E-04
			Chromium	N/A	--	N/A	--	N/A	GI System	7E-05	--	N/A	7E-05
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	3E-03	--	N/A	3E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	4E-03	--	N/A	4E-03
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A
			Manganese (drinking water)	N/A	--	N/A	--	N/A	CNS	5E-03	--	N/A	5E-03
			Nickel	N/A	--	N/A	--	N/A	General Toxicity	5E-05	--	N/A	5E-05
			Silver	N/A	--	N/A	--	N/A	Skin	5E-05	--	N/A	5E-05
			Thallium	N/A	--	N/A	--	N/A	Blood	8E-03	--	N/A	8E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	2E-04	--	N/A	2E-04
			Chemical Total	9E-08	--	4E-10	--	9E-08		4E-02	--	2E-04	4E-02
			Radionuclide Total										
		Exposure Point Total						9E-08					4E-02
	Exposure Medium Total							9E-08					4E-02
Medium Total								9E-08					4E-02
Receptor Total								6E-07					2E-01

-- = Not Evaluated

Total Risk Across All Media

6E-07

Total Hazard Across All Media

2E-01

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Blood HI =	9E-03
Total Cardiovascular HI =	6E-06
Total Reproductive HI =	8E-06
Total General Toxicity HI =	2E-02
Total GI System HI =	4E-02
Total Immune System HI =	2E-02
Total Kidney HI =	7E-03
Total Liver HI =	3E-02
Total CNS HI =	2E-02
Total Skin HI =	5E-02
Total Spleen HI =	4E-05
Total Respiratory HI =	N/A
Total Developmental HI =	6E-03
Total Endocrine HI =	4E-03

TABLE 9.31.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank	Benzo(a)anthracene	4E-08	3E-13	2E-08	--	5E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	4E-07	3E-12	2E-07	--	6E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	6E-08	4E-13	2E-08	--	8E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(k)fluoranthene	2E-09	1E-13	7E-10	--	2E-09	N/A	N/A	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-09	N/A	9E-10	--	4E-09	Liver	7E-04	N/A	2E-04	9E-04
			Carbazole	1E-10	N/A	5E-11	--	2E-10	N/A	N/A	N/A	N/A	N/A
			Dibenz(a,h)anthracene	8E-08	7E-13	3E-08	--	1E-07	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	--	N/A	Kidney	4E-05	N/A	1E-05	5E-05
			Indeno(1,2,3-cd)pyrene	3E-08	2E-13	1E-08	--	4E-08	N/A	N/A	N/A	N/A	N/A
			Phenanthrene	N/A	N/A	N/A	--	N/A	Kidney	1E-05	7E-08	5E-06	2E-05
			Aroclor-1248	N/A	N/A	N/A	--	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1254	N/A	N/A	N/A	--	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1260	3E-08	4E-13	1E-08	--	4E-08	General Toxicity/Immune System	1E-02	N/A	6E-03	2E-02
			Dieldrin	2E-07	3E-12	6E-08	--	2E-07	Liver	2E-02	N/A	5E-03	2E-02
			Dioxin TEQ	N/A	N/A	N/A	--	N/A	NA	N/A	N/A	N/A	N/A
			Aluminum	N/A	N/A	N/A	--	N/A	Developmental	1E-02	N/A	N/A	1E-02
			Antimony	N/A	N/A	N/A	--	N/A	General Toxicity	N/A	N/A	N/A	N/A
			Arsenic	4E-07	7E-11	4E-08	--	5E-07	Skin	7E-02	7E-04	6E-03	8E-02
			Cadmium (other media)	N/A	2E-11	N/A	--	2E-11	Kidney	1E-02	8E-05	2E-03	2E-02
			Chromium	N/A	2E-08	N/A	--	2E-08	GI System	3E-02	4E-05	N/A	3E-02
			Cobalt	N/A	N/A	N/A	--	N/A	Endocrine	N/A	N/A	N/A	N/A
			Copper	N/A	N/A	N/A	--	N/A	GI System	8E-03	N/A	N/A	8E-03
			Iron	N/A	N/A	N/A	--	N/A	Liver/GI System	5E-02	N/A	N/A	5E-02
			Lead										
			Manganese (other media)	N/A	N/A	N/A	--	N/A	CNS	2E-02	2E-03	N/A	2E-02
			Mercury (other media)	N/A	N/A	N/A	--	N/A	CNS	8E-03	1E-06	N/A	8E-03
			Thallium	N/A	N/A	N/A	--	N/A	Blood	3E-03	N/A	N/A	3E-03
			Vanadium	N/A	N/A	N/A	--	N/A	Kidney	6E-03	N/A	N/A	6E-03
			Zinc	N/A	N/A	N/A	--	N/A	Blood	1E-03	N/A	N/A	1E-03
			Chemical Total	1E-06	2E-08	3E-07	--	2E-06		3E-01	3E-03	2E-02	3E-01
			Radionuclide Total										
		Exposure Point Total						2E-06					3E-01
	Exposure Medium Total							2E-06					3E-01
Medium Total								2E-06					3E-01
Groundwater	Groundwater	Shallow Monitoring Wells	1,4-Dioxane	3E-10	--	N/A	--	3E-10	Liver	2E-05	--	N/A	2E-05
			2,4-Dimethylphenol	N/A	--	N/A	--	N/A	Blood/CNS	4E-05	--	N/A	4E-05

TABLE 9.31.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Chlorophenol	N/A	--	N/A	--	N/A	Reproductive	2E-05	--	N/A	2E-05
			4-Chloroaniline	1E-09	--	N/A	--	1E-09	Spleen	9E-05	--	N/A	9E-05
			Atrazine	3E-09	--	N/A	--	3E-09	General Toxicity/Cardiovascular	2E-05	--	N/A	2E-05
			Benzaldehyde	N/A	--	N/A	--	N/A	Kidney	3E-06	--	N/A	3E-06
			Benzo(a)anthracene	8E-11	--	N/A	--	8E-11	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	3E-09	--	N/A	--	3E-09	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	7E-11	--	N/A	--	7E-11	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	1E-06	--	N/A	1E-06
			bis(2-Ethylhexyl)phthalate	2E-10	--	9E-10	--	1E-09	Liver	5E-05	--	2E-04	3E-04
			Carbazole	3E-11	--	N/A	--	3E-11	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	3E-05	--	1E-04	2E-04
			Indeno(1,2,3-cd)pyrene	4E-10	--	N/A	--	4E-10	N/A	N/A	--	N/A	N/A
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	1E-05	--	N/A	1E-05
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-06	--	N/A	2E-06
			1,2,4-Trichlorobenzene	3E-12	--	N/A	--	3E-12	Endocrine	6E-06	--	N/A	6E-06
			1,2-Dichlorobenzene	N/A	--	N/A	--	N/A	Liver	2E-06	--	N/A	2E-06
			1,3-Dichlorobenzene	N/A	--	N/A	--	N/A	Endocrine	8E-06	--	N/A	8E-06
			1,4-Dichlorobenzene	2E-11	--	N/A	--	2E-11	Liver	3E-06	--	N/A	3E-06
			2-Butanone	N/A	--	N/A	--	N/A	Developmental	5E-07	--	N/A	5E-07
			Benzene	2E-08	--	N/A	--	2E-08	Immune System	6E-03	--	N/A	6E-03
			Bromodichloromethane	N/A	--	N/A	--	N/A	Kidney	N/A	--	N/A	N/A
			Chlorobenzene	N/A	--	N/A	--	N/A	Liver/Kidney	7E-05	--	N/A	7E-05
			Chloroethane	N/A	--	N/A	--	N/A	CNS/Liver	5E-06	--	N/A	5E-06
			Chloroform	7E-11	--	N/A	--	7E-11	Liver	2E-05	--	N/A	2E-05
			Ethylbenzene	5E-11	--	N/A	--	5E-11	Liver/Kidney	3E-06	--	N/A	3E-06
			Isopropylbenzene	N/A	--	N/A	--	N/A	Kidney	2E-05	--	N/A	2E-05
			Methyl tert-butyl ether	1E-11	--	N/A	--	1E-11	Liver	1E-06	--	N/A	1E-06
			Tetrachloroethene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Toluene	N/A	--	N/A	--	N/A	Kidney	2E-06	--	N/A	2E-06
			Trichloroethene	3E-11	--	N/A	--	3E-11	N/A	N/A	--	N/A	N/A
			Vinyl Chloride	2E-09	--	N/A	--	2E-09	Liver	5E-05	--	N/A	5E-05
			Xylene (Total)	N/A	--	N/A	--	N/A	General Toxicity	2E-06	--	N/A	2E-06
			Aroclor-1242	2E-09	--	N/A	--	2E-09	General Toxicity/Immune System	4E-03	--	N/A	4E-03
			Aroclor-1248	1E-09	--	N/A	--	1E-09	General Toxicity/Immune System	2E-03	--	N/A	2E-03
			Aroclor-1254	4E-09	--	N/A	--	4E-09	General Toxicity/Immune System	7E-03	--	N/A	7E-03
			4,4'-DDD	4E-12	--	N/A	--	4E-12	N/A	N/A	--	N/A	N/A
			4,4'-DDE	5E-12	--	N/A	--	5E-12	N/A	N/A	--	N/A	N/A
			4,4'-DDT	5E-12	--	N/A	--	5E-12	Liver	2E-06	--	N/A	2E-06
			Aldrin	4E-10	--	N/A	--	4E-10	Liver	5E-05	--	N/A	5E-05
			alpha-BHC	8E-11	--	N/A	--	8E-11	Liver	1E-07	--	N/A	1E-07

TABLE 9.31.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dieldrin	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Endosulfan Sulfate	N/A	--	N/A	--	N/A	General Toxicity/Kidney	N/A	--	N/A	N/A
			Gamma-BHC (Lindane)	3E-11	--	N/A	--	3E-11	Liver/Kidney	7E-06	--	N/A	7E-06
			Heptachlor	7E-11	--	N/A	--	7E-11	Liver	2E-06	--	N/A	2E-06
			Aluminum	N/A	--	N/A	--	N/A	Developmental	3E-04	--	N/A	3E-04
			Arsenic	2E-07	--	N/A	--	2E-07	Skin	2E-02	--	N/A	2E-02
			Cadmium (drinking water)	N/A	--	N/A	--	N/A	Kidney	1E-03	--	N/A	1E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-04	--	N/A	1E-04
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	6E-03	--	N/A	6E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	8E-03	--	N/A	8E-03
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A
			Manganese (drinking water)	N/A	--	N/A	--	N/A	CNS	1E-02	--	N/A	1E-02
			Nickel	N/A	--	N/A	--	N/A	General Toxicity	1E-04	--	N/A	1E-04
			Silver	N/A	--	N/A	--	N/A	Skin	1E-04	--	N/A	1E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	8E-03	--	N/A	8E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	2E-04	--	N/A	2E-04
			Chemical Total	2E-07	--	9E-10	--	2E-07		8E-02	--	4E-04	8E-02
			Radionuclide Total										
		Exposure Point Total						2E-07					8E-02
	Exposure Medium Total							2E-07					8E-02
Medium Total								2E-07					8E-02
Receptor Total								2E-06					4E-01

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

2E-06

Total Hazard Across All Media

4E-01

Total Blood HI =	1E-02
Total Cardiovascular HI =	2E-05
Total Reproductive HI =	2E-05
Total General Toxicity HI =	3E-02
Total GI System HI =	9E-02
Total Immune System HI =	4E-02
Total Kidney HI =	2E-02
Total Liver HI =	8E-02
Total CNS HI =	4E-02
Total Skin HI =	1E-01
Total Spleen HI =	9E-05
Total Respiratory HI =	N/A
Total Developmental HI =	1E-02
Total Endocrine HI =	6E-03

TABLE 9.31.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Southern Bank	Benzo(a)anthracene	2E-08	1E-13	6E-09	--	2E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	1E-07	1E-12	6E-08	--	2E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	2E-08	2E-13	8E-09	--	3E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(k)fluoranthene	8E-10	7E-14	3E-10	--	1E-09	N/A	N/A	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalate	3E-10	N/A	9E-11	--	4E-10	Liver	8E-05	N/A	2E-05	1E-04
			Carbazole	6E-11	N/A	2E-11	--	9E-11	N/A	N/A	N/A	N/A	N/A
			Dibenz(a,h)anthracene	3E-08	3E-13	1E-08	--	4E-08	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	--	N/A	Kidney	2E-05	N/A	5E-06	2E-05
			Indeno(1,2,3-cd)pyrene	9E-09	7E-14	3E-09	--	1E-08	N/A	N/A	N/A	N/A	N/A
			Phenanthrene	N/A	N/A	N/A	--	N/A	Kidney	5E-06	3E-08	2E-06	7E-06
			Aroclor-1248	N/A	N/A	N/A	--	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1254	N/A	N/A	N/A	--	N/A	General Toxicity/Immune System	N/A	N/A	N/A	N/A
			Aroclor-1260	4E-09	1E-13	1E-09	--	5E-09	General Toxicity/Immune System	4E-03	N/A	2E-03	6E-03
			Dieldrin	3E-08	4E-13	8E-09	--	3E-08	Liver	2E-03	N/A	7E-04	3E-03
			Dioxin TEQ	N/A	N/A	N/A	--	N/A	NA	N/A	N/A	N/A	N/A
			Aluminum	N/A	N/A	N/A	--	N/A	Developmental	6E-03	N/A	N/A	6E-03
			Antimony	N/A	N/A	N/A	--	N/A	General Toxicity	N/A	N/A	N/A	N/A
			Arsenic	2E-07	3E-11	2E-08	--	2E-07	Skin	3E-02	3E-04	2E-03	3E-02
			Cadmium (other media)	N/A	5E-12	N/A	--	5E-12	Kidney	4E-03	2E-05	5E-04	4E-03
			Chromium	N/A	6E-09	N/A	--	6E-09	GI System	1E-02	2E-05	N/A	1E-02
			Cobalt	N/A	N/A	N/A	--	N/A	Endocrine	N/A	N/A	N/A	N/A
			Copper	N/A	N/A	N/A	--	N/A	GI System	3E-03	N/A	N/A	3E-03
			Iron	N/A	N/A	N/A	--	N/A	Liver/GI System	2E-02	N/A	N/A	2E-02
			Lead										
			Manganese (other media)	N/A	N/A	N/A	--	N/A	CNS	6E-03	4E-04	N/A	6E-03
			Mercury (other media)	N/A	N/A	N/A	--	N/A	CNS	3E-03	5E-07	N/A	3E-03
			Thallium	N/A	N/A	N/A	--	N/A	Blood	1E-03	N/A	N/A	1E-03
			Vanadium	N/A	N/A	N/A	--	N/A	Kidney	2E-03	N/A	N/A	2E-03
			Zinc	N/A	N/A	N/A	--	N/A	Blood	4E-04	N/A	N/A	4E-04
			Chemical Total	4E-07	6E-09	1E-07	--	5E-07		9E-02	7E-04	5E-03	9E-02
			Radionuclide Total										
		Exposure Point Total						5E-07					9E-02
	Exposure Medium Total							5E-07					9E-02
Medium Total								5E-07					9E-02
Groundwater	Groundwater	Shallow Monitoring Wells	1,4-Dioxane	1E-10	--	N/A	--	1E-10	Liver	8E-06	--	N/A	8E-06
			2,4-Dimethylphenol	N/A	--	N/A	--	N/A	Blood/CNS	2E-05	--	N/A	2E-05

TABLE 9.31.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Chlorophenol	N/A	--	N/A	--	N/A	Reproductive	8E-06	--	N/A	8E-06
			4-Chloroaniline	5E-10	--	N/A	--	5E-10	Spleen	4E-05	--	N/A	4E-05
			Atrazine	7E-10	--	N/A	--	7E-10	General Toxicity/Cardiovascular	6E-06	--	N/A	6E-06
			Benzaldehyde	N/A	--	N/A	--	N/A	Kidney	1E-06	--	N/A	1E-06
			Benzo(a)anthracene	4E-11	--	N/A	--	4E-11	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-09	--	N/A	--	1E-09	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	4E-11	--	N/A	--	4E-11	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	6E-07	--	N/A	6E-07
			bis(2-Ethylhexyl)phthalate	1E-10	--	4E-10	--	6E-10	Liver	3E-05	--	1E-04	1E-04
			Carbazole	1E-11	--	N/A	--	1E-11	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	1E-05	--	7E-05	8E-05
			Indeno(1,2,3-cd)pyrene	2E-10	--	N/A	--	2E-10	N/A	N/A	--	N/A	N/A
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	5E-06	--	N/A	5E-06
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	8E-07	--	N/A	8E-07
			1,2,4-Trichlorobenzene	1E-12	--	N/A	--	1E-12	Endocrine	3E-06	--	N/A	3E-06
			1,2-Dichlorobenzene	N/A	--	N/A	--	N/A	Liver	1E-06	--	N/A	1E-06
			1,3-Dichlorobenzene	N/A	--	N/A	--	N/A	Endocrine	2E-06	--	N/A	2E-06
			1,4-Dichlorobenzene	9E-12	--	N/A	--	9E-12	Liver	2E-06	--	N/A	2E-06
			2-Butanone	N/A	--	N/A	--	N/A	Developmental	3E-07	--	N/A	3E-07
			Benzene	1E-08	--	N/A	--	1E-08	Immune System	3E-03	--	N/A	3E-03
			Bromodichloromethane	N/A	--	N/A	--	N/A	Kidney	N/A	--	N/A	N/A
			Chlorobenzene	N/A	--	N/A	--	N/A	Liver/Kidney	3E-05	--	N/A	3E-05
			Chloroethane	N/A	--	N/A	--	N/A	CNS/Liver	6E-07	--	N/A	6E-07
			Chloroform	3E-11	--	N/A	--	3E-11	Liver	8E-06	--	N/A	8E-06
			Ethylbenzene	2E-11	--	N/A	--	2E-11	Liver/Kidney	2E-06	--	N/A	2E-06
			Isopropylbenzene	N/A	--	N/A	--	N/A	Kidney	1E-05	--	N/A	1E-05
			Methyl tert-butyl ether	5E-12	--	N/A	--	5E-12	Liver	7E-07	--	N/A	7E-07
			Tetrachloroethene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Toluene	N/A	--	N/A	--	N/A	Kidney	9E-07	--	N/A	9E-07
			Trichloroethene	1E-11	--	N/A	--	1E-11	N/A	N/A	--	N/A	N/A
			Vinyl Chloride	8E-10	--	N/A	--	8E-10	Liver	3E-05	--	N/A	3E-05
			Xylene (Total)	N/A	--	N/A	--	N/A	General Toxicity	1E-06	--	N/A	1E-06
			Aroclor-1242	6E-10	--	N/A	--	6E-10	General Toxicity/Immune System	2E-03	--	N/A	2E-03
			Aroclor-1248	9E-11	--	N/A	--	9E-11	General Toxicity/Immune System	3E-04	--	N/A	3E-04
			Aroclor-1254	1E-09	--	N/A	--	1E-09	General Toxicity/Immune System	4E-03	--	N/A	4E-03
			4,4'-DDD	1E-12	--	N/A	--	1E-12	N/A	N/A	--	N/A	N/A
			4,4'-DDE	2E-12	--	N/A	--	2E-12	N/A	N/A	--	N/A	N/A
			4,4'-DDT	2E-12	--	N/A	--	2E-12	Liver	7E-07	--	N/A	7E-07
			Aldrin	6E-11	--	N/A	--	6E-11	Liver	8E-06	--	N/A	8E-06
			alpha-BHC	2E-11	--	N/A	--	2E-11	Liver	3E-08	--	N/A	3E-08

TABLE 9.31.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dieldrin	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Endosulfan Sulfate	N/A	--	N/A	--	N/A	General Toxicity/Kidney	N/A	--	N/A	N/A
			Gamma-BHC (Lindane)	2E-11	--	N/A	--	2E-11	Liver/Kidney	3E-06	--	N/A	3E-06
			Heptachlor	1E-11	--	N/A	--	1E-11	Liver	5E-07	--	N/A	5E-07
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-04	--	N/A	2E-04
			Arsenic	8E-08	--	N/A	--	8E-08	Skin	1E-02	--	N/A	1E-02
			Cadmium (drinking water)	N/A	--	N/A	--	N/A	Kidney	5E-04	--	N/A	5E-04
			Chromium	N/A	--	N/A	--	N/A	GI System	7E-05	--	N/A	7E-05
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	3E-03	--	N/A	3E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	4E-03	--	N/A	4E-03
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A
			Manganese (drinking water)	N/A	--	N/A	--	N/A	CNS	5E-03	--	N/A	5E-03
			Nickel	N/A	--	N/A	--	N/A	General Toxicity	5E-05	--	N/A	5E-05
			Silver	N/A	--	N/A	--	N/A	Skin	5E-05	--	N/A	5E-05
			Thallium	N/A	--	N/A	--	N/A	Blood	8E-03	--	N/A	8E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	2E-04	--	N/A	2E-04
			Chemical Total	9E-08	--	4E-10	--	9E-08		4E-02	--	2E-04	4E-02
			Radionuclide Total										
		Exposure Point Total						9E-08					4E-02
	Exposure Medium Total							9E-08					4E-02
Medium Total								9E-08					4E-02
Receptor Total								6E-07					1E-01

-- = Not Evaluated

Total Risk Across All Media

6E-07

Total Hazard Across All Media

1E-01

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Blood HI =	1E-02
Total Cardiovascular HI =	6E-06
Total Reproductive HI =	8E-06
Total General Toxicity HI =	1E-02
Total GI System HI =	4E-02
Total Immune System HI =	1E-02
Total Kidney HI =	7E-03
Total Liver HI =	3E-02
Total CNS HI =	1E-02
Total Skin HI =	4E-02
Total Spleen HI =	4E-05
Total Respiratory HI =	N/A
Total Developmental HI =	6E-03
Total Endocrine HI =	3E-03

TABLE 9.32.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel	Benzo(a)anthracene	9E-08	7E-13	3E-08	--	1E-07	N/A	N/A	N/A	N/A	
			Benzo(a)pyrene	9E-07	7E-12	3E-07	--	1E-06	N/A	N/A	N/A	N/A	
			Benzo(b)fluoranthene	1E-07	8E-13	4E-08	--	1E-07	N/A	N/A	N/A	N/A	
			Benzo(g,h,i)perylene	N/A	N/A	N/A	--	N/A	Kidney	2E-05	9E-08	7E-06	2E-05
			Benzo(k)fluoranthene	2E-09	1E-13	7E-10	--	3E-09	N/A	N/A	N/A	N/A	
			bis(2-Ethylhexyl)phthalate	1E-07	N/A	4E-08	--	2E-07	Liver	3E-02	N/A	1E-02	4E-02
			Carbazole	2E-10	N/A	8E-11	--	3E-10	N/A	N/A	N/A	N/A	
			Chrysene	7E-10	6E-14	3E-10	--	1E-09	N/A	N/A	N/A	N/A	
			Dibenz(a,h)anthracene	1E-07	1E-12	5E-08	--	2E-07	N/A	N/A	N/A	N/A	
			Dibenzofuran	N/A	N/A	N/A	--	N/A	Kidney	1E-04	N/A	3E-05	1E-04
			Indeno(1,2,3-cd)pyrene	5E-08	4E-13	2E-08	--	7E-08	N/A	N/A	N/A	N/A	
			Phenanthrene	N/A	N/A	N/A	--	N/A	Kidney	5E-05	2E-07	2E-05	6E-05
			Aroclor-1248	2E-08	2E-13	7E-09	--	2E-08	General Toxicity/Immune System	1E-02	N/A	4E-03	1E-02
			Aroclor-1254	8E-09	1E-13	3E-09	--	1E-08	General Toxicity/Immune System	5E-03	N/A	2E-03	7E-03
			Aroclor-1260	1E-08	2E-13	5E-09	--	2E-08	General Toxicity/Immune System	7E-03	N/A	3E-03	9E-03
			Dieldrin	6E-08	1E-12	2E-08	--	8E-08	Liver	6E-03	N/A	2E-03	7E-03
			Dioxin TEQ	1E-07	2E-12	1E-08	--	1E-07	NA	N/A	N/A	N/A	N/A
			Aluminum	N/A	N/A	N/A	--	N/A	Developmental	1E-02	N/A	N/A	1E-02
			Arsenic	4E-07	7E-11	4E-08	--	5E-07	Skin	7E-02	7E-04	6E-03	8E-02
			Cadmium (other media)	N/A	2E-11	N/A	--	2E-11	Kidney	1E-02	8E-05	2E-03	2E-02
			Chromium	N/A	3E-08	N/A	--	3E-08	GI System	5E-02	8E-05	N/A	5E-02
			Cobalt	N/A	8E-11	N/A	--	8E-11	Endocrine	4E-03	3E-05	N/A	4E-03
			Copper	N/A	N/A	N/A	--	N/A	GI System	1E-02	N/A	N/A	1E-02
			Iron	N/A	N/A	N/A	--	N/A	Liver/GI System	7E-02	N/A	N/A	7E-02
			Lead										
			Manganese (other media)	N/A	N/A	N/A	--	N/A	CNS	2E-02	1E-03	N/A	2E-02
			Mercury (other media)	N/A	N/A	N/A	--	N/A	CNS	1E-02	2E-06	N/A	1E-02
			Thallium	N/A	N/A	N/A	--	N/A	Blood	5E-03	N/A	N/A	5E-03
			Vanadium	N/A	N/A	N/A	--	N/A	Kidney	6E-03	N/A	N/A	6E-03
			Zinc	N/A	N/A	N/A	--	N/A	Blood	3E-03	N/A	N/A	3E-03
</													

TABLE 9.32.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total	
			2-Methylnaphthalene	--	N/A	--	--	N/A	Respiratory	--	1E-02	--	1E-02	
			Acenaphthene	--	N/A	--	--	N/A	Respiratory	--	3E-03	--	3E-03	
			Acetophenone	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A	
			Benzaldehyde	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A	
			Naphthalene	--	4E-08	--	--	4E-08	Respiratory	--	3E-02	--	3E-02	
			1,4-Dichlorobenzene	--	5E-09	--	--	5E-09	Liver	--	1E-05	--	1E-05	
			Benzene	--	2E-06	--	--	2E-06	Immune System	--	2E-01	--	2E-01	
			Carbon disulfide	--	N/A	--	--	N/A	CNS	--	3E-02	--	3E-02	
			Ethylbenzene	--	2E-08	--	--	2E-08	Developmental	--	6E-04	--	6E-04	
			Methyl acetate	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A	
			Tetrachloroethene	--	2E-07	--	--	2E-07	CNS	--	8E-03	--	8E-03	
			Toluene	--	N/A	--	--	N/A	CNS	--	5E-02	--	5E-02	
			Xylene (Total)	--	N/A	--	--	N/A	CNS	--	3E-02	--	3E-02	
			Chemical Total	--	2E-06	--	--	2E-06		--	3E-01	--	3E-01	
		Exposure Point Total						2E-06					3E-01	
	Exposure Medium Total						2E-06					3E-01		
Medium Total									5E-06					7E-01
Groundwater	Groundwater	Shallow Monitoring Wells	1,4-Dioxane	3E-10	--	N/A	--	3E-10	Liver	2E-05	--	N/A	2E-05	
			2,4-Dimethylphenol	N/A	--	N/A	--	N/A	Blood/CNS	4E-05	--	N/A	4E-05	
			2-Chlorophenol	N/A	--	N/A	--	N/A	Reproductive	2E-05	--	N/A	2E-05	
			4-Chloroaniline	1E-09	--	N/A	--	1E-09	Spleen	9E-05	--	N/A	9E-05	
			Atrazine	3E-09	--	N/A	--	3E-09	General Toxicity/Cardiovascular	2E-05	--	N/A	2E-05	
			Benzaldehyde	N/A	--	N/A	--	N/A	Kidney	3E-06	--	N/A	3E-06	
			Benzo(a)anthracene	8E-11	--	N/A	--	8E-11	N/A	N/A	--	N/A	N/A	
			Benzo(a)pyrene	3E-09	--	N/A	--	3E-09	N/A	N/A	--	N/A	N/A	
			Benzo(b)fluoranthene	7E-11	--	N/A	--	7E-11	N/A	N/A	--	N/A	N/A	
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	1E-06	--	N/A	1E-06	
			bis(2-Ethylhexyl)phthalate	2E-10	--	9E-10	--	1E-09	Liver	5E-05	--	2E-04	3E-04	
			Carbazole	3E-11	--	N/A	--	3E-11	N/A	N/A	--	N/A	N/A	
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	3E-05	--	1E-04	2E-04	
			Indeno(1,2,3-cd)pyrene	4E-10	--	N/A	--	4E-10	N/A	N/A	--	N/A	N/A	
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	1E-05	--	N/A	1E-05	
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-06	--	N/A	2E-06	

TABLE 9.32.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Butanone	N/A	--	N/A	--	N/A	Developmental	5E-07	--	N/A	5E-07
			Benzene	2E-08	--	N/A	--	2E-08	Immune System	6E-03	--	N/A	6E-03
			Bromodichloromethane	N/A	--	N/A	--	N/A	Kidney	N/A	--	N/A	N/A
			Chlorobenzene	N/A	--	N/A	--	N/A	Liver/Kidney	7E-05	--	N/A	7E-05
			Chloroethane	N/A	--	N/A	--	N/A	CNS/Liver	5E-06	--	N/A	5E-06
			Chloroform	7E-11	--	N/A	--	7E-11	Liver	2E-05	--	N/A	2E-05
			Ethylbenzene	5E-11	--	N/A	--	5E-11	Liver/Kidney	3E-06	--	N/A	3E-06
			Isopropylbenzene	N/A	--	N/A	--	N/A	Kidney	2E-05	--	N/A	2E-05
			Methyl tert-butyl ether	1E-11	--	N/A	--	1E-11	Liver	1E-06	--	N/A	1E-06
			Tetrachloroethene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Toluene	N/A	--	N/A	--	N/A	Kidney	2E-06	--	N/A	2E-06
			Trichloroethene	3E-11	--	N/A	--	3E-11	N/A	N/A	--	N/A	N/A
			Vinyl Chloride	2E-09	--	N/A	--	2E-09	Liver	5E-05	--	N/A	5E-05
			Xylene (Total)	N/A	--	N/A	--	N/A	General Toxicity	2E-06	--	N/A	2E-06
			Aroclor-1242	2E-09	--	N/A	--	2E-09	General Toxicity/Immune System	4E-03	--	N/A	4E-03
			Aroclor-1248	1E-09	--	N/A	--	1E-09	General Toxicity/Immune System	2E-03	--	N/A	2E-03
			Aroclor-1254	4E-09	--	N/A	--	4E-09	General Toxicity/Immune System	7E-03	--	N/A	7E-03
			4,4'-DDD	4E-12	--	N/A	--	4E-12	N/A	N/A	--	N/A	N/A
			4,4'-DDE	5E-12	--	N/A	--	5E-12	N/A	N/A	--	N/A	N/A
			4,4'-DDT	5E-12	--	N/A	--	5E-12	Liver	2E-06	--	N/A	2E-06
			Aldrin	4E-10	--	N/A	--	4E-10	Liver	5E-05	--	N/A	5E-05
			alpha-BHC	8E-11	--	N/A	--	8E-11	Liver	1E-07	--	N/A	1E-07
			Dieldrin	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Endosulfan Sulfate	N/A	--	N/A	--	N/A	General Toxicity/Kidney	N/A	--	N/A	N/A
			Gamma-BHC (Lindane)	3E-11	--	N/A	--	3E-11	Liver/Kidney	7E-06	--	N/A	7E-06
			Heptachlor	7E-11	--	N/A	--	7E-11	Liver	2E-06	--	N/A	2E-06
			Aluminum	N/A	--	N/A	--	N/A	Developmental	3E-04	--	N/A	3E-04
			Arsenic	2E-07	--	N/A	--	2E-07	Skin	2E-02	--	N/A	2E-02
			Cadmium (drinking water)	N/A	--	N/A	--	N/A	Kidney	1E-03	--	N/A	1E-03
			Chromium	N/A	--	N/A	--	N/A	GI System	1E-04	--	N/A	1E-04
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	6E-03	--	N/A	6E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	8E-03	--	N/A	8E-03
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A
			Manganese (drinking water)	N/A	--	N/A	--	N/A	CNS	1E-02	--	N/A	1E-02
			Nickel	N/A	--	N/A	--	N/A	General Toxicity	1E-04	--	N/A	1E-04
			Silver	N/A	--	N/A	--	N/A	Skin	1E-04	--	N/A	1E-04
			Thallium	N/A	--	N/A	--	N/A	Blood	8E-03	--	N/A	8E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	2E-04	--	N/A	2E-04
			Chemical Total	2E-07	--	9E-10	--	2E-07		8E-02	--	4E-04	8E-02

TABLE 9.32.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Outdoor (Trench) Air	Nunes Parcel	Radionuclide Total										
			Exposure Point Total	2E-07					8E-02				
			Exposure Medium Total	2E-07					8E-02				
			Benzene	--	3E-09	--	--	3E-09	Immune System	--	3E-04	--	3E-04
			Chemical Total	--	3E-09	--	--	3E-09		--	3E-04	--	3E-04
			Radionuclide Total										
			Exposure Point Total	3E-09					3E-04				
			Exposure Medium Total	3E-09					3E-04				
			Medium Total	2E-07					8E-02				
			Receptor Total	5E-06					8E-01				

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

5E-06

Total Hazard Across All Media

8E-01

Total Blood HI =	2E-02
Total Cardiovascular HI =	2E-05
Total Reproductive HI =	2E-05
Total General Toxicity HI =	4E-02
Total GI System HI =	1E-01
Total Immune System HI =	2E-01
Total Kidney HI =	2E-02
Total Liver HI =	1E-01
Total CNS HI =	2E-01
Total Skin HI =	1E-01
Total Spleen HI =	9E-05
Total Respiratory HI =	4E-02
Total Developmental HI =	2E-02
Total Endocrine HI =	1E-02

TABLE 9.32.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel	Benzo(a)anthracene	4E-08	3E-13	2E-08	--	6E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(a)pyrene	4E-07	3E-12	2E-07	--	6E-07	N/A	N/A	N/A	N/A	N/A
			Benzo(b)fluoranthene	5E-08	4E-13	2E-08	--	7E-08	N/A	N/A	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	N/A	N/A	--	N/A	Kidney	8E-06	4E-08	3E-06	1E-05
			Benzo(k)fluoranthene	9E-10	7E-14	4E-10	--	1E-09	N/A	N/A	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalate	7E-08	N/A	2E-08	--	9E-08	Liver	2E-02	N/A	5E-03	2E-02
			Carbazole	1E-10	N/A	4E-11	--	1E-10	N/A	N/A	N/A	N/A	N/A
			Chrysene	4E-10	3E-14	1E-10	--	5E-10	N/A	N/A	N/A	N/A	N/A
			Dibenz(a,h)anthracene	6E-08	5E-13	2E-08	--	9E-08	N/A	N/A	N/A	N/A	N/A
			Dibenzofuran	N/A	N/A	N/A	--	N/A	Kidney	5E-05	N/A	1E-05	6E-05
			Indeno(1,2,3-cd)pyrene	3E-08	2E-13	1E-08	--	4E-08	N/A	N/A	N/A	N/A	N/A
			Phenanthrene	N/A	N/A	N/A	--	N/A	Kidney	2E-05	1E-07	9E-06	3E-05
			Aroclor-1248	4E-09	1E-13	2E-09	--	6E-09	General Toxicity/Immune System	5E-03	N/A	2E-03	7E-03
			Aroclor-1254	2E-09	6E-14	8E-10	--	3E-09	General Toxicity/Immune System	2E-03	N/A	1E-03	3E-03
			Aroclor-1260	3E-09	8E-14	1E-09	--	4E-09	General Toxicity/Immune System	3E-03	N/A	1E-03	5E-03
			Dieldrin	3E-08	5E-13	9E-09	--	4E-08	Liver	3E-03	N/A	8E-04	4E-03
			Dioxin TEQ	6E-08	8E-13	5E-09	--	6E-08	NA	N/A	N/A	N/A	N/A
			Aluminum	N/A	N/A	N/A	--	N/A	Developmental	7E-03	N/A	N/A	7E-03
			Arsenic	2E-07	3E-11	2E-08	--	2E-07	Skin	3E-02	4E-04	3E-03	4E-02
			Cadmium (other media)	N/A	1E-11	N/A	--	1E-11	Kidney	7E-03	4E-05	9E-04	8E-03
			Chromium	N/A	1E-08	N/A	--	1E-08	GI System	3E-02	4E-05	N/A	3E-02
			Cobalt	N/A	4E-11	N/A	--	4E-11	Endocrine	2E-03	2E-05	N/A	2E-03
			Copper	N/A	N/A	N/A	--	N/A	GI System	5E-03	N/A	N/A	5E-03
			Iron	N/A	N/A	N/A	--	N/A	Liver/GI System	3E-02	N/A	N/A	3E-02
			Lead										
			Manganese (other media)	N/A	N/A	N/A	--	N/A	CNS	1E-02	7E-04	N/A	1E-02
			Mercury (other media)	N/A	N/A	N/A	--	N/A	CNS	5E-03	9E-07	N/A	5E-03
			Thallium	N/A	N/A	N/A	--	N/A	Blood	2E-03	N/A	N/A	2E-03
			Vanadium	N/A	N/A	N/A	--	N/A	Kidney	3E-03	N/A	N/A	3E-03
			Zinc	N/A	N/A	N/A	--	N/A	Blood	1E-03	N/A	N/A	1E-03
			Chemical Total	1E-06	1E-08	3E-07	--	1E-06		2E-01	1E-03	1E-02	2E-01
			Radionuclide Total										
		Exposure Point Total											
		Exposure Medium Total											
		Outdoor (Trench) Air											
		Nunes Parcel	1,1'-Biphenyl	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A

TABLE 9.32.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total	
			2-Methylnaphthalene	--	N/A	--	--	N/A	Respiratory	--	6E-03	--	6E-03	
			Acenaphthene	--	N/A	--	--	N/A	Respiratory	--	1E-03	--	1E-03	
			Acetophenone	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A	
			Benzaldehyde	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A	
			Naphthalene	--	2E-08	--	--	2E-08	Respiratory	--	1E-02	--	1E-02	
			1,4-Dichlorobenzene	--	3E-09	--	--	3E-09	Liver	--	7E-06	--	7E-06	
			Benzene	--	9E-07	--	--	9E-07	Immune System	--	9E-02	--	9E-02	
			Carbon disulfide	--	N/A	--	--	N/A	CNS	--	1E-02	--	1E-02	
			Ethylbenzene	--	1E-08	--	--	1E-08	Developmental	--	3E-04	--	3E-04	
			Methyl acetate	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A	
			Tetrachloroethene	--	9E-08	--	--	9E-08	CNS	--	4E-03	--	4E-03	
			Toluene	--	N/A	--	--	N/A	CNS	--	3E-02	--	3E-02	
			Xylene (Total)	--	N/A	--	--	N/A	CNS	--	1E-02	--	1E-02	
			Chemical Total	--	1E-06	--	--	1E-06		--	2E-01	--	2E-01	
			Exposure Point Total						1E-06					2E-01
		Exposure Medium Total							1E-06					2E-01
Medium Total									2E-06					4E-01
Groundwater	Groundwater	Shallow Monitoring Wells	1,4-Dioxane	1E-10	--	N/A	--	1E-10	Liver	8E-06	--	N/A	8E-06	
			2,4-Dimethylphenol	N/A	--	N/A	--	N/A	Blood/CNS	2E-05	--	N/A	2E-05	
			2-Chlorophenol	N/A	--	N/A	--	N/A	Reproductive	8E-06	--	N/A	8E-06	
			4-Chloroaniline	5E-10	--	N/A	--	5E-10	Spleen	4E-05	--	N/A	4E-05	
			Atrazine	7E-10	--	N/A	--	7E-10	General Toxicity/Cardiovascular	6E-06	--	N/A	6E-06	
			Benzaldehyde	N/A	--	N/A	--	N/A	Kidney	1E-06	--	N/A	1E-06	
			Benzo(a)anthracene	4E-11	--	N/A	--	4E-11	N/A	N/A	--	N/A	N/A	
			Benzo(a)pyrene	1E-09	--	N/A	--	1E-09	N/A	N/A	--	N/A	N/A	
			Benzo(b)fluoranthene	4E-11	--	N/A	--	4E-11	N/A	N/A	--	N/A	N/A	
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	6E-07	--	N/A	6E-07	
			bis(2-Ethylhexyl)phthalate	1E-10	--	4E-10	--	6E-10	Liver	3E-05	--	1E-04	1E-04	
			Carbazole	1E-11	--	N/A	--	1E-11	N/A	N/A	--	N/A	N/A	
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	1E-05	--	7E-05	8E-05	
			Indeno(1,2,3-cd)pyrene	2E-10	--	N/A	--	2E-10	N/A	N/A	--	N/A	N/A	
			Naphthalene	N/A	--	N/A	--	N/A	General Toxicity	5E-06	--	N/A	5E-06	
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	8E-07	--	N/A	8E-07	
			1,2,4-Trichlorobenzene	1E-12	--	N/A	--	1E-12	Endocrine	3E-06	--	N/A	3E-06	
			1,2-Dichlorobenzene	N/A	--	N/A	--	N/A	Liver	1E-06	--	N/A	1E-06	
			1,3-Dichlorobenzene	N/A	--	N/A	--	N/A	Endocrine	2E-06	--	N/A	2E-06	
			1,4-Dichlorobenzene	9E-12	--	N/A	--	9E-12	Liver	2E-06	--	N/A	2E-06	

TABLE 9.32.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Butanone	N/A	--	N/A	--	N/A	Developmental	3E-07	--	N/A	3E-07
			Benzene	1E-08	--	N/A	--	1E-08	Immune System	3E-03	--	N/A	3E-03
			Bromodichloromethane	N/A	--	N/A	--	N/A	Kidney	N/A	--	N/A	N/A
			Chlorobenzene	N/A	--	N/A	--	N/A	Liver/Kidney	3E-05	--	N/A	3E-05
			Chloroethane	N/A	--	N/A	--	N/A	CNS/Liver	6E-07	--	N/A	6E-07
			Chloroform	3E-11	--	N/A	--	3E-11	Liver	8E-06	--	N/A	8E-06
			Ethylbenzene	2E-11	--	N/A	--	2E-11	Liver/Kidney	2E-06	--	N/A	2E-06
			Isopropylbenzene	N/A	--	N/A	--	N/A	Kidney	1E-05	--	N/A	1E-05
			Methyl tert-butyl ether	5E-12	--	N/A	--	5E-12	Liver	7E-07	--	N/A	7E-07
			Tetrachloroethene	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Toluene	N/A	--	N/A	--	N/A	Kidney	9E-07	--	N/A	9E-07
			Trichloroethene	1E-11	--	N/A	--	1E-11	N/A	N/A	--	N/A	N/A
			Vinyl Chloride	8E-10	--	N/A	--	8E-10	Liver	3E-05	--	N/A	3E-05
			Xylene (Total)	N/A	--	N/A	--	N/A	General Toxicity	1E-06	--	N/A	1E-06
			Aroclor-1242	6E-10	--	N/A	--	6E-10	General Toxicity/Immune System	2E-03	--	N/A	2E-03
			Aroclor-1248	9E-11	--	N/A	--	9E-11	General Toxicity/Immune System	3E-04	--	N/A	3E-04
			Aroclor-1254	1E-09	--	N/A	--	1E-09	General Toxicity/Immune System	4E-03	--	N/A	4E-03
			4,4'-DDD	1E-12	--	N/A	--	1E-12	N/A	N/A	--	N/A	N/A
			4,4'-DDE	2E-12	--	N/A	--	2E-12	N/A	N/A	--	N/A	N/A
			4,4'-DDT	2E-12	--	N/A	--	2E-12	Liver	7E-07	--	N/A	7E-07
			Aldrin	6E-11	--	N/A	--	6E-11	Liver	8E-06	--	N/A	8E-06
			alpha-BHC	2E-11	--	N/A	--	2E-11	Liver	3E-08	--	N/A	3E-08
			Dieldrin	N/A	--	N/A	--	N/A	Liver	N/A	--	N/A	N/A
			Endosulfan Sulfate	N/A	--	N/A	--	N/A	General Toxicity/Kidney	N/A	--	N/A	N/A
			Gamma-BHC (Lindane)	2E-11	--	N/A	--	2E-11	Liver/Kidney	3E-06	--	N/A	3E-06
			Heptachlor	1E-11	--	N/A	--	1E-11	Liver	5E-07	--	N/A	5E-07
			Aluminum	N/A	--	N/A	--	N/A	Developmental	2E-04	--	N/A	2E-04
			Arsenic	8E-08	--	N/A	--	8E-08	Skin	1E-02	--	N/A	1E-02
			Cadmium (drinking water)	N/A	--	N/A	--	N/A	Kidney	5E-04	--	N/A	5E-04
			Chromium	N/A	--	N/A	--	N/A	GI System	7E-05	--	N/A	7E-05
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	3E-03	--	N/A	3E-03
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	4E-03	--	N/A	4E-03
			Lead	N/A	--	N/A	--	N/A	CNS	N/A	--	N/A	N/A
			Manganese (drinking water)	N/A	--	N/A	--	N/A	CNS	5E-03	--	N/A	5E-03
			Nickel	N/A	--	N/A	--	N/A	General Toxicity	5E-05	--	N/A	5E-05
			Silver	N/A	--	N/A	--	N/A	Skin	5E-05	--	N/A	5E-05
			Thallium	N/A	--	N/A	--	N/A	Blood	4E-03	--	N/A	4E-03
			Zinc	N/A	--	N/A	--	N/A	Blood	1E-04	--	N/A	1E-04
			Chemical Total	9E-08	--	4E-10	--	9E-08		4E-02	--	2E-04	4E-02

TABLE 9.32.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Outdoor (Trench) Air	Nunes Parcel	Radionuclide Total										
			Exposure Point Total					9E-08					4E-02
			Exposure Medium Total					9E-08					4E-02
			Benzene	--	2E-09	--	--	2E-09	Immune System	--	2E-04	--	2E-04
			Chemical Total	--	2E-09	--	--	2E-09		--	2E-04	--	2E-04
			Radionuclide Total										
			Exposure Point Total					2E-09					2E-04
			Exposure Medium Total					2E-09					2E-04
			Medium Total					9E-08					4E-02
			Receptor Total					2E-06					4E-01

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

2E-06

Total Hazard Across All Media

4E-01

Total Blood HI =	8E-03
Total Cardiovascular HI =	6E-06
Total Reproductive HI =	8E-06
Total General Toxicity HI =	2E-02
Total GI System HI =	7E-02
Total Immune System HI =	1E-01
Total Kidney HI =	1E-02
Total Liver HI =	6E-02
Total CNS HI =	8E-02
Total Skin HI =	5E-02
Total Spleen HI =	4E-05
Total Respiratory HI =	2E-02
Total Developmental HI =	7E-03
Total Endocrine HI =	5E-03

TABLE 9.33.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel	Benzo(a)anthracene	2E-05	--	9E-06	--	3E-05	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	2E-04	--	9E-05	--	3E-04	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	3E-05	--	1E-05	--	4E-05	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	1E-03	--	5E-04	2E-03
			Benzo(k)fluoranthene	5E-07	--	2E-07	--	7E-07	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	9E-06	--	3E-06	--	1E-05	Liver	3E-01	--	8E-02	3E-01
			Carbazole	1E-08	--	6E-09	--	2E-08	N/A	N/A	--	N/A	N/A
			Chrysene	2E-07	--	8E-08	--	3E-07	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	3E-05	--	1E-05	--	5E-05	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	8E-04	--	2E-04	1E-03
			Indeno(1,2,3-cd)pyrene	1E-05	--	5E-06	--	2E-05	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	4E-03	--	1E-03	5E-03
			Aroclor-1248	1E-06	--	5E-07	--	2E-06	General Toxicity/Immune System	2E-01	--	9E-02	3E-01
			Aroclor-1254	5E-07	--	2E-07	--	8E-07	General Toxicity/Immune System	1E-01	--	4E-02	2E-01
			Aroclor-1260	8E-07	--	3E-07	--	1E-06	General Toxicity/Immune System	2E-01	--	6E-02	2E-01
			Dieldrin	4E-06	--	1E-06	--	6E-06	Liver	4E-02	--	1E-02	6E-02
			Dioxin TEQ	9E-06	--	9E-07	--	1E-05	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	1E-01	--	N/A	1E-01
			Arsenic	3E-05	--	3E-06	--	3E-05	Skin	6E-01	--	5E-02	6E-01
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	1E-01	--	1E-02	1E-01
			Chromium	N/A	--	N/A	--	N/A	GI System	1E+00	--	N/A	1E+00
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	3E-01	--	N/A	3E-01
			Copper	N/A	--	N/A	--	N/A	GI System	8E-02	--	N/A	8E-02
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	5E-01	--	N/A	5E-01
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	2E-01	--	N/A	2E-01
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	9E-02	--	N/A	9E-02
			Thallium	N/A	--	N/A	--	N/A	Blood	4E-01	--	N/A	4E-01
			Vanadium	N/A	--	N/A	--	N/A	Kidney	5E-02	--	N/A	5E-02
			Zinc	N/A	--	N/A	--	N/A	Blood	2E-02	--	N/A	2E-02
			Chemical Total	4E-04	--	1E-04	--	5E-04		4E+00	--	3E-01	5E+00
			Radionuclide Total										
			Exposure Point Total					5E-04					5E+00
			Exposure Medium Total					5E-04					5E+00
	Indoor Air	Nunes Parcel	1,1'-Biphenyl	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A

TABLE 9.33.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Methylnaphthalene	--	N/A	--	--	N/A	Respiratory	--	2E-01	--	2E-01
			Acenaphthene	--	N/A	--	--	N/A	Respiratory	--	4E-02	--	4E-02
			Acetophenone	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Benzaldehyde	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Naphthalene	--	1E-05	--	--	1E-05	Respiratory	--	3E-01	--	3E-01
			1,4-Dichlorobenzene	--	2E-06	--	--	2E-06	Liver	--	5E-04	--	5E-04
			Benzene	--	5E-04	--	--	5E-04	Immune System	--	5E+00	--	5E+00
			Carbon disulfide	--	N/A	--	--	N/A	CNS	--	2E-01	--	2E-01
			Ethylbenzene	--	7E-06	--	--	7E-06	Developmental	--	6E-03	--	6E-03
			Methyl acetate	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Tetrachloroethene	--	5E-05	--	--	5E-05	CNS	--	8E-02	--	8E-02
			Toluene	--	N/A	--	--	N/A	CNS	--	5E-01	--	5E-01
			Xylene (Total)	--	N/A	--	--	N/A	CNS	--	7E-01	--	7E-01
			Chemical Total	--	6E-04	--	--	6E-04		--	7E+00	--	7E+00
			Radionuclide Total										
			Exposure Point Total			6E-04					7E+00		
Exposure Medium Total			6E-04					7E+00					
Medium Total			1E-03					1E+01					
Groundwater	Indoor Air	Nunes Parcel	Naphthalene	--	1E-06	--	--	1E-06	Respiratory	--	2E-02	--	2E-02
			1,4-Dichlorobenzene	--	3E-07	--	--	3E-07	Liver	--	7E-05	--	7E-05
			Benzene	--	5E-06	--	--	5E-06	Immune System	--	5E-02	--	5E-02
			Chloroform	--	1E-06	--	--	1E-06	Liver	--	1E-03	--	1E-03
			Ethylbenzene	--	2E-06	--	--	2E-06	Developmental	--	2E-03	--	2E-03
			Vinyl chloride	--	5E-06	--	--	5E-06	Liver	--	7E-03	--	7E-03
			Chemical Total	--	1E-05	--	--	1E-05		--	8E-02	--	8E-02
			Radionuclide Total										
			Exposure Point Total			1E-05					8E-02		
Exposure Medium Total			1E-05					8E-02					
Medium Total			1E-05					8E-02					
Receptor Total			1E-03					1E+01					

TABLE 9.33.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

1E-03

Total Hazard Across All Media

1E+01

Total Blood HI =	4E-01
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E-01
Total GI System HI =	2E+00
Total Immune System HI =	6E+00
Total Kidney HI =	2E-01
Total Liver HI =	9E-01
Total CNS HI =	2E+00
Total Skin HI =	6E-01
Total Spleen HI =	N/A
Total Respiratory HI =	5E-01
Total Developmental HI =	1E-01
Total Endocrine HI =	3E-01

TABLE 9.33.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel	Benzo(a)anthracene	1E-05	--	9E-06	--	2E-05	N/A	N/A	--	N/A	N/A
			Benzo(a)pyrene	1E-04	--	8E-05	--	2E-04	N/A	N/A	--	N/A	N/A
			Benzo(b)fluoranthene	1E-05	--	1E-05	--	2E-05	N/A	N/A	--	N/A	N/A
			Benzo(g,h,i)perylene	N/A	--	N/A	--	N/A	Kidney	7E-04	--	5E-04	1E-03
			Benzo(k)fluoranthene	2E-07	--	2E-07	--	4E-07	N/A	N/A	--	N/A	N/A
			bis(2-Ethylhexyl)phthalate	4E-06	--	2E-06	--	6E-06	Liver	1E-01	--	8E-02	2E-01
			Carbazole	6E-09	--	4E-09	--	1E-08	N/A	N/A	--	N/A	N/A
			Chrysene	1E-07	--	7E-08	--	2E-07	N/A	N/A	--	N/A	N/A
			Dibenz(a,h)anthracene	2E-05	--	1E-05	--	3E-05	N/A	N/A	--	N/A	N/A
			Dibenzofuran	N/A	--	N/A	--	N/A	Kidney	4E-04	--	2E-04	6E-04
			Indeno(1,2,3-cd)pyrene	7E-06	--	5E-06	--	1E-05	N/A	N/A	--	N/A	N/A
			Phenanthrene	N/A	--	N/A	--	N/A	Kidney	2E-03	--	1E-03	3E-03
			Aroclor-1248	2E-07	--	2E-07	--	4E-07	General Toxicity/Immune System	1E-01	--	9E-02	2E-01
			Aroclor-1254	1E-07	--	9E-08	--	2E-07	General Toxicity/Immune System	5E-02	--	4E-02	1E-01
			Aroclor-1260	2E-07	--	1E-07	--	3E-07	General Toxicity/Immune System	8E-02	--	6E-02	1E-01
			Dieldrin	2E-06	--	1E-06	--	3E-06	Liver	2E-02	--	1E-02	3E-02
			Dioxin TEQ	3E-06	--	5E-07	--	3E-06	N/A	N/A	--	N/A	N/A
			Aluminum	N/A	--	N/A	--	N/A	Developmental	6E-02	--	N/A	6E-02
			Arsenic	1E-05	--	2E-06	--	1E-05	Skin	3E-01	--	5E-02	3E-01
			Cadmium (other media)	N/A	--	N/A	--	N/A	Kidney	6E-02	--	1E-02	7E-02
			Chromium	N/A	--	N/A	--	N/A	GI System	6E-01	--	N/A	6E-01
			Cobalt	N/A	--	N/A	--	N/A	Endocrine	2E-01	--	N/A	2E-01
			Copper	N/A	--	N/A	--	N/A	GI System	4E-02	--	N/A	4E-02
			Iron	N/A	--	N/A	--	N/A	Liver/GI System	3E-01	--	N/A	3E-01
			Lead										
			Manganese (other media)	N/A	--	N/A	--	N/A	CNS	8E-02	--	N/A	8E-02
			Mercury (other media)	N/A	--	N/A	--	N/A	CNS	4E-02	--	N/A	4E-02
			Thallium	N/A	--	N/A	--	N/A	Blood	2E-01	--	N/A	2E-01
			Vanadium	N/A	--	N/A	--	N/A	Kidney	3E-02	--	N/A	3E-02
			Zinc	N/A	--	N/A	--	N/A	Blood	1E-02	--	N/A	1E-02
			Chemical Total	2E-04	--	1E-04	--	3E-04		2E+00	--	3E-01	3E+00
			Radionuclide Total										
		Exposure Point Total						3E-04					3E+00
	Exposure Medium Total							3E-04					3E+00
	Indoor Air	Nunes Parcel	1,1'-Biphenyl	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A

TABLE 9.33.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
			2-Methylnaphthalene	--	N/A	--	--	N/A	Respiratory	--	1E-01	--	1E-01
			Acenaphthene	--	N/A	--	--	N/A	Respiratory	--	3E-02	--	3E-02
			Acetophenone	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Benzaldehyde	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Naphthalene	--	4E-06	--	--	4E-06	Respiratory	--	2E-01	--	2E-01
			1,4-Dichlorobenzene	--	5E-07	--	--	5E-07	Liver	--	3E-04	--	3E-04
			Benzene	--	1E-04	--	--	1E-04	Immune System	--	3E+00	--	3E+00
			Carbon disulfide	--	N/A	--	--	N/A	CNS	--	1E-01	--	1E-01
			Ethylbenzene	--	2E-06	--	--	2E-06	Developmental	--	4E-03	--	4E-03
			Methyl acetate	--	N/A	--	--	N/A	N/A	--	N/A	--	N/A
			Tetrachloroethene	--	2E-05	--	--	2E-05	CNS	--	5E-02	--	5E-02
			Toluene	--	N/A	--	--	N/A	CNS	--	3E-01	--	3E-01
			Xylene (Total)	--	N/A	--	--	N/A	CNS	--	5E-01	--	5E-01
			Chemical Total	--	2E-04	--	--	2E-04		--	5E+00	--	5E+00
			Radionuclide Total										
		Exposure Point Total						2E-04					5E+00
	Exposure Medium Total							2E-04					5E+00
Medium Total								5E-04					7E+00
Groundwater	Indoor Air	Nunes Parcel	Naphthalene	--	3E-07	--	--	3E-07	Respiratory	--	1E-02	--	1E-02
			1,4-Dichlorobenzene	--	8E-08	--	--	8E-08	Liver	--	5E-05	--	5E-05
			Benzene	--	1E-06	--	--	1E-06	Immune System	--	3E-02	--	3E-02
			Chloroform	--	3E-07	--	--	3E-07	Liver	--	8E-04	--	8E-04
			Ethylbenzene	--	5E-08	--	--	5E-08	Developmental	--	1E-04	--	1E-04
			Vinyl chloride	--	3E-06	--	--	3E-06	Liver	--	5E-03	--	5E-03
			Chemical Total	--	5E-06	--	--	5E-06		--	5E-02	--	5E-02
			Radionuclide Total										
		Exposure Point Total						5E-06					5E-02
	Exposure Medium Total							5E-06					5E-02
Medium Total								5E-06					5E-02
Receptor Total								5E-04					7E+00

TABLE 9.33.CT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

5E-04

Total Hazard Across All Media

7E+00

Total Blood HI =	2E-01
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	4E-01
Total GI System HI =	9E-01
Total Immune System HI =	4E+00
Total Kidney HI =	1E-01
Total Liver HI =	5E-01
Total CNS HI =	1E+00
Total Skin HI =	3E-01
Total Spleen HI =	N/A
Total Respiratory HI =	4E-01
Total Developmental HI =	6E-02
Total Endocrine HI =	2E-01

TABLE 10.1.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2	Benzo(a)anthracene	2E-06	--	--	--	2E-06	General Toxicity/Immune System	1E+01	--	--	1E+01
			Benzo(a)pyrene	2E-05	--	--	--	2E-05					
			Dibenz(a,h)anthracene	2E-05	--	--	--	2E-05					
			Indeno(1,2,3-cd)pyrene	2E-06	--	--	--	2E-06					
			Total PCB Homologs	1E-04	--	--	--	1E-04					
			Aldrin	2E-06	--	--	--	2E-06					
			Dieldrin	2E-05	--	--	--	2E-05					
			Arsenic	6E-06	--	--	--	6E-06					
			Chemical Total	2E-04	--	--	--	2E-04					
		Radionuclide Total											
		Exposure Point Total				2E-04				1E+01			
		Exposure Medium Total				2E-04				1E+01			
Medium Total				2E-04				1E+01					
Receptor Total				2E-04				1E+01					

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

2E-04

Total Hazard Across All Media

1E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E+01
Total GI System HI =	N/A
Total Immune System HI =	1E+01
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.1.CT
RISK SUMMARY
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child						
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total		
Fish Tissue (Fillet)	Fish Tissue (Fillet)	OU2	Total PCB Homologs						General Toxicity/Immune System	7E+00	- -	- -	7E+00		
			Chemical Total	- -	- -	- -	- -	N/A		7E+00	- -	- -	7E+00		
			Radionuclide Total												
		Exposure Point Total						N/A						7E+00	
	Exposure Medium Total								N/A						7E+00
Medium Total									N/A						7E+00
Receptor Total									N/A						7E+00

-- = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media

N/A

Total Hazard Across All Media

7E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E+00
Total GI System HI =	N/A
Total Immune System HI =	7E+00
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.2.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1	Benzo(a)pyrene	2E-05	--	--	--	2E-05	General Toxicity/Immune System	9E+00	--	--	9E+00
			Dibenz(a,h)anthracene	2E-05	--	--	--	2E-05					
			Indeno(1,2,3-cd)pyrene	2E-06	--	--	--	2E-06					
			Total PCB Homologs	1E-04	--	--	--	1E-04					
			Dieldrin	2E-05	--	--	--	2E-05					
			Heptachlor Epoxide	2E-06	--	--	--	2E-06					
			Arsenic	1E-05	--	--	--	1E-05					
			Chemical Total	2E-04	--	--	--	2E-04					
			Radionuclide Total										
		Exposure Point Total	2E-04					9E+00					
		Exposure Medium Total	2E-04					9E+00					
Medium Total	2E-04					9E+00							
Receptor Total	2E-04					9E+00							

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

2E-04

Total Hazard Across All Media

9E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	9E+00
Total GI System HI =	N/A
Total Immune System HI =	9E+00
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.2.CT
RISK SUMMARY
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child					
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total	
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-1	Total PCB Homologs						General Toxicity/Immune System	6E+00	- -	- -	6E+00	
			Chemical Total	- -	- -	- -	- -	N/A		6E+00	- -	- -	6E+00	
			Radionuclide Total											
		Exposure Point Total								N/A				
	Exposure Medium Total								N/A					6E+00
Medium Total									N/A					6E+00
Receptor Total									N/A					6E+00

-- = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media

N/A

Total Hazard Across All Media

6E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	6E+00
Total GI System HI =	N/A
Total Immune System HI =	6E+00
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.3.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2	Benzo(a)anthracene	5E-06	--	--	--	5E-06	General Toxicity/Immune System	2E+01	--	--	2E+01
			Benzo(a)pyrene	5E-05	--	--	--	5E-05					
			Benzo(b)fluoranthene	2E-06	--	--	--	2E-06					
			Dibenz(a,h)anthracene	2E-05	--	--	--	2E-05					
			Indeno(1,2,3-cd)pyrene	2E-06	--	--	--	2E-06					
			Total PCB Homologs	2E-04	--	--	--	2E-04					
			Dieldrin	3E-05	--	--	--	3E-05					
			Arsenic	1E-05	--	--	--	1E-05					
			Chemical Total	3E-04	--	--	--	3E-04					
		Radionuclide Total											
		Exposure Point Total			3E-04				2E+01				
		Exposure Medium Total			3E-04				2E+01				
Medium Total			3E-04				2E+01						
Receptor Total			3E-04				2E+01						

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

3E-04

Total Hazard Across All Media

2E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E+01
Total GI System HI =	N/A
Total Immune System HI =	2E+01
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.3.CT
RISK SUMMARY
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child															
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total											
Fish Tissue (Fillet)	Fish Tissue (Fillet)	BR-2	Total PCB Homologs						General Toxicity/Immune System	1E+01	--	--	1E+01											
			Chemical Total	--	--	--	--	N/A		1E+01	--	--	1E+01											
			Radionuclide Total																					
		Exposure Point Total						N/A					1E+01											
	Exposure Medium Total										N/A					1E+01								
Medium Total														N/A					1E+01					
Receptor Total																			N/A					1E+01

-- = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media

N/A

Total Hazard Across All Media

1E+01

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	1E+01
Total GI System HI =	N/A
Total Immune System HI =	1E+01
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.4.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue (Fillet)	Fish Tissue (Fillet)	P-6	Total PCB Homologs						General Toxicity/Immune System	2E+00	--	--	2E+00
			Mercury (other media)						CNS	2E+00	--	--	2E+00
			Chemical Total	--	--	--	--	N/A		4E+00	--	--	4E+00
			Radionuclide Total										
		Exposure Point Total			N/A					4E+00			
	Exposure Medium Total			N/A					4E+00				
	Medium Total			N/A					4E+00				
Receptor Total			N/A					4E+00					

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

N/A

Total Hazard Across All Media

4E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	2E+00
Total GI System HI =	N/A
Total Immune System HI =	2E+00
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	2E+00
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.5.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Groundwater	Groundwater	On-site Monitoring Wells	1,4-Dioxane	1E-05	N/A	N/A	--	1E-05	General Toxicity	7E-02	2E+00	3E-02	2E+00			
			4-Chloroaniline	5E-06	N/A	N/A	--	5E-06								
			Atrazine	1E-05	N/A	9E-07	--	1E-05								
			Benzo(a)anthracene	1E-05	N/A	N/A	--	1E-05								
			Benzo(a)pyrene	1E-04	N/A	N/A	--	1E-04								
			Benzo(b)fluoranthene	1E-05	N/A	N/A	--	1E-05								
			bis(2-Ethylhexyl)phthalate	1E-05	N/A	2E-05	--	3E-05								
			Indeno(1,2,3-cd)pyrene	5E-06	N/A	N/A	--	5E-06								
			Naphthalene	N/A	1E-04	N/A	--	1E-04								
			1,4-Dichlorobenzene	8E-07	2E-05	4E-07	--	2E-05	Immune System	3E+01	2E+01	N/A	4E+01			
			Benzene	1E-03	2E-03	9E-05	--	3E-03								
			Chloroform	2E-06	2E-05	N/A	--	2E-05								
			Ethylbenzene	3E-06	9E-06	2E-06	--	1E-05								
			Methyl tert-butyl ether	7E-07	1E-06	N/A	--	2E-06								
			Tetrachloroethene	2E-05	3E-06	1E-05	--	4E-05								
			Trichloroethene	9E-07	2E-06	8E-08	--	3E-06								
			Vinyl Chloride	1E-04	1E-06	N/A	--	1E-04								
			Aroclor-1242	1E-05	N/A	N/A	--	1E-05	General Toxicity/Immune System	2E+00	N/A	N/A	2E+00			
			Aroclor-1248	6E-06	N/A	N/A	--	6E-06	General Toxicity/Immune System	3E+00	N/A	N/A	3E+00			
			Aroclor-1254	2E-05	N/A	N/A	--	2E-05								
			Aldrin	2E-06	N/A	N/A	--	2E-06								
			Dieldrin	2E-06	N/A	1E-06	--	4E-06								
			Aluminum	3E-03	N/A	N/A	--	3E-03	Developmental	1E+00	N/A	6E-01	2E+00			
			Arsenic						Skin	4E+01	N/A	N/A	4E+01			
			Cadmium (drinking water)						Kidney	5E+00	N/A	5E-01	6E+00			
			Cobalt						Endocrine	1E+01	N/A	N/A	1E+01			
			Iron						Liver/GI System	1E+01	N/A	N/A	1E+01			
			Manganese (drinking water)						CNS	2E+01	N/A	N/A	2E+01			
			Thallium						Blood	1E+01	N/A	N/A	1E+01			
			Chemical Total	5E-03	2E-03	1E-04	--	7E-03		1E+02	2E+01	1E+00	2E+02			
			Radionuclide Total													
			Exposure Point Total				7E-03					2E+02				
			Exposure Medium Total				7E-03					2E+02				
Medium Total				7E-03					2E+02							
Receptor Total				7E-03					2E+02							

TABLE 10.5.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated
N/A = Not Applicable

Total Risk Across All Media

7E-03

Total Hazard Across All Media

2E+02

Total Blood HI =	1E+01
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	7E+00
Total GI System HI =	1E+01
Total Immune System HI =	5E+01
Total Kidney HI =	6E+00
Total Liver HI =	1E+01
Total CNS HI =	2E+01
Total Skin HI =	4E+01
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	2E+00
Total Endocrine HI =	1E+01

TABLE 10.5.CT
RISK SUMMARY
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child							
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total			
Groundwater	Groundwater	On-site Monitoring Wells	Arsenic						Skin	3E+00	N/A	N/A	3E+00			
			Cobalt						Endocrine	3E+00	N/A	N/A	3E+00			
			Manganese (drinking water)						CNS	2E+00	N/A	N/A	2E+00			
			Chemical Total	--	--	--	--	N/A		8E+00	--	--	8E+00			
			Radionuclide Total													
		Exposure Point Total						N/A						8E+00		
		Exposure Medium Total								N/A						8E+00
		Medium Total								N/A						8E+00
Receptor Total								N/A						8E+00		

-- = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media

N/A

Total Hazard Across All Media

8E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	N/A
Total GI System HI =	N/A
Total Immune System HI =	N/A
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	2E+00
Total Skin HI =	3E+00
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	3E+00

TABLE 10.6.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface + Subsurface Soil	Nunes Parcel	Benzo(a)anthracene	1E-06	--	1E-06	--	3E-06					
			Benzo(a)pyrene	1E-05	--	1E-05	--	2E-05					
			Benzo(b)fluoranthene	2E-06	--	1E-06	--	3E-06					
			bis(2-Ethylhexyl)phthalate	2E-06	--	1E-06	--	3E-06					
			Dibenz(a,h)anthracene	2E-06	--	2E-06	--	3E-06					
			Dieldrin	1E-06	--	6E-07	--	2E-06					
			Dioxin TEQ	2E-06	--	4E-07	--	2E-06					
			Arsenic	7E-06	--	1E-06	--	8E-06					
			Chemical Total	3E-05	--	2E-05	--	5E-05		--	--	--	N/A
		Radionuclide Total											
	Exposure Point Total			5E-05					N/A				
	Exposure Medium Total			5E-05					N/A				
	Indoor Air	Nunes Parcel	Naphthalene	--	3E-06	--	--	3E-06					
			Benzene	--	1E-04	--	--	1E-04					
			Tetrachloroethene	--	1E-05	--	--	1E-05					
			Chemical Total	--	1E-04	--	--	1E-04		--	--	--	N/A
			Radionuclide Total										
		Exposure Point Total			1E-04					N/A			
Exposure Medium Total			1E-04					N/A					
Medium Total			2E-04					N/A					
Receptor Total			2E-04					N/A					

TABLE 10.6.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

2E-04

Total Hazard Across All Media

N/A

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	N/A
Total GI System HI =	N/A
Total Immune System HI =	N/A
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.7.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child											
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total							
Soil	Surface + Subsurface Soil	Nunes Parcel	Benzo(a)anthracene	2E-05	--	9E-06	--	3E-05												
			Benzo(a)pyrene	2E-04	--	9E-05	--	3E-04												
			Benzo(b)fluoranthene	3E-05	--	1E-05	--	4E-05												
			bis(2-Ethylhexyl)phthalate	9E-06	--	3E-06	--	1E-05												
			Dibenz(a,h)anthracene	3E-05	--	1E-05	--	5E-05												
			Indeno(1,2,3-cd)pyrene	1E-05	--	5E-06	--	2E-05												
			Aroclor-1248	1E-06	--	5E-07	--	2E-06												
			Dieldrin	4E-06	--	1E-06	--	6E-06												
			Dioxin TEQ	9E-06	--	9E-07	--	1E-05												
			Arsenic	3E-05	--	3E-06	--	3E-05												
			Chemical Total	4E-04	--	1E-04	--	5E-04							--	--	--	N/A		
	Radionuclide Total																			
	Exposure Point Total							5E-04					N/A							
	Exposure Medium Total							5E-04					N/A							
	Indoor Air	Nunes Parcel	Naphthalene	--	1E-05	--	--	1E-05	Immune System	--	5E+00	--	5E+00							
			1,4-Dichlorobenzene	--	2E-06	--	--	2E-06												
			Benzene	--	5E-04	--	--	5E-04												
			Ethylbenzene	--	7E-06	--	--	7E-06												
			Tetrachloroethene	--	5E-05	--	--	5E-05												
			Chemical Total	--	6E-04	--	--	6E-04							--	5E+00	--	5E+00		
			Radionuclide Total																	
Exposure Point Total							6E-04					5E+00								
Exposure Medium Total							6E-04					5E+00								
Medium Total							1E-03					5E+00								
Groundwater	Indoor Air	Nunes Parcel	Benzene	--	5E-06	--	--	5E-06												
			Ethylbenzene	--	2E-06	--	--	2E-06												
			Vinyl chloride	--	5E-06	--	--	5E-06												
			Chemical Total	--	1E-05	--	--	1E-05							--	--	--	N/A		
			Radionuclide Total																	
			Exposure Point Total											1E-05					N/A	
			Exposure Medium Total											1E-05					N/A	

TABLE 10.7.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Medium Total								1E-05					N/A
Receptor Total								1E-03					5E+00

-- = Not Evaluated

Total Risk Across All Media

1E-03

N/A = Not Applicable

Total Hazard Across All Media

5E+00

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	N/A
Total GI System HI =	N/A
Total Immune System HI =	5E+00
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

TABLE 10.7.CT
RISK SUMMARY
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient									
				Young Child + Adult					Young Child									
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total					
Soil	Surface + Subsurface Soil	Nunes Parcel	Benzo(a)anthracene	1E-05	--	9E-06	--	2E-05										
			Benzo(a)pyrene	1E-04	--	8E-05	--	2E-04										
			Benzo(b)fluoranthene	1E-05	--	1E-05	--	2E-05										
			bis(2-Ethylhexyl)phthalate	4E-06	--	2E-06	--	6E-06										
			Dibenz(a,h)anthracene	2E-05	--	1E-05	--	3E-05										
			Indeno(1,2,3-cd)pyrene	7E-06	--	5E-06	--	1E-05										
			Dieldrin	2E-06	--	1E-06	--	3E-06										
			Dioxin TEQ	3E-06	--	5E-07	--	3E-06										
			Arsenic	1E-05	--	2E-06	--	1E-05										
			Chemical Total	2E-04	--	1E-04	--	3E-04							--	--	--	N/A
	Radionuclide Total																	
	Exposure Point Total								3E-04					N/A				
	Exposure Medium Total								3E-04					N/A				
	Indoor Air	Nunes Parcel	Naphthalene	--	4E-06	--	--	4E-06	Immune System	--	3E+00	--	3E+00					
			Benzene	--	1E-04	--	--	1E-04										
			Ethylbenzene	--	2E-06	--	--	2E-06										
			Tetrachloroethene	--	2E-05	--	--	2E-05										
			Chemical Total	--	2E-04	--	--	2E-04							--	3E+00	--	3E+00
Radionuclide Total																		
Exposure Point Total								2E-04					3E+00					
Exposure Medium Total								2E-04					3E+00					
Medium Total									5E-04					3E+00				
Groundwater	Indoor Air	Nunes Parcel	Vinyl chloride	--	3E-06	--	--	3E-06										
			Chemical Total	--	3E-06	--	--	3E-06										
			Radionuclide Total															
		Exposure Point Total												3E-06				
	Exposure Medium Total								3E-06					N/A				
Medium Total									3E-06					N/A				
Receptor Total									5E-04					3E+00				

TABLE 10.7.CT
RISK SUMMARY
CENTRAL TENDENCY
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total

-- = Not Evaluated

N/A = Not Applicable

Note that if information provided in the Draft Dioxin Reassessment is applied, the risks for dioxin will be approximately 6 times higher than shown.

Total Risk Across All Media

5E-04

Total Hazard Across All Media

3E+00

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	N/A
Total GI System HI =	N/A
Total Immune System HI =	3E+00
Total Kidney HI =	N/A
Total Liver HI =	N/A
Total CNS HI =	N/A
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

Reset to
Defaults

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

Chemical

95501

4.40E+00

1,2-Dichlorobenzene

MORE
↓

ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28)			ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
Thickness of soil stratum A, h_A (cm)	Thickness of soil stratum B, (Enter value or 0) h_B (cm)	Thickness of soil stratum C, (Enter value or 0) h_C (cm)								
10	200	400	300	50	50	C	S	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE
↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	11,687	6.67E-04	2.87E-02	1.75E-04	1.12E-02	1.12E-02	1.12E-02	4.62E-04	3.75E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

200	1.26E+02	0.10	8.33E+01	1.12E-02	4.00E+02	1.30E+81	9.46E-04	1.19E-01	NA	2.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

Reset to
Defaults

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

106467 8.40E+00

Chemical

1,4-Dichlorobenzene

MORE
↓

ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28)			ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
Thickness of soil stratum A, h_A (cm)	Thickness of soil stratum B, (Enter value or 0) h_B (cm)	Thickness of soil stratum C, (Enter value or 0) h_C (cm)								
10	200	400	300	50	50	C	S	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE
↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	11,243	8.76E-04	3.77E-02	1.75E-04	1.12E-02	1.12E-02	1.12E-02	4.57E-04	3.73E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

200	3.17E+02	0.10	8.33E+01	1.12E-02	4.00E+02	1.30E+81	9.41E-04	2.98E-01	NA	8.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

83329 6.30E-01

Chemical

Acenaphthene

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER
SCS
soil type
directly above
water table

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10 200 400 300 50 50 C S S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S 1.66 0.375 0.054 S 1.66 0.375 0.054 S 1.66 0.375 0.054

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
($\text{g/cm} \cdot \text{s}^2$)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10 40 1000 1000 366 0.1 0.25 5

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70 30 30 350 1.0E-06 1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.28E-04	3.70E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu\text{g}/\text{m}^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu\text{g}/\text{m}^3$)	Unit risk factor, URF ($\mu\text{g}/\text{m}^3$) ⁻¹	Reference conc., RfC (mg/m ³)
200	9.92E-01	0.10	8.33E+01	6.81E-03	4.00E+02	7.96E+132	9.37E-04	9.29E-04	NA	2.1E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C _w (µg/L)		Chemical							
71432		1.90E+01		Benzene							
ENTER Average soil/ groundwater temperature, T _s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L _F (cm)	ENTER Depth below grade to water table, L _{WT} (cm)	ENTER Totals must add up to value of L _{WT} (cell G28)			ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)	
10	200	400	300	50	50	C	S	S			

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space floor width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE
↓

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

MORE
↓

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000
Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	5.70E-04	4.68E-03	200
Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)			
200	2.19E+03	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.10E-03	2.41E+00	7.8E-06	3.0E-02			
END													

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

Reset to
Defaults

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

108907	2.70E+00

Chemical

Chlorobenzene

MORE
↓

ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	300	50	50	C	S	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE
↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_{eff}^A (cm ² /s)	Stratum B effective diffusion coefficient, D_{eff}^B (cm ² /s)	Stratum C effective diffusion coefficient, D_{eff}^C (cm ² /s)	Capillary zone effective diffusion coefficient, D_{eff}^{cz} (cm ² /s)	Total overall effective diffusion coefficient, D_{eff}^T (cm ² /s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	9,803	1.54E-03	6.61E-02	1.75E-04	1.18E-02	1.18E-02	1.18E-02	4.77E-04	3.90E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^I)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
200	1.79E+02	0.10	8.33E+01	1.18E-02	4.00E+02	4.66E+76	9.72E-04	1.74E-01	NA	6.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

Chemical

67663

2.40E+00

Chloroform

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER
Totals must add up to value of L_{WT} (cell G28)
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER
SCS
soil type
directly above
water table

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10

200

400

300

50

50

C

S

S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S

1.66

0.375

0.054

S

1.66

0.375

0.054

S

1.66

0.375

0.054

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
(g/cm-s^2)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10

40

1000

1000

366

0.1

0.25

5

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70

30

30

350

1.0E-06

1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	7,554	1.86E-03	8.02E-02	1.75E-04	1.68E-02	1.68E-02	1.68E-02	6.75E-04	5.54E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

200	1.92E+02	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	1.23E-03	2.36E-01	2.3E-05	NA

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

Reset to
Defaults

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

74873 4.30E-01

Chemical

Methyl chloride (chloromethane)

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER
Totals must add up to value of L_{WT} (cell G28)
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER
SCS
soil type
directly above
water table

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10 200 400 300 50 50 C S S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S 1.66 0.375 0.054 S 1.66 0.375 0.054 S 1.66 0.375 0.054

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
(g/cm-s^2)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10 40 1000 1000 366 0.1 0.25 5

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70 30 30 350 1.0E-06 1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	4,747	5.76E-03	2.48E-01	1.75E-04	2.04E-02	2.04E-02	2.04E-02	8.09E-04	6.65E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
200	1.07E+02	0.10	8.33E+01	2.04E-02	4.00E+02	2.63E+44	1.37E-03	1.46E-01	1.0E-06	9.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W ($\mu\text{g/L}$)	Chemical									
100414	1.70E+01	Ethylbenzene									
ENTER Average soil/ groundwater temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28)			ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	
10	200	400	300	50	50	C	S	S			
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)				
10	40	1000	1000	366	0.1	0.25	5				
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)						
70	30	30	350	1.0E-06	1						
Used to calculate risk-based groundwater concentration.											

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, $D_{eff A}$ (cm ² /s)	Stratum B effective diffusion coefficient, $D_{eff B}$ (cm ² /s)	Stratum C effective diffusion coefficient, $D_{eff C}$ (cm ² /s)	Capillary zone effective diffusion coefficient, $D_{eff cz}$ (cm ² /s)	Total overall effective diffusion coefficient, $D_{eff T}$ (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	4.84E-04	3.98E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

200	2.32E+03	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	9.85E-04	2.29E+00	NA	1.0E+00

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)		Chemical								
86737		3.40E-01		Fluorene								
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)			ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	300	50	50		C	S	S			
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054	
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)					
10	40	1000	1000	366	0.1	0.25	5					
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)							
70	30	30	350	1.0E-06	1							
Used to calculate risk-based groundwater concentration.												

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	16,235	1.49E-05	6.39E-04	1.75E-04	5.87E-03	5.87E-03	5.87E-03	1.14E-03	4.33E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
200	2.17E-01	0.10	8.33E+01	5.87E-03	4.00E+02	1.11E+154	1.05E-03	2.27E-04	NA	1.4E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

Reset to
Defaults

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

98828 1.60E+02

Chemical

Cumene

MORE
↓

ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	300	50	50	C	S	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE
↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_e (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	12,644	4.71E-03	2.03E-01	1.75E-04	1.05E-02	1.05E-02	1.05E-02	4.19E-04	3.44E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^I)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RFC (mg/m ³)
200	3.25E+04	0.10	8.33E+01	1.05E-02	4.00E+02	1.27E+86	8.88E-04	2.88E+01	NA	4.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

1634044

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

2.10E+01

Chemical

MTBE

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

10

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

200

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

400

ENTER
Totals must add up to value of L_{WT} (cell G28)

ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)
300	50	50

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

C

ENTER
SCS
soil type
directly above
water table

S

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

S

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

S

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

1.66

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

0.375

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

0.054

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

S

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

1.66

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

0.375

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

0.054

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

S

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

1.66

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

0.375

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

0.054

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

10

ENTER
Soil-bldg.
pressure
differential,
 ΔP
(g/cm-s^2)

40

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

1000

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

1000

ENTER
Enclosed
space
height,
 H_B
(cm)

366

ENTER
Floor-wall
seam crack
width,
 w
(cm)

0.1

ENTER
Indoor
air exchange
rate,
ER
(1/h)

0.25

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

5

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

70

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

30

ENTER
Exposure
duration,
ED
(yrs)

30

ENTER
Exposure
frequency,
EF
(days/yr)

350

ENTER
Target
risk for
carcinogens,
TR
(unitless)

1.0E-06

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	7,294	3.25E-04	1.40E-02	1.75E-04	1.66E-02	1.66E-02	1.66E-02	7.11E-04	5.71E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
200	2.93E+02	0.10	8.33E+01	1.66E-02	4.00E+02	4.53E+54	1.25E-03	3.67E-01	NA	3.0E+00

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)																					
91203		1.40E+01		Naphthalene																			
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)		ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)		ENTER Depth below grade to water table, L_{WT} (cm)		ENTER Totals must add up to value of L_{WT} (cell G28) ENTER Thickness of soil stratum A, h_A (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)			ENTER Soil stratum directly above water table, (Enter A, B, or C)		ENTER SCS soil type directly above water table		ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) OR		ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)								
10		200		400		300 50 50			C		S		S										
ENTER Stratum A SCS soil type Lookup Soil Parameters		ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)		ENTER Stratum A soil total porosity, n^A (unitless)		ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)		ENTER Stratum B SCS soil type Lookup Soil Parameters		ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)		ENTER Stratum B soil total porosity, n^B (unitless)		ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)		ENTER Stratum C SCS soil type Lookup Soil Parameters		ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)		ENTER Stratum C soil total porosity, n^C (unitless)		ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	
S		1.66		0.375		0.054		S		1.66		0.375		0.054		S		1.66		0.375		0.054	
ENTER Enclosed space floor thickness, L_{crack} (cm)		ENTER Soil-bldg. pressure differential, ΔP (g/cm^2)		ENTER Enclosed space floor length, L_B (cm)		ENTER Enclosed space floor width, W_B (cm)		ENTER Enclosed space height, H_B (cm)		ENTER Floor-wall seam crack width, w (cm)		ENTER Indoor air exchange rate, ER (1/h)		ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)									
10		40		1000		1000		366		0.1		0.25		5									
ENTER Averaging time for carcinogens, AT_C (yrs)		ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)		ENTER Exposure duration, ED (yrs)		ENTER Exposure frequency, EF (days/yr)		ENTER Target risk for carcinogens, TR (unitless)		ENTER Target hazard quotient for noncarcinogens, THQ (unitless)													
70		30		30		350		1.0E-06		1													
END		Used to calculate risk-based groundwater concentration.																					

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_e (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	4.62E-04	3.57E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^I)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RFC (mg/m ³)

200	9.15E+01	0.10	8.33E+01	9.54E-03	4.00E+02	7.19E+94	9.12E-04	8.34E-02	NA	3.0E-03

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

Reset to
Defaults

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

129000 7.50E-02

Chemical

Pyrene

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER
Totals must add up to value of L_{WT} (cell G28)
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER
SCS
soil type
directly above
water table

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10 200 400 300 50 50 C S S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S 1.66 0.375 0.054 S 1.66 0.375 0.054 S 1.66 0.375 0.054

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
(g/cm-s^2)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10 40 1000 1000 366 0.1 0.25 5

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70 30 30 350 1.0E-06 1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	20,700	1.72E-06	7.42E-05	1.75E-04	4.44E-03	4.44E-03	4.44E-03	7.34E-03	4.59E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu\text{g}/\text{m}^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu\text{g}/\text{m}^3$)	Unit risk factor, URF ($\mu\text{g}/\text{m}^3$) ⁻¹	Reference conc., RfC (mg/m ³)

200	5.56E-03	0.10	8.33E+01	4.44E-03	4.00E+02	6.81E+203	1.09E-03	6.05E-06	NA	1.1E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

108883 4.90E+00

Chemical

Toluene

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER
SCS
soil type
directly above
water table

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10

200

400

300

50

50

C

S

S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S

1.66

0.375

0.054

S

1.66

0.375

0.054

S

1.66

0.375

0.054

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
(g/cm-s^2)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
 ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10

40

1000

1000

366

0.1

0.25

5

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
 ED
(yrs)

ENTER
Exposure
frequency,
 EF
(days/yr)

ENTER
Target
risk for
carcinogens,
 TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
 THQ
(unitless)

70

30

30

350

1.0E-06

1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000
Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	5.62E-04	4.62E-03	200
Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\text{exp}(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)			
200	6.16E+02	0.10	8.33E+01	1.41E-02	4.00E+02	2.15E+64	1.09E-03	6.72E-01	NA	4.0E-01			
END													

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

75014 8.50E-01

Chemical

Vinyl chloride (chloroethene)

MORE
↓

ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	300	50	50	C	S	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE
↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_e (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	5,000	1.72E-02	7.41E-01	1.75E-04	1.71E-02	1.71E-02	1.71E-02	6.80E-04	5.60E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RFC (mg/m ³)

200	6.30E+02	0.10	8.33E+01	1.71E-02	4.00E+02	6.32E+52	1.24E-03	7.78E-01	8.8E-06	1.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)		Chemical p-Xylene							
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	
10	200	400	300	50	50	C	S	S			
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)				
10	40	1000	1000	366	0.1	0.25	5				
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)						
70	30	30	350	1.0E-06	1						
Used to calculate risk-based groundwater concentration.											

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	4.97E-04	4.08E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

200	6.71E+03	0.10	8.33E+01	1.24E-02	4.00E+02	6.04E+72	1.00E-03	6.73E+00	NA	1.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)		Chemical								
86737		3.40E-01		Fluorene								
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)			ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	300	50	50		C	S	S			
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054	
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)					
10	40	1000	1000	366	0.1	0.25	5					
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)							
70	30	30	350	1.0E-06	1							
Used to calculate risk-based groundwater concentration.												

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	16,235	1.49E-05	6.39E-04	1.75E-04	5.87E-03	5.87E-03	5.87E-03	1.14E-03	4.33E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
200	2.17E-01	0.10	8.33E+01	5.87E-03	4.00E+02	1.11E+154	1.05E-03	2.27E-04	NA	1.4E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)		Chemical							
83329		6.30E-01		Acenaphthene							
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	
10	200	400	300	50	50	C	S	S			
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)				
10	40	1000	1000	366	0.1	0.25	5				
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)						
70	30	30	350	1.0E-06	1						
Used to calculate risk-based groundwater concentration.											

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{le} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.28E-04	3.70E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

200	9.92E-01	0.10	8.33E+01	6.81E-03	4.00E+02	7.96E+132	9.37E-04	9.29E-04	NA	2.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_b
($\mu\text{g/kg}$)

Chemical

78933

9.60E+01

Methylethylketone (2-butanone)

MORE
↓

ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_i (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_i (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{le} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	9.60E+01	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	8,419	2.63E-05	1.13E-03	1.75E-04	1.31E-02	1.31E-02	1.31E-02	1.31E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

4.60E-03	2.91E+03	0.10	8.33E+01	1.31E-02	4.00E+02	1.77E+69	1.92E-03	5.58E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m ³)	Finite source bldg. conc., $C_{building}$ (µg/m ³)	Final finite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	5.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C _R (µg/kg)	Chemical													
83329	2.40E+03	Acenaphthene													
ENTER Average soil temperature, T _s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L _F (cm)	ENTER Depth below grade to top of contamination, L _t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L _b (cm)	ENTER Totals must add up to value of L _t (cell G28) Thickness of soil stratum A, h _A (cm)			ENTER Thickness of soil stratum B, (Enter value or 0) h _B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h _C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)				
10	200	400	0	200	100	100	S								
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum A soil organic carbon fraction, f _{oc} ^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum B soil organic carbon fraction, f _{oc} ^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)	ENTER Stratum C soil organic carbon fraction, f _{oc} ^C (unitless)	
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	
ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space floor width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)								
10	40	1000	1000	366	0.1	0.25	5								
ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)										
70	30	30	350	1.0E-06	1										
Used to calculate risk-based soil concentration.															

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.40E+03	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	2.66E+02	0.10	8.33E+01	6.81E-03	4.00E+02	7.96E+132	1.39E-03	3.70E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	2.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

67641

1.50E+02

Acetone

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_a (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_b (cm)	ENTER Enclosed space floor width, W_b (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.50E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	7,559	1.97E-05	8.47E-04	1.75E-04	2.01E-02	2.01E-02	2.01E-02	2.01E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.15E-03	3.76E+03	0.10	8.33E+01	2.01E-02	4.00E+02	1.33E+45	2.24E-03	8.42E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle\alpha\rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

Reset to
Defaults

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

98862 8.00E+01

Chemical

Acetophenone

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28)	ENTER Thickness of soil stratum A, h_a (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100		S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_b (cm)	ENTER Enclosed space floor width, W_b (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	8.00E+01	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	14,718	2.86E-06	1.23E-04	1.75E-04	9.73E-03	9.73E-03	9.73E-03	9.73E-03	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

1.15E-01	6.66E+01	0.10	8.33E+01	9.73E-03	4.00E+02	9.78E+92	1.68E-03	1.12E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

Reset to
Defaults

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

100527

5.40E+02

Benzaldehyde

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_i (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_i (cell G28) Thickness of soil stratum A, h_a (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	5.40E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	14,135	6.71E-06	2.89E-04	1.75E-04	1.17E-02	1.17E-02	1.17E-02	1.17E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

9.18E-02	1.25E+03	0.10	8.33E+01	1.17E-02	4.00E+02	3.44E+77	1.83E-03	2.29E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

71432

3.10E+02

Benzene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28)	ENTER Thickness of soil stratum A, h_a (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100		S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_b (cm)	ENTER Enclosed space floor width, W_b (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	3.10E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	1.42E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

1.18E-01	2.07E+05	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.99E-03	4.11E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	7.8E-06	3.0E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_b
($\mu\text{g/kg}$)

Chemical

92524

1.20E+02

Biphenyl

MORE
↓

ENTER
Average
soil
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth below
grade to top
of contamination,
 L_i
(cm)

ENTER
Depth below
grade to bottom
of contamination,
(enter value of 0
if value is unknown)
 L_b
(cm)

ENTER
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10

200

400

0

200

100

100

S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum A
soil organic
carbon fraction,
 f_{oc}^A
(unitless)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum B
soil organic
carbon fraction,
 f_{oc}^B
(unitless)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

ENTER
Stratum C
soil organic
carbon fraction,
 f_{oc}^C
(unitless)

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
($\text{g/cm}^2\text{-s}^2$)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10

40

1000

1000

366

0.1

0.25

5

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70

30

30

350

1.0E-06

1

Used to calculate risk-based
soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.20E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	14,028	8.54E-05	3.67E-03	1.75E-04	6.53E-03	6.53E-03	6.53E-03	6.53E-03	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

8.75E+00	5.02E+01	0.10	8.33E+01	6.53E-03	4.00E+02	3.28E+138	1.36E-03	6.81E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	1.8E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

75150

2.70E+01

Carbon disulfide

MORE
↓

ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) ENTER Thickness of soil stratum A, h_A (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) OR ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	
10	200	400	0	200	100	100	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_a (cm)	ENTER Enclosed space floor width, W_a (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.70E+01	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	6,682	1.66E-02	7.16E-01	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-02	7.37E+04	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.11E-03	1.56E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	7.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

108907

1.80E+01

Chlorobenzene

MORE
↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.80E+01	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	9,803	1.54E-03	6.61E-02	1.75E-04	1.18E-02	1.18E-02	1.18E-02	1.18E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.38E-01	2.46E+03	0.10	8.33E+01	1.18E-02	4.00E+02	4.66E+76	1.84E-03	4.52E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	6.0E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

100414

2.00E+01

Ethylbenzene

MORE
↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.00E+01	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	1.21E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.26E-01	3.48E+03	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	1.86E-03	6.46E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	1.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

Reset to
Defaults

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

86737 2.10E+03

Chemical

Fluorene

MORE
↓

ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_a (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_g (cm)	ENTER Enclosed space floor width, W_a (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.10E+03	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	16,235	1.49E-05	6.39E-04	1.75E-04	5.87E-03	5.87E-03	5.87E-03	5.87E-03	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
2.76E+01	4.86E+01	0.10	8.33E+01	5.87E-03	4.00E+02	1.11E+154	1.27E-03	6.18E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, <α> (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	1.4E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_b
($\mu\text{g/kg}$)

Chemical

Cumene

MORE
↓

ENTER
Average
soil
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth below
grade to top
of contamination,
 L_i
(cm)

ENTER
Depth below
grade to bottom
of contamination,
(enter value of 0
if value is unknown)
 L_b
(cm)

ENTER
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10

200

400

0

200

100

100

S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum A
soil organic
carbon fraction,
 f_{oc}^A
(unitless)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum B
soil organic
carbon fraction,
 f_{oc}^B
(unitless)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

ENTER
Stratum C
soil organic
carbon fraction,
 f_{oc}^C
(unitless)

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
($\text{g/cm}^2\text{-s}^2$)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10

40

1000

1000

366

0.1

0.25

5

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70

30

30

350

1.0E-06

1

Used to calculate risk-based
soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.90E+01	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	12,644	4.71E-03	2.03E-01	1.75E-04	1.05E-02	1.05E-02	1.05E-02	1.05E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.77E-01	5.61E+03	0.10	8.33E+01	1.05E-02	4.00E+02	1.27E+86	1.74E-03	9.77E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	4.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

79209

1.10E+03

Methyl acetate

MORE
↓

ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
Totals must add up to value of L_t (cell G28)							OR	
10	200	400	0	200	100	100	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_g (cm)	ENTER Enclosed space floor width, W_a (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{le} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.10E+03	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	7,909	5.82E-05	2.50E-03	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
6.52E-03	6.97E+04	0.10	8.33E+01	1.68E-02	4.00E+02	6.46E+53	2.11E-03	1.47E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle\alpha\rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.5E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

91203

9.00E+02

Naphthalene

MORE
↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)		
70	30	30	350	1.0E-06	1		

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	9.00E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	12.913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	9.54E-03	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

4.00E+00	1.46E+03	0.10	8.33E+01	9.54E-03	4.00E+02	7.19E+94	1.66E-03	2.43E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	3.0E-03

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

129000

3.20E+04

Pyrene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_c (yrs)	ENTER Averaging time for noncarcinogens, AT_{nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	3.20E+04	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	20,700	1.72E-06	7.42E-05	1.75E-04	4.44E-03	4.44E-03	4.44E-03	4.44E-03	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

2.10E+02	1.13E+01	0.10	8.33E+01	4.44E-03	4.00E+02	6.81E+203	1.06E-03	1.20E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m ³)	Finite source bldg. conc., $C_{building}$ (µg/m ³)	Final finite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	1.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

108883 1.30E+04

Chemical

Toluene

MORE
↓

ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.30E+04	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	1.41E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

3.64E-01	3.88E+06	0.10	8.33E+01	1.41E-02	4.00E+02	2.15E+64	1.98E-03	7.68E+03	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	4.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

106423

4.40E+02

p-Xylene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) ENTER Thickness of soil stratum A, h_a (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_s (cm)	ENTER Enclosed space floor width, W_s (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	4.40E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	1.24E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.78E-01	6.92E+04	0.10	8.33E+01	1.24E-02	4.00E+02	6.04E+72	1.88E-03	1.30E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	1.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_E
($\mu\text{g/kg}$)

Chemical

156592

1.00E+00

cis-1,2-Dichloroethylene

MORE
↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{se} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.00E+00	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	7,734	2.04E-03	8.77E-02	1.75E-04	1.19E-02	1.19E-02	1.19E-02	1.19E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.10E-02	7.28E+02	0.10	8.33E+01	1.19E-02	4.00E+02	1.11E+76	1.84E-03	1.34E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.5E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C _R (µg/kg)	Chemical													
75718	3.00E+00	Dichlorodifluoromethane													
ENTER Average soil temperature, T _s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L _F (cm)	ENTER Depth below grade to top of contamination, L _t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L _b (cm)	ENTER Totals must add up to value of L _t (cell G28) Thickness of soil stratum A, h _A (cm)			ENTER Thickness of soil stratum B, (Enter value or 0) h _B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h _C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)				
10	200	400	0	200	100	100	S								
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum A soil organic carbon fraction, f _{oc} ^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum B soil organic carbon fraction, f _{oc} ^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)	ENTER Stratum C soil organic carbon fraction, f _{oc} ^C (unitless)	
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	
ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space floor width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)								
10	40	1000	1000	366	0.1	0.25	5								
ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)										
70	30	30	350	1.0E-06	1										
Used to calculate risk-based soil concentration.															

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	3.00E+00	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	8,386	1.62E-01	6.96E+00	1.75E-04	1.08E-02	1.08E-02	1.08E-02	1.08E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-01	9.11E+03	0.10	8.33E+01	1.08E-02	4.00E+02	1.46E+84	1.76E-03	1.60E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m ³)	Finite source bldg. conc., $C_{building}$ (µg/m ³)	Final finite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	2.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

108872

8.00E+01

Methylcyclohexane

MORE
↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) ENTER Thickness of soil stratum A, h_A (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
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ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	8.00E+01	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	8,584	4.77E-02	2.05E+00	1.75E-04	1.19E-02	1.19E-02	1.19E-02	1.19E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack}^{eff} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.57E-01	2.80E+05	0.10	8.33E+01	1.19E-02	4.00E+02	1.40E+76	1.84E-03	5.16E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

127184

1.50E+01

Tetrachloroethylene

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.50E+01	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	9,553	7.81E-03	3.36E-01	1.75E-04	1.16E-02	1.16E-02	1.16E-02	1.16E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.10E-01	1.24E+04	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.83E-03	2.26E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	5.9E-06	6.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_b
($\mu\text{g/kg}$)

Chemical

78933

9.60E+01

Methylethylketone (2-butanone)

MORE
↓

ENTER
Average
soil
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth below
grade to top
of contamination,
 L_i
(cm)

ENTER
Depth below
grade to bottom
of contamination,
(enter value of 0
if value is unknown)
 L_b
(cm)

ENTER
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10

200

400

0

200

100

100

S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum A
soil organic
carbon fraction,
 f_{oc}^A
(unitless)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum B
soil organic
carbon fraction,
 f_{oc}^B
(unitless)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

ENTER
Stratum C
soil organic
carbon fraction,
 f_{oc}^C
(unitless)

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
($\text{g/cm}^2\text{-s}^2$)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10

40

1000

1000

366

0.1

0.25

5

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70

30

30

350

1.0E-06

1

Used to calculate risk-based
soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	9.60E+01	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	8,419	2.63E-05	1.13E-03	1.75E-04	1.31E-02	1.31E-02	1.31E-02	1.31E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

4.60E-03	2.91E+03	0.10	8.33E+01	1.31E-02	4.00E+02	1.77E+69	1.92E-03	5.58E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	5.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

106467

8.00E+00

1,4-Dichlorobenzene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_a (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_e (cm)	ENTER Enclosed space floor width, W_a (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	8.00E+00	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	11,243	8.76E-04	3.77E-02	1.75E-04	1.12E-02	1.12E-02	1.12E-02	1.12E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.23E+00	2.37E+02	0.10	8.33E+01	1.12E-02	4.00E+02	1.30E+81	1.79E-03	4.24E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	8.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

Reset to
Defaults

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

91576 9.00E+02

Chemical

2-Methylnaphthalene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_a (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_g (cm)	ENTER Enclosed space floor width, W_a (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	9.00E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	16,241	1.21E-04	5.20E-03	1.75E-04	8.44E-03	8.44E-03	8.44E-03	8.44E-03	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
5.62E+00	8.28E+02	0.10	8.33E+01	8.44E-03	4.00E+02	1.63E+107	1.56E-03	1.29E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	7.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)																					
83329		6.30E-01		Acenaphthene																			
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)		ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)		ENTER Depth below grade to water table, L_{WT} (cm)		ENTER Thickness of soil stratum A, h_A (cm)		ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)		ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)		ENTER Soil stratum directly above water table, (Enter A, B, or C)		ENTER SCS soil type directly above water table		ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)		OR		ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)			
10		10		152		52		50		50		C		S		S							
ENTER Stratum A SCS soil type Lookup Soil Parameters		ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)		ENTER Stratum A soil total porosity, n^A (unitless)		ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)		ENTER Stratum B SCS soil type Lookup Soil Parameters		ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)		ENTER Stratum B soil total porosity, n^B (unitless)		ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)		ENTER Stratum C SCS soil type Lookup Soil Parameters		ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)		ENTER Stratum C soil total porosity, n^C (unitless)		ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	
S		1.66		0.375		0.054		S		1.66		0.375		0.054		S		1.66		0.375		0.054	
ENTER Enclosed space floor thickness, L_{crack} (cm)		ENTER Soil-bldg. pressure differential, ΔP (g/cm^2)		ENTER Enclosed space floor length, L_B (cm)		ENTER Enclosed space floor width, W_B (cm)		ENTER Enclosed space height, H_B (cm)		ENTER Floor-wall seam crack width, w (cm)		ENTER Indoor air exchange rate, ER (1/h)		ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)									
10		40		244		91		244		91		2											
ENTER Averaging time for carcinogens, AT_C (yrs)		ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)		ENTER Exposure duration, ED (yrs)		ENTER Exposure frequency, EF (days/yr)		ENTER Target risk for carcinogens, TR (unitless)		ENTER Target hazard quotient for noncarcinogens, THQ (unitless)													
70		30		30		350		1.0E-06		1													
END		Used to calculate risk-based groundwater concentration.																					

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_g (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

3.01E+03	2.22E+04	2.75E+00	10	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.28E-04	3.12E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

10	9.92E-01	91.00	-6.28E+01	6.81E-03	6.10E+04	2.20E-01	1.58E-04	1.56E-04	NA	2.1E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)		Chemical								
71432		1.90E+01		Benzene								
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)			ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	152	52	50	50	C	S	S				
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054	
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)					
10	40	244	91	244	91	2						
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)							
70	30	30	350	1.0E-06	1							
Used to calculate risk-based groundwater concentration.												

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	5.70E-04	3.67E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
10	2.19E+03	91.00	-6.28E+01	1.42E-02	6.10E+04	4.85E-01	1.89E-04	4.13E-01	7.8E-06	3.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

Reset to
Defaults

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

108907

2.70E+00

Chemical

Chlorobenzene

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER
SCS
soil type
directly above
water table

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10

10

152

52

50

50

C

S

S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S

1.66

0.375

0.054

S

1.66

0.375

0.054

S

1.66

0.375

0.054

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
(g/cm-s^2)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10

40

244

91

244

91

2

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70

30

30

350

1.0E-06

1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_g (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

3.01E+03	2.22E+04	2.75E+00	10	9,803	1.54E-03	6.61E-02	1.75E-04	1.18E-02	1.18E-02	1.18E-02	4.77E-04	3.07E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack}^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

10	1.79E+02	91.00	-6.28E+01	1.18E-02	6.10E+04	4.18E-01	1.58E-04	2.81E-02	NA	6.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)		Chemical								
67663		2.40E+00		Chloroform								
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)			ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	152	52	50	50	C	S	S				
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054	
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)					
10	40	244	91	244	91	2						
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)							
70	30	30	350	1.0E-06	1							
Used to calculate risk-based groundwater concentration.												

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

3.01E+03	2.22E+04	2.75E+00	10	7,554	1.86E-03	8.02E-02	1.75E-04	1.68E-02	1.68E-02	1.68E-02	6.75E-04	4.35E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

10	1.92E+02	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-04	4.30E-02	2.3E-05	NA

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

74873 4.30E-01

Chemical

Methyl chloride (chloromethane)

MORE
↓ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER	ENTER	ENTER
Totals must add up to value of L_{WT} (cell G28)		
Thickness of soil stratum A, h_A (cm)	Thickness of soil stratum B, (Enter value or 0) h_B (cm)	Thickness of soil stratum C, (Enter value or 0) h_C (cm)
52	50	50

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)ENTER
SCS
soil type
directly above
water tableENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10 10 152 52 50 50 C S S

MORE
↓ENTER
Stratum A
SCS
soil type
Lookup Soil
ParametersENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)ENTER
Stratum B
SCS
soil type
Lookup Soil
ParametersENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)ENTER
Stratum C
SCS
soil type
Lookup Soil
ParametersENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S 1.66 0.375 0.054 S 1.66 0.375 0.054 S 1.66 0.375 0.054

MORE
↓ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)ENTER
Soil-bldg.
pressure
differential,
 ΔP
(g/cm-s^2)ENTER
Enclosed
space
floor
length,
 L_B
(cm)ENTER
Enclosed
space
floor
width,
 W_B
(cm)ENTER
Enclosed
space
height,
 H_B
(cm)ENTER
Floor-wall
seam crack
width,
 w
(cm)ENTER
Indoor
air exchange
rate,
 ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10 40 244 91 244 91 2

MORE
↓ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)ENTER
Exposure
duration,
 ED
(yrs)ENTER
Exposure
frequency,
 EF
(days/yr)ENTER
Target
risk for
carcinogens,
 TR
(unitless)ENTER
Target hazard
quotient for
noncarcinogens,
 THQ
(unitless)

70 30 30 350 1.0E-06 1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{gr} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	4,747	5.76E-03	2.48E-01	1.75E-04	2.04E-02	2.04E-02	2.04E-02	8.09E-04	5.22E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
10	1.07E+02	91.00	-6.28E+01	2.04E-02	6.10E+04	6.03E-01	2.69E-04	2.86E-02	1.0E-06	9.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

Reset to
Defaults

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

100414

1.70E+01

Chemical

Ethylbenzene

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER
Totals must add up to value of L_{WT} (cell G28)

ENTER
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER
SCS
soil type
directly above
water table

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10

10

152

52

50

50

C

S

S

MORE
↓

ENTER
Stratum A
SCS
soil type

Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum B
SCS
soil type

Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum C
SCS
soil type

Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S

1.66

0.375

0.054

S

1.66

0.375

0.054

S

1.66

0.375

0.054

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
(g/cm-s^2)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10

40

244

91

244

91

2

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70

30

30

350

1.0E-06

1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	4.84E-04	3.12E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
10	2.32E+03	91.00	-6.28E+01	1.21E-02	6.10E+04	4.28E-01	1.60E-04	3.72E-01	NA	1.0E+00

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

Reset to
Defaults

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

86737	3.40E-01

Chemical

Fluorene

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER
Totals must add up to value of L_{WT} (cell G28)

ENTER
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER
SCS
soil type
directly above
water table

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10	10	152	52	50	50	C	S	S	

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER
Enclosed
space
floor
pressure
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
(g/cm-s^2)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10	40	244	91	244	91	2

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_e (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)

3.01E+03	2.22E+04	2.75E+00	10	16,235	1.49E-05	6.39E-04	1.75E-04	5.87E-03	5.87E-03	5.87E-03	1.14E-03	3.92E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RFC (mg/m ³)

10	2.17E-01	91.00	-6.28E+01	5.87E-03	6.10E+04	1.73E-01	1.94E-04	4.22E-05	NA	1.4E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

ENTER

Chemical
CAS No.
(numbers only,
no dashes)

ENTER

Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

Chemical

98828

1.60E+02

Cumene

MORE
↓

ENTER

Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER

Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER

Depth
below grade
to water table,
 L_{WT}
(cm)ENTER ENTER ENTER
Totals must add up to value of L_{WT} (cell G28)Thickness
of soil
stratum A,
 h_A
(cm)Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER

Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER

SCS
soil type
directly above
water table

ENTER

Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER

User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10

10

152

52

50

50

C

S

S

MORE
↓

ENTER

Stratum A
SCS
soil type

Lookup Soil
Parameters

ENTER

Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER

Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER

Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER

Stratum B
SCS
soil type

Lookup Soil
Parameters

ENTER

Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER

Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER

Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER

Stratum C
SCS
soil type

Lookup Soil
Parameters

ENTER

Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER

Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER

Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S

1.66

0.375

0.054

S

1.66

0.375

0.054

S

1.66

0.375

0.054

MORE
↓

ENTER

Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER

Soil-bldg.
pressure
differential,
 ΔP
($\text{g/cm} \cdot \text{s}^2$)

ENTER

Enclosed
space
floor
length,
 L_B
(cm)

ENTER

Enclosed
space
floor
width,
 W_B
(cm)

ENTER

Enclosed
space
height,
 H_B
(cm)

ENTER

Floor-wall
seam crack
width,
 w
(cm)

ENTER

Indoor
air exchange
rate,
 ER
(1/h)

ENTER

Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10

40

244

91

244

91

2

MORE
↓

ENTER

Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER

Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER

Exposure
duration,
 ED
(yrs)

ENTER

Exposure
frequency,
 EF
(days/yr)

ENTER

Target
risk for
carcinogens,
 TR
(unitless)

ENTER

Target hazard
quotient for
noncarcinogens,
 THQ
(unitless)

70

30

30

350

1.0E-06

1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

3.01E+03	2.22E+04	2.75E+00	10	12,644	4.71E-03	2.03E-01	1.75E-04	1.05E-02	1.05E-02	1.05E-02	4.19E-04	2.70E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack}^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

10	3.25E+04	91.00	-6.28E+01	1.05E-02	6.10E+04	3.75E-01	1.39E-04	4.50E+00	NA	4.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

1634044 2.10E+01

Chemical

MTBE

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER
SCS
soil type
directly above
water table

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10 10 152 52 50 50 C S S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S 1.66 0.375 0.054 S 1.66 0.375 0.054 S 1.66 0.375 0.054

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
($\text{g/cm} \cdot \text{s}^2$)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10 40 244 91 244 91 2

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70 30 30 350 1.0E-06 1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_e (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)

3.01E+03	2.22E+04	2.75E+00	10	7,294	3.25E-04	1.40E-02	1.75E-04	1.66E-02	1.66E-02	1.66E-02	7.11E-04	4.50E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RFC (mg/m ³)

10	2.93E+02	91.00	-6.28E+01	1.66E-02	6.10E+04	5.37E-01	2.32E-04	6.80E-02	NA	3.0E+00

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)		Chemical Naphthalene							
91203	1.40E+01										
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) ENTER Thickness of soil stratum A, h_A (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)			ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	
10	10	152	52	50	50	C	S	S			
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)				
10	40	244	91	244	91	2					
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)						
70	30	30	350	1.0E-06	1						
Used to calculate risk-based groundwater concentration.											

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	4.62E-04	2.84E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
10	9.15E+01	91.00	-6.28E+01	9.54E-03	6.10E+04	3.40E-01	1.46E-04	1.33E-02	NA	3.0E-03

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

129000 7.50E-02

Chemical

Pyrene

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER **ENTER** **ENTER**
Totals must add up to value of L_{WT} (cell G28)
Thickness
of soil
stratum A,
 h_A
(cm) Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm) Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER
SCS
soil type
directly above
water table

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10 10 152 52 50 50 C S S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S 1.66 0.375 0.054 S 1.66 0.375 0.054 S 1.66 0.375 0.054

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
(g/cm-s^2)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10 40 244 91 244 91 2

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70 30 30 350 1.0E-06 1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

3.01E+03	2.22E+04	2.75E+00	10	20,700	1.72E-06	7.42E-05	1.75E-04	4.44E-03	4.44E-03	4.44E-03	7.34E-03	4.66E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

10	5.56E-03	91.00	-6.28E+01	4.44E-03	6.10E+04	9.84E-02	2.18E-04	1.21E-06	NA	1.1E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

Reset to
Defaults

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

108883	4.90E+00

Chemical

Toluene

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER **ENTER** **ENTER**
Totals must add up to value of L_{WT} (cell G28)
Thickness
of soil
stratum A,
 h_A
(cm)

Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER
SCS
soil type
directly above
water table

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10	10	152	52	50	50	C	S	S	

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER
Enclosed
space
floor
pressure
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
($\text{g/cm} \cdot \text{s}^2$)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10	40	244	91	244	91	2	

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

3.01E+03	2.22E+04	2.75E+00	10	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	5.62E-04	3.62E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

10	6.16E+02	91.00	-6.28E+01	1.41E-02	6.10E+04	4.81E-01	1.86E-04	1.15E-01	NA	4.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

75014

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

8.50E-01

Chemical

Vinyl chloride (chloroethene)

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

10

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

10

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

152

ENTER
Totals must add up to value of L_{WT} (cell G28)

ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)
52	50	50

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

C

ENTER
SCS
soil type
directly above
water table

S

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

S

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

S

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

1.66

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

0.375

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

0.054

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

S

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

1.66

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

0.375

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

0.054

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

S

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

1.66

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

0.375

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

0.054

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

10

ENTER
Soil-bldg.
pressure
differential,
 ΔP
(g/cm-s^2)

40

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

244

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

91

ENTER
Enclosed
space
height,
 H_B
(cm)

244

ENTER
Floor-wall
seam crack
width,
 w
(cm)

91

ENTER
Indoor
air exchange
rate,
ER
(1/h)

2

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

70

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

30

ENTER
Exposure
duration,
ED
(yrs)

30

ENTER
Exposure
frequency,
EF
(days/yr)

350

ENTER
Target
risk for
carcinogens,
TR
(unitless)

1.0E-06

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)

3.01E+03	2.22E+04	2.75E+00	10	5,000	1.72E-02	7.41E-01	1.75E-04	1.71E-02	1.71E-02	1.71E-02	6.80E-04	4.39E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

10	6.30E+02	91.00	-6.28E+01	1.71E-02	6.10E+04	5.48E-01	2.26E-04	1.42E-01	8.8E-06	1.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

Reset to
Defaults

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

106423	5.10E+01

Chemical

p-Xylene

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER **ENTER** **ENTER**
Totals must add up to value of L_{WT} (cell G28)
Thickness
of soil
stratum A,
 h_A
(cm)

Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER
SCS
soil type
directly above
water table

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10	10	152	52	50	50	C	S	S	

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER
Enclosed
space
floor
pressure
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
(g/cm-s^2)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10	40	244	91	244	91	2	

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	4.97E-04	3.20E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
10	6.71E+03	91.00	-6.28E+01	1.24E-02	6.10E+04	4.37E-01	1.65E-04	1.10E+00	NA	1.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)		Chemical								
156592		8.90E-01		cis-1,2-Dichloroethylene								
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to water table, L_{wt} (cm)	ENTER Totals must add up to value of L_{wt} (cell G28) Thickness of soil stratum A, h_A (cm)			ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	152	52	50	50	C	S	S				
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054	
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)					
10	40	244	91	244	91	2						
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)							
70	30	30	350	1.0E-06	1							
Used to calculate risk-based groundwater concentration.												

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_e (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	7,734	2.04E-03	8.77E-02	1.75E-04	1.19E-02	1.19E-02	1.19E-02	4.81E-04	3.09E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^I)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RFC (mg/m ³)
10	7.81E+01	91.00	-6.28E+01	1.19E-02	6.10E+04	4.21E-01	1.59E-04	1.24E-02	NA	3.5E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)																					
83329		6.30E-01		Acenaphthene																			
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)		ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)		ENTER Depth below grade to water table, L_{WT} (cm)		ENTER Thickness of soil stratum A, h_A (cm)		ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)		ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)		ENTER Soil stratum directly above water table, (Enter A, B, or C)		ENTER SCS soil type directly above water table		ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)		OR		ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)			
10		10		152		52		50		50		C		S		S							
ENTER Stratum A SCS soil type Lookup Soil Parameters		ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)		ENTER Stratum A soil total porosity, n^A (unitless)		ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)		ENTER Stratum B SCS soil type Lookup Soil Parameters		ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)		ENTER Stratum B soil total porosity, n^B (unitless)		ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)		ENTER Stratum C SCS soil type Lookup Soil Parameters		ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)		ENTER Stratum C soil total porosity, n^C (unitless)		ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	
S		1.66		0.375		0.054		S		1.66		0.375		0.054		S		1.66		0.375		0.054	
ENTER Enclosed space floor thickness, L_{crack} (cm)		ENTER Soil-bldg. pressure differential, ΔP (g/cm^2)		ENTER Enclosed space floor length, L_B (cm)		ENTER Enclosed space floor width, W_B (cm)		ENTER Enclosed space height, H_B (cm)		ENTER Floor-wall seam crack width, w (cm)		ENTER Indoor air exchange rate, ER (1/h)		ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)									
10		40		244		91		244		91		2											
ENTER Averaging time for carcinogens, AT_C (yrs)		ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)		ENTER Exposure duration, ED (yrs)		ENTER Exposure frequency, EF (days/yr)		ENTER Target risk for carcinogens, TR (unitless)		ENTER Target hazard quotient for noncarcinogens, THQ (unitless)													
70		30		30		350		1.0E-06		1													
END		Used to calculate risk-based groundwater concentration.																					

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_g (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

3.01E+03	2.22E+04	2.75E+00	10	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.28E-04	3.12E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack}^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

10	9.92E-01	91.00	-6.28E+01	6.81E-03	6.10E+04	2.20E-01	1.58E-04	1.56E-04	NA	2.1E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)		Chemical									
106467		8.40E+00		1,4-Dichlorobenzene									
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)			ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	
10	10	152	52	50	50			C	S	S			
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)		
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054		
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)						
10	40	244	91	244	91	2							
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)								
70	30	30	350	1.0E-06	1								
				Used to calculate risk-based groundwater concentration.									

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	11,243	8.76E-04	3.77E-02	1.75E-04	1.12E-02	1.12E-02	1.12E-02	4.57E-04	2.93E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu\text{g}/\text{m}^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^I)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu\text{g}/\text{m}^3$)	Unit risk factor, URF ($\mu\text{g}/\text{m}^3$) ⁻¹	Reference conc., RfC (mg/m ³)
10	3.17E+02	91.00	-6.28E+01	1.12E-02	6.10E+04	3.97E-01	1.50E-04	4.76E-02	NA	8.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C _w (µg/L)		Chemical								
91576		2.00E+00		2-Methylnaphthalene								
ENTER Average soil/ groundwater temperature, T _s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L _F (cm)	ENTER Depth below grade to water table, L _{WT} (cm)	ENTER Totals must add up to value of L _{WT} (cell G28) Thickness of soil stratum A, h _A (cm)			ENTER Thickness of soil stratum B, (Enter value or 0) h _B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h _C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)
10	10	152	52	50	50	C	S	S				
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)	
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054	
ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space floor width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)					
10	40	244	91	244	91	2						
ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)							
70	30	30	350	1.0E-06	1							
Used to calculate risk-based groundwater concentration.												

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

3.01E+03	2.22E+04	2.75E+00	10	16,241	1.21E-04	5.20E-03	1.75E-04	8.44E-03	8.44E-03	8.44E-03	4.44E-04	2.67E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack}^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

10	1.04E+01	91.00	-6.28E+01	8.44E-03	6.10E+04	2.95E-01	1.36E-04	1.42E-03	NA	7.0E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

78933

9.60E+01

Methylethylketone (2-butanone)

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	9.60E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,419	2.63E-05	1.13E-03	1.75E-04	1.31E-02	1.31E-02	1.31E-02	1.31E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack}^{eff} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, exp(Pe ¹) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.60E-03	2.91E+03	91.00	-6.28E+01	1.31E-02	6.10E+04	4.55E-01	1.73E-03	5.02E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	5.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

Acenaphthene

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) ENTER Thickness of soil stratum A, h_A (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.40E+03	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	2.66E+02	91.00	-6.28E+01	6.81E-03	6.10E+04	2.20E-01	8.55E-04	2.28E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	2.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

67641

1.50E+02

Acetone

MORE
↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{le} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.50E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

2.22E+04	2.75E+00	10	7,559	1.97E-05	8.47E-04	1.75E-04	2.01E-02	2.01E-02	2.01E-02	2.01E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

1.15E-03	3.76E+03	91.00	-6.28E+01	2.01E-02	6.10E+04	5.98E-01	2.69E-03	1.01E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_E
($\mu\text{g/kg}$)

Chemical

98862

8.00E+01

Acetophenone

MORE
↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,718	2.86E-06	1.23E-04	1.75E-04	9.73E-03	9.73E-03	9.73E-03	9.73E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.15E-01	6.66E+01	91.00	-6.28E+01	9.73E-03	6.10E+04	3.47E-01	1.27E-03	8.44E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

100527 5.40E+02

Chemical

Benzaldehyde

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	5.40E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,135	6.71E-06	2.89E-04	1.75E-04	1.17E-02	1.17E-02	1.17E-02	1.17E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.18E-02	1.25E+03	91.00	-6.28E+01	1.17E-02	6.10E+04	4.14E-01	1.54E-03	1.92E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

71432

3.10E+02

Benzene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) ENTER Thickness of soil stratum A, h_a (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_e (cm)	ENTER Enclosed space floor width, W_a (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.10E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_{eff}^A (cm ² /s)	Stratum B effective diffusion coefficient, D_{eff}^B (cm ² /s)	Stratum C effective diffusion coefficient, D_{eff}^C (cm ² /s)	Total overall effective diffusion coefficient, D_{eff}^T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	1.42E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.18E-01	2.07E+05	91.00	-6.28E+01	1.42E-02	6.10E+04	4.85E-01	1.89E-03	3.91E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	7.8E-06	3.0E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_E
($\mu\text{g/kg}$)

Chemical

92524

1.20E+02

Biphenyl

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)

9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.20E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

2.22E+04	2.75E+00	10	14,028	8.54E-05	3.67E-03	1.75E-04	6.53E-03	6.53E-03	6.53E-03	6.53E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

8.75E+00	5.02E+01	91.00	-6.28E+01	6.53E-03	6.10E+04	2.07E-01	8.15E-04	4.09E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	1.8E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

108907

1.80E+01

Chlorobenzene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil total bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)		
70	30	30	350	1.0E-06	1		

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.80E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	9,803	1.54E-03	6.61E-02	1.75E-04	1.18E-02	1.18E-02	1.18E-02	1.18E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.38E-01	2.46E+03	91.00	-6.28E+01	1.18E-02	6.10E+04	4.18E-01	1.55E-03	3.83E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	6.0E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_b
($\mu\text{g/kg}$)

Chemical

100414

2.00E+01

Ethylbenzene

MORE
↓

ENTER
Average
soil
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth below
grade to top
of contamination,
 L_t
(cm)

ENTER
Depth below
grade to bottom
of contamination,
(enter value of 0
if value is unknown)
 L_b
(cm)

ENTER
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10

10

60

0

20

20

20

S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum A
soil organic
carbon fraction,
 f_{oc}^A
(unitless)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum B
soil organic
carbon fraction,
 f_{oc}^B
(unitless)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

ENTER
Stratum C
soil organic
carbon fraction,
 f_{oc}^C
(unitless)

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
($\text{g/cm}^2\text{-s}^2$)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10

40

244

91

244

91

2

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70

30

30

350

1.0E-06

1

Used to calculate risk-based
soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_{eff}^A (cm ² /s)	Stratum B effective diffusion coefficient, D_{eff}^B (cm ² /s)	Stratum C effective diffusion coefficient, D_{eff}^C (cm ² /s)	Total overall effective diffusion coefficient, D_{eff}^T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	1.21E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.26E-01	3.48E+03	91.00	-6.28E+01	1.21E-02	6.10E+04	4.28E-01	1.60E-03	5.56E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	1.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

86737

2.10E+03

Fluorene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20		S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)

9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.10E+03	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

2.22E+04	2.75E+00	10	16,235	1.49E-05	6.39E-04	1.75E-04	5.87E-03	5.87E-03	5.87E-03	5.87E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

2.76E+01	4.86E+01	91.00	-6.28E+01	5.87E-03	6.10E+04	1.73E-01	7.20E-04	3.50E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	1.4E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

79209

1.10E+03

Methyl acetate

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20		S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.10E+03	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	7,909	5.82E-05	2.50E-03	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack}^{eff} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, exp(Pe ¹) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
6.52E-03	6.97E+04	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	1.56E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.5E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_b
($\mu\text{g/kg}$)

Chemical

91203

9.00E+02

Naphthalene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_i (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_i (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	9.00E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	9.54E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.00E+00	1.46E+03	91.00	-6.28E+01	9.54E-03	6.10E+04	3.40E-01	1.24E-03	1.81E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.0E-03

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

129000	3.20E+04

Chemical

Pyrene

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
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ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.20E+04	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	20,700	1.72E-06	7.42E-05	1.75E-04	4.44E-03	4.44E-03	4.44E-03	4.44E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
2.10E+02	1.13E+01	91.00	-6.28E+01	4.44E-03	6.10E+04	9.84E-02	5.06E-04	5.72E-03	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	1.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_E
($\mu\text{g/kg}$)

Chemical

108883

1.30E+04

Toluene

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
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ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.30E+04	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

2.22E+04	2.75E+00	10	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	1.41E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

3.64E-01	3.88E+06	91.00	-6.28E+01	1.41E-02	6.10E+04	4.81E-01	1.87E-03	7.25E+03	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	4.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

106423

4.40E+02

p-Xylene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) ENTER Thickness of soil stratum A, h_a (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_e (cm)	ENTER Enclosed space floor width, W_a (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	4.40E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	1.24E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.78E-01	6.92E+04	91.00	-6.28E+01	1.24E-02	6.10E+04	4.37E-01	1.64E-03	1.14E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	1.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_E
($\mu\text{g/kg}$)

Chemical

75150

2.70E+01

Carbon disulfide

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.70E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	6,682	1.66E-02	7.16E-01	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-02	7.37E+04	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	1.65E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	7.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_b
($\mu\text{g}/\text{kg}$)

Chemical

156592

1.00E+00

cis-1,2-Dichloroethylene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_1 (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g}/\text{cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)

9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.00E+00	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

2.22E+04	2.75E+00	10	7,734	2.04E-03	8.77E-02	1.75E-04	1.19E-02	1.19E-02	1.19E-02	1.19E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

7.10E-02	7.28E+02	91.00	-6.28E+01	1.19E-02	6.10E+04	4.21E-01	1.57E-03	1.14E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m ³)	Finite source bldg. conc., $C_{building}$ (µg/m ³)	Final finite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	3.5E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_b
($\mu\text{g}/\text{kg}$)

Chemical

75718

3.00E+00

Dichlorodifluoromethane

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g}/\text{cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.00E+00	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,386	1.62E-01	6.96E+00	1.75E-04	1.08E-02	1.08E-02	1.08E-02	1.08E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-01	9.11E+03	91.00	-6.28E+01	1.08E-02	6.10E+04	3.84E-01	1.41E-03	1.28E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	2.0E-01

NA	NA	NA	NA	NA	2.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

Reset to
Defaults

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

98828

2.90E+01

Cumene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_p (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{rock} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_g (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{le} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.90E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	12,644	4.71E-03	2.03E-01	1.75E-04	1.05E-02	1.05E-02	1.05E-02	1.05E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.77E-01	5.61E+03	91.00	-6.28E+01	1.05E-02	6.10E+04	3.75E-01	1.37E-03	7.71E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	4.0E-01

NA	NA	NA	NA	NA	4.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C _R (µg/kg)	Chemical													
108872	8.00E+01	Methylcyclohexane													
ENTER Average soil temperature, T _s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L _F (cm)	ENTER Depth below grade to top of contamination, L _t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L _b (cm)	ENTER Totals must add up to value of L _t (cell G28) ENTER Thickness of soil stratum A, h _A (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h _B (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h _C (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) OR ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)								
10	10	60	0	20	20	20	S								
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum A soil organic carbon fraction, f _{oc} ^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum B soil organic carbon fraction, f _{oc} ^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)	ENTER Stratum C soil organic carbon fraction, f _{oc} ^C (unitless)	
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	
ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space floor width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)								
10	40	244	91	244	91	2									
ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)	Used to calculate risk-based soil concentration.									
70	30	30	350	1.0E-06	1										

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,584	4.77E-02	2.05E+00	1.75E-04	1.19E-02	1.19E-02	1.19E-02	1.19E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.57E-01	2.80E+05	91.00	-6.28E+01	1.19E-02	6.10E+04	4.20E-01	1.57E-03	4.38E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g}/\text{kg}$)

127184

1.50E+01

Chemical

Tetrachloroethylene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g}/\text{cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.50E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	9,553	7.81E-03	3.36E-01	1.75E-04	1.16E-02	1.16E-02	1.16E-02	1.16E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.10E-01	1.24E+04	91.00	-6.28E+01	1.16E-02	6.10E+04	4.13E-01	1.53E-03	1.90E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m ³)	Finite source bldg. conc., $C_{building}$ (µg/m ³)	Final finite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	5.9E-06	6.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

78933

9.60E+01

Methylethylketone (2-butanone)

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	9.60E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,419	2.63E-05	1.13E-03	1.75E-04	1.31E-02	1.31E-02	1.31E-02	1.31E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, exp(Pe ¹) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.60E-03	2.91E+03	91.00	-6.28E+01	1.31E-02	6.10E+04	4.55E-01	1.73E-03	5.02E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	5.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

106467

8.00E+00

1,4-Dichlorobenzene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_a (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_s (cm)	ENTER Enclosed space floor width, W_s (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.00E+00	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	11,243	8.76E-04	3.77E-02	1.75E-04	1.12E-02	1.12E-02	1.12E-02	1.12E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.23E+00	2.37E+02	91.00	-6.28E+01	1.12E-02	6.10E+04	3.97E-01	1.46E-03	3.47E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	8.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C _R (µg/kg)	Chemical													
91576	9.00E+02	2-Methylnaphthalene													
ENTER Average soil temperature, T _s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L _f (cm)	ENTER Depth below grade to top of contamination, L _t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L _b (cm)	ENTER Totals must add up to value of L _t (cell G28) ENTER Thickness of soil stratum A, h _A (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h _B (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h _C (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)						
10	10	60	0	20	20	20	S								
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum A soil organic carbon fraction, f _{oc} ^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum B soil organic carbon fraction, f _{oc} ^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)	ENTER Stratum C soil organic carbon fraction, f _{oc} ^C (unitless)	
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	
ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _s (cm)	ENTER Enclosed space floor width, W _s (cm)	ENTER Enclosed space height, H _b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)								
10	40	244	91	244	91	2									
ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)										
70	30	30	350	1.0E-06	1										
Used to calculate risk-based soil concentration.															

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	9.00E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

2.22E+04	2.75E+00	10	16,241	1.21E-04	5.20E-03	1.75E-04	8.44E-03	8.44E-03	8.44E-03	8.44E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

5.62E+00	8.28E+02	91.00	-6.28E+01	8.44E-03	6.10E+04	2.95E-01	1.09E-03	8.99E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	7.0E-02

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)		Chemical Naphthalene									
91203	1.10E-01												
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) ENTER Thickness of soil stratum A, h_A (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)			ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)			
10	10	152	52	50	50	C	S	S					
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)		
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054		
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)						
10	40	244	91	244	91	2							
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)								
70	30	30	350	1.0E-06	1								
					Used to calculate risk-based groundwater concentration.								

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	142	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	670

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)
3.01E+03	2.22E+04	2.75E+00	10	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	4.62E-04	2.84E-03	142

Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe')$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
10	7.19E-01	91.00	-6.28E+01	9.54E-03	6.10E+04	3.40E-01	1.46E-04	1.05E-04	NA	3.0E-03

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

79209

7.00E+00

Methyl acetate

MORE
↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)			ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S				

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{Ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	7.00E+00	3.01E+03	
Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	7,909	5.82E-05	2.50E-03	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10
Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
6.52E-03	4.43E+02	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	9.95E-01	NA	NA	NA	NA
Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m ³)	Finite source bldg. conc., $C_{building}$ (µg/m ³)	Final finite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)							
NA	NA	NA	NA	NA	3.5E+00							
END												

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

Reset to
Defaults

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

108883	1.00E+00

Toluene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.00E+00	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	1.41E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.64E-01	2.99E+02	91.00	-6.28E+01	1.41E-02	6.10E+04	4.81E-01	1.87E-03	5.58E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m ³)	Finite source bldg. conc., $C_{building}$ (µg/m ³)	Final finite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	4.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C _w (µg/L)		Chemical							
71432		1.17E+01		Benzene							
ENTER Average soil/ groundwater temperature, T _s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L _F (cm)	ENTER Depth below grade to water table, L _{WT} (cm)	ENTER Totals must add up to value of L _{WT} (cell G28) ENTER Thickness of soil stratum A, h _A (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h _B (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h _C (cm)			ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)	
10	200	400	300	50	50	C	S	S			

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space floor width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE
↓

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

MORE
↓

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000
Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	5.70E-04	4.68E-03	200
Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)			
200	1.35E+03	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.10E-03	1.48E+00	7.8E-06	3.0E-02			
END													

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

Chemical

67663

1.20E+00

Chloroform

MORE
↓

ENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER
Totals must add up to value of L_{WT} (cell G28)
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum
directly above
water table,
(Enter A, B, or C)

ENTER
SCS
soil type
directly above
water table

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10

200

400

300

50

50

C

S

S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

S

1.66

0.375

0.054

S

1.66

0.375

0.054

S

1.66

0.375

0.054

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
(g/cm-s^2)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10

40

1000

1000

366

0.1

0.25

5

MORE
↓

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70

30

30

350

1.0E-06

1

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Capillary zone effective diffusion coefficient, D_{cz}^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	7,554	1.86E-03	8.02E-02	1.75E-04	1.68E-02	1.68E-02	1.68E-02	6.75E-04	5.54E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

200	9.62E+01	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	1.23E-03	1.18E-01	2.3E-05	NA

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W ($\mu\text{g/L}$)	Chemical									
100414	1.70E+01	Ethylbenzene									
ENTER Average soil/ groundwater temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28)			ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_y (cm^2)	
10	200	400	300	50	50	C	S	S			
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)				
10	40	1000	1000	366	0.1	0.25	5				
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)						
70	30	30	350	1.0E-06	1						
Used to calculate risk-based groundwater concentration.											

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, $D_{eff A}$ (cm ² /s)	Stratum B effective diffusion coefficient, $D_{eff B}$ (cm ² /s)	Stratum C effective diffusion coefficient, $D_{eff C}$ (cm ² /s)	Capillary zone effective diffusion coefficient, $D_{eff cz}$ (cm ² /s)	Total overall effective diffusion coefficient, $D_{eff T}$ (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	4.84E-04	3.98E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

200	2.32E+03	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	9.85E-04	2.29E+00	NA	1.0E+00

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W ($\mu\text{g/L}$)	Chemical Ethylbenzene											
ENTER Average soil/ groundwater temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) <table><tr><td>ENTER Thickness of soil stratum A, h_A (cm)</td><td>ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)</td><td>ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)</td></tr></table>			ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)											
10	200	400	300	50	50	C	S	S					
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)		
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054		
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)						
10	40	1000	1000	366	0.1	0.25	5						
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)								
70	30	30	350	1.0E-06	1								
				Used to calculate risk-based groundwater concentration.									

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	4.84E-04	3.98E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

200	1.61E+02	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	9.85E-04	1.59E-01	NA	1.0E+00

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)																					
91203		1.14E+01		Naphthalene																			
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)		ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)		ENTER Depth below grade to water table, L_{WT} (cm)		ENTER Thickness of soil stratum A, h_A (cm)		ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)		ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)		ENTER Soil stratum directly above water table, (Enter A, B, or C)		ENTER SCS soil type directly above water table		ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)		OR		ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)			
10		200		400		300		50		50		C		S		S							
ENTER Stratum A SCS soil type Lookup Soil Parameters		ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)		ENTER Stratum A soil total porosity, n^A (unitless)		ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)		ENTER Stratum B SCS soil type Lookup Soil Parameters		ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)		ENTER Stratum B soil total porosity, n^B (unitless)		ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)		ENTER Stratum C SCS soil type Lookup Soil Parameters		ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)		ENTER Stratum C soil total porosity, n^C (unitless)		ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	
S		1.66		0.375		0.054		S		1.66		0.375		0.054		S		1.66		0.375		0.054	
ENTER Enclosed space floor thickness, L_{crack} (cm)		ENTER Soil-bldg. pressure differential, ΔP (g/cm^2)		ENTER Enclosed space floor length, L_B (cm)		ENTER Enclosed space floor width, W_B (cm)		ENTER Enclosed space height, H_B (cm)		ENTER Floor-wall seam crack width, w (cm)		ENTER Indoor air exchange rate, ER (1/h)		ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)									
10		40		1000		1000		366		0.1		0.25		5									
ENTER Averaging time for carcinogens, AT_C (yrs)		ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)		ENTER Exposure duration, ED (yrs)		ENTER Exposure frequency, EF (days/yr)		ENTER Target risk for carcinogens, TR (unitless)		ENTER Target hazard quotient for noncarcinogens, THQ (unitless)													
70		30		30		350		1.0E-06		1													
END		Used to calculate risk-based groundwater concentration.																					

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_e (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	4.62E-04	3.57E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RFC (mg/m ³)

200	7.48E+01	0.10	8.33E+01	9.54E-03	4.00E+02	7.19E+94	9.12E-04	6.82E-02	NA	3.0E-03

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C_w ($\mu\text{g/L}$)		Chemical							
75014		8.50E-01		Vinyl chloride (chloroethene)							
ENTER Average soil/ groundwater temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	
10	200	400	300	50	50	C	S	S			
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054
ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)				
10	40	1000	1000	366	0.1	0.25	5				
ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)						
70	30	30	350	1.0E-06	1						
				Used to calculate risk-based groundwater concentration.							

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_e (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000

Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)

2.54E+04	1.80E+06	2.22E-04	200	5,000	1.72E-02	7.41E-01	1.75E-04	1.71E-02	1.71E-02	1.71E-02	6.80E-04	5.60E-03	200

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RFC (mg/m ³)

200	6.30E+02	0.10	8.33E+01	1.71E-02	4.00E+02	6.32E+52	1.24E-03	7.78E-01	8.8E-06	1.0E-01

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)		ENTER Initial groundwater conc., C _w (µg/L)		Chemical					
71432		1.17E+01		Benzene					
ENTER Average soil/ groundwater temperature, T _s (°C)	ENTER Depth below grade of bottom of enclosed space floor, L _F (cm)	ENTER Depth below grade to water table, L _{WT} (cm)	ENTER Totals must add up to value of L _{WT} (cell G28)			ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)
Thickness of soil stratum A, h _A (cm)		Thickness of soil stratum B, (Enter value or 0) h _B (cm)		Thickness of soil stratum C, (Enter value or 0) h _C (cm)		OR			
10	200	400	300	50	50	C	S	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space floor width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

MORE
↓

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

MORE
↓

END

Used to calculate risk-based
groundwater concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm ³ /cm ³)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm ³ /cm ³)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm ³ /cm ³)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	17.05	0.375	0.122	0.253	4,000
Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)	Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)
2.54E+04	1.80E+06	2.22E-04	200	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	5.70E-04	4.68E-03	200
Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)			
200	1.35E+03	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.10E-03	1.48E+00	7.8E-06	3.0E-02			
END													

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C _R (µg/kg)	Chemical													
83329	8.06E+02	Acenaphthene													
ENTER Average soil temperature, T _s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L _F (cm)	ENTER Depth below grade to top of contamination, L _t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L _b (cm)	ENTER Totals must add up to value of L _t (cell G28) ENTER Thickness of soil stratum A, h _A (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h _B (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h _C (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)						
10	200	400	0	200	100	100	S								
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum A soil organic carbon fraction, f _{oc} ^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum B soil organic carbon fraction, f _{oc} ^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)	ENTER Stratum C soil organic carbon fraction, f _{oc} ^C (unitless)	
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	
ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space floor width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)								
10	40	1000	1000	366	0.1	0.25	5								
ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)	Used to calculate risk-based soil concentration.									
70	30	30	350	1.0E-06	1										

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	8.06E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	8.94E+01	0.10	8.33E+01	6.81E-03	4.00E+02	7.96E+132	1.39E-03	1.24E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	2.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

98862

8.00E+01

Acetophenone

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28)	ENTER Thickness of soil stratum A, h_a (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100		S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_b (cm)	ENTER Enclosed space floor width, W_b (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	8.00E+01	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	14,718	2.86E-06	1.23E-04	1.75E-04	9.73E-03	9.73E-03	9.73E-03	9.73E-03	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

1.15E-01	6.66E+01	0.10	8.33E+01	9.73E-03	4.00E+02	9.78E+92	1.68E-03	1.12E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

Reset to
Defaults

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_e
($\mu\text{g/kg}$)

Chemical

100527

1.09E+02

Benzaldehyde

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_a (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.09E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	14,135	6.71E-06	2.89E-04	1.75E-04	1.17E-02	1.17E-02	1.17E-02	1.17E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

9.18E-02	2.53E+02	0.10	8.33E+01	1.17E-02	4.00E+02	3.44E+77	1.83E-03	4.62E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle\alpha\rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m ³)	Finite source bldg. conc., $C_{building}$ (µg/m ³)	Final finite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

71432

1.16E+02

Chemical

Benzene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28)	ENTER Thickness of soil stratum A, h_a (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100		S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_b (cm)	ENTER Enclosed space floor width, W_b (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.16E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	1.42E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

1.18E-01	7.75E+04	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.99E-03	1.54E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	7.8E-06	3.0E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_b
($\mu\text{g/kg}$)

Chemical

92524

1.10E+02

Biphenyl

MORE
↓

ENTER
Average
soil
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_f
(cm)

ENTER
Depth below
grade to top
of contamination,
 L_t
(cm)

ENTER
Depth below
grade to bottom
of contamination,
(enter value of 0
if value is unknown)
 L_b
(cm)

ENTER
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10

200

400

0

200

100

100

S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum A
soil organic
carbon fraction,
 f_{oc}^A
(unitless)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum B
soil organic
carbon fraction,
 f_{oc}^B
(unitless)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

ENTER
Stratum C
soil organic
carbon fraction,
 f_{oc}^C
(unitless)

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
($\text{g/cm}^2\text{-s}^2$)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10

40

1000

1000

366

0.1

0.25

5

ENTER
Averaging
time for
carcinogens,
 AT_c
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{nc}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70

30

30

350

1.0E-06

1

Used to calculate risk-based
soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.10E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	14,028	8.54E-05	3.67E-03	1.75E-04	6.53E-03	6.53E-03	6.53E-03	6.53E-03	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

8.75E+00	4.60E+01	0.10	8.33E+01	6.53E-03	4.00E+02	3.28E+138	1.36E-03	6.24E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m ³)	Finite source bldg. conc., $C_{building}$ (µg/m ³)	Final finite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	1.8E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

100414

2.00E+01

Ethylbenzene

MORE
↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{le} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.00E+01	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	1.21E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.26E-01	3.48E+03	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	1.86E-03	6.46E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	1.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

79209

3.53E+02

Methyl acetate

MORE
↓

ENTER
Average
soil
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_f
(cm)

ENTER
Depth below
grade to top
of contamination,
 L_t
(cm)

ENTER
Depth below
grade to bottom
of contamination,
(enter value of 0
if value is unknown)
 L_b
(cm)

ENTER
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10

200

400

0

200

100

100

S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum A
soil organic
carbon fraction,
 f_{oc}^A
(unitless)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum B
soil organic
carbon fraction,
 f_{oc}^B
(unitless)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

ENTER
Stratum C
soil organic
carbon fraction,
 f_{oc}^C
(unitless)

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
($\text{g/cm} \cdot \text{s}^2$)

ENTER
Enclosed
space
floor
length,
 L_g
(cm)

ENTER
Enclosed
space
floor
width,
 W_a
(cm)

ENTER
Enclosed
space
height,
 H_b
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
 ER
($1/\text{h}$)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10

40

1000

1000

366

0.1

0.25

5

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
 ED
(yrs)

ENTER
Exposure
frequency,
 EF
(days/yr)

ENTER
Target
risk for
carcinogens,
 TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
 THQ
(unitless)

70

30

30

350

1.0E-06

1

Used to calculate risk-based
soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{le} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	3.53E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	7,909	5.82E-05	2.50E-03	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
6.52E-03	2.24E+04	0.10	8.33E+01	1.68E-02	4.00E+02	6.46E+53	2.11E-03	4.73E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.5E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

91203

3.70E+02

Naphthalene

MORE
↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	3.70E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	12.913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	9.54E-03	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

4.00E+00	5.99E+02	0.10	8.33E+01	9.54E-03	4.00E+02	7.19E+94	1.66E-03	9.97E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	3.0E-03

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

108883 4.00E+03

Toluene

MORE
↓

ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
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ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	4.00E+03	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	1.41E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

3.64E-01	1.20E+06	0.10	8.33E+01	1.41E-02	4.00E+02	2.15E+64	1.98E-03	2.36E+03	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	4.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C _R (µg/kg)	Chemical													
106423	2.63E+02	p-Xylene													
ENTER Average soil temperature, T _s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L _f (cm)	ENTER Depth below grade to top of contamination, L _t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L _b (cm)	ENTER Totals must add up to value of L _t (cell G28) ENTER Thickness of soil stratum A, h _A (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h _B (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h _C (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)						
10	200	400	0	200	100	100	S								
ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum A soil organic carbon fraction, f _{oc} ^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum B soil organic carbon fraction, f _{oc} ^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)	ENTER Stratum C soil organic carbon fraction, f _{oc} ^C (unitless)	
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	
ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _s (cm)	ENTER Enclosed space floor width, W _s (cm)	ENTER Enclosed space height, H _b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)								
10	40	1000	1000	366	0.1	0.25	5								
ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)										
70	30	30	350	1.0E-06	1										
Used to calculate risk-based soil concentration.															

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.63E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	1.24E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

7.78E-01	4.14E+04	0.10	8.33E+01	1.24E-02	4.00E+02	6.04E+72	1.88E-03	7.78E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	1.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

75150

2.70E+01

Carbon disulfide

MORE
↓

ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
Totals must add up to value of L_t (cell G28)							OR	
10	200	400	0	200	100	100	S	

MORE
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ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
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ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_a (cm)	ENTER Enclosed space floor width, W_a (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.70E+01	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	6,682	1.66E-02	7.16E-01	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-02	7.37E+04	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.11E-03	1.56E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	7.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

127184

1.50E+01

Tetrachloroethylene

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value of 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value of 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
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ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	1.50E+01	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	9,553	7.81E-03	3.36E-01	1.75E-04	1.16E-02	1.16E-02	1.16E-02	1.16E-02	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.10E-01	1.24E+04	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.83E-03	2.26E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	5.9E-06	6.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

83329

8.06E+02

Acenaphthene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
Thickness of soil stratum A, h_a (cm)	Thickness of soil stratum B, (Enter value or 0) h_b (cm)	Thickness of soil stratum C, (Enter value or 0) h_c (cm)				OR		
10	200	400	0	200	100	100	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_b (cm)	ENTER Enclosed space floor width, W_b (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	8.06E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_{eff}^A (cm ² /s)	Stratum B effective diffusion coefficient, D_{eff}^B (cm ² /s)	Stratum C effective diffusion coefficient, D_{eff}^C (cm ² /s)	Total overall effective diffusion coefficient, D_{eff}^T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
1.80E+06	2.22E-04	200	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	8.94E+01	0.10	8.33E+01	6.81E-03	4.00E+02	7.96E+132	1.39E-03	1.24E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	2.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

Reset to
Defaults

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

91576

3.23E+02

Chemical

2-Methylnaphthalene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_a (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	200	400	0	200	100	100	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_g (cm)	ENTER Enclosed space floor width, W_a (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)

9.46E+08	200	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	3.23E+02	2.54E+04

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

1.80E+06	2.22E-04	200	16,241	1.21E-04	5.20E-03	1.75E-04	8.44E-03	8.44E-03	8.44E-03	8.44E-03	200	200

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

5.62E+00	2.97E+02	0.10	8.33E+01	8.44E-03	4.00E+02	1.63E+107	1.56E-03	4.65E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	7.0E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

91576

3.23E-01

Chemical

2-Methylnaphthalene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_a (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_s (cm)	ENTER Enclosed space floor width, W_s (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.23E-01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

2.22E+04	2.75E+00	10	16,241	1.21E-04	5.20E-03	1.75E-04	8.44E-03	8.44E-03	8.44E-03	8.44E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

5.62E+00	2.97E-01	91.00	-6.28E+01	8.44E-03	6.10E+04	2.95E-01	1.09E-03	3.23E-04	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	7.0E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

Acenaphthene

MORE
↓

ENTER	ENTER	ENTER	ENTER	ENTER			ENTER	ENTER
Average soil temperature, T_s (°C)	Depth below grade to bottom of enclosed space floor, L_F (cm)	Depth below grade to top of contamination, L_I (cm)	Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	Totals must add up to value of L_I (cell G28)			Soil stratum A SCS soil type (used to estimate soil vapor permeability) OR	User-defined stratum A soil vapor permeability, K_v (cm ²)
				Thickness of soil stratum A, h_A (cm)	Thickness of soil stratum B, (Enter value or 0) h_B (cm)	Thickness of soil stratum C, (Enter value or 0) h_C (cm)		
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.06E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	8.94E+01	91.00	-6.28E+01	6.81E-03	6.10E+04	2.20E-01	8.55E-04	7.64E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	2.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_E
($\mu\text{g/kg}$)

Chemical

98862

8.00E+01

Acetophenone

MORE
↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,718	2.86E-06	1.23E-04	1.75E-04	9.73E-03	9.73E-03	9.73E-03	9.73E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.15E-01	6.66E+01	91.00	-6.28E+01	9.73E-03	6.10E+04	3.47E-01	1.27E-03	8.44E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

100527

1.09E+02

Benzaldehyde

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20		S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.09E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,135	6.71E-06	2.89E-04	1.75E-04	1.17E-02	1.17E-02	1.17E-02	1.17E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.18E-02	2.53E+02	91.00	-6.28E+01	1.17E-02	6.10E+04	4.14E-01	1.54E-03	3.88E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

71432

1.16E+02

Benzene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) ENTER Thickness of soil stratum A, h_a (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_e (cm)	ENTER Enclosed space floor width, W_a (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.16E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	1.42E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.18E-01	7.75E+04	91.00	-6.28E+01	1.42E-02	6.10E+04	4.85E-01	1.89E-03	1.46E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	7.8E-06	3.0E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_E
($\mu\text{g/kg}$)

Chemical

92524

1.10E+02

Biphenyl

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)

9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.10E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

2.22E+04	2.75E+00	10	14,028	8.54E-05	3.67E-03	1.75E-04	6.53E-03	6.53E-03	6.53E-03	6.53E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

8.75E+00	4.60E+01	91.00	-6.28E+01	6.53E-03	6.10E+04	2.07E-01	8.15E-04	3.75E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	1.8E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_E
($\mu\text{g/kg}$)

Chemical

75150

2.70E+01

Carbon disulfide

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.70E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	6,682	1.66E-02	7.16E-01	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-02	7.37E+04	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	1.65E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	7.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_s
($\mu\text{g/kg}$)

Chemical

100414

2.00E+01

Ethylbenzene

MORE
↓

ENTER
Average
soil
temperature,
 T_s
($^{\circ}\text{C}$)

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(cm)

ENTER
Depth below
grade to top
of contamination,
 L_i
(cm)

ENTER
Depth below
grade to bottom
of contamination,
(enter value of 0
if value is unknown)
 L_b
(cm)

ENTER
Thickness
of soil
stratum A,
 h_A
(cm)

ENTER
Thickness
of soil
stratum B,
(Enter value or 0)
 h_B
(cm)

ENTER
Thickness
of soil
stratum C,
(Enter value or 0)
 h_C
(cm)

ENTER
Soil
stratum A
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
stratum A
soil vapor
permeability,
 k_v
(cm^2)

10

10

60

0

20

20

20

S

MORE
↓

ENTER
Stratum A
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum A
soil dry
bulk density,
 ρ_b^A
(g/cm^3)

ENTER
Stratum A
soil total
porosity,
 n^A
(unitless)

ENTER
Stratum A
soil water-filled
porosity,
 θ_w^A
(cm^3/cm^3)

ENTER
Stratum A
soil organic
carbon fraction,
 f_{oc}^A
(unitless)

ENTER
Stratum B
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum B
soil dry
bulk density,
 ρ_b^B
(g/cm^3)

ENTER
Stratum B
soil total
porosity,
 n^B
(unitless)

ENTER
Stratum B
soil water-filled
porosity,
 θ_w^B
(cm^3/cm^3)

ENTER
Stratum B
soil organic
carbon fraction,
 f_{oc}^B
(unitless)

ENTER
Stratum C
SCS
soil type
Lookup Soil
Parameters

ENTER
Stratum C
soil dry
bulk density,
 ρ_b^C
(g/cm^3)

ENTER
Stratum C
soil total
porosity,
 n^C
(unitless)

ENTER
Stratum C
soil water-filled
porosity,
 θ_w^C
(cm^3/cm^3)

ENTER
Stratum C
soil organic
carbon fraction,
 f_{oc}^C
(unitless)

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

S

1.66

0.375

0.054

0.002

MORE
↓

ENTER
Enclosed
space
floor
thickness,
 L_{crack}
(cm)

ENTER
Soil-bldg.
pressure
differential,
 ΔP
($\text{g/cm}^2\text{-s}^2$)

ENTER
Enclosed
space
floor
length,
 L_B
(cm)

ENTER
Enclosed
space
floor
width,
 W_B
(cm)

ENTER
Enclosed
space
height,
 H_B
(cm)

ENTER
Floor-wall
seam crack
width,
 w
(cm)

ENTER
Indoor
air exchange
rate,
ER
(1/h)

ENTER
Average vapor
flow rate into bldg.
OR
Leave blank to calculate
 Q_{soil}
(L/m)

10

40

244

91

244

91

2

ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER
Exposure
duration,
ED
(yrs)

ENTER
Exposure
frequency,
EF
(days/yr)

ENTER
Target
risk for
carcinogens,
TR
(unitless)

ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

70

30

30

350

1.0E-06

1

Used to calculate risk-based
soil concentration.

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	1.21E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.26E-01	3.48E+03	91.00	-6.28E+01	1.21E-02	6.10E+04	4.28E-01	1.60E-03	5.56E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	1.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

79209

3.53E+02

Methyl acetate

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20		S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.53E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	7,909	5.82E-05	2.50E-03	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, exp(Pe ¹) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
6.52E-03	2.24E+04	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	5.02E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.5E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_b
($\mu\text{g/kg}$)

Chemical

91203

3.74E+02

Naphthalene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_i (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.74E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	9.54E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.00E+00	6.06E+02	91.00	-6.28E+01	9.54E-03	6.10E+04	3.40E-01	1.24E-03	7.51E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m ³)	Finite source bldg. conc., $C_{building}$ (µg/m ³)	Final finite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.0E-03

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

127184

1.50E+01

Tetrachloroethylene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S			

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.50E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	9,553	7.81E-03	3.36E-01	1.75E-04	1.16E-02	1.16E-02	1.16E-02	1.16E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.10E-01	1.24E+04	91.00	-6.28E+01	1.16E-02	6.10E+04	4.13E-01	1.53E-03	1.90E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m ³)	Finite source bldg. conc., $C_{building}$ (µg/m ³)	Final finite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	5.9E-06	6.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_E
($\mu\text{g/kg}$)

Chemical

108883

3.98E+03

Toluene

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.98E+03	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

2.22E+04	2.75E+00	10	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	1.41E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

3.64E-01	1.19E+06	91.00	-6.28E+01	1.41E-02	6.10E+04	4.81E-01	1.87E-03	2.22E+03	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	4.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

106423

2.63E+02

p-Xylene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) ENTER Thickness of soil stratum A, h_a (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_e (cm)	ENTER Enclosed space floor width, W_a (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.63E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	1.24E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.78E-01	4.14E+04	91.00	-6.28E+01	1.24E-02	6.10E+04	4.37E-01	1.64E-03	6.79E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	1.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

Acenaphthene

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) ENTER Thickness of soil stratum A, h_A (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.06E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	8.94E+01	91.00	-6.28E+01	6.81E-03	6.10E+04	2.20E-01	8.55E-04	7.64E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	2.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_E
($\mu\text{g/kg}$)

Chemical

98862

8.00E+01

Acetophenone

MORE
↓

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,718	2.86E-06	1.23E-04	1.75E-04	9.73E-03	9.73E-03	9.73E-03	9.73E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.15E-01	6.66E+01	91.00	-6.28E+01	9.73E-03	6.10E+04	3.47E-01	1.27E-03	8.44E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

100527

1.09E+02

Benzaldehyde

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20		S		

MORE
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ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
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ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.09E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	14,135	6.71E-06	2.89E-04	1.75E-04	1.17E-02	1.17E-02	1.17E-02	1.17E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.18E-02	2.53E+02	91.00	-6.28E+01	1.17E-02	6.10E+04	4.14E-01	1.54E-03	3.88E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.5E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

71432

1.16E+02

Benzene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) ENTER Thickness of soil stratum A, h_a (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_b (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_c (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_e (cm)	ENTER Enclosed space floor width, W_a (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.16E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_{eff}^A (cm ² /s)	Stratum B effective diffusion coefficient, D_{eff}^B (cm ² /s)	Stratum C effective diffusion coefficient, D_{eff}^C (cm ² /s)	Total overall effective diffusion coefficient, D_{eff}^T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	8,122	2.68E-03	1.15E-01	1.75E-04	1.42E-02	1.42E-02	1.42E-02	1.42E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.18E-01	7.75E+04	91.00	-6.28E+01	1.42E-02	6.10E+04	4.85E-01	1.89E-03	1.46E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	7.8E-06	3.0E-02

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_E
($\mu\text{g/kg}$)

Chemical

92524

1.10E+02

Biphenyl

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)

9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.10E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

2.22E+04	2.75E+00	10	14,028	8.54E-05	3.67E-03	1.75E-04	6.53E-03	6.53E-03	6.53E-03	6.53E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

8.75E+00	4.60E+01	91.00	-6.28E+01	6.53E-03	6.10E+04	2.07E-01	8.15E-04	3.75E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	1.8E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_b
($\mu\text{g/kg}$)

Chemical

100414

2.00E+01

Ethylbenzene

MORE
↓

ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_i (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_i (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_c (yrs)	ENTER Averaging time for noncarcinogens, AT_{nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.00E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	10,155	3.17E-03	1.36E-01	1.75E-04	1.21E-02	1.21E-02	1.21E-02	1.21E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.26E-01	3.48E+03	91.00	-6.28E+01	1.21E-02	6.10E+04	4.28E-01	1.60E-03	5.56E+00	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $<\alpha>$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	1.0E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_b
($\mu\text{g/kg}$)

Chemical

91203

3.74E+02

Naphthalene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_i (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
Totals must add up to value of L_i (cell G28)								
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
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ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.74E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	12,913	1.52E-04	6.54E-03	1.75E-04	9.54E-03	9.54E-03	9.54E-03	9.54E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
4.00E+00	6.06E+02	91.00	-6.28E+01	9.54E-03	6.10E+04	3.40E-01	1.24E-03	7.51E-01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.0E-03

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_E
($\mu\text{g/kg}$)

Chemical

108883

3.98E+03

Toluene

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.98E+03	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

2.22E+04	2.75E+00	10	9,154	2.92E-03	1.26E-01	1.75E-04	1.41E-02	1.41E-02	1.41E-02	1.41E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

3.64E-01	1.19E+06	91.00	-6.28E+01	1.41E-02	6.10E+04	4.81E-01	1.87E-03	2.22E+03	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	4.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

106423

2.63E+02

p-Xylene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) ENTER Thickness of soil stratum A, h_A (cm) ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm) ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_E (cm)	ENTER Enclosed space floor width, W_A (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.63E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	10,248	3.06E-03	1.32E-01	1.75E-04	1.24E-02	1.24E-02	1.24E-02	1.24E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
7.78E-01	4.14E+04	91.00	-6.28E+01	1.24E-02	6.10E+04	4.37E-01	1.64E-03	6.79E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	1.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_E
($\mu\text{g/kg}$)

Chemical

75150

2.70E+01

Carbon disulfide

MORE
↓

ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm} \cdot \text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	2.70E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	6,682	1.66E-02	7.16E-01	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
9.14E-02	7.37E+04	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	1.65E+02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	7.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

79209

3.53E+02

Methyl acetate

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20		S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.53E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	7,909	5.82E-05	2.50E-03	1.75E-04	1.68E-02	1.68E-02	1.68E-02	1.68E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, exp(Pe ¹) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
6.52E-03	2.24E+04	91.00	-6.28E+01	1.68E-02	6.10E+04	5.42E-01	2.24E-03	5.02E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
NA	NA	NA	NA	NA	3.5E+00

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

127184

1.50E+01

Tetrachloroethylene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_I (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_I (cell G28)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20		S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{fe} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	1.50E+01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	9,553	7.81E-03	3.36E-01	1.75E-04	1.16E-02	1.16E-02	1.16E-02	1.16E-02	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
3.10E-01	1.24E+04	91.00	-6.28E+01	1.16E-02	6.10E+04	4.13E-01	1.53E-03	1.90E+01	NA	NA	NA	NA

Finite source indoor attenuation coefficient, $\langle \alpha \rangle$ (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m ³)	Finite source bldg. conc., $C_{building}$ (µg/m ³)	Final finite source bldg. conc., $C_{building}$ (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	5.9E-06	6.0E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

Chemical

Acenaphthene

MORE
↓

ENTER	ENTER	ENTER	ENTER	ENTER			ENTER	ENTER
Average soil temperature, T_s ($^{\circ}\text{C}$)	Depth below grade to bottom of enclosed space floor, L_F (cm)	Depth below grade to top of contamination, L_I (cm)	Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	Totals must add up to value of L_I (cell G28)			Soil stratum A SCS soil type (used to estimate soil vapor permeability) OR User-defined stratum A soil vapor permeability, K_v (cm^2)	
				Thickness of soil stratum A, h_A (cm)	Thickness of soil stratum B, (Enter value or 0) h_B (cm)	Thickness of soil stratum C, (Enter value or 0) h_C (cm)		
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g/cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	8.06E+02	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)
2.22E+04	2.75E+00	10	16,123	3.66E-05	1.57E-03	1.75E-04	6.81E-03	6.81E-03	6.81E-03	6.81E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)
1.42E+01	8.94E+01	91.00	-6.28E+01	6.81E-03	6.10E+04	2.20E-01	8.55E-04	7.64E-02	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μg/m ³)	Finite source bldg. conc., $C_{building}$ (μg/m ³)	Final finite source bldg. conc., $C_{building}$ (μg/m ³)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	2.1E-01

END

DATA ENTRY SHEET

SL-ADV
Version 3.1; 02/04Reset to
Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

X

ENTER
Chemical
CAS No.
(numbers only,
no dashes)

ENTER
Initial
soil
conc.,
 C_R
($\mu\text{g/kg}$)

91576

3.23E-01

Chemical

2-Methylnaphthalene

MORE
↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
10	10	60	0	20	20	20	S	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002	S	1.66	0.375	0.054	0.002

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_s (cm)	ENTER Enclosed space floor width, W_s (cm)	ENTER Enclosed space height, H_b (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	244	91	244	91	2	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1

END

Used to calculate risk-based
soil concentration.

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{rg} (cm ²)	Stratum A soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X_{crack} (cm)	Initial soil concentration used, C_R (μ g/kg)	Bldg. ventilation rate, $Q_{building}$ (cm ³ /s)
9.46E+08	50	0.321	0.321	0.321	0.003	9.92E-08	0.998	9.91E-08	670	3.23E-01	3.01E+03

Area of enclosed space below grade, A_B (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)

2.22E+04	2.75E+00	10	16,241	1.21E-04	5.20E-03	1.75E-04	8.44E-03	8.44E-03	8.44E-03	8.44E-03	50	10

Soil-water partition coefficient, K_d (cm ³ /g)	Source vapor conc., C_{source} (μ g/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μ g/m ³)	Finite source β term (unitless)	Finite source ψ term (sec) ⁻¹	Time for source depletion, τ_D (sec)	Exposure duration > time for source depletion (YES/NO)

5.62E+00	2.97E-01	91.00	-6.28E+01	8.44E-03	6.10E+04	2.95E-01	1.09E-03	3.23E-04	NA	NA	NA	NA

Finite source indoor attenuation coefficient, < α > (unitless)	Mass limit bldg. conc., $C_{building}$ (μ g/m ³)	Finite source bldg. conc., $C_{building}$ (μ g/m ³)	Final finite source bldg. conc., $C_{building}$ (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RfC (mg/m ³)

NA	NA	NA	NA	NA	7.0E-02

END

TABLE 1. DERMAL SCREENING - GROUNDWATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm ³ /day	ABSGI	A cm ²	t _{event} hr/event	EV event/day	DA _{event} mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)	Aluminum	1.3E+04	1.3E-02	1.0E-03	1.0E-03	2000	0.01	18000	0.58	1	7.7E-06	52%	Y
			Arsenic	1.2E+02	1.2E-04	1.0E-03	1.0E-03	2000	0.95	18000	0.58	1	7.0E-08	1%	N
			Cadmium	2.7E+01	2.7E-05	1.0E-03	1.0E-03	2000	0.025	18000	0.58	1	1.6E-08	21%	Y
			Chromium	1.3E+01	1.3E-05	2.0E-03	1.0E-03	2000	0.025	18000	0.58	1	1.6E-08	42%	Y
			Cobalt	3.3E+01	3.3E-05	4.0E-04	1.0E-03	2000	0.97	18000	0.58	1	7.7E-09	0%	N
			Iron	7.7E+04	7.7E-02	1.0E-03	1.0E-03	2000	0.5	18000	0.58	1	4.5E-05	1%	N
			Lead	7.9E+01	7.9E-05	1.0E-04	1.0E-03	2000	0.5	18000	0.58	1	4.6E-09	0%	N
			Manganese	5.8E+03	5.8E-03	1.0E-03	1.0E-03	2000	0.06	18000	0.58	1	3.4E-06	9%	N
			Nickel	7.8E+01	7.8E-05	2.0E-04	1.0E-03	2000	0.04	18000	0.58	1	9.0E-09	3%	N
			Silver	1.4E+01	1.4E-05	6.0E-04	1.0E-03	2000	0.04	18000	0.58	1	4.8E-09	8%	N
			Thallium	8.9E+00	8.9E-06	1.0E-03	1.0E-03	2000	1	18000	0.58	1	5.2E-09	1%	N
			Zinc	4.1E+03	4.1E-03	6.0E-04	1.0E-03	2000	0.5	18000	0.58	1	1.4E-06	1%	N
Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)	Aluminum	1.3E+04	1.3E-02	1.0E-03	1.0E-03	2000	0.01	6600	1	1	1.3E-05	33%	Y
			Arsenic	1.2E+02	1.2E-04	1.0E-03	1.0E-03	2000	0.95	6600	1	1	1.2E-07	0%	N
			Cadmium	2.7E+01	2.7E-05	1.0E-03	1.0E-03	2000	0.025	6600	1	1	2.7E-08	13%	Y
			Chromium	1.3E+01	1.3E-05	2.0E-03	1.0E-03	2000	0.025	6600	1	1	2.7E-08	26%	Y
			Cobalt	3.3E+01	3.3E-05	4.0E-04	1.0E-03	2000	0.97	6600	1	1	1.3E-08	0%	N
			Iron	7.7E+04	7.7E-02	1.0E-03	1.0E-03	2000	0.5	6600	1	1	7.7E-05	1%	N
			Lead	7.9E+01	7.9E-05	1.0E-04	1.0E-03	2000	0.5	6600	1	1	7.9E-09	0%	N
			Manganese	5.8E+03	5.8E-03	1.0E-03	1.0E-03	2000	0.06	6600	1	1	5.8E-06	6%	N
			Nickel	7.8E+01	7.8E-05	2.0E-04	1.0E-03	2000	0.04	6600	1	1	1.6E-08	2%	N
			Silver	1.4E+01	1.4E-05	6.0E-04	1.0E-03	2000	0.04	6600	1	1	8.2E-09	5%	N
			Thallium	8.9E+00	8.9E-06	1.0E-03	1.0E-03	2000	1	6600	1	1	8.9E-09	0%	N
			Zinc	4.1E+03	4.1E-03	6.0E-04	1.0E-03	2000	0.5	6600	1	1	2.5E-06	0%	N
Future	Const. Worker - Adult	Site-Wide Shallow Groundwater	Aluminum	1.3E+03	1.3E-03	1.0E-03	1.0E-03	2000	0.01	2100	0.2	1	2.6E-07	2%	N
			Arsenic	2.9E+01	2.9E-05	1.0E-03	1.0E-03	2000	0.95	2100	0.2	1	5.8E-09	0%	N
			Cadmium	2.2E+00	2.2E-06	1.0E-03	1.0E-03	2000	0.025	2100	0.2	1	4.4E-10	1%	N
			Chromium	1.7E+00	1.7E-06	2.0E-03	1.0E-03	2000	0.025	2100	0.2	1	6.8E-10	2%	N
			Cobalt	7.6E+00	7.6E-06	4.0E-04	1.0E-03	2000	0.97	2100	0.2	1	6.1E-10	0%	N
			Iron	2.4E+04	2.4E-02	1.0E-03	1.0E-03	2000	0.5	2100	0.2	1	4.8E-06	0%	N
			Lead	3.3E+00	3.3E-06	1.0E-04	1.0E-03	2000	0.5	2100	0.2	1	6.6E-11	0%	N
			Manganese	1.0E+03	1.0E-03	1.0E-03	1.0E-03	2000	0.06	2100	0.2	1	2.0E-07	0%	N
			Nickel	8.8E+00	8.8E-06	2.0E-04	1.0E-03	2000	0.04	2100	0.2	1	3.5E-10	0%	N
			Silver	2.0E+00	2.0E-06	6.0E-04	1.0E-03	2000	0.04	2100	0.2	1	2.4E-10	0%	N
			Thallium	2.6E+00	2.6E-06	1.0E-03	1.0E-03	2000	1	2100	0.2	1	5.3E-10	0%	N
			Zinc	2.7E+02	2.7E-04	6.0E-04	1.0E-03	2000	0.5	2100	0.2	1	3.3E-08	0%	N

DERMAL ABSORPTION CALCULATION EXAMPLE

Note: This EPA spreadsheet utilized as basis for Appendix U calculations.

FOR INORGANIC CHEMICALS IN WATER (latest version 04/01)

Worksheet to Calculate Dermal Absorption of Inorganic Chemicals from Aqueous Media

Enter the Following Exposure Conditions: for site specific conditions, change values for A through AT (Given are default values from Table 8-6)

Concentration (mg/L * L/1000 cm ³):	Conc =	0.001 mg/cm ³ (default value for purpose of illustration)
Input site specific concentrations in Column marked "Conc"	= 1 mg/L (1 ppm)	= 1 ug/cm ³ = 1000 ppb
Area exposed (cm ²):	SA =	18000 cm ²
Event time (hr/event):	t _{event} =	0.58 hr/event (35 minutes/event)
Event frequency (events/day):	EV =	1 event/day
Exposure frequency (days/year):	EF =	350 days/yr
Exposure duration (years):	ED =	30 years
Body weight (kg):	BW =	70 kg
Averaging time (days):	AT =	25550 days
for carcinogenic effects, AT=70 years (25,550 days)		
for noncarcinogenic effects, AT=ED (in days)		

Default conditions for screening purposes:

Compare Dermal to Drinking: Adults showering for 35 minutes/day, compared to drinking 2L water/day

$$\text{Dermal (mg/day)} = \text{DA}_{\text{event}} * A * \text{EV}$$

$$\text{Drinking (mg/day)} = \text{Conc} * \text{IR} * \text{ABSIG}$$

IR: Ingestion rate of drinking water

IR =

$$2000 \text{ (cm}^3\text{/day} = \text{L/day} * 1000 \text{ cm}^3\text{/L)}$$

ABSIG: Absorption fraction in GI tract

Chemical specific

Condition for screening: "Y" when Dermal is 10% of Drinking

Compare Dermal to Total dose exposed during adult showering assuming 5 gal/min of water flow rate

$$\text{Total dose (mg/day)} = Q * T_{\text{event}} * \text{EV}$$

Q: Shower flow rate (5-15 gal/min; here using 5 gal/min)

Q =

$$1135500 \text{ (cm}^3\text{/hr} = \text{gal/min} * 3.785 \text{ gal/l} * 60 \text{ min/hr} * 1000 \text{ cm}^3\text{/hr)}$$

Refer to Appendix A for equations to evaluate DA_{event} and DAD

CHEMICAL	Kp (cm/hr)	Source of Kp (exp or default)	Conc (mg/cm ³)	DA _{event} (mg/cm ² -event)	DAD (mg/kg-day)	ABSGI (chemical specific)	Screening	Chemicals to be assessed	Derm/ Total Dose
Antimony	1.0E-03	default	1.0E-03	5.8E-07	6.2E-05	15%	3.50%	N	0.00%

TABLE 2.RME. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6			
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)	1,4-Dioxane	5.5E+01	5.5E-05	123911	88.1	-0.27	3.3E-04	1.0E-03	2000	1	0.001	0.33	1.0	-3.29E+00	5.09E-04	5.09E-07	3.0E-01	3.3E-01	N/A	0.79			
			2,4-Dimethylphenol	8.0E+00	8.0E-06	105679	122.2	2.30	1.1E-02	1.0E-03	2000	1	0.046	0.51	1.0	-3.48E+00	3.28E-04	3.28E-07	3.3E-01	3.6E-01	N/A	1.22			
			2-Chlorophenol	3.4E-01	3.4E-07	95578	128.6	2.15	8.0E-03	1.0E-03	2000	1	0.035	0.55	1.0	-3.52E+00	3.02E-04	3.02E-07	3.2E-01	3.6E-01	N/A	1.32			
			4-Chloroaniline	1.4E+00	1.4E-06	106478	127.6	1.83	5.0E-03	1.0E-03	2000	1	0.022	0.55	1.0	-3.51E+00	3.06E-04	3.06E-07	3.2E-01	3.5E-01	N/A	1.31			
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	1.70	1.0	-4.01E+00	9.82E-05	9.82E-08	3.2E-01	3.5E-01	N/A	4.07			
			Benzaldehyde	1.1E+00	1.1E-06	100527	106.1	1.48	3.8E-03	1.0E-03	2000	1	0.015	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	3.1E-01	3.4E-01	N/A	0.99			
			Benzo(a)anthracene	3.6E-01	3.6E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79			
			Benzo(a)pyrene	2.6E-01	2.6E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34			
			Benzo(b)fluoranthene	3.8E-01	3.8E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53			
			Benzo(g,h,i)perylene	1.5E-01	1.5E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90			
			bis(2-Ethylhexyl)phthalat	5.0E+01	5.0E-05	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05			
			Carbazole	4.8E-01	4.8E-07	86748	167.2	3.72	5.4E-02	1.0E-03	2000	1	0.266	0.91	1.0	-3.74E+00	1.84E-04	1.84E-07	4.9E-01	5.3E-01	N/A	2.18			
			Dibenzofuran	2.8E+00	2.8E-06	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	1.85	1.0	-4.04E+00	9.02E-05	9.02E-08	6.3E-01	6.6E-01	N/A	4.44			
			Indeno(1,2,3-cd)pyrene	1.4E-01	1.4E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90			
			Naphthalene	1.4E+01	1.4E-05	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32			
			Phenanthrene	5.9E+00	5.9E-06	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51			
			1,2,4-Trichlorobenzene	2.4E-01	2.4E-07	120821	181.5	3.98	6.6E-02	1.0E-03	2000	1	0.343	1.09	1.0	-3.82E+00	1.53E-04	1.53E-07	5.6E-01	5.9E-01	N/A	2.62			
			1,2-Dichlorobenzene	4.4E+00	4.4E-06	95501	147.0	3.38	4.1E-02	1.0E-03	2000	1	0.193	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.3E-01	4.7E-01	N/A	1.68			
			1,3-Dichlorobenzene	6.9E-01	6.9E-07	541731	147.0	3.60	5.8E-02	1.0E-03	2000	1	0.270	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.9E-01	5.3E-01	N/A	1.68			
			1,4-Dichlorobenzene	8.4E+00	8.4E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68			
			2-Butanone	1.3E+00	1.3E-06	78933	72.0	0.29	9.6E-04	1.0E-03	2000	1	0.003	0.27	1.0	-3.20E+00	6.26E-04	6.26E-07	3.1E-01	3.4E-01	N/A	0.64			
			Benzene	1.1E+03	1.1E-03	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69			
			Bromodichloromethane	3.2E-01	3.2E-07	75274	163.8	2.09	4.6E-03	1.0E-03	2000	1	0.023	0.87	1.0	-3.72E+00	1.92E-04	1.92E-07	3.2E-01	3.5E-01	N/A	2.09			
			Chlorobenzene	9.3E+01	9.3E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	0.45	1.0	-3.43E+00	3.71E-04	3.71E-07	3.8E-01	4.1E-01	N/A	1.08			
			Chloroethane	2.1E+00	2.1E-06	75003	64.5	1.43	6.1E-03	1.0E-03	2000	1	0.019	0.24	1.0	-3.16E+00	6.90E-04	6.90E-07	3.1E-01	3.5E-01	N/A	0.58			
			Chloroform	3.9E+00	3.9E-06	67663	119.4	1.97	6.8E-03	1.0E-03	2000	1	0.029	0.49	1.0	-3.47E+00	3.40E-04	3.40E-07	3.2E-01	3.5E-01	N/A	1.18			
			Ethylbenzene	1.7E+01	1.7E-05	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99			
			Isopropylbenzene	1.6E+02	1.6E-04	98828	120.2	3.50	7.0E-02	1.0E-03	2000	1	0.295	0.50	1.0	-3.47E+00	3.36E-04	3.36E-07	5.2E-01	5.5E-01	N/A	1.19			
			Methyl tert-butyl ether	2.1E+01	2.1E-05	1634044	88.1	0.94	2.1E-03	1.0E-03	2000	1	0.008	0.33	1.0	-3.29E+00	5.09E-04	5.09E-07	3.1E-01	3.4E-01	N/A	0.79			
			Tetrachloroethene	2.5E+00	2.5E-06	127184	165.8	3.40	3.3E-02	1.0E-03	2000	1	0.166	0.89	1.0	-3.73E+00	1.87E-04	1.87E-07	4.1E-01	4.5E-01	N/A	2.14			
			Toluene	4.9E+00	4.9E-06	108883	92.1	2.73	3.1E-02	1.0E-03	2000	1	0.115	0.34	1.0	-3.32E+00	4.83E-04	4.83E-07	3.8E-01	4.1E-01	N/A	0.83			
			Trichloroethene	4.1E+00	4.1E-06	79016	131.4	2.42	1.2E-02	1.0E-03	2000	1	0.051	0.57	1.0	-3.54E+00	2.91E-04	2.91E-07	3.4E-01	3.7E-01	N/A	1.37			
			Vinyl Chloride	1.2E+00	1.2E-06	75014	62.5	1.36	5.6E-03	1.0E-03	2000	1	0.017	0.24	1.0	-3.15E+00	7.08E-04	7.08E-07	3.1E-01	3.4E-01	N/A	0.57			
			Xylene (Total)	5.1E+01	5.1E-05	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99			
			Aroclor-1242	3.3E-01	3.3E-07	53469219	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11			
			Aroclor-1248	1.8E-01	1.8E-07	12672296	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11			
			Aroclor-1254	5.8E-01	5.8E-07	11097691	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11			
			4,4'-DDD	6.7E-03	6.7E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63			
			4,4'-DDE	5.6E-03	5.6E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24			
			4,4'-DDT	3.8E-03	3.8E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55			
			Aldrin	6.0E-03	6.0E-09	309002	365.0	3.01	1.4E-03	1.0E-03	2000	1	0.010	11.64	1.0	-4.84E+00	1.43E-05	1.43E-08	3.1E-01	3.4E-01	N/A	27.93			
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73			
			Dieldrin	8.3E-03	8.3E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33			
			Endosulfan Sulfate	8.2E-03	8.2E-09	1031078	422.9	3.66	1.8E-03	1.0E-03	2000	1	0.014	24.55	1.0	-5.17E+00	6.79E-06	6.79E-09	3.1E-01	3.4E-01	N/A	58.93			
			Gamma-BHC (Lindane)	1.6E-02	1.6E-08	58899	291.0	3.72	1.1E-02	1.0E-03	2000	1	0.071	4.48	0.9	-4.43E+00	3.72E-05	3.72E-08	3.5E-01	3.8E-01	N/A	10.76			
			Heptachlor	4.6E-03	4.6E-09	76448	373.5	4.27	8.6E-03	1.0E-03	2000	1	0.064	12.99	0.8	-4.89E+00	1.28E-05	1.28E-08	3.4E-01	3.8E-01	N/A	31.16			
			Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)	1,4-Dioxane	5.5E+01	5.5E-05	123911	88.1	-0.27	3.3E-04	1.0E-03	2000	1	0.001	0.33	1.0	-3.29E+00	5.09E-04	5.09E-07	3.0E-01	3.3E-01	N/A	0.79
						2,4-Dimethylphenol	8.0E+00	8.0E-06	105679	122.2	2.30	1.1E-02	1.0E-03	2000	1	0.046	0.51	1.0	-3.48E+00	3.28E-04	3.28E-07	3.3E-01	3.6E-01	N/A	1.22
						2-Chlorophenol	3.4E-01	3.4E-07	95578	128.6	2.15	8.0E-03	1.0E-03	2000	1	0.035	0.55	1.0	-3.52E+00	3.02E-04	3.02E-07	3.2E-01	3.6E-01	N/A	1.32
						4-Chloroaniline	1.4E+00	1.4E-06	106478	127.6	1.83	5.0E-03	1.0E-03	2000	1	0.022	0.55	1.0	-3.51E+00	3.06E-04	3.06E-07	3.2E-01	3.5E-01	N/A	1.31
Atrazine	3.2E+00	3.2E-06				1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	1.70	1.0	-4.01E+00	9.82E-05	9.82E-08	3.2E-01	3.5E-01	N/A	4.07			
Benzaldehyde																									

TABLE 2.RME. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)	1,4-Dioxane	0.79	18000	0.58	1	2.2E-08	0%	N
			2,4-Dimethylphenol	1.22	18000	0.58	1	1.3E-07	15%	Y
			2-Chlorophenol	1.32	18000	0.58	1	4.2E-09	11%	Y
			4-Chloroaniline	1.31	18000	0.58	1	1.1E-08	7%	N
			Atrazine	4.07	18000	0.58	1	4.5E-08	13%	Y
			Benzaldehyde	0.99	18000	0.58	1	5.6E-09	5%	N
			Benzo(a)anthracene	N/A	18000	0.58	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	18000	0.58	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	18000	0.58	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	18000	0.58	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	0.58	1	8.5E-06	152%	Y
			Carbazole	2.18	18000	0.58	1	5.2E-08	97%	Y
			Dibenzofuran	4.44	18000	0.58	1	5.9E-07	189%	Y
			Indeno(1,2,3-cd)pyrene	N/A	18000	0.58	1	N/A	N/A	N/A
			Naphthalene	1.32	18000	0.58	1	1.0E-06	65%	Y
			Phenanthrene	N/A	18000	0.58	1	N/A	N/A	N/A
			1,2,4-Trichlorobenzene	2.62	18000	0.58	1	3.5E-08	131%	Y
			1,2-Dichlorobenzene	1.68	18000	0.58	1	3.2E-07	66%	Y
			1,3-Dichlorobenzene	1.68	18000	0.58	1	7.0E-08	92%	Y
			1,4-Dichlorobenzene	1.68	18000	0.58	1	6.2E-07	67%	Y
			2-Butanone	0.64	18000	0.58	1	1.4E-09	1%	N
			Benzene	0.69	18000	0.58	1	1.8E-05	15%	Y
			Bromodichloromethane	2.09	18000	0.58	1	2.9E-09	8%	N
			Chlorobenzene	1.08	18000	0.58	1	3.7E-06	36%	Y
			Chloroethane	0.58	18000	0.58	1	1.4E-08	6%	N
			Chloroform	1.18	18000	0.58	1	3.9E-08	9%	N
			Ethylbenzene	0.99	18000	0.58	1	1.1E-06	60%	Y
			Isopropylbenzene	1.19	18000	0.58	1	1.7E-05	93%	Y
			Methyl tert-butyl ether	0.79	18000	0.58	1	5.3E-08	2%	N
			Tetrachloroethene	2.14	18000	0.58	1	1.7E-07	60%	Y
			Toluene	0.83	18000	0.58	1	1.9E-07	35%	Y
			Trichloroethene	1.37	18000	0.58	1	7.6E-08	17%	Y
			Vinyl Chloride	0.57	18000	0.58	1	7.0E-09	5%	N
			Xylene (Total)	0.99	18000	0.58	1	3.4E-06	60%	Y
			Aroclor-1242	N/A	18000	0.58	1	N/A	N/A	N/A
			Aroclor-1248	N/A	18000	0.58	1	N/A	N/A	N/A
			Aroclor-1254	N/A	18000	0.58	1	N/A	N/A	N/A
			4,4'-DDD	N/A	18000	0.58	1	N/A	N/A	N/A
			4,4'-DDE	N/A	18000	0.58	1	N/A	N/A	N/A
			4,4'-DDT	N/A	18000	0.58	1	N/A	N/A	N/A
			Aldrin	27.93	18000	0.58	1	6.0E-11	9%	N
			alpha-BHC	10.73	18000	0.58	1	1.9E-10	50%	Y
			Dieldrin	34.33	18000	0.58	1	6.5E-10	70%	Y
			Endosulfan Sulfate	58.93	18000	0.58	1	1.5E-10	17%	Y
			Gamma-BHC (Lindane)	10.76	18000	0.58	1	6.9E-10	39%	Y
			Heptachlor	31.16	18000	0.58	1	2.4E-10	47%	Y
Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)	1,4-Dioxane	0.79	6600	1	1	3.0E-08	0%	N
			2,4-Dimethylphenol	1.22	6600	1	1	1.7E-07	7%	N
			2-Chlorophenol	1.32	6600	1	1	5.6E-09	5%	N
			4-Chloroaniline	1.31	6600	1	1	1.4E-08	3%	N
			Atrazine	4.07	6600	1	1	5.9E-08	6%	N
			Benzaldehyde	0.99	6600	1	1	7.6E-09	2%	N
			Benzo(a)anthracene	N/A	6600	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	6600	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	6600	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	6600	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	6600	1	1	1.1E-05	73%	Y
			Carbazole	2.18	6600	1	1	6.8E-08	47%	Y
			Dibenzofuran	4.44	6600	1	1	7.7E-07	91%	Y
			Indeno(1,2,3-cd)pyrene	N/A	6600	1	1	N/A	N/A	N/A
			Naphthalene	1.32	6600	1	1	1.3E-06	32%	Y
			Phenanthrene	N/A	6600	1	1	N/A	N/A	N/A

TABLE 2.RME. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6			
			1,2,4-Trichlorobenzene	2.4E-01	2.4E-07	120821	181.5	3.98	6.6E-02	1.0E-03	2000	1	0.343	1.09	1.0	-3.82E+00	1.53E-04	1.53E-07	5.6E-01	5.9E-01	N/A	2.62			
			1,2-Dichlorobenzene	4.4E+00	4.4E-06	95501	147.0	3.38	4.1E-02	1.0E-03	2000	1	0.193	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.3E-01	4.7E-01	N/A	1.68			
			1,3-Dichlorobenzene	6.9E-01	6.9E-07	541731	147.0	3.60	5.8E-02	1.0E-03	2000	1	0.270	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.9E-01	5.3E-01	N/A	1.68			
			1,4-Dichlorobenzene	8.4E+00	8.4E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68			
			2-Butanone	1.3E+00	1.3E-06	78933	72.0	0.29	9.6E-04	1.0E-03	2000	1	0.003	0.27	1.0	-3.20E+00	6.26E-04	6.26E-07	3.1E-01	3.4E-01	N/A	0.64			
			Benzene	1.1E+03	1.1E-03	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69			
			Bromodichloromethane	3.2E-01	3.2E-07	75274	163.8	2.09	4.6E-03	1.0E-03	2000	1	0.023	0.87	1.0	-3.72E+00	1.92E-04	1.92E-07	3.2E-01	3.5E-01	N/A	2.09			
			Chlorobenzene	9.3E+01	9.3E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	0.45	1.0	-3.43E+00	3.71E-04	3.71E-07	3.8E-01	4.1E-01	N/A	1.08			
			Chloroethane	2.1E+00	2.1E-06	75003	64.5	1.43	6.1E-03	1.0E-03	2000	1	0.019	0.24	1.0	-3.16E+00	6.90E-04	6.90E-07	3.1E-01	3.5E-01	N/A	0.58			
			Chloroform	3.9E+00	3.9E-06	67663	119.4	1.97	6.8E-03	1.0E-03	2000	1	0.029	0.49	1.0	-3.47E+00	3.40E-04	3.40E-07	3.2E-01	3.5E-01	N/A	1.18			
			Ethylbenzene	1.7E+01	1.7E-05	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99			
			Isopropylbenzene	1.6E+02	1.6E-04	98828	120.2	3.50	7.0E-02	1.0E-03	2000	1	0.295	0.50	1.0	-3.47E+00	3.36E-04	3.36E-07	5.2E-01	5.5E-01	N/A	1.19			
			Methyl tert-butyl ether	2.1E+01	2.1E-05	1634044	88.1	0.94	2.1E-03	1.0E-03	2000	1	0.008	0.33	1.0	-3.29E+00	5.09E-04	5.09E-07	3.1E-01	3.4E-01	N/A	0.79			
			Tetrachloroethene	2.5E+00	2.5E-06	127184	165.8	3.40	3.3E-02	1.0E-03	2000	1	0.166	0.89	1.0	-3.73E+00	1.87E-04	1.87E-07	4.1E-01	4.5E-01	N/A	2.14			
			Toluene	4.9E+00	4.9E-06	108883	92.1	2.73	3.1E-02	1.0E-03	2000	1	0.115	0.34	1.0	-3.32E+00	4.83E-04	4.83E-07	3.8E-01	4.1E-01	N/A	0.83			
			Trichloroethene	4.1E+00	4.1E-06	79016	131.4	2.42	1.2E-02	1.0E-03	2000	1	0.051	0.57	1.0	-3.54E+00	2.91E-04	2.91E-07	3.4E-01	3.7E-01	N/A	1.37			
			Vinyl Chloride	1.2E+00	1.2E-06	75014	62.5	1.36	5.6E-03	1.0E-03	2000	1	0.017	0.24	1.0	-3.15E+00	7.08E-04	7.08E-07	3.1E-01	3.4E-01	N/A	0.57			
			Xylene (Total)	5.1E+01	5.1E-05	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99			
			Aroclor-1242	3.3E-01	3.3E-07	53469219	327.0	6.03	NA	1.0E-03	2000	1	NA	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11			
			Aroclor-1248	1.8E-01	1.8E-07	12672296	327.0	6.03	NA	1.0E-03	2000	1	NA	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11			
			Aroclor-1254	5.8E-01	5.8E-07	11097691	327.0	6.03	NA	1.0E-03	2000	1	NA	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11			
			4,4'-DDD	6.7E-03	6.7E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	NA	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63			
			4,4'-DDE	5.6E-03	5.6E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	NA	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24			
			4,4'-DDT	3.8E-03	3.8E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	NA	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55			
			Aldrin	6.0E-03	6.0E-09	309002	365.0	3.01	1.4E-03	1.0E-03	2000	1	0.010	11.64	1.0	-4.84E+00	1.43E-05	1.43E-08	3.1E-01	3.4E-01	N/A	27.93			
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73			
			Dieldrin	8.3E-03	8.3E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33			
			Endosulfan Sulfate	8.2E-03	8.2E-09	1031078	422.9	3.66	1.8E-03	1.0E-03	2000	1	0.014	24.55	1.0	-5.17E+00	6.79E-06	6.79E-09	3.1E-01	3.4E-01	N/A	58.93			
			Gamma-BHC (Lindane)	1.6E-02	1.6E-08	58899	291.0	3.72	1.1E-02	1.0E-03	2000	1	0.071	4.48	0.9	-4.43E+00	3.72E-05	3.72E-08	3.5E-01	3.8E-01	N/A	10.76			
			Heptachlor	4.6E-03	4.6E-09	76448	373.5	4.27	8.6E-03	1.0E-03	2000	1	0.064	12.99	0.8	-4.89E+00	1.28E-05	1.28E-08	3.4E-01	3.8E-01	N/A	31.16			
			Future	Const. Worker - Adult	Site-Wide Shallow Groundwater	1,4-Dioxane	7.0E+00	7.0E-06	123911	88.1	-0.27	3.3E-04	1.0E-03	2000	1	0.001	0.33	1.0	-3.29E+00	5.09E-04	5.09E-07	3.0E-01	3.3E-01	N/A	0.79
						2,4-Dimethylphenol	3.0E+00	3.0E-06	105679	122.2	2.30	1.1E-02	1.0E-03	2000	1	0.046	0.51	1.0	-3.48E+00	3.28E-04	3.28E-07	3.3E-01	3.6E-01	N/A	1.22
						2-Chlorophenol	3.4E-01	3.4E-07	95578	128.6	2.15	8.0E-03	1.0E-03	2000	1	0.035	0.55	1.0	-3.52E+00	3.02E-04	3.02E-07	3.2E-01	3.6E-01	N/A	1.32
						4-Chloroaniline	1.4E+00	1.4E-06	106478	127.6	1.83	5.0E-03	1.0E-03	2000	1	0.022	0.55	1.0	-3.51E+00	3.06E-04	3.06E-07	3.2E-01	3.5E-01	N/A	1.31
						Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	1.70	1.0	-4.01E+00	9.82E-05	9.82E-08	3.2E-01	3.5E-01	N/A	4.07
						Benzaldehyde	1.1E+00	1.1E-06	100527	106.1	1.48	3.8E-03	1.0E-03	2000	1	0.015	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	3.1E-01	3.4E-01	N/A	0.99
						Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	NA	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
						Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	NA	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
						Benzo(b)fluoranthene	2.8E-02	2.8E-08	205992	252.3	6.12	NA	1.0E-03	2000	1	NA	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
						Benzo(g,h,i)perylene	1.5E-01	1.5E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	NA	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
						bis(2-Ethylhexyl)phthalat	4.4E+00	4.4E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
						Carbazole	4.8E-01	4.8E-07	86748	167.2	3.72	5.4E-02	1.0E-03	2000	1	0.266	0.91	1.0	-3.74E+00	1.84E-04	1.84E-07	4.9E-01	5.3E-01	N/A	2.18
						Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	1.85	1.0	-4.04E+00	9.02E-05	9.02E-08	6.3E-01	6.6E-01	N/A	4.44
						Indeno(1,2,3-cd)pyrene	1.4E-01	1.4E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	NA	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
						Naphthalene	8.5E-01	8.5E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
						Phenanthrene	2.0E-01	2.0E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	NA	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
						1,2,4-Trichlorobenzene	2.4E-01	2.4E-07	120821	181.5	3.98	6.6E-02	1.0E-03	2000	1	0.343	1.09	1.0	-3.82E+00	1.53E-04	1.53E-07	5.6E-01	5.9E-01	N/A	2.62
						1,2-Dichlorobenzene	7.6E-01	7.6E-07	95501	147.0	3.38	4.1E-02	1.0E-03	2000	1	0.193	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.3E-01	4.7E-01	N/A	1.68
						1,3-Dichlorobenzene	6.9E-01	6.9E-07	541731	147.0	3.60	5.8E-02	1.0E-03	2000	1	0.270	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.9E-01	5.3E-01	N/A	1.68
						1,4-Dichlorobenzene	9.3E-01	9.3E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
2-Butanone	1.3E+00	1.3E-06				78933	72.0	0.29	9.6E-04	1.0E-03	2000	1	0.003	0.27	1.0	-3.20E+00	6.26E-04	6.26E-07	3.1E-01	3.4E-01	N/A	0.64			
Benzene																									

TABLE 2.RME. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t _{star} (hr)	A cm ²	t _{event} hr/event	EV event/day	DA _{event} mg/cm2-evt	Derm/Drink Kp	Chem Assess
			1,2,4-Trichlorobenzene	2.62	6600	1	1	4.6E-08	63%	Y
			1,2-Dichlorobenzene	1.68	6600	1	1	4.2E-07	32%	Y
			1,3-Dichlorobenzene	1.68	6600	1	1	9.2E-08	44%	Y
			1,4-Dichlorobenzene	1.68	6600	1	1	8.2E-07	32%	Y
			2-Butanone	0.64	6600	1	1	1.9E-09	0%	N
			Benzene	0.69	6600	1	1	2.5E-05	8%	N
			Bromodichloromethane	2.09	6600	1	1	3.8E-09	4%	N
			Chlorobenzene	1.08	6600	1	1	4.9E-06	17%	Y
			Chloroethane	0.58	6600	1	1	1.9E-08	3%	N
			Chloroform	1.18	6600	1	1	5.2E-08	4%	N
			Ethylbenzene	0.99	6600	1	1	1.5E-06	30%	Y
			Isopropylbenzene	1.19	6600	1	1	2.2E-05	45%	Y
			Methyl tert-butyl ether	0.79	6600	1	1	7.3E-08	1%	N
			Tetrachloroethene	2.14	6600	1	1	2.2E-07	29%	Y
			Toluene	0.83	6600	1	1	2.5E-07	17%	Y
			Trichloroethene	1.37	6600	1	1	1.0E-07	8%	N
			Vinyl Chloride	0.57	6600	1	1	9.8E-09	3%	N
			Xylene (Total)	0.99	6600	1	1	4.6E-06	30%	Y
			Aroclor-1242	N/A	6600	1	1	N/A	N/A	N/A
			Aroclor-1248	N/A	6600	1	1	N/A	N/A	N/A
			Aroclor-1254	N/A	6600	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	6600	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	6600	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	6600	1	1	N/A	N/A	N/A
			Aldrin	27.93	6600	1	1	7.9E-11	4%	N
			alpha-BHC	10.73	6600	1	1	2.5E-10	24%	Y
			Dieldrin	34.33	6600	1	1	8.5E-10	34%	Y
			Endosulfan Sulfate	58.93	6600	1	1	2.0E-10	8%	N
			Gamma-BHC (Lindane)	10.76	6600	1	1	9.1E-10	19%	Y
			Heptachlor	31.16	6600	1	1	3.2E-10	23%	Y
Future	Const. Worker - Adult	Site-Wide Shallow Groundwater	1,4-Dioxane	0.79	2100	0.2	1	1.6E-09	0%	N
			2,4-Dimethylphenol	1.22	2100	0.2	1	2.9E-08	1%	N
			2-Chlorophenol	1.32	2100	0.2	1	2.5E-09	1%	N
			4-Chloroaniline	1.31	2100	0.2	1	6.3E-09	0%	N
			Atrazine	4.07	2100	0.2	1	2.7E-08	1%	N
			Benzaldehyde	0.99	2100	0.2	1	3.3E-09	0%	N
			Benzo(a)anthracene	N/A	2100	0.2	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	2100	0.2	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	2100	0.2	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	2100	0.2	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	2100	0.2	1	4.4E-07	10%	Y
			Carbazole	2.18	2100	0.2	1	3.0E-08	7%	N
			Dibenzofuran	4.44	2100	0.2	1	5.2E-08	13%	Y
			Indeno(1,2,3-cd)pyrene	N/A	2100	0.2	1	N/A	N/A	N/A
			Naphthalene	1.32	2100	0.2	1	3.6E-08	4%	N
			Phenanthrene	N/A	2100	0.2	1	N/A	N/A	N/A
			1,2,4-Trichlorobenzene	2.62	2100	0.2	1	2.1E-08	9%	N
			1,2-Dichlorobenzene	1.68	2100	0.2	1	3.2E-08	4%	N
			1,3-Dichlorobenzene	1.68	2100	0.2	1	4.1E-08	6%	N
			1,4-Dichlorobenzene	1.68	2100	0.2	1	4.0E-08	5%	N
			2-Butanone	0.64	2100	0.2	1	8.0E-10	0%	N
			Benzene	0.69	2100	0.2	1	1.0E-06	1%	N
			Bromodichloromethane	2.09	2100	0.2	1	N/A	N/A	N/A
			Chlorobenzene	1.08	2100	0.2	1	1.3E-07	2%	N
			Chloroethane	0.58	2100	0.2	1	7.7E-09	0%	N
			Chloroform	1.18	2100	0.2	1	3.8E-09	1%	N
			Ethylbenzene	0.99	2100	0.2	1	5.1E-08	4%	N
			Isopropylbenzene	1.19	2100	0.2	1	5.9E-07	6%	N
			Methyl tert-butyl ether	0.79	2100	0.2	1	2.4E-09	0%	N
			Tetrachloroethene	2.14	2100	0.2	1	N/A	N/A	N/A
			Toluene	0.83	2100	0.2	1	1.3E-08	2%	N
			Trichloroethene	1.37	2100	0.2	1	6.5E-09	1%	N
			Vinyl Chloride	0.57	2100	0.2	1	2.1E-09	0%	N
			Xylene (Total)	0.99	2100	0.2	1	8.0E-08	4%	N

TABLE 2.RME. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
			Aroclor-1242	3.3E-01	3.3E-07	53469219	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11
			Aroclor-1248	1.8E-01	1.8E-07	12672296	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11
			Aroclor-1254	5.8E-01	5.8E-07	11097691	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11
			4,4'-DDD	5.0E-03	5.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	3.9E-03	3.9E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	3.8E-03	3.8E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			Aldrin	6.0E-03	6.0E-09	309002	365.0	3.01	1.4E-03	1.0E-03	2000	1	0.010	11.64	1.0	-4.84E+00	1.43E-05	1.43E-08	3.1E-01	3.4E-01	N/A	27.93
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Endosulfan Sulfate	ND	N/A	1031078	422.9	3.66	1.8E-03	1.0E-03	2000	1	0.014	24.55	1.0	-5.17E+00	6.79E-06	6.79E-09	3.1E-01	3.4E-01	N/A	58.93
			Gamma-BHC (Lindane)	8.5E-03	8.5E-09	58899	291.0	3.72	1.1E-02	1.0E-03	2000	1	0.071	4.48	0.9	-4.43E+00	3.72E-05	3.72E-08	3.5E-01	3.8E-01	N/A	10.76
			Heptachlor	4.6E-03	4.6E-09	76448	373.5	4.27	8.6E-03	1.0E-03	2000	1	0.064	12.99	0.8	-4.89E+00	1.28E-05	1.28E-08	3.4E-01	3.8E-01	N/A	31.16

TABLE 2.RME. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
			Aroclor-1242	N/A	2100	0.2	1	N/A	N/A	N/A
			Aroclor-1248	N/A	2100	0.2	1	N/A	N/A	N/A
			Aroclor-1254	N/A	2100	0.2	1	N/A	N/A	N/A
			4,4'-DDD	N/A	2100	0.2	1	N/A	N/A	N/A
			4,4'-DDE	N/A	2100	0.2	1	N/A	N/A	N/A
			4,4'-DDT	N/A	2100	0.2	1	N/A	N/A	N/A
			Aldrin	27.93	2100	0.2	1	3.5E-11	1%	N
			alpha-BHC	10.73	2100	0.2	1	1.1E-10	3%	N
			Dieldrin	34.33	2100	0.2	1	N/A	N/A	N/A
			Endosulfan Sulfate	58.93	2100	0.2	1	N/A	N/A	N/A
			Gamma-BHC (Lindane)	10.76	2100	0.2	1	2.2E-10	3%	N
			Heptachlor	31.16	2100	0.2	1	1.4E-10	3%	N

TABLE 2.CT. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm³/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6			
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)	1,4-Dioxane	4.8E+00	4.8E-06	123911	88.1	-0.27	3.3E-04	1.0E-03	2000	1	0.001	0.33	1.0	-3.29E+00	5.09E-04	5.09E-07	3.0E-01	3.3E-01	N/A	0.79			
			2,4-Dimethylphenol	2.1E+00	2.1E-06	105679	122.2	2.30	1.1E-02	1.0E-03	2000	1	0.046	0.51	1.0	-3.48E+00	3.28E-04	3.28E-07	3.3E-01	3.6E-01	N/A	1.22			
			2-Chlorophenol	3.4E-01	3.4E-07	95578	128.6	2.15	8.0E-03	1.0E-03	2000	1	0.035	0.55	1.0	-3.52E+00	3.02E-04	3.02E-07	3.2E-01	3.6E-01	N/A	1.32			
			4-Chloroaniline	1.4E+00	1.4E-06	106478	127.6	1.83	5.0E-03	1.0E-03	2000	1	0.022	0.55	1.0	-3.51E+00	3.06E-04	3.06E-07	3.2E-01	3.5E-01	N/A	1.31			
			Atrazine	1.8E+00	1.8E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	1.70	1.0	-4.01E+00	9.82E-05	9.82E-08	3.2E-01	3.5E-01	N/A	4.07			
			Benzaldehyde	1.1E+00	1.1E-06	100527	106.1	1.48	3.8E-03	1.0E-03	2000	1	0.015	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	3.1E-01	3.4E-01	N/A	0.99			
			Benzo(a)anthracene	4.3E-02	4.3E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79			
			Benzo(a)pyrene	3.9E-02	3.9E-08	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34			
			Benzo(b)fluoranthene	4.2E-02	4.2E-08	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53			
			Benzo(g,h,i)perylene	1.5E-01	1.5E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90			
			bis(2-Ethylhexyl)phthalat	2.4E+00	2.4E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05			
			Carbazole	2.8E-01	2.8E-07	86748	167.2	3.72	5.4E-02	1.0E-03	2000	1	0.266	0.91	1.0	-3.74E+00	1.84E-04	1.84E-07	4.9E-01	5.3E-01	N/A	2.18			
			Dibenzofuran	1.8E+00	1.8E-06	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	1.85	1.0	-4.04E+00	9.02E-05	9.02E-08	6.3E-01	6.6E-01	N/A	4.44			
			Indeno(1,2,3-cd)pyrene	3.8E-02	3.8E-08	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90			
			Naphthalene	2.2E-01	2.2E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32			
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51			
			1,2,4-Trichlorobenzene	2.4E-01	2.4E-07	120821	181.5	3.98	6.6E-02	1.0E-03	2000	1	0.343	1.09	1.0	-3.82E+00	1.53E-04	1.53E-07	5.6E-01	5.9E-01	N/A	2.62			
			1,2-Dichlorobenzene	4.0E-01	4.0E-07	95501	147.0	3.38	4.1E-02	1.0E-03	2000	1	0.193	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.3E-01	4.7E-01	N/A	1.68			
			1,3-Dichlorobenzene	2.8E-01	2.8E-07	541731	147.0	3.60	5.8E-02	1.0E-03	2000	1	0.270	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.9E-01	5.3E-01	N/A	1.68			
			1,4-Dichlorobenzene	9.2E-01	9.2E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68			
			2-Butanone	1.3E+00	1.3E-06	78933	72.0	0.29	9.6E-04	1.0E-03	2000	1	0.003	0.27	1.0	-3.20E+00	6.26E-04	6.26E-07	3.1E-01	3.4E-01	N/A	0.64			
			Benzene	2.2E+01	2.2E-05	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69			
			Bromodichloromethane	2.7E-01	2.7E-07	75274	163.8	2.09	4.6E-03	1.0E-03	2000	1	0.023	0.87	1.0	-3.72E+00	1.92E-04	1.92E-07	3.2E-01	3.5E-01	N/A	2.09			
			Chlorobenzene	5.6E+00	5.6E-06	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	0.45	1.0	-3.43E+00	3.71E-04	3.71E-07	3.8E-01	4.1E-01	N/A	1.08			
			Chloroethane	4.0E-01	4.0E-07	75003	64.5	1.43	6.1E-03	1.0E-03	2000	1	0.019	0.24	1.0	-3.16E+00	6.90E-04	6.90E-07	3.1E-01	3.5E-01	N/A	0.58			
			Chloroform	4.7E-01	4.7E-07	67663	119.4	1.97	6.8E-03	1.0E-03	2000	1	0.029	0.49	1.0	-3.47E+00	3.40E-04	3.40E-07	3.2E-01	3.5E-01	N/A	1.18			
			Ethylbenzene	4.4E-01	4.4E-07	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99			
			Isopropylbenzene	3.6E+00	3.6E-06	98828	120.2	3.50	7.0E-02	1.0E-03	2000	1	0.295	0.50	1.0	-3.47E+00	3.36E-04	3.36E-07	5.2E-01	5.5E-01	N/A	1.19			
			Methyl tert-butyl ether	5.4E-01	5.4E-07	1634044	88.1	0.94	2.1E-03	1.0E-03	2000	1	0.008	0.33	1.0	-3.29E+00	5.09E-04	5.09E-07	3.1E-01	3.4E-01	N/A	0.79			
			Tetrachloroethene	3.0E-01	3.0E-07	127184	165.8	3.40	3.3E-02	1.0E-03	2000	1	0.166	0.89	1.0	-3.73E+00	1.87E-04	1.87E-07	4.1E-01	4.5E-01	N/A	2.14			
			Toluene	3.4E-01	3.4E-07	108883	92.1	2.73	3.1E-02	1.0E-03	2000	1	0.115	0.34	1.0	-3.32E+00	4.83E-04	4.83E-07	3.8E-01	4.1E-01	N/A	0.83			
			Trichloroethene	3.3E-01	3.3E-07	79016	131.4	2.42	1.2E-02	1.0E-03	2000	1	0.051	0.57	1.0	-3.54E+00	2.91E-04	2.91E-07	3.4E-01	3.7E-01	N/A	1.37			
			Vinyl Chloride	2.9E-01	2.9E-07	75014	62.5	1.36	5.6E-03	1.0E-03	2000	1	0.017	0.24	1.0	-3.15E+00	7.08E-04	7.08E-07	3.1E-01	3.4E-01	N/A	0.57			
			Xylene (Total)	2.0E+00	2.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99			
			Aroclor-1242	5.2E-02	5.2E-08	53469219	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11			
			Aroclor-1248	5.1E-02	5.1E-08	12672296	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11			
			Aroclor-1254	5.4E-02	5.4E-08	11097691	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11			
			4,4'-DDD	2.7E-03	2.7E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63			
			4,4'-DDE	2.7E-03	2.7E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24			
			4,4'-DDT	2.6E-03	2.6E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55			
			Aldrin	1.8E-03	1.8E-09	309002	365.0	3.01	1.4E-03	1.0E-03	2000	1	0.010	11.64	1.0	-4.84E+00	1.43E-05	1.43E-08	3.1E-01	3.4E-01	N/A	27.93			
			alpha-BHC	1.8E-03	1.8E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73			
			Dieldrin	2.7E-03	2.7E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33			
			Endosulfan Sulfate	2.7E-03	2.7E-09	1031078	422.9	3.66	1.8E-03	1.0E-03	2000	1	0.014	24.55	1.0	-5.17E+00	6.79E-06	6.79E-09	3.1E-01	3.4E-01	N/A	58.93			
			Gamma-BHC (Lindane)	1.9E-03	1.9E-09	58899	291.0	3.72	1.1E-02	1.0E-03	2000	1	0.071	4.48	0.9	-4.43E+00	3.72E-05	3.72E-08	3.5E-01	3.8E-01	N/A	10.76			
			Heptachlor	1.8E-03	1.8E-09	76448	373.5	4.27	8.6E-03	1.0E-03	2000	1	0.064	12.99	0.8	-4.89E+00	1.28E-05	1.28E-08	3.4E-01	3.8E-01	N/A	31.16			
			Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)	1,4-Dioxane	4.8E+00	4.8E-06	123911	88.1	-0.27	3.3E-04	1.0E-03	2000	1	0.001	0.33	1.0	-3.29E+00	5.09E-04	5.09E-07	3.0E-01	3.3E-01	N/A	0.79
						2,4-Dimethylphenol	2.1E+00	2.1E-06	105679	122.2	2.30	1.1E-02	1.0E-03	2000	1	0.046	0.51	1.0	-3.48E+00	3.28E-04	3.28E-07	3.3E-01	3.6E-01	N/A	1.22
						2-Chlorophenol	3.4E-01	3.4E-07	95578	128.6	2.15	8.0E-03	1.0E-03	2000	1	0.035	0.55	1.0	-3.52E+00	3.02E-04	3.02E-07	3.2E-01	3.6E-01	N/A	1.32
						4-Chloroaniline	1.4E+00	1.4E-06	106478	127.6	1.83	5.0E-03	1.0E-03	2000	1	0.022	0.55	1.0	-3.51E+00	3.06E-04	3.06E-07	3.2E-01	3.5E-01	N/A	1.31
Atrazine	1.8E+00	1.8E-06				1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	1.70	1.0	-4.01E+00	9.82E-05	9.82.							

TABLE 2.CT. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)	1,4-Dioxane	0.79	18000	0.25	1	1.2E-09	0%	N
			2,4-Dimethylphenol	1.22	18000	0.25	1	2.3E-08	10%	N
			2-Chlorophenol	1.32	18000	0.25	1	2.8E-09	7%	N
			4-Chloroaniline	1.31	18000	0.25	1	7.1E-09	5%	N
			Atrazine	4.07	18000	0.25	1	1.7E-08	8%	N
			Benzaldehyde	0.99	18000	0.25	1	3.7E-09	3%	N
			Benzo(a)anthracene	N/A	18000	0.25	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	18000	0.25	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	18000	0.25	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	18000	0.25	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	0.25	1	2.7E-07	100%	Y
			Carbazole	2.18	18000	0.25	1	1.9E-08	63%	Y
			Dibenzofuran	4.44	18000	0.25	1	2.5E-07	124%	Y
			Indeno(1,2,3-cd)pyrene	N/A	18000	0.25	1	N/A	N/A	N/A
			Naphthalene	1.32	18000	0.25	1	1.0E-08	43%	Y
			Phenanthrene	N/A	18000	0.25	1	N/A	N/A	N/A
			1,2,4-Trichlorobenzene	2.62	18000	0.25	1	2.3E-08	86%	Y
			1,2-Dichlorobenzene	1.68	18000	0.25	1	1.9E-08	43%	Y
			1,3-Dichlorobenzene	1.68	18000	0.25	1	1.9E-08	60%	Y
			1,4-Dichlorobenzene	1.68	18000	0.25	1	4.5E-08	44%	Y
			2-Butanone	0.64	18000	0.25	1	8.9E-10	1%	N
			Benzene	0.69	18000	0.25	1	2.4E-07	10%	N
			Bromodichloromethane	2.09	18000	0.25	1	1.6E-09	5%	N
			Chlorobenzene	1.08	18000	0.25	1	1.5E-07	24%	Y
			Chloroethane	0.58	18000	0.25	1	1.6E-09	4%	N
			Chloroform	1.18	18000	0.25	1	3.1E-09	6%	N
			Ethylbenzene	0.99	18000	0.25	1	1.9E-08	39%	Y
			Isopropylbenzene	1.19	18000	0.25	1	2.4E-07	61%	Y
			Methyl tert-butyl ether	0.79	18000	0.25	1	9.1E-10	2%	N
			Tetrachloroethene	2.14	18000	0.25	1	1.3E-08	39%	Y
			Toluene	0.83	18000	0.25	1	8.5E-09	23%	Y
			Trichloroethene	1.37	18000	0.25	1	4.0E-09	11%	Y
			Vinyl Chloride	0.57	18000	0.25	1	1.1E-09	3%	N
			Xylene (Total)	0.99	18000	0.25	1	8.6E-08	39%	Y
			Aroclor-1242	N/A	18000	0.25	1	N/A	N/A	N/A
			Aroclor-1248	N/A	18000	0.25	1	N/A	N/A	N/A
			Aroclor-1254	N/A	18000	0.25	1	N/A	N/A	N/A
			4,4'-DDD	N/A	18000	0.25	1	N/A	N/A	N/A
			4,4'-DDE	N/A	18000	0.25	1	N/A	N/A	N/A
			4,4'-DDT	N/A	18000	0.25	1	N/A	N/A	N/A
			Aldrin	27.93	18000	0.25	1	1.2E-11	6%	N
			alpha-BHC	10.73	18000	0.25	1	6.5E-11	33%	Y
			Dieldrin	34.33	18000	0.25	1	1.4E-10	46%	Y
			Endosulfan Sulfate	58.93	18000	0.25	1	3.3E-11	11%	Y
			Gamma-BHC (Lindane)	10.76	18000	0.25	1	5.6E-11	26%	Y
			Heptachlor	31.16	18000	0.25	1	6.2E-11	31%	Y
Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)	1,4-Dioxane	0.79	6600	0.33	1	1.4E-09	0%	N
			2,4-Dimethylphenol	1.22	6600	0.33	1	2.6E-08	4%	N
			2-Chlorophenol	1.32	6600	0.33	1	3.2E-09	3%	N
			4-Chloroaniline	1.31	6600	0.33	1	8.1E-09	2%	N
			Atrazine	4.07	6600	0.33	1	2.0E-08	4%	N
			Benzaldehyde	0.99	6600	0.33	1	4.3E-09	1%	N
			Benzo(a)anthracene	N/A	6600	0.33	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	6600	0.33	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	6600	0.33	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	6600	0.33	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	6600	0.33	1	3.1E-07	42%	Y
			Carbazole	2.18	6600	0.33	1	2.2E-08	27%	Y
			Dibenzofuran	4.44	6600	0.33	1	2.9E-07	52%	Y
			Indeno(1,2,3-cd)pyrene	N/A	6600	0.33	1	N/A	N/A	N/A
			Naphthalene	1.32	6600	0.33	1	1.2E-08	18%	Y
			Phenanthrene	N/A	6600	0.33	1	N/A	N/A	N/A

TABLE 2.CT. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm³/day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6			
			1,2,4-Trichlorobenzene	2.4E-01	2.4E-07	120821	181.5	3.98	6.6E-02	1.0E-03	2000	1	0.343	1.09	1.0	-3.82E+00	1.53E-04	1.53E-07	5.6E-01	5.9E-01	N/A	2.62			
			1,2-Dichlorobenzene	4.0E-01	4.0E-07	95501	147.0	3.38	4.1E-02	1.0E-03	2000	1	0.193	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.3E-01	4.7E-01	N/A	1.68			
			1,3-Dichlorobenzene	2.8E-01	2.8E-07	541731	147.0	3.60	5.8E-02	1.0E-03	2000	1	0.270	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.9E-01	5.3E-01	N/A	1.68			
			1,4-Dichlorobenzene	9.2E-01	9.2E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68			
			2-Butanone	1.3E+00	1.3E-06	78933	72.0	0.29	9.6E-04	1.0E-03	2000	1	0.003	0.27	1.0	-3.20E+00	6.26E-04	6.26E-07	3.1E-01	3.4E-01	N/A	0.64			
			Benzene	2.2E+01	2.2E-05	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69			
			Bromodichloromethane	2.7E-01	2.7E-07	75274	163.8	2.09	4.6E-03	1.0E-03	2000	1	0.023	0.87	1.0	-3.72E+00	1.92E-04	1.92E-07	3.2E-01	3.5E-01	N/A	2.09			
			Chlorobenzene	5.6E+00	5.6E-06	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	0.45	1.0	-3.43E+00	3.71E-04	3.71E-07	3.8E-01	4.1E-01	N/A	1.08			
			Chloroethane	4.0E-01	4.0E-07	75003	64.5	1.43	6.1E-03	1.0E-03	2000	1	0.019	0.24	1.0	-3.16E+00	6.90E-04	6.90E-07	3.1E-01	3.5E-01	N/A	0.58			
			Chloroform	4.7E-01	4.7E-07	67663	119.4	1.97	6.8E-03	1.0E-03	2000	1	0.029	0.49	1.0	-3.47E+00	3.40E-04	3.40E-07	3.2E-01	3.5E-01	N/A	1.18			
			Ethylbenzene	4.4E-01	4.4E-07	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99			
			Isopropylbenzene	3.6E+00	3.6E-06	98828	120.2	3.50	7.0E-02	1.0E-03	2000	1	0.295	0.50	1.0	-3.47E+00	3.36E-04	3.36E-07	5.2E-01	5.5E-01	N/A	1.19			
			Methyl tert-butyl ether	5.4E-01	5.4E-07	1634044	88.1	0.94	2.1E-03	1.0E-03	2000	1	0.008	0.33	1.0	-3.29E+00	5.09E-04	5.09E-07	3.1E-01	3.4E-01	N/A	0.79			
			Tetrachloroethene	3.0E-01	3.0E-07	127184	165.8	3.40	3.3E-02	1.0E-03	2000	1	0.166	0.89	1.0	-3.73E+00	1.87E-04	1.87E-07	4.1E-01	4.5E-01	N/A	2.14			
			Toluene	3.4E-01	3.4E-07	108883	92.1	2.73	3.1E-02	1.0E-03	2000	1	0.115	0.34	1.0	-3.32E+00	4.83E-04	4.83E-07	3.8E-01	4.1E-01	N/A	0.83			
			Trichloroethene	3.3E-01	3.3E-07	79016	131.4	2.42	1.2E-02	1.0E-03	2000	1	0.051	0.57	1.0	-3.54E+00	2.91E-04	2.91E-07	3.4E-01	3.7E-01	N/A	1.37			
			Vinyl Chloride	2.9E-01	2.9E-07	75014	62.5	1.36	5.6E-03	1.0E-03	2000	1	0.017	0.24	1.0	-3.15E+00	7.08E-04	7.08E-07	3.1E-01	3.4E-01	N/A	0.57			
			Xylene (Total)	2.0E+00	2.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99			
			Aroclor-1242	5.2E-02	5.2E-08	53469219	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	N/A	17.11		
			Aroclor-1248	5.1E-02	5.1E-08	12672296	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	N/A	17.11		
			Aroclor-1254	5.4E-02	5.4E-08	11097691	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	N/A	17.11		
			4,4'-DDD	2.7E-03	2.7E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	N/A	15.63		
			4,4'-DDE	2.7E-03	2.7E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	N/A	15.24		
			4,4'-DDT	2.6E-03	2.6E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	N/A	24.55		
			Aldrin	1.8E-03	1.8E-09	309002	365.0	3.01	1.4E-03	1.0E-03	2000	1	0.010	11.64	1.0	-4.84E+00	1.43E-05	1.43E-08	3.1E-01	3.4E-01	N/A	27.93			
			alpha-BHC	1.8E-03	1.8E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73			
			Dieldrin	2.7E-03	2.7E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33			
			Endosulfan Sulfate	2.7E-03	2.7E-09	1031078	422.9	3.66	1.8E-03	1.0E-03	2000	1	0.014	24.55	1.0	-5.17E+00	6.79E-06	6.79E-09	3.1E-01	3.4E-01	N/A	58.93			
			Gamma-BHC (Lindane)	1.9E-03	1.9E-09	58899	291.0	3.72	1.1E-02	1.0E-03	2000	1	0.071	4.48	0.9	-4.43E+00	3.72E-05	3.72E-08	3.5E-01	3.8E-01	N/A	10.76			
			Heptachlor	1.8E-03	1.8E-09	76448	373.5	4.27	8.6E-03	1.0E-03	2000	1	0.064	12.99	0.8	-4.89E+00	1.28E-05	1.28E-08	3.4E-01	3.8E-01	N/A	31.16			
			Future	Const. Worker - Adult	Site-Wide Shallow Groundwater	1,4-Dioxane	7.0E+00	7.0E-06	123911	88.1	-0.27	3.3E-04	1.0E-03	2000	1	0.001	0.33	1.0	-3.29E+00	5.09E-04	5.09E-07	3.0E-01	3.3E-01	N/A	0.79
						2,4-Dimethylphenol	3.0E+00	3.0E-06	105679	122.2	2.30	1.1E-02	1.0E-03	2000	1	0.046	0.51	1.0	-3.48E+00	3.28E-04	3.28E-07	3.3E-01	3.6E-01	N/A	1.22
						2-Chlorophenol	3.4E-01	3.4E-07	95578	128.6	2.15	8.0E-03	1.0E-03	2000	1	0.035	0.55	1.0	-3.52E+00	3.02E-04	3.02E-07	3.2E-01	3.6E-01	N/A	1.32
						4-Chloroaniline	1.4E+00	1.4E-06	106478	127.6	1.83	5.0E-03	1.0E-03	2000	1	0.022	0.55	1.0	-3.51E+00	3.06E-04	3.06E-07	3.2E-01	3.5E-01	N/A	1.31
						Atrazine	1.8E+00	1.8E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	1.70	1.0	-4.01E+00	9.82E-05	9.82E-08	3.2E-01	3.5E-01	N/A	4.07
						Benzaldehyde	1.1E+00	1.1E-06	100527	106.1	1.48	3.8E-03	1.0E-03	2000	1	0.015	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	3.1E-01	3.4E-01	N/A	0.99
						Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
						Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
						Benzo(b)fluoranthene	2.8E-02	2.8E-08	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
						Benzo(g,h,i)perylene	1.5E-01	1.5E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
bis(2-Ethylhexyl)phthalat	4.4E+00	4.4E-06				117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05			
Carbazole	2.9E-01	2.9E-07				86748	167.2	3.72	5.4E-02	1.0E-03	2000	1	0.266	0.91	1.0	-3.74E+00	1.84E-04	1.84E-07	4.9E-01	5.3E-01	N/A	2.18			
Dibenzofuran	4.2E-01	4.2E-07				132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	1.85	1.0	-4.04E+00	9.02E-05	9.02E-08	6.3E-01	6.6E-01	N/A	4.44			
Indeno(1,2,3-cd)pyrene	1.4E-01	1.4E-07				193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90			
Naphthalene	8.5E-01	8.5E-07				91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32			
Phenanthrene	2.0E-01	2.0E-07				85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51			
1,2,4-Trichlorobenzene	2.4E-01	2.4E-07				120821	181.5	3.98	6.6E-02	1.0E-03	2000	1	0.343	1.09	1.0	-3.82E+00	1.53E-04	1.53E-07	5.6E-01	5.9E-01	N/A	2.62			
1,2-Dichlorobenzene	7.6E-01	7.6E-07				95501	147.0	3.38	4.1E-02	1.0E-03	2000	1	0.193	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.3E-01	4.7E-01	N/A	1.68			
1,3-Dichlorobenzene	3.0E-01	3.0E-07				541731	147.0	3.60	5.8E-02	1.0E-03	2000	1	0.270	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.9E-01	5.3E-01	N/A	1.68			
1,4-Dichlorobenzene	9.3E-01	9.3E-07				106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68			
2-Butanone	1.3E+00	1.3E-06				78933	72.0	0.29	9.6E-04	1.0E-03	2000	1	0.003	0.27	1.0	-3.20E+00	6.26E-04	6.26E-07	3.1E-01	3.4E-01	N/A	0.			

TABLE 2.CT. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t _{star} (hr)	A cm ²	t _{event} hr/event	EV event/day	DA _{event} mg/cm2-evt	Derm/Drink Kp	Chem Assess
			1,2,4-Trichlorobenzene	2.62	6600	0.33	1	2.6E-08	36%	Y
			1,2-Dichlorobenzene	1.68	6600	0.33	1	2.2E-08	18%	Y
			1,3-Dichlorobenzene	1.68	6600	0.33	1	2.1E-08	25%	Y
			1,4-Dichlorobenzene	1.68	6600	0.33	1	5.1E-08	18%	Y
			2-Butanone	0.64	6600	0.33	1	1.0E-09	0%	N
			Benzene	0.69	6600	0.33	1	2.8E-07	4%	N
			Bromodichloromethane	2.09	6600	0.33	1	1.9E-09	2%	N
			Chlorobenzene	1.08	6600	0.33	1	1.7E-07	10%	N
			Chloroethane	0.58	6600	0.33	1	1.9E-09	2%	N
			Chloroform	1.18	6600	0.33	1	3.6E-09	3%	N
			Ethylbenzene	0.99	6600	0.33	1	2.2E-08	17%	Y
			Isopropylbenzene	1.19	6600	0.33	1	2.8E-07	26%	Y
			Methyl tert-butyl ether	0.79	6600	0.33	1	1.0E-09	1%	N
			Tetrachloroethene	2.14	6600	0.33	1	1.5E-08	17%	Y
			Toluene	0.83	6600	0.33	1	9.7E-09	10%	N
			Trichloroethene	1.37	6600	0.33	1	4.6E-09	5%	N
			Vinyl Chloride	0.57	6600	0.33	1	1.3E-09	1%	N
			Xylene (Total)	0.99	6600	0.33	1	9.9E-08	17%	Y
			Aroclor-1242	N/A	6600	0.33	1	N/A	N/A	N/A
			Aroclor-1248	N/A	6600	0.33	1	N/A	N/A	N/A
			Aroclor-1254	N/A	6600	0.33	1	N/A	N/A	N/A
			4,4'-DDD	N/A	6600	0.33	1	N/A	N/A	N/A
			4,4'-DDE	N/A	6600	0.33	1	N/A	N/A	N/A
			4,4'-DDT	N/A	6600	0.33	1	N/A	N/A	N/A
			Aldrin	27.93	6600	0.33	1	1.4E-11	3%	N
			alpha-BHC	10.73	6600	0.33	1	7.4E-11	14%	Y
			Dieldrin	34.33	6600	0.33	1	1.6E-10	19%	Y
			Endosulfan Sulfate	58.93	6600	0.33	1	3.8E-11	5%	N
			Gamma-BHC (Lindane)	10.76	6600	0.33	1	6.4E-11	11%	Y
			Heptachlor	31.16	6600	0.33	1	7.1E-11	13%	Y
Future	Const. Worker - Adult	Site-Wide Shallow Groundwater	1,4-Dioxane	0.79	2100	0.2	1	1.6E-09	0%	N
			2,4-Dimethylphenol	1.22	2100	0.2	1	2.9E-08	1%	N
			2-Chlorophenol	1.32	2100	0.2	1	2.5E-09	1%	N
			4-Chloroaniline	1.31	2100	0.2	1	6.3E-09	0%	N
			Atrazine	4.07	2100	0.2	1	1.5E-08	1%	N
			Benzaldehyde	0.99	2100	0.2	1	3.3E-09	0%	N
			Benzo(a)anthracene	N/A	2100	0.2	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	2100	0.2	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	2100	0.2	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	2100	0.2	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	2100	0.2	1	4.4E-07	10%	Y
			Carbazole	2.18	2100	0.2	1	1.8E-08	7%	N
			Dibenzofuran	4.44	2100	0.2	1	5.2E-08	13%	Y
			Indeno(1,2,3-cd)pyrene	N/A	2100	0.2	1	N/A	N/A	N/A
			Naphthalene	1.32	2100	0.2	1	3.6E-08	4%	N
			Phenanthrene	N/A	2100	0.2	1	N/A	N/A	N/A
			1,2,4-Trichlorobenzene	2.62	2100	0.2	1	2.1E-08	9%	N
			1,2-Dichlorobenzene	1.68	2100	0.2	1	3.2E-08	4%	N
			1,3-Dichlorobenzene	1.68	2100	0.2	1	1.8E-08	6%	N
			1,4-Dichlorobenzene	1.68	2100	0.2	1	4.0E-08	5%	N
			2-Butanone	0.64	2100	0.2	1	8.0E-10	0%	N
			Benzene	0.69	2100	0.2	1	1.0E-06	1%	N
			Bromodichloromethane	2.09	2100	0.2	1	N/A	N/A	N/A
			Chlorobenzene	1.08	2100	0.2	1	1.3E-07	2%	N
			Chloroethane	0.58	2100	0.2	1	1.7E-09	0%	N
			Chloroform	1.18	2100	0.2	1	3.8E-09	1%	N
			Ethylbenzene	0.99	2100	0.2	1	5.1E-08	4%	N
			Isopropylbenzene	1.19	2100	0.2	1	5.9E-07	6%	N
			Methyl tert-butyl ether	0.79	2100	0.2	1	2.4E-09	0%	N
			Tetrachloroethene	2.14	2100	0.2	1	N/A	N/A	N/A
			Toluene	0.83	2100	0.2	1	1.3E-08	2%	N
			Trichloroethene	1.37	2100	0.2	1	6.5E-09	1%	N
			Vinyl Chloride	0.57	2100	0.2	1	2.1E-09	0%	N
			Xylene (Total)	0.99	2100	0.2	1	8.0E-08	4%	N

TABLE 2.CT. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
			Aroclor-1242	3.3E-01	3.3E-07	53469219	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11
			Aroclor-1248	5.3E-02	5.3E-08	12672296	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11
			Aroclor-1254	5.8E-01	5.8E-07	11097691	327.0	6.03	NA	1.0E-03	2000	1	N/A	7.13	1.0	-4.63E+00	2.34E-05	2.34E-08	N/A	N/A	N/A	17.11
			4,4'-DDD	2.7E-03	2.7E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	3.9E-03	3.9E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	2.7E-03	2.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			Aldrin	1.9E-03	1.9E-09	309002	365.0	3.01	1.4E-03	1.0E-03	2000	1	0.010	11.64	1.0	-4.84E+00	1.43E-05	1.43E-08	3.1E-01	3.4E-01	N/A	27.93
			alpha-BHC	1.9E-03	1.9E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Endosulfan Sulfate	ND	N/A	1031078	422.9	3.66	1.8E-03	1.0E-03	2000	1	0.014	24.55	1.0	-5.17E+00	6.79E-06	6.79E-09	3.1E-01	3.4E-01	N/A	58.93
			Gamma-BHC (Lindane)	8.5E-03	8.5E-09	58899	291.0	3.72	1.1E-02	1.0E-03	2000	1	0.071	4.48	0.9	-4.43E+00	3.72E-05	3.72E-08	3.5E-01	3.8E-01	N/A	10.76
			Heptachlor	1.9E-03	1.9E-09	76448	373.5	4.27	8.6E-03	1.0E-03	2000	1	0.064	12.99	0.8	-4.89E+00	1.28E-05	1.28E-08	3.4E-01	3.8E-01	N/A	31.16

TABLE 2.CT. DERMALLY ABSORBED DOSE CALCULATIONS - GROUNDWATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
			Aroclor-1242	N/A	2100	0.2	1	N/A	N/A	N/A
			Aroclor-1248	N/A	2100	0.2	1	N/A	N/A	N/A
			Aroclor-1254	N/A	2100	0.2	1	N/A	N/A	N/A
			4,4'-DDD	N/A	2100	0.2	1	N/A	N/A	N/A
			4,4'-DDE	N/A	2100	0.2	1	N/A	N/A	N/A
			4,4'-DDT	N/A	2100	0.2	1	N/A	N/A	N/A
			Aldrin	27.93	2100	0.2	1	1.1E-11	1%	N
			alpha-BHC	10.73	2100	0.2	1	6.1E-11	3%	N
			Dieldrin	34.33	2100	0.2	1	N/A	N/A	N/A
			Endosulfan Sulfate	58.93	2100	0.2	1	N/A	N/A	N/A
			Gamma-BHC (Lindane)	10.76	2100	0.2	1	2.2E-10	3%	N
			Heptachlor	31.16	2100	0.2	1	5.8E-11	3%	N

DERMAL ABSORPTION CALCULATION EXAMPLE

Note: This EPA spreadsheet utilized as basis for Appendix U calculations.

FOR ORGANIC CHEMICALS IN WATER (updated on 11/99)

Worksheet to Calculate Dermal Absorption of Organic Chemicals from Aqueous Media (updated 11/99)

Enter the Following Exposure Conditions: for site specific conditions, change values in Cells G5-G18

Concentration (mg/L*L/1000 cm3):	Conc =	1.0E-03 mg/cm3 (default value for purpose of illustration)
Input site specific concentrations in Column marked "Conc"		= 1 mg/L (1 ppm) = 1 ug/cm3 = 1000 ppb
Area exposed (cm2):	A =	5672.0 cm2
Event time (hr/event):	t_event =	0.5 hr/event (35 minutes/event)
Event frequency (events/day):	EV =	1.0 event/day
Exposure frequency (days/year):	EF =	26.0 days/yr
Exposure duration (years):	ED =	7.0 years
Body weight (kg):	BW =	70.0 kg
Averaging time (days):	AT =	2555.0 days
for carcinogenic effects, AT=70 years (25,550 days)		
for noncarcinogenic effects, AT=ED (in days)		
Skin thickness (assumed to be 10 um):	lsc =	1.0E-03 cm

Default conditions for screening purposes:

Compare Dermal to Drinking: Adults showering for 35 minutes/day, compared to drinking 2L water/day

Dermal (mg/day) = DA_event * A * EV	IR =	2000.0 (cm3/day = L/day * 1000 cm3/L)
Drinking (mg/day) = Conc * IR * ABSIG	ABSGI =	1.0 (assumed 100% GI absorption)

IR: Ingestion rate of drinking water
 ABSIG: Absorption fraction in GI tract

Refer to Appendix A for equations to evaluate DA_event and DAD

(*): outside of the Effective Prediction Domain (EPD) determined by the Flynn's measured Kp data

95% LCI and UCI are evaluated by Dr. Paul Pinsky in NCEA using SAS

CHEMICAL	CAS No.	MWT	logKow	Kp 95% LCI	Kp (cm/hr) predicted	Kp (cm/hr) measured	Kp 95% UCI	Chemicals outside EPD (*)	Derm/ Drink Kp	Chem Assess	B	tau (hr)	t_star (hr)
118 Heptachlor	76448	373.5	4.27	3.4E-04	8.6E-03		2.2E-01		14%	Y	0.1	12.99	31.16
	FA for tau>3	Conc (mg/cm3)	DA_event (mg/cm2-evt)	DAD (mg/kg-day)		log(Ds/lsc)	Dsc/lsc	Dsc		b	c	t_star1 B>0.6	t_star3 B<=0.6
	0.8	1.4E-09	6.8E-11	3.9E-10		-4.89E+00	1.28E-05	1.28E-08		3.4E-01	3.8E-01	#NUM!	31.16

Table 3.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - GROUNDWATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)													
			1,4-Dioxane	Groundwater	--	1	3.3E-04	cm/hr	0.58	hr/event	0.33	hr	0.79	hr	0.0012
			2,4-Dimethylphenol	Groundwater	--	1	1.1E-02	cm/hr	0.58	hr/event	0.51	hr	1.22	hr	0.0464
			2-Chlorophenol	Groundwater	--	1	8.0E-03	cm/hr	0.58	hr/event	0.55	hr	1.32	hr	0.0348
			4-Chloroaniline	Groundwater	--	1	5.0E-03	cm/hr	0.58	hr/event	0.55	hr	1.31	hr	0.0215
			Atrazine	Groundwater	--	1	5.2E-03	cm/hr	0.58	hr/event	1.70	hr	4.07	hr	0.0296
			Benzaldehyde	Groundwater	--	1	3.8E-03	cm/hr	0.58	hr/event	0.41	hr	0.99	hr	0.0152
			Benzo(a)anthracene	Groundwater	--	1	NA	cm/hr	0.58	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Groundwater	--	1	NA	cm/hr	0.58	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Groundwater	--	1	NA	cm/hr	0.58	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Groundwater	--	1	NA	cm/hr	0.58	hr/event	3.71	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Groundwater	--	0.8	2.5E-02	cm/hr	0.58	hr/event	16.27	hr	39.05	hr	0.1896
			Carbazole	Groundwater	--	1	5.4E-02	cm/hr	0.58	hr/event	0.91	hr	2.18	hr	0.2664
			Dibenzofuran	Groundwater	--	1	7.3E-02	cm/hr	0.58	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Groundwater	--	0.6	NA	cm/hr	0.58	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Groundwater	--	1	4.7E-02	cm/hr	0.58	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Groundwater	--	1	NA	cm/hr	0.58	hr/event	1.05	hr	N/A	hr	N/A
			1,2,4-Trichlorobenzene	Groundwater	--	1	6.6E-02	cm/hr	0.58	hr/event	1.09	hr	2.62	hr	0.3435
			1,2-Dichlorobenzene	Groundwater	--	1	4.1E-02	cm/hr	0.58	hr/event	0.70	hr	1.68	hr	0.1927
			1,3-Dichlorobenzene	Groundwater	--	1	5.8E-02	cm/hr	0.58	hr/event	0.70	hr	1.68	hr	0.2699
			1,4-Dichlorobenzene	Groundwater	--	1	4.2E-02	cm/hr	0.58	hr/event	0.70	hr	1.68	hr	0.1957
			2-Butanone	Groundwater	--	1	9.6E-04	cm/hr	0.58	hr/event	0.27	hr	0.64	hr	0.0031
			Benzene	Groundwater	--	1	1.5E-02	cm/hr	0.58	hr/event	0.29	hr	0.69	hr	0.0505
			Bromodichloromethane	Groundwater	--	1	4.6E-03	cm/hr	0.58	hr/event	0.87	hr	2.09	hr	0.0227
			Chlorobenzene	Groundwater	--	1	2.8E-02	cm/hr	0.58	hr/event	0.45	hr	1.08	hr	0.1152
			Chloroethane	Groundwater	--	1	6.1E-03	cm/hr	0.58	hr/event	0.24	hr	0.58	hr	0.0188
			Chloroform	Groundwater	--	1	6.8E-03	cm/hr	0.58	hr/event	0.49	hr	1.18	hr	0.0287
			Ethylbenzene	Groundwater	--	1	4.9E-02	cm/hr	0.58	hr/event	0.41	hr	0.99	hr	0.1952
			Isopropylbenzene	Groundwater	--	1	7.0E-02	cm/hr	0.58	hr/event	0.50	hr	1.19	hr	0.2951
			Methyl tert-butyl ether	Groundwater	--	1	2.1E-03	cm/hr	0.58	hr/event	0.33	hr	0.79	hr	0.0076
			Tetrachloroethene	Groundwater	--	1	3.3E-02	cm/hr	0.58	hr/event	0.89	hr	2.14	hr	0.1655
			Toluene	Groundwater	--	1	3.1E-02	cm/hr	0.58	hr/event	0.34	hr	0.83	hr	0.1147
			Trichloroethene	Groundwater	--	1	1.2E-02	cm/hr	0.58	hr/event	0.57	hr	1.37	hr	0.0513
			Vinyl Chloride	Groundwater	--	1	5.6E-03	cm/hr	0.58	hr/event	0.24	hr	0.57	hr	0.0170
			Xylene (Total)	Groundwater	--	1	4.9E-02	cm/hr	0.58	hr/event	0.41	hr	0.99	hr	0.1953
			Aroclor-1242	Groundwater	--	1	NA	cm/hr	0.58	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1248	Groundwater	--	1	NA	cm/hr	0.58	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1254	Groundwater	--	1	NA	cm/hr	0.58	hr/event	7.13	hr	N/A	hr	N/A
			4,4'-DDD	Groundwater	--	0.8	NA	cm/hr	0.58	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Groundwater	--	0.8	NA	cm/hr	0.58	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Groundwater	--	0.7	NA	cm/hr	0.58	hr/event	10.23	hr	N/A	hr	N/A
			Aldrin	Groundwater	--	1	1.4E-03	cm/hr	0.58	hr/event	11.64	hr	27.93	hr	0.0103
			alpha-BHC	Groundwater	--	1	1.2E-02	cm/hr	0.58	hr/event	4.47	hr	10.73	hr	0.0816
			Dieldrin	Groundwater	--	0.8	1.2E-02	cm/hr	0.58	hr/event	14.30	hr	34.33	hr	0.0918
			Endosulfan Sulfate	Groundwater	--	1	1.8E-03	cm/hr	0.58	hr/event	24.55	hr	58.93	hr	0.0142
			Gamma-BHC (Lindane)	Groundwater	--	0.9	1.1E-02	cm/hr	0.58	hr/event	4.48	hr	10.76	hr	0.0710
			Heptachlor	Groundwater	--	0.8	8.6E-03	cm/hr	0.58	hr/event	12.99	hr	31.16	hr	0.0643

Table 3.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - GROUNDWATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)													
			1,4-Dioxane	Groundwater	--	1	3.3E-04	cm/hr	1	hr/event	0.33	hr	0.79	hr	0.0012
			2,4-Dimethylphenol	Groundwater	--	1	1.1E-02	cm/hr	1	hr/event	0.51	hr	1.22	hr	0.0464
			2-Chlorophenol	Groundwater	--	1	8.0E-03	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.0348
			4-Chloroaniline	Groundwater	--	1	5.0E-03	cm/hr	1	hr/event	0.55	hr	1.31	hr	0.0215
			Atrazine	Groundwater	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzaldehyde	Groundwater	--	1	3.8E-03	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.0152
			Benzo(a)anthracene	Groundwater	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Groundwater	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Groundwater	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Groundwater	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Groundwater	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Carbazole	Groundwater	--	1	5.4E-02	cm/hr	1	hr/event	0.91	hr	2.18	hr	0.2664
			Dibenzofuran	Groundwater	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Groundwater	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Groundwater	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Groundwater	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,2,4-Trichlorobenzene	Groundwater	--	1	6.6E-02	cm/hr	1	hr/event	1.09	hr	2.62	hr	0.3435
			1,2-Dichlorobenzene	Groundwater	--	1	4.1E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1927
			1,3-Dichlorobenzene	Groundwater	--	1	5.8E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.2699
			1,4-Dichlorobenzene	Groundwater	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			2-Butanone	Groundwater	--	1	9.6E-04	cm/hr	1	hr/event	0.27	hr	0.64	hr	0.0031
			Benzene	Groundwater	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Bromodichloromethane	Groundwater	--	1	4.6E-03	cm/hr	1	hr/event	0.87	hr	2.09	hr	0.0227
			Chlorobenzene	Groundwater	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Chloroethane	Groundwater	--	1	6.1E-03	cm/hr	1	hr/event	0.24	hr	0.58	hr	0.0188
			Chloroform	Groundwater	--	1	6.8E-03	cm/hr	1	hr/event	0.49	hr	1.18	hr	0.0287
			Ethylbenzene	Groundwater	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Isopropylbenzene	Groundwater	--	1	7.0E-02	cm/hr	1	hr/event	0.50	hr	1.19	hr	0.2951
			Methyl tert-butyl ether	Groundwater	--	1	2.1E-03	cm/hr	1	hr/event	0.33	hr	0.79	hr	0.0076
			Tetrachloroethene	Groundwater	--	1	3.3E-02	cm/hr	1	hr/event	0.89	hr	2.14	hr	0.1655
			Toluene	Groundwater	--	1	3.1E-02	cm/hr	1	hr/event	0.34	hr	0.83	hr	0.1147
			Trichloroethene	Groundwater	--	1	1.2E-02	cm/hr	1	hr/event	0.57	hr	1.37	hr	0.0513
			Vinyl Chloride	Groundwater	--	1	5.6E-03	cm/hr	1	hr/event	0.24	hr	0.57	hr	0.0170
			Xylene (Total)	Groundwater	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Aroclor-1242	Groundwater	--	1	NA	cm/hr	1	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1248	Groundwater	--	1	NA	cm/hr	1	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1254	Groundwater	--	1	NA	cm/hr	1	hr/event	7.13	hr	N/A	hr	N/A
			4,4'-DDD	Groundwater	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Groundwater	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Groundwater	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			Aldrin	Groundwater	--	1	1.4E-03	cm/hr	1	hr/event	11.64	hr	27.93	hr	0.0103
			alpha-BHC	Groundwater	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			Dieldrin	Groundwater	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Endosulfan Sulfate	Groundwater	--	1	1.8E-03	cm/hr	1	hr/event	24.55	hr	58.93	hr	0.0142
			Gamma-BHC (Lindane)	Groundwater	--	0.9	1.1E-02	cm/hr	1	hr/event	4.48	hr	10.76	hr	0.0710
			Heptachlor	Groundwater	--	0.8	8.6E-03	cm/hr	1	hr/event	12.99	hr	31.16	hr	0.0643

Table 3.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - GROUNDWATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Const. Worker -	Site-Wide Shallow													
			1,4-Dioxane	Groundwater	--	1	3.3E-04	cm/hr	0.2	hr/event	0.33	hr	0.79	hr	0.0012
			2,4-Dimethylphenol	Groundwater	--	1	1.1E-02	cm/hr	0.2	hr/event	0.51	hr	1.22	hr	0.0464
			2-Chlorophenol	Groundwater	--	1	8.0E-03	cm/hr	0.2	hr/event	0.55	hr	1.32	hr	0.0348
			4-Chloroaniline	Groundwater	--	1	5.0E-03	cm/hr	0.2	hr/event	0.55	hr	1.31	hr	0.0215
			Atrazine	Groundwater	--	1	5.2E-03	cm/hr	0.2	hr/event	1.70	hr	4.07	hr	0.0296
			Benzaldehyde	Groundwater	--	1	3.8E-03	cm/hr	0.2	hr/event	0.41	hr	0.99	hr	0.0152
			Benzo(a)anthracene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	3.71	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Groundwater	--	0.8	2.5E-02	cm/hr	0.2	hr/event	16.27	hr	39.05	hr	0.1896
			Carbazole	Groundwater	--	1	5.4E-02	cm/hr	0.2	hr/event	0.91	hr	2.18	hr	0.2664
			Dibenzofuran	Groundwater	--	1	7.3E-02	cm/hr	0.2	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Groundwater	--	0.6	NA	cm/hr	0.2	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Groundwater	--	1	4.7E-02	cm/hr	0.2	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	1.05	hr	N/A	hr	N/A
			1,2,4-Trichlorobenzene	Groundwater	--	1	6.6E-02	cm/hr	0.2	hr/event	1.09	hr	2.62	hr	0.3435
			1,2-Dichlorobenzene	Groundwater	--	1	4.1E-02	cm/hr	0.2	hr/event	0.70	hr	1.68	hr	0.1927
			1,3-Dichlorobenzene	Groundwater	--	1	5.8E-02	cm/hr	0.2	hr/event	0.70	hr	1.68	hr	0.2699
			1,4-Dichlorobenzene	Groundwater	--	1	4.2E-02	cm/hr	0.2	hr/event	0.70	hr	1.68	hr	0.1957
			2-Butanone	Groundwater	--	1	9.6E-04	cm/hr	0.2	hr/event	0.27	hr	0.64	hr	0.0031
			Benzene	Groundwater	--	1	1.5E-02	cm/hr	0.2	hr/event	0.29	hr	0.69	hr	0.0505
			Bromodichloromethane	Groundwater	--	1	4.6E-03	cm/hr	0.2	hr/event	0.87	hr	2.09	hr	0.0227
			Chlorobenzene	Groundwater	--	1	2.8E-02	cm/hr	0.2	hr/event	0.45	hr	1.08	hr	0.1152
			Chloroethane	Groundwater	--	1	6.1E-03	cm/hr	0.2	hr/event	0.24	hr	0.58	hr	0.0188
			Chloroform	Groundwater	--	1	6.8E-03	cm/hr	0.2	hr/event	0.49	hr	1.18	hr	0.0287
			Ethylbenzene	Groundwater	--	1	4.9E-02	cm/hr	0.2	hr/event	0.41	hr	0.99	hr	0.1952
			Isopropylbenzene	Groundwater	--	1	7.0E-02	cm/hr	0.2	hr/event	0.50	hr	1.19	hr	0.2951
			Methyl tert-butyl ether	Groundwater	--	1	2.1E-03	cm/hr	0.2	hr/event	0.33	hr	0.79	hr	0.0076
			Tetrachloroethene	Groundwater	--	1	3.3E-02	cm/hr	0.2	hr/event	0.89	hr	2.14	hr	0.1655
			Toluene	Groundwater	--	1	3.1E-02	cm/hr	0.2	hr/event	0.34	hr	0.83	hr	0.1147
			Trichloroethene	Groundwater	--	1	1.2E-02	cm/hr	0.2	hr/event	0.57	hr	1.37	hr	0.0513
			Vinyl Chloride	Groundwater	--	1	5.6E-03	cm/hr	0.2	hr/event	0.24	hr	0.57	hr	0.0170
			Xylene (Total)	Groundwater	--	1	4.9E-02	cm/hr	0.2	hr/event	0.41	hr	0.99	hr	0.1953
			Aroclor-1242	Groundwater	--	1	NA	cm/hr	0.2	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1248	Groundwater	--	1	NA	cm/hr	0.2	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1254	Groundwater	--	1	NA	cm/hr	0.2	hr/event	7.13	hr	N/A	hr	N/A
			4,4'-DDD	Groundwater	--	0.8	NA	cm/hr	0.2	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Groundwater	--	0.8	NA	cm/hr	0.2	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Groundwater	--	0.7	NA	cm/hr	0.2	hr/event	10.23	hr	N/A	hr	N/A
			Aldrin	Groundwater	--	1	1.4E-03	cm/hr	0.2	hr/event	11.64	hr	27.93	hr	0.0103
			alpha-BHC	Groundwater	--	1	1.2E-02	cm/hr	0.2	hr/event	4.47	hr	10.73	hr	0.0816
			Dieldrin	Groundwater	--	0.8	1.2E-02	cm/hr	0.2	hr/event	14.30	hr	34.33	hr	0.0918
			Endosulfan Sulfate	Groundwater	--	1	1.8E-03	cm/hr	0.2	hr/event	24.55	hr	58.93	hr	0.0142
			Gamma-BHC (Lindane)	Groundwater	--	0.9	1.1E-02	cm/hr	0.2	hr/event	4.48	hr	10.76	hr	0.0710
			Heptachlor	Groundwater	--	0.8	8.6E-03	cm/hr	0.2	hr/event	12.99	hr	31.16	hr	0.0643

FA = Fraction Absorbed Water

Kp = Dermal Permeability Coefficient of Compound in Water

T(event) = Event Duration

Tau = Lag Time

T* = Time to Reach Steady-State

B = Dimensionless Ratio of the Permeability Coefficient of a Compound Through the Stratum Corneum Relative to its Permeability Coefficient Across the Viable Epidermis

Table 3.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - GROUNDWATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Resident - Adult	Tap Water (Site-Wide Monitoring Wells)													
			1,4-Dioxane	Groundwater	--	1	3.3E-04	cm/hr	0.25	hr/event	0.33	hr	0.79	hr	0.0012
			2,4-Dimethylphenol	Groundwater	--	1	1.1E-02	cm/hr	0.25	hr/event	0.51	hr	1.22	hr	0.0464
			2-Chlorophenol	Groundwater	--	1	8.0E-03	cm/hr	0.25	hr/event	0.55	hr	1.32	hr	0.0348
			4-Chloroaniline	Groundwater	--	1	5.0E-03	cm/hr	0.25	hr/event	0.55	hr	1.31	hr	0.0215
			Atrazine	Groundwater	--	1	5.2E-03	cm/hr	0.25	hr/event	1.70	hr	4.07	hr	0.0296
			Benzaldehyde	Groundwater	--	1	3.8E-03	cm/hr	0.25	hr/event	0.41	hr	0.99	hr	0.0152
			Benzo(a)anthracene	Groundwater	--	1	NA	cm/hr	0.25	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Groundwater	--	1	NA	cm/hr	0.25	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Groundwater	--	1	NA	cm/hr	0.25	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Groundwater	--	1	NA	cm/hr	0.25	hr/event	3.71	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Groundwater	--	0.8	2.5E-02	cm/hr	0.25	hr/event	16.27	hr	39.05	hr	0.1896
			Carbazole	Groundwater	--	1	5.4E-02	cm/hr	0.25	hr/event	0.91	hr	2.18	hr	0.2664
			Dibenzofuran	Groundwater	--	1	7.3E-02	cm/hr	0.25	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Groundwater	--	0.6	NA	cm/hr	0.25	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Groundwater	--	1	4.7E-02	cm/hr	0.25	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Groundwater	--	1	NA	cm/hr	0.25	hr/event	1.05	hr	N/A	hr	N/A
			1,2,4-Trichlorobenzene	Groundwater	--	1	6.6E-02	cm/hr	0.25	hr/event	1.09	hr	2.62	hr	0.3435
			1,2-Dichlorobenzene	Groundwater	--	1	4.1E-02	cm/hr	0.25	hr/event	0.70	hr	1.68	hr	0.1927
			1,3-Dichlorobenzene	Groundwater	--	1	5.8E-02	cm/hr	0.25	hr/event	0.70	hr	1.68	hr	0.2699
			1,4-Dichlorobenzene	Groundwater	--	1	4.2E-02	cm/hr	0.25	hr/event	0.70	hr	1.68	hr	0.1957
			2-Butanone	Groundwater	--	1	9.6E-04	cm/hr	0.25	hr/event	0.27	hr	0.64	hr	0.0031
			Benzene	Groundwater	--	1	1.5E-02	cm/hr	0.25	hr/event	0.29	hr	0.69	hr	0.0505
			Bromodichloromethane	Groundwater	--	1	4.6E-03	cm/hr	0.25	hr/event	0.87	hr	2.09	hr	0.0227
			Chlorobenzene	Groundwater	--	1	2.8E-02	cm/hr	0.25	hr/event	0.45	hr	1.08	hr	0.1152
			Chloroethane	Groundwater	--	1	6.1E-03	cm/hr	0.25	hr/event	0.24	hr	0.58	hr	0.0188
			Chloroform	Groundwater	--	1	6.8E-03	cm/hr	0.25	hr/event	0.49	hr	1.18	hr	0.0287
			Ethylbenzene	Groundwater	--	1	4.9E-02	cm/hr	0.25	hr/event	0.41	hr	0.99	hr	0.1952
			Isopropylbenzene	Groundwater	--	1	7.0E-02	cm/hr	0.25	hr/event	0.50	hr	1.19	hr	0.2951
			Methyl tert-butyl ether	Groundwater	--	1	2.1E-03	cm/hr	0.25	hr/event	0.33	hr	0.79	hr	0.0076
			Tetrachloroethene	Groundwater	--	1	3.3E-02	cm/hr	0.25	hr/event	0.89	hr	2.14	hr	0.1655
			Toluene	Groundwater	--	1	3.1E-02	cm/hr	0.25	hr/event	0.34	hr	0.83	hr	0.1147
			Trichloroethene	Groundwater	--	1	1.2E-02	cm/hr	0.25	hr/event	0.57	hr	1.37	hr	0.0513
			Vinyl Chloride	Groundwater	--	1	5.6E-03	cm/hr	0.25	hr/event	0.24	hr	0.57	hr	0.0170
			Xylene (Total)	Groundwater	--	1	4.9E-02	cm/hr	0.25	hr/event	0.41	hr	0.99	hr	0.1953
			Aroclor-1242	Groundwater	--	1	NA	cm/hr	0.25	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1248	Groundwater	--	1	NA	cm/hr	0.25	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1254	Groundwater	--	1	NA	cm/hr	0.25	hr/event	7.13	hr	N/A	hr	N/A
			4,4'-DDD	Groundwater	--	0.8	NA	cm/hr	0.25	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Groundwater	--	0.8	NA	cm/hr	0.25	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Groundwater	--	0.7	NA	cm/hr	0.25	hr/event	10.23	hr	N/A	hr	N/A
			Aldrin	Groundwater	--	1	1.4E-03	cm/hr	0.25	hr/event	11.64	hr	27.93	hr	0.0103
			alpha-BHC	Groundwater	--	1	1.2E-02	cm/hr	0.25	hr/event	4.47	hr	10.73	hr	0.0816
			Dieldrin	Groundwater	--	0.8	1.2E-02	cm/hr	0.25	hr/event	14.30	hr	34.33	hr	0.0918
			Endosulfan Sulfate	Groundwater	--	1	1.8E-03	cm/hr	0.25	hr/event	24.55	hr	58.93	hr	0.0142
			Gamma-BHC (Lindane)	Groundwater	--	0.9	1.1E-02	cm/hr	0.25	hr/event	4.48	hr	10.76	hr	0.0710
			Heptachlor	Groundwater	--	0.8	8.6E-03	cm/hr	0.25	hr/event	12.99	hr	31.16	hr	0.0643

Table 3.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - GROUNDWATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Resident - Child	Tap Water (Site-Wide Monitoring Wells)													
			1,4-Dioxane	Groundwater	--	1	3.3E-04	cm/hr	0.33	hr/event	0.33	hr	0.79	hr	0.0012
			2,4-Dimethylphenol	Groundwater	--	1	1.1E-02	cm/hr	0.33	hr/event	0.51	hr	1.22	hr	0.0464
			2-Chlorophenol	Groundwater	--	1	8.0E-03	cm/hr	0.33	hr/event	0.55	hr	1.32	hr	0.0348
			4-Chloroaniline	Groundwater	--	1	5.0E-03	cm/hr	0.33	hr/event	0.55	hr	1.31	hr	0.0215
			Atrazine	Groundwater	--	1	5.2E-03	cm/hr	0.33	hr/event	1.70	hr	4.07	hr	0.0296
			Benzaldehyde	Groundwater	--	1	3.8E-03	cm/hr	0.33	hr/event	0.41	hr	0.99	hr	0.0152
			Benzo(a)anthracene	Groundwater	--	1	NA	cm/hr	0.33	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Groundwater	--	1	NA	cm/hr	0.33	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Groundwater	--	1	NA	cm/hr	0.33	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Groundwater	--	1	NA	cm/hr	0.33	hr/event	3.71	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Groundwater	--	0.8	2.5E-02	cm/hr	0.33	hr/event	16.27	hr	39.05	hr	0.1896
			Carbazole	Groundwater	--	1	5.4E-02	cm/hr	0.33	hr/event	0.91	hr	2.18	hr	0.2664
			Dibenzofuran	Groundwater	--	1	7.3E-02	cm/hr	0.33	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Groundwater	--	0.6	NA	cm/hr	0.33	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Groundwater	--	1	4.7E-02	cm/hr	0.33	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Groundwater	--	1	NA	cm/hr	0.33	hr/event	1.05	hr	N/A	hr	N/A
			1,2,4-Trichlorobenzene	Groundwater	--	1	6.6E-02	cm/hr	0.33	hr/event	1.09	hr	2.62	hr	0.3435
			1,2-Dichlorobenzene	Groundwater	--	1	4.1E-02	cm/hr	0.33	hr/event	0.70	hr	1.68	hr	0.1927
			1,3-Dichlorobenzene	Groundwater	--	1	5.8E-02	cm/hr	0.33	hr/event	0.70	hr	1.68	hr	0.2699
			1,4-Dichlorobenzene	Groundwater	--	1	4.2E-02	cm/hr	0.33	hr/event	0.70	hr	1.68	hr	0.1957
			2-Butanone	Groundwater	--	1	9.6E-04	cm/hr	0.33	hr/event	0.27	hr	0.64	hr	0.0031
			Benzene	Groundwater	--	1	1.5E-02	cm/hr	0.33	hr/event	0.29	hr	0.69	hr	0.0505
			Bromodichloromethane	Groundwater	--	1	4.6E-03	cm/hr	0.33	hr/event	0.87	hr	2.09	hr	0.0227
			Chlorobenzene	Groundwater	--	1	2.8E-02	cm/hr	0.33	hr/event	0.45	hr	1.08	hr	0.1152
			Chloroethane	Groundwater	--	1	6.1E-03	cm/hr	0.33	hr/event	0.24	hr	0.58	hr	0.0188
			Chloroform	Groundwater	--	1	6.8E-03	cm/hr	0.33	hr/event	0.49	hr	1.18	hr	0.0287
			Ethylbenzene	Groundwater	--	1	4.9E-02	cm/hr	0.33	hr/event	0.41	hr	0.99	hr	0.1952
			Isopropylbenzene	Groundwater	--	1	7.0E-02	cm/hr	0.33	hr/event	0.50	hr	1.19	hr	0.2951
			Methyl tert-butyl ether	Groundwater	--	1	2.1E-03	cm/hr	0.33	hr/event	0.33	hr	0.79	hr	0.0076
			Tetrachloroethene	Groundwater	--	1	3.3E-02	cm/hr	0.33	hr/event	0.89	hr	2.14	hr	0.1655
			Toluene	Groundwater	--	1	3.1E-02	cm/hr	0.33	hr/event	0.34	hr	0.83	hr	0.1147
			Trichloroethene	Groundwater	--	1	1.2E-02	cm/hr	0.33	hr/event	0.57	hr	1.37	hr	0.0513
			Vinyl Chloride	Groundwater	--	1	5.6E-03	cm/hr	0.33	hr/event	0.24	hr	0.57	hr	0.0170
			Xylene (Total)	Groundwater	--	1	4.9E-02	cm/hr	0.33	hr/event	0.41	hr	0.99	hr	0.1953
			Aroclor-1242	Groundwater	--	1	NA	cm/hr	0.33	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1248	Groundwater	--	1	NA	cm/hr	0.33	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1254	Groundwater	--	1	NA	cm/hr	0.33	hr/event	7.13	hr	N/A	hr	N/A
			4,4'-DDD	Groundwater	--	0.8	NA	cm/hr	0.33	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Groundwater	--	0.8	NA	cm/hr	0.33	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Groundwater	--	0.7	NA	cm/hr	0.33	hr/event	10.23	hr	N/A	hr	N/A
			Aldrin	Groundwater	--	1	1.4E-03	cm/hr	0.33	hr/event	11.64	hr	27.93	hr	0.0103
			alpha-BHC	Groundwater	--	1	1.2E-02	cm/hr	0.33	hr/event	4.47	hr	10.73	hr	0.0816
			Dieldrin	Groundwater	--	0.8	1.2E-02	cm/hr	0.33	hr/event	14.30	hr	34.33	hr	0.0918
			Endosulfan Sulfate	Groundwater	--	1	1.8E-03	cm/hr	0.33	hr/event	24.55	hr	58.93	hr	0.0142
			Gamma-BHC (Lindane)	Groundwater	--	0.9	1.1E-02	cm/hr	0.33	hr/event	4.48	hr	10.76	hr	0.0710
			Heptachlor	Groundwater	--	0.8	8.6E-03	cm/hr	0.33	hr/event	12.99	hr	31.16	hr	0.0643

Table 3.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - GROUNDWATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Const. Worker -	Site-Wide Shallow													
			1,4-Dioxane	Groundwater	--	1	3.3E-04	cm/hr	0.2	hr/event	0.33	hr	0.79	hr	0.0012
			2,4-Dimethylphenol	Groundwater	--	1	1.1E-02	cm/hr	0.2	hr/event	0.51	hr	1.22	hr	0.0464
			2-Chlorophenol	Groundwater	--	1	8.0E-03	cm/hr	0.2	hr/event	0.55	hr	1.32	hr	0.0348
			4-Chloroaniline	Groundwater	--	1	5.0E-03	cm/hr	0.2	hr/event	0.55	hr	1.31	hr	0.0215
			Atrazine	Groundwater	--	1	5.2E-03	cm/hr	0.2	hr/event	1.70	hr	4.07	hr	0.0296
			Benzaldehyde	Groundwater	--	1	3.8E-03	cm/hr	0.2	hr/event	0.41	hr	0.99	hr	0.0152
			Benzo(a)anthracene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	3.71	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Groundwater	--	0.8	2.5E-02	cm/hr	0.2	hr/event	16.27	hr	39.05	hr	0.1896
			Carbazole	Groundwater	--	1	5.4E-02	cm/hr	0.2	hr/event	0.91	hr	2.18	hr	0.2664
			Dibenzofuran	Groundwater	--	1	7.3E-02	cm/hr	0.2	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Groundwater	--	0.6	NA	cm/hr	0.2	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Groundwater	--	1	4.7E-02	cm/hr	0.2	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Groundwater	--	1	NA	cm/hr	0.2	hr/event	1.05	hr	N/A	hr	N/A
			1,2,4-Trichlorobenzene	Groundwater	--	1	6.6E-02	cm/hr	0.2	hr/event	1.09	hr	2.62	hr	0.3435
			1,2-Dichlorobenzene	Groundwater	--	1	4.1E-02	cm/hr	0.2	hr/event	0.70	hr	1.68	hr	0.1927
			1,3-Dichlorobenzene	Groundwater	--	1	5.8E-02	cm/hr	0.2	hr/event	0.70	hr	1.68	hr	0.2699
			1,4-Dichlorobenzene	Groundwater	--	1	4.2E-02	cm/hr	0.2	hr/event	0.70	hr	1.68	hr	0.1957
			2-Butanone	Groundwater	--	1	9.6E-04	cm/hr	0.2	hr/event	0.27	hr	0.64	hr	0.0031
			Benzene	Groundwater	--	1	1.5E-02	cm/hr	0.2	hr/event	0.29	hr	0.69	hr	0.0505
			Bromodichloromethane	Groundwater	--	1	4.6E-03	cm/hr	0.2	hr/event	0.87	hr	2.09	hr	0.0227
			Chlorobenzene	Groundwater	--	1	2.8E-02	cm/hr	0.2	hr/event	0.45	hr	1.08	hr	0.1152
			Chloroethane	Groundwater	--	1	6.1E-03	cm/hr	0.2	hr/event	0.24	hr	0.58	hr	0.0188
			Chloroform	Groundwater	--	1	6.8E-03	cm/hr	0.2	hr/event	0.49	hr	1.18	hr	0.0287
			Ethylbenzene	Groundwater	--	1	4.9E-02	cm/hr	0.2	hr/event	0.41	hr	0.99	hr	0.1952
			Isopropylbenzene	Groundwater	--	1	7.0E-02	cm/hr	0.2	hr/event	0.50	hr	1.19	hr	0.2951
			Methyl tert-butyl ether	Groundwater	--	1	2.1E-03	cm/hr	0.2	hr/event	0.33	hr	0.79	hr	0.0076
			Tetrachloroethene	Groundwater	--	1	3.3E-02	cm/hr	0.2	hr/event	0.89	hr	2.14	hr	0.1655
			Toluene	Groundwater	--	1	3.1E-02	cm/hr	0.2	hr/event	0.34	hr	0.83	hr	0.1147
			Trichloroethene	Groundwater	--	1	1.2E-02	cm/hr	0.2	hr/event	0.57	hr	1.37	hr	0.0513
			Vinyl Chloride	Groundwater	--	1	5.6E-03	cm/hr	0.2	hr/event	0.24	hr	0.57	hr	0.0170
			Xylene (Total)	Groundwater	--	1	4.9E-02	cm/hr	0.2	hr/event	0.41	hr	0.99	hr	0.1953
			Aroclor-1242	Groundwater	--	1	NA	cm/hr	0.2	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1248	Groundwater	--	1	NA	cm/hr	0.2	hr/event	7.13	hr	N/A	hr	N/A
			Aroclor-1254	Groundwater	--	1	NA	cm/hr	0.2	hr/event	7.13	hr	N/A	hr	N/A
			4,4'-DDD	Groundwater	--	0.8	NA	cm/hr	0.2	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Groundwater	--	0.8	NA	cm/hr	0.2	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Groundwater	--	0.7	NA	cm/hr	0.2	hr/event	10.23	hr	N/A	hr	N/A
			Aldrin	Groundwater	--	1	1.4E-03	cm/hr	0.2	hr/event	11.64	hr	27.93	hr	0.0103
			alpha-BHC	Groundwater	--	1	1.2E-02	cm/hr	0.2	hr/event	4.47	hr	10.73	hr	0.0816
			Dieldrin	Groundwater	--	0.8	1.2E-02	cm/hr	0.2	hr/event	14.30	hr	34.33	hr	0.0918
			Endosulfan Sulfate	Groundwater	--	1	1.8E-03	cm/hr	0.2	hr/event	24.55	hr	58.93	hr	0.0142
			Gamma-BHC (Lindane)	Groundwater	--	0.9	1.1E-02	cm/hr	0.2	hr/event	4.48	hr	10.76	hr	0.0710
			Heptachlor	Groundwater	--	0.8	8.6E-03	cm/hr	0.2	hr/event	12.99	hr	31.16	hr	0.0643

FA = Fraction Absorbed Water
Kp = Dermal PeCTability Coefficient of Compound in Water

T(event) = Event Duration
Tau = Lag Time

T* = Time to Reach Steady-State
B = Dimensionless Ratio of the PeCTability Coefficient of a Compound Through the Stratum Corneum Relative to its PeCTability Coefficient Across the Viable Epidermis

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Lsc cm	IR cm ³ /day	ABSGI	A cm ²	t _{event} hr/event	EV event/day	DA _{event} mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island	Aluminum	9.9E+01	9.9E-05	1.0E-03	1.0E-03	2000	0.01	3700	1	1	9.9E-08	19%	Y
			Antimony	6.6E-01	6.6E-07	1.0E-03	1.0E-03	2000	0.15	3700	1	1	6.6E-10	1%	N
			Arsenic	6.9E+01	6.9E-05	1.0E-03	1.0E-03	2000	0.95	3700	1	1	6.9E-08	0%	N
			Barium	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.07	3700	1	1	2.8E-07	3%	N
			Beryllium	ND	N/A	1.0E-03	1.0E-03	2000	0.007	3700	1	1	N/A	N/A	N/A
			Cadmium	3.8E-01	3.8E-07	1.0E-03	1.0E-03	2000	0.025	3700	1	1	3.8E-10	7%	N
			Chromium	2.1E+00	2.1E-06	2.0E-03	1.0E-03	2000	0.025	3700	1	1	4.3E-09	15%	Y
			Cobalt	2.3E+00	2.3E-06	4.0E-04	1.0E-03	2000	0.97	3700	1	1	9.2E-10	0%	N
			Copper	1.2E+00	1.2E-06	1.0E-03	1.0E-03	2000	0.57	3700	1	1	1.2E-09	0%	N
			Cyanide	2.8E+00	2.8E-06	1.0E-03	1.0E-03	2000	0.47	3700	1	1	2.8E-09	0%	N
			Iron	3.8E+04	3.8E-02	1.0E-03	1.0E-03	2000	0.5	3700	1	1	3.8E-05	0%	N
			Lead	8.3E-01	8.3E-07	1.0E-04	1.0E-03	2000	0.5	3700	1	1	8.3E-11	0%	N
			Manganese	1.8E+03	1.8E-03	1.0E-03	1.0E-03	2000	0.06	3700	1	1	1.8E-06	3%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	3700	1	1	N/A	N/A	N/A
			Nickel	9.6E+00	9.6E-06	2.0E-04	1.0E-03	2000	0.04	3700	1	1	1.9E-09	1%	N
			Silver	7.3E+00	7.3E-06	6.0E-04	1.0E-03	2000	0.04	3700	1	1	4.4E-09	3%	N
			Thallium	3.5E+00	3.5E-06	1.0E-03	1.0E-03	2000	1	3700	1	1	3.5E-09	0%	N
			Vanadium	2.4E+00	2.4E-06	1.0E-03	1.0E-03	2000	0.026	3700	1	1	2.4E-09	7%	N
			Zinc	2.9E+01	2.9E-05	6.0E-04	1.0E-03	2000	0.5	3700	1	1	1.8E-08	0%	N
Current	Trespasser - Adolescent wader	Unnamed Island Ponds	Aluminum	3.3E+03	3.3E-03	1.0E-03	1.0E-03	2000	0.01	7600	1	1	3.3E-06	38%	Y
			Arsenic	3.2E+00	3.2E-06	1.0E-03	1.0E-03	2000	0.95	7600	1	1	3.2E-09	0%	N
			Cadmium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.025	7600	1	1	1.4E-09	15%	Y
			Chromium	1.4E+01	1.4E-05	2.0E-03	1.0E-03	2000	0.025	7600	1	1	2.7E-08	30%	Y
			Cobalt	ND	N/A	4.0E-04	1.0E-03	2000	0.97	7600	1	1	N/A	N/A	N/A
			Copper	7.0E+01	7.0E-05	1.0E-03	1.0E-03	2000	0.57	7600	1	1	7.0E-08	1%	N
			Cyanide	3.6E+00	3.6E-06	1.0E-03	1.0E-03	2000	0.47	7600	1	1	3.6E-09	1%	N
			Iron	1.0E+04	1.0E-02	1.0E-03	1.0E-03	2000	0.5	7600	1	1	1.0E-05	1%	N
			Lead	2.2E+01	2.2E-05	1.0E-04	1.0E-03	2000	0.5	7600	1	1	2.2E-09	0%	N
			Manganese	5.7E+02	5.7E-04	1.0E-03	1.0E-03	2000	0.06	7600	1	1	5.7E-07	6%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	7600	1	1	N/A	N/A	N/A
			Vanadium	2.6E+00	2.6E-06	1.0E-03	1.0E-03	2000	0.026	7600	1	1	2.6E-09	15%	Y
Current	Rec. User - Adult wader	Southern Bank	Aluminum	6.5E+02	6.5E-04	1.0E-03	1.0E-03	2000	0.01	7310	1	1	6.5E-07	37%	Y
			Arsenic	1.7E+00	1.7E-06	1.0E-03	1.0E-03	2000	0.95	7310	1	1	1.7E-09	0%	N
			Cadmium	6.7E-01	6.7E-07	1.0E-03	1.0E-03	2000	0.025	7310	1	1	6.7E-10	15%	Y
			Chromium	3.4E+00	3.4E-06	2.0E-03	1.0E-03	2000	0.025	7310	1	1	6.8E-09	29%	Y
			Cobalt	8.3E-01	8.3E-07	4.0E-04	1.0E-03	2000	0.97	7310	1	1	3.3E-10	0%	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	7310	1	1	N/A	N/A	N/A
			Cyanide	4.7E+00	4.7E-06	1.0E-03	1.0E-03	2000	0.47	7310	1	1	4.7E-09	1%	N
			Iron	2.0E+03	2.0E-03	1.0E-03	1.0E-03	2000	0.5	7310	1	1	2.0E-06	1%	N
			Lead	6.7E+00	6.7E-06	1.0E-04	1.0E-03	2000	0.5	7310	1	1	6.7E-10	0%	N
			Manganese	4.7E+02	4.7E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	4.7E-07	6%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	7310	1	1	N/A	N/A	N/A
			Vanadium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.026	7310	1	1	1.4E-09	14%	Y
Current	Rec. User - Older Child wader	Southern Bank	Aluminum	6.5E+02	6.5E-04	1.0E-03	1.0E-03	2000	0.01	4170	1	1	6.5E-07	21%	Y
			Arsenic	1.7E+00	1.7E-06	1.0E-03	1.0E-03	2000	0.95	4170	1	1	1.7E-09	0%	N
			Cadmium	6.7E-01	6.7E-07	1.0E-03	1.0E-03	2000	0.025	4170	1	1	6.7E-10	8%	N
			Chromium	3.4E+00	3.4E-06	2.0E-03	1.0E-03	2000	0.025	4170	1	1	6.8E-09	17%	Y
			Cobalt	8.3E-01	8.3E-07	4.0E-04	1.0E-03	2000	0.97	4170	1	1	3.3E-10	0%	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	4170	1	1	N/A	N/A	N/A
			Cyanide	4.7E+00	4.7E-06	1.0E-03	1.0E-03	2000	0.47	4170	1	1	4.7E-09	0%	N
			Iron	2.0E+03	2.0E-03	1.0E-03	1.0E-03	2000	0.5	4170	1	1	2.0E-06	0%	N
			Lead	6.7E+00	6.7E-06	1.0E-04	1.0E-03	2000	0.5	4170	1	1	6.7E-10	0%	N
			Manganese	4.7E+02	4.7E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	4.7E-07	3%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	4170	1	1	N/A	N/A	N/A
			Vanadium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.026	4170	1	1	1.4E-09	8%	N

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm ³ /day	ABSGI	A cm ²	t _{event} hr/event	EV event/day	DA _{event} mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Upstream of Landfill	Aluminum	2.1E+03	2.1E-03	1.0E-03	1.0E-03	2000	0.01	7600	1	1	2.1E-06	38%	Y
			Arsenic	4.6E+00	4.6E-06	1.0E-03	1.0E-03	2000	0.95	7600	1	1	4.6E-09	0%	N
			Cadmium	4.7E-01	4.7E-07	1.0E-03	1.0E-03	2000	0.025	7600	1	1	4.7E-10	15%	Y
			Chromium	8.5E+00	8.5E-06	2.0E-03	1.0E-03	2000	0.025	7600	1	1	1.7E-08	30%	Y
			Cobalt	6.6E-01	6.6E-07	4.0E-04	1.0E-03	2000	0.97	7600	1	1	2.6E-10	0%	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	7600	1	1	N/A	N/A	N/A
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	7600	1	1	N/A	N/A	N/A
			Iron	3.7E+03	3.7E-03	1.0E-03	1.0E-03	2000	0.5	7600	1	1	3.7E-06	1%	N
			Lead	8.6E+00	8.6E-06	1.0E-04	1.0E-03	2000	0.5	7600	1	1	8.6E-10	0%	N
			Manganese	3.0E+02	3.0E-04	1.0E-03	1.0E-03	2000	0.06	7600	1	1	3.0E-07	6%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	7600	1	1	N/A	N/A	N/A
			Vanadium	4.2E+00	4.2E-06	1.0E-03	1.0E-03	2000	0.026	7600	1	1	4.2E-09	15%	Y
Current	Trespasser - Adolescent wader	Adjacent to Landfill	Aluminum	1.7E+04	1.7E-02	1.0E-03	1.0E-03	2000	0.01	7600	1	1	1.7E-05	38%	Y
			Arsenic	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.95	7600	1	1	1.1E-08	0%	N
			Cadmium	1.6E+01	1.6E-05	1.0E-03	1.0E-03	2000	0.025	7600	1	1	1.6E-08	15%	Y
			Chromium	2.2E+02	2.2E-04	2.0E-03	1.0E-03	2000	0.025	7600	1	1	4.3E-07	30%	Y
			Cobalt	9.2E+00	9.2E-06	4.0E-04	1.0E-03	2000	0.97	7600	1	1	3.7E-09	0%	N
			Copper	4.3E+02	4.3E-04	1.0E-03	1.0E-03	2000	0.57	7600	1	1	4.3E-07	1%	N
			Cyanide	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.47	7600	1	1	1.1E-08	1%	N
			Iron	4.5E+04	4.5E-02	1.0E-03	1.0E-03	2000	0.5	7600	1	1	4.5E-05	1%	N
			Lead	2.7E+02	2.7E-04	1.0E-04	1.0E-03	2000	0.5	7600	1	1	2.7E-08	0%	N
			Manganese	7.5E+02	7.5E-04	1.0E-03	1.0E-03	2000	0.06	7600	1	1	7.5E-07	6%	N
			Mercury	3.7E-01	3.7E-07	1.0E-03	1.0E-03	2000	0.07	7600	1	1	3.7E-10	5%	N
			Vanadium	4.9E+01	4.9E-05	1.0E-03	1.0E-03	2000	0.026	7600	1	1	4.9E-08	15%	Y
Current	Trespasser - Adolescent wader	Downstream of Landfill	Aluminum	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.01	7600	1	1	2.8E-07	38%	Y
			Arsenic	3.0E+00	3.0E-06	1.0E-03	1.0E-03	2000	0.95	7600	1	1	3.0E-09	0%	N
			Cadmium	5.6E-01	5.6E-07	1.0E-03	1.0E-03	2000	0.025	7600	1	1	5.6E-10	15%	Y
			Chromium	3.3E+00	3.3E-06	2.0E-03	1.0E-03	2000	0.025	7600	1	1	6.6E-09	30%	Y
			Cobalt	8.1E-01	8.1E-07	4.0E-04	1.0E-03	2000	0.97	7600	1	1	3.2E-10	0%	N
			Copper	9.3E+00	9.3E-06	1.0E-03	1.0E-03	2000	0.57	7600	1	1	9.3E-09	1%	N
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	7600	1	1	N/A	N/A	N/A
			Iron	7.5E+03	7.5E-03	1.0E-03	1.0E-03	2000	0.5	7600	1	1	7.5E-06	1%	N
			Lead	6.8E+00	6.8E-06	1.0E-04	1.0E-03	2000	0.5	7600	1	1	6.8E-10	0%	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	7600	1	1	3.2E-07	6%	N
			Mercury	1.6E-02	1.6E-08	1.0E-03	1.0E-03	2000	0.07	7600	1	1	1.6E-11	5%	N
			Vanadium	1.9E+00	1.9E-06	1.0E-03	1.0E-03	2000	0.026	7600	1	1	1.9E-09	15%	Y
Current	Trespasser - Adolescent wader	Wetlands	Aluminum	1.6E+00	1.6E-06	1.0E-03	1.0E-03	2000	0.01	7600	1	1	1.6E-09	38%	Y
			Arsenic	2.0E+00	2.0E-06	1.0E-03	1.0E-03	2000	0.95	7600	1	1	2.0E-09	0%	N
			Cadmium	9.2E+01	9.2E-05	1.0E-03	1.0E-03	2000	0.025	7600	1	1	9.2E-08	15%	Y
			Chromium	1.6E+03	1.6E-03	2.0E-03	1.0E-03	2000	0.025	7600	1	1	3.2E-06	30%	Y
			Cobalt	3.2E+02	3.2E-04	4.0E-04	1.0E-03	2000	0.97	7600	1	1	1.3E-07	0%	N

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Lsc cm	IR cm ³ /day	ABSGI	A cm ²	t _{event} hr/event	EV event/day	DA _{event} mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Trespasser - Adult wader	Leachate - Landfill/Unnamed Island	Aluminum	9.9E+01	9.9E-05	1.0E-03	1.0E-03	2000	0.01	4500	1	1	9.9E-08	23%	Y
			Antimony	6.6E-01	6.6E-07	1.0E-03	1.0E-03	2000	0.15	4500	1	1	6.6E-10	2%	N
			Arsenic	6.9E+01	6.9E-05	1.0E-03	1.0E-03	2000	0.95	4500	1	1	6.9E-08	0%	N
			Barium	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.07	4500	1	1	2.8E-07	3%	N
			Beryllium	ND	N/A	1.0E-03	1.0E-03	2000	0.007	4500	1	1	N/A	N/A	N/A
			Cadmium	3.8E-01	3.8E-07	1.0E-03	1.0E-03	2000	0.025	4500	1	1	3.8E-10	9%	N
			Chromium	2.1E+00	2.1E-06	2.0E-03	1.0E-03	2000	0.025	4500	1	1	4.3E-09	18%	Y
			Cobalt	2.3E+00	2.3E-06	4.0E-04	1.0E-03	2000	0.97	4500	1	1	9.2E-10	0%	N
			Copper	1.2E+00	1.2E-06	1.0E-03	1.0E-03	2000	0.57	4500	1	1	1.2E-09	0%	N
			Cyanide	2.8E+00	2.8E-06	1.0E-03	1.0E-03	2000	0.47	4500	1	1	2.8E-09	0%	N
			Iron	3.8E+04	3.8E-02	1.0E-03	1.0E-03	2000	0.5	4500	1	1	3.8E-05	0%	N
			Lead	8.3E-01	8.3E-07	1.0E-04	1.0E-03	2000	0.5	4500	1	1	8.3E-11	0%	N
			Manganese	1.8E+03	1.8E-03	1.0E-03	1.0E-03	2000	0.06	4500	1	1	1.8E-06	4%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	4500	1	1	N/A	N/A	N/A
			Nickel	9.6E+00	9.6E-06	2.0E-04	1.0E-03	2000	0.04	4500	1	1	1.9E-09	1%	N
			Silver	7.3E+00	7.3E-06	6.0E-04	1.0E-03	2000	0.04	4500	1	1	4.4E-09	3%	N
			Thallium	3.5E+00	3.5E-06	1.0E-03	1.0E-03	2000	1	4500	1	1	3.5E-09	0%	N
			Vanadium	2.4E+00	2.4E-06	1.0E-03	1.0E-03	2000	0.026	4500	1	1	2.4E-09	9%	N
			Zinc	2.9E+01	2.9E-05	6.0E-04	1.0E-03	2000	0.5	4500	1	1	1.8E-08	0%	N
Future	Trespasser - Older Child wader	Leachate - Landfill/Unnamed Island	Aluminum	9.9E+01	9.9E-05	1.0E-03	1.0E-03	2000	0.01	2700	1	1	9.9E-08	14%	Y
			Antimony	6.6E-01	6.6E-07	1.0E-03	1.0E-03	2000	0.15	2700	1	1	6.6E-10	1%	N
			Arsenic	6.9E+01	6.9E-05	1.0E-03	1.0E-03	2000	0.95	2700	1	1	6.9E-08	0%	N
			Barium	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.07	2700	1	1	2.8E-07	2%	N
			Beryllium	ND	N/A	1.0E-03	1.0E-03	2000	0.007	2700	1	1	N/A	N/A	N/A
			Cadmium	3.8E-01	3.8E-07	1.0E-03	1.0E-03	2000	0.025	2700	1	1	3.8E-10	5%	N
			Chromium	2.1E+00	2.1E-06	2.0E-03	1.0E-03	2000	0.025	2700	1	1	4.3E-09	11%	Y
			Cobalt	2.3E+00	2.3E-06	4.0E-04	1.0E-03	2000	0.97	2700	1	1	9.2E-10	0%	N
			Copper	1.2E+00	1.2E-06	1.0E-03	1.0E-03	2000	0.57	2700	1	1	1.2E-09	0%	N
			Cyanide	2.8E+00	2.8E-06	1.0E-03	1.0E-03	2000	0.47	2700	1	1	2.8E-09	0%	N
			Iron	3.8E+04	3.8E-02	1.0E-03	1.0E-03	2000	0.5	2700	1	1	3.8E-05	0%	N
			Lead	8.3E-01	8.3E-07	1.0E-04	1.0E-03	2000	0.5	2700	1	1	8.3E-11	0%	N
			Manganese	1.8E+03	1.8E-03	1.0E-03	1.0E-03	2000	0.06	2700	1	1	1.8E-06	2%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	2700	1	1	N/A	N/A	N/A
			Nickel	9.6E+00	9.6E-06	2.0E-04	1.0E-03	2000	0.04	2700	1	1	1.9E-09	1%	N
			Silver	7.3E+00	7.3E-06	6.0E-04	1.0E-03	2000	0.04	2700	1	1	4.4E-09	2%	N
			Thallium	3.5E+00	3.5E-06	1.0E-03	1.0E-03	2000	1	2700	1	1	3.5E-09	0%	N
			Vanadium	2.4E+00	2.4E-06	1.0E-03	1.0E-03	2000	0.026	2700	1	1	2.4E-09	5%	N
			Zinc	2.9E+01	2.9E-05	6.0E-04	1.0E-03	2000	0.5	2700	1	1	1.8E-08	0%	N
Future	Rec. User - Adult wader	Unnamed Island Ponds	Aluminum	3.3E+03	3.3E-03	1.0E-03	1.0E-03	2000	0.01	7310	1	1	3.3E-06	37%	Y
			Arsenic	3.2E+00	3.2E-06	1.0E-03	1.0E-03	2000	0.95	7310	1	1	3.2E-09	0%	N
			Cadmium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.025	7310	1	1	1.4E-09	15%	Y
			Chromium	1.4E+01	1.4E-05	2.0E-03	1.0E-03	2000	0.025	7310	1	1	2.7E-08	29%	Y
			Cobalt	ND	N/A	4.0E-04	1.0E-03	2000	0.97	7310	1	1	N/A	N/A	N/A
			Copper	7.0E+01	7.0E-05	1.0E-03	1.0E-03	2000	0.57	7310	1	1	7.0E-08	1%	N
			Cyanide	3.6E+00	3.6E-06	1.0E-03	1.0E-03	2000	0.47	7310	1	1	3.6E-09	1%	N
			Iron	1.0E+04	1.0E-02	1.0E-03	1.0E-03	2000	0.5	7310	1	1	1.0E-05	1%	N
			Lead	2.2E+01	2.2E-05	1.0E-04	1.0E-03	2000	0.5	7310	1	1	2.2E-09	0%	N
			Manganese	5.7E+02	5.7E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	5.7E-07	6%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	7310	1	1	N/A	N/A	N/A
			Vanadium	2.6E+00	2.6E-06	1.0E-03	1.0E-03	2000	0.026	7310	1	1	2.6E-09	14%	Y

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm ³ /day	ABSGI	A cm ²	t _{event} hr/event	EV event/day	DA _{event} mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Unnamed Island Ponds	Aluminum	3.3E+03	3.3E-03	1.0E-03	1.0E-03	2000	0.01	18000	1	1	3.3E-06	90%	Y
			Arsenic	3.2E+00	3.2E-06	1.0E-03	1.0E-03	2000	0.95	18000	1	1	3.2E-09	1%	N
			Cadmium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.025	18000	1	1	1.4E-09	36%	Y
			Chromium	1.4E+01	1.4E-05	2.0E-03	1.0E-03	2000	0.025	18000	1	1	2.7E-08	72%	Y
			Cobalt	ND	N/A	4.0E-04	1.0E-03	2000	0.97	18000	1	1	N/A	N/A	N/A
			Copper	7.0E+01	7.0E-05	1.0E-03	1.0E-03	2000	0.57	18000	1	1	7.0E-08	2%	N
			Cyanide	3.6E+00	3.6E-06	1.0E-03	1.0E-03	2000	0.47	18000	1	1	3.6E-09	2%	N
			Iron	1.0E+04	1.0E-02	1.0E-03	1.0E-03	2000	0.5	18000	1	1	1.0E-05	2%	N
			Lead	2.2E+01	2.2E-05	1.0E-04	1.0E-03	2000	0.5	18000	1	1	2.2E-09	0%	N
			Manganese	5.7E+02	5.7E-04	1.0E-03	1.0E-03	2000	0.06	18000	1	1	5.7E-07	15%	Y
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	18000	1	1	N/A	N/A	N/A
			Vanadium	2.6E+00	2.6E-06	1.0E-03	1.0E-03	2000	0.026	18000	1	1	2.6E-09	35%	Y
Future	Rec. User - Older Child wader	Unnamed Island Ponds	Aluminum	3.3E+03	3.3E-03	1.0E-03	1.0E-03	2000	0.01	4170	1	1	3.3E-06	21%	Y
			Arsenic	3.2E+00	3.2E-06	1.0E-03	1.0E-03	2000	0.95	4170	1	1	3.2E-09	0%	N
			Cadmium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.025	4170	1	1	1.4E-09	8%	N
			Chromium	1.4E+01	1.4E-05	2.0E-03	1.0E-03	2000	0.025	4170	1	1	2.7E-08	17%	Y
			Cobalt	ND	N/A	4.0E-04	1.0E-03	2000	0.97	4170	1	1	N/A	N/A	N/A
			Copper	7.0E+01	7.0E-05	1.0E-03	1.0E-03	2000	0.57	4170	1	1	7.0E-08	0%	N
			Cyanide	3.6E+00	3.6E-06	1.0E-03	1.0E-03	2000	0.47	4170	1	1	3.6E-09	0%	N
			Iron	1.0E+04	1.0E-02	1.0E-03	1.0E-03	2000	0.5	4170	1	1	1.0E-05	0%	N
			Lead	2.2E+01	2.2E-05	1.0E-04	1.0E-03	2000	0.5	4170	1	1	2.2E-09	0%	N
			Manganese	5.7E+02	5.7E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	5.7E-07	3%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	4170	1	1	N/A	N/A	N/A
			Vanadium	2.6E+00	2.6E-06	1.0E-03	1.0E-03	2000	0.026	4170	1	1	2.6E-09	8%	N
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds	Aluminum	3.3E+03	3.3E-03	1.0E-03	1.0E-03	2000	0.01	11000	1	1	3.3E-06	55%	Y
			Arsenic	3.2E+00	3.2E-06	1.0E-03	1.0E-03	2000	0.95	11000	1	1	3.2E-09	1%	N
			Cadmium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.025	11000	1	1	1.4E-09	22%	Y
			Chromium	1.4E+01	1.4E-05	2.0E-03	1.0E-03	2000	0.025	11000	1	1	2.7E-08	44%	Y
			Cobalt	ND	N/A	4.0E-04	1.0E-03	2000	0.97	11000	1	1	N/A	N/A	N/A
			Copper	7.0E+01	7.0E-05	1.0E-03	1.0E-03	2000	0.57	11000	1	1	7.0E-08	1%	N
			Cyanide	3.6E+00	3.6E-06	1.0E-03	1.0E-03	2000	0.47	11000	1	1	3.6E-09	1%	N
			Iron	1.0E+04	1.0E-02	1.0E-03	1.0E-03	2000	0.5	11000	1	1	1.0E-05	1%	N
			Lead	2.2E+01	2.2E-05	1.0E-04	1.0E-03	2000	0.5	11000	1	1	2.2E-09	0%	N
			Manganese	5.7E+02	5.7E-04	1.0E-03	1.0E-03	2000	0.06	11000	1	1	5.7E-07	9%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	11000	1	1	N/A	N/A	N/A
			Vanadium	2.6E+00	2.6E-06	1.0E-03	1.0E-03	2000	0.026	11000	1	1	2.6E-09	21%	Y
Future	Rec. User - Adult wader	Southern Bank	Aluminum	6.5E+02	6.5E-04	1.0E-03	1.0E-03	2000	0.01	7310	1	1	6.5E-07	37%	Y
			Arsenic	1.7E+00	1.7E-06	1.0E-03	1.0E-03	2000	0.95	7310	1	1	1.7E-09	0%	N
			Cadmium	6.7E-01	6.7E-07	1.0E-03	1.0E-03	2000	0.025	7310	1	1	6.7E-10	15%	Y
			Chromium	3.4E+00	3.4E-06	2.0E-03	1.0E-03	2000	0.025	7310	1	1	6.8E-09	29%	Y
			Cobalt	8.3E-01	8.3E-07	4.0E-04	1.0E-03	2000	0.97	7310	1	1	3.3E-10	0%	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	7310	1	1	N/A	N/A	N/A
			Cyanide	4.7E+00	4.7E-06	1.0E-03	1.0E-03	2000	0.47	7310	1	1	4.7E-09	1%	N
			Iron	2.0E+03	2.0E-03	1.0E-03	1.0E-03	2000	0.5	7310	1	1	2.0E-06	1%	N
			Lead	6.7E+00	6.7E-06	1.0E-04	1.0E-03	2000	0.5	7310	1	1	6.7E-10	0%	N
			Manganese	4.7E+02	4.7E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	4.7E-07	6%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	7310	1	1	N/A	N/A	N/A
			Vanadium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.026	7310	1	1	1.4E-09	14%	Y

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm ³ /day	ABSGI	A cm ²	t _{event} hr/event	EV event/day	DA _{event} mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Southern Bank	Aluminum	6.5E+02	6.5E-04	1.0E-03	1.0E-03	2000	0.01	18000	1	1	6.5E-07	90%	Y
			Arsenic	1.7E+00	1.7E-06	1.0E-03	1.0E-03	2000	0.95	18000	1	1	1.7E-09	1%	N
			Cadmium	6.7E-01	6.7E-07	1.0E-03	1.0E-03	2000	0.025	18000	1	1	6.7E-10	36%	Y
			Chromium	3.4E+00	3.4E-06	2.0E-03	1.0E-03	2000	0.025	18000	1	1	6.8E-09	72%	Y
			Cobalt	8.3E-01	8.3E-07	4.0E-04	1.0E-03	2000	0.97	18000	1	1	3.3E-10	0%	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	18000	1	1	N/A	N/A	N/A
			Cyanide	4.7E+00	4.7E-06	1.0E-03	1.0E-03	2000	0.47	18000	1	1	4.7E-09	2%	N
			Iron	2.0E+03	2.0E-03	1.0E-03	1.0E-03	2000	0.5	18000	1	1	2.0E-06	2%	N
			Lead	6.7E+00	6.7E-06	1.0E-04	1.0E-03	2000	0.5	18000	1	1	6.7E-10	0%	N
			Manganese	4.7E+02	4.7E-04	1.0E-03	1.0E-03	2000	0.06	18000	1	1	4.7E-07	15%	Y
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	18000	1	1	N/A	N/A	N/A
			Vanadium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.026	18000	1	1	1.4E-09	35%	Y
Future	Rec. User - Older Child wader	Southern Bank	Aluminum	6.5E+02	6.5E-04	1.0E-03	1.0E-03	2000	0.01	4170	1	1	6.5E-07	21%	Y
			Arsenic	1.7E+00	1.7E-06	1.0E-03	1.0E-03	2000	0.95	4170	1	1	1.7E-09	0%	N
			Cadmium	6.7E-01	6.7E-07	1.0E-03	1.0E-03	2000	0.025	4170	1	1	6.7E-10	8%	N
			Chromium	3.4E+00	3.4E-06	2.0E-03	1.0E-03	2000	0.025	4170	1	1	6.8E-09	17%	Y
			Cobalt	8.3E-01	8.3E-07	4.0E-04	1.0E-03	2000	0.97	4170	1	1	3.3E-10	0%	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	4170	1	1	N/A	N/A	N/A
			Cyanide	4.7E+00	4.7E-06	1.0E-03	1.0E-03	2000	0.47	4170	1	1	4.7E-09	0%	N
			Iron	2.0E+03	2.0E-03	1.0E-03	1.0E-03	2000	0.5	4170	1	1	2.0E-06	0%	N
			Lead	6.7E+00	6.7E-06	1.0E-04	1.0E-03	2000	0.5	4170	1	1	6.7E-10	0%	N
			Manganese	4.7E+02	4.7E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	4.7E-07	3%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	4170	1	1	N/A	N/A	N/A
			Vanadium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.026	4170	1	1	1.4E-09	8%	N
Future	Rec. User - Older Child swimmer	Southern Bank	Aluminum	6.5E+02	6.5E-04	1.0E-03	1.0E-03	2000	0.01	11000	1	1	6.5E-07	55%	Y
			Arsenic	1.7E+00	1.7E-06	1.0E-03	1.0E-03	2000	0.95	11000	1	1	1.7E-09	1%	N
			Cadmium	6.7E-01	6.7E-07	1.0E-03	1.0E-03	2000	0.025	11000	1	1	6.7E-10	22%	Y
			Chromium	3.4E+00	3.4E-06	2.0E-03	1.0E-03	2000	0.025	11000	1	1	6.8E-09	44%	Y
			Cobalt	8.3E-01	8.3E-07	4.0E-04	1.0E-03	2000	0.97	11000	1	1	3.3E-10	0%	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	11000	1	1	N/A	N/A	N/A
			Cyanide	4.7E+00	4.7E-06	1.0E-03	1.0E-03	2000	0.47	11000	1	1	4.7E-09	1%	N
			Iron	2.0E+03	2.0E-03	1.0E-03	1.0E-03	2000	0.5	11000	1	1	2.0E-06	1%	N
			Lead	6.7E+00	6.7E-06	1.0E-04	1.0E-03	2000	0.5	11000	1	1	6.7E-10	0%	N
			Manganese	4.7E+02	4.7E-04	1.0E-03	1.0E-03	2000	0.06	11000	1	1	4.7E-07	9%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	11000	1	1	N/A	N/A	N/A
			Vanadium	1.4E+00	1.4E-06	1.0E-03	1.0E-03	2000	0.026	11000	1	1	1.4E-09	21%	Y
Future	Rec. User - Adult wader	Upstream of Landfill	Aluminum	2.1E+03	2.1E-03	1.0E-03	1.0E-03	2000	0.01	7310	1	1	2.1E-06	37%	Y
			Arsenic	4.6E+00	4.6E-06	1.0E-03	1.0E-03	2000	0.95	7310	1	1	4.6E-09	0%	N
			Cadmium	4.7E-01	4.7E-07	1.0E-03	1.0E-03	2000	0.025	7310	1	1	4.7E-10	15%	Y
			Chromium	8.5E+00	8.5E-06	2.0E-03	1.0E-03	2000	0.025	7310	1	1	1.7E-08	29%	Y
			Cobalt	6.6E-01	6.6E-07	4.0E-04	1.0E-03	2000	0.97	7310	1	1	2.6E-10	0%	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	7310	1	1	N/A	N/A	N/A
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	7310	1	1	N/A	N/A	N/A
			Iron	3.7E+03	3.7E-03	1.0E-03	1.0E-03	2000	0.5	7310	1	1	3.7E-06	1%	N
			Lead	8.6E+00	8.6E-06	1.0E-04	1.0E-03	2000	0.5	7310	1	1	8.6E-10	0%	N
			Manganese	3.0E+02	3.0E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	3.0E-07	6%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	7310	1	1	N/A	N/A	N/A
			Vanadium	4.2E+00	4.2E-06	1.0E-03	1.0E-03	2000	0.026	7310	1	1	4.2E-09	14%	Y

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm ³ /day	ABSGI	A cm ²	t _{event} hr/event	EV event/day	DA _{event} mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Upstream of Landfill	Aluminum	2.1E+03	2.1E-03	1.0E-03	1.0E-03	2000	0.01	18000	1	1	2.1E-06	90%	Y
			Arsenic	4.6E+00	4.6E-06	1.0E-03	1.0E-03	2000	0.95	18000	1	1	4.6E-09	1%	N
			Cadmium	4.7E-01	4.7E-07	1.0E-03	1.0E-03	2000	0.025	18000	1	1	4.7E-10	36%	Y
			Chromium	8.5E+00	8.5E-06	2.0E-03	1.0E-03	2000	0.025	18000	1	1	1.7E-08	72%	Y
			Cobalt	6.6E-01	6.6E-07	4.0E-04	1.0E-03	2000	0.97	18000	1	1	2.6E-10	0%	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	18000	1	1	N/A	N/A	N/A
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	18000	1	1	N/A	N/A	N/A
			Iron	3.7E+03	3.7E-03	1.0E-03	1.0E-03	2000	0.5	18000	1	1	3.7E-06	2%	N
			Lead	8.6E+00	8.6E-06	1.0E-04	1.0E-03	2000	0.5	18000	1	1	8.6E-10	0%	N
			Manganese	3.0E+02	3.0E-04	1.0E-03	1.0E-03	2000	0.06	18000	1	1	3.0E-07	15%	Y
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	18000	1	1	N/A	N/A	N/A
			Vanadium	4.2E+00	4.2E-06	1.0E-03	1.0E-03	2000	0.026	18000	1	1	4.2E-09	35%	Y
Future	Rec. User - Older Child wader	Upstream of Landfill	Aluminum	2.1E+03	2.1E-03	1.0E-03	1.0E-03	2000	0.01	4170	1	1	2.1E-06	21%	Y
			Arsenic	4.6E+00	4.6E-06	1.0E-03	1.0E-03	2000	0.95	4170	1	1	4.6E-09	0%	N
			Cadmium	4.7E-01	4.7E-07	1.0E-03	1.0E-03	2000	0.025	4170	1	1	4.7E-10	8%	N
			Chromium	8.5E+00	8.5E-06	2.0E-03	1.0E-03	2000	0.025	4170	1	1	1.7E-08	17%	Y
			Cobalt	6.6E-01	6.6E-07	4.0E-04	1.0E-03	2000	0.97	4170	1	1	2.6E-10	0%	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	4170	1	1	N/A	N/A	N/A
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	4170	1	1	N/A	N/A	N/A
			Iron	3.7E+03	3.7E-03	1.0E-03	1.0E-03	2000	0.5	4170	1	1	3.7E-06	0%	N
			Lead	8.6E+00	8.6E-06	1.0E-04	1.0E-03	2000	0.5	4170	1	1	8.6E-10	0%	N
			Manganese	3.0E+02	3.0E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	3.0E-07	3%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	4170	1	1	N/A	N/A	N/A
			Vanadium	4.2E+00	4.2E-06	1.0E-03	1.0E-03	2000	0.026	4170	1	1	4.2E-09	8%	N
Future	Rec. User - Older Child swimmer	Upstream of Landfill	Aluminum	2.1E+03	2.1E-03	1.0E-03	1.0E-03	2000	0.01	11000	1	1	2.1E-06	55%	Y
			Arsenic	4.6E+00	4.6E-06	1.0E-03	1.0E-03	2000	0.95	11000	1	1	4.6E-09	1%	N
			Cadmium	4.7E-01	4.7E-07	1.0E-03	1.0E-03	2000	0.025	11000	1	1	4.7E-10	22%	Y
			Chromium	8.5E+00	8.5E-06	2.0E-03	1.0E-03	2000	0.025	11000	1	1	1.7E-08	44%	Y
			Cobalt	6.6E-01	6.6E-07	4.0E-04	1.0E-03	2000	0.97	11000	1	1	2.6E-10	0%	N
			Copper	ND	N/A	1.0E-03	1.0E-03	2000	0.57	11000	1	1	N/A	N/A	N/A
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	11000	1	1	N/A	N/A	N/A
			Iron	3.7E+03	3.7E-03	1.0E-03	1.0E-03	2000	0.5	11000	1	1	3.7E-06	1%	N
			Lead	8.6E+00	8.6E-06	1.0E-04	1.0E-03	2000	0.5	11000	1	1	8.6E-10	0%	N
			Manganese	3.0E+02	3.0E-04	1.0E-03	1.0E-03	2000	0.06	11000	1	1	3.0E-07	9%	N
			Mercury	ND	N/A	1.0E-03	1.0E-03	2000	0.07	11000	1	1	N/A	N/A	N/A
			Vanadium	4.2E+00	4.2E-06	1.0E-03	1.0E-03	2000	0.026	11000	1	1	4.2E-09	21%	Y
Future	Rec. User - Adult wader	Adjacent to Landfill	Aluminum	1.7E+04	1.7E-02	1.0E-03	1.0E-03	2000	0.01	7310	1	1	1.7E-05	37%	Y
			Arsenic	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.95	7310	1	1	1.1E-08	0%	N
			Cadmium	1.6E+01	1.6E-05	1.0E-03	1.0E-03	2000	0.025	7310	1	1	1.6E-08	15%	Y
			Chromium	2.2E+02	2.2E-04	2.0E-03	1.0E-03	2000	0.025	7310	1	1	4.3E-07	29%	Y
			Cobalt	9.2E+00	9.2E-06	4.0E-04	1.0E-03	2000	0.97	7310	1	1	3.7E-09	0%	N
			Copper	4.3E+02	4.3E-04	1.0E-03	1.0E-03	2000	0.57	7310	1	1	4.3E-07	1%	N
			Cyanide	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.47	7310	1	1	1.1E-08	1%	N
			Iron	4.5E+04	4.5E-02	1.0E-03	1.0E-03	2000	0.5	7310	1	1	4.5E-05	1%	N
			Lead	2.7E+02	2.7E-04	1.0E-04	1.0E-03	2000	0.5	7310	1	1	2.7E-08	0%	N
			Manganese	7.5E+02	7.5E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	7.5E-07	6%	N
			Mercury	3.7E-01	3.7E-07	1.0E-03	1.0E-03	2000	0.07	7310	1	1	3.7E-10	5%	N
			Vanadium	4.9E+01	4.9E-05	1.0E-03	1.0E-03	2000	0.026	7310	1	1	4.9E-08	14%	Y

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm ³ /day	ABSGI	A cm ²	t _{event} hr/event	EV event/day	DA _{event} mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Adjacent to Landfill	Aluminum	1.7E+04	1.7E-02	1.0E-03	1.0E-03	2000	0.01	18000	1	1	1.7E-05	90%	Y
			Arsenic	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.95	18000	1	1	1.1E-08	1%	N
			Cadmium	1.6E+01	1.6E-05	1.0E-03	1.0E-03	2000	0.025	18000	1	1	1.6E-08	36%	Y
			Chromium	2.2E+02	2.2E-04	2.0E-03	1.0E-03	2000	0.025	18000	1	1	4.3E-07	72%	Y
			Cobalt	9.2E+00	9.2E-06	4.0E-04	1.0E-03	2000	0.97	18000	1	1	3.7E-09	0%	N
			Copper	4.3E+02	4.3E-04	1.0E-03	1.0E-03	2000	0.57	18000	1	1	4.3E-07	2%	N
			Cyanide	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.47	18000	1	1	1.1E-08	2%	N
			Iron	4.5E+04	4.5E-02	1.0E-03	1.0E-03	2000	0.5	18000	1	1	4.5E-05	2%	N
			Lead	2.7E+02	2.7E-04	1.0E-04	1.0E-03	2000	0.5	18000	1	1	2.7E-08	0%	N
			Manganese	7.5E+02	7.5E-04	1.0E-03	1.0E-03	2000	0.06	18000	1	1	7.5E-07	15%	Y
			Mercury	3.7E-01	3.7E-07	1.0E-03	1.0E-03	2000	0.07	18000	1	1	3.7E-10	13%	Y
			Vanadium	4.9E+01	4.9E-05	1.0E-03	1.0E-03	2000	0.026	18000	1	1	4.9E-08	35%	Y
Future	Rec. User - Older Child wader	Adjacent to Landfill	Aluminum	1.7E+04	1.7E-02	1.0E-03	1.0E-03	2000	0.01	4170	1	1	1.7E-05	21%	Y
			Arsenic	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.95	4170	1	1	1.1E-08	0%	N
			Cadmium	1.6E+01	1.6E-05	1.0E-03	1.0E-03	2000	0.025	4170	1	1	1.6E-08	8%	N
			Chromium	2.2E+02	2.2E-04	2.0E-03	1.0E-03	2000	0.025	4170	1	1	4.3E-07	17%	Y
			Cobalt	9.2E+00	9.2E-06	4.0E-04	1.0E-03	2000	0.97	4170	1	1	3.7E-09	0%	N
			Copper	4.3E+02	4.3E-04	1.0E-03	1.0E-03	2000	0.57	4170	1	1	4.3E-07	0%	N
			Cyanide	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.47	4170	1	1	1.1E-08	0%	N
			Iron	4.5E+04	4.5E-02	1.0E-03	1.0E-03	2000	0.5	4170	1	1	4.5E-05	0%	N
			Lead	2.7E+02	2.7E-04	1.0E-04	1.0E-03	2000	0.5	4170	1	1	2.7E-08	0%	N
			Manganese	7.5E+02	7.5E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	7.5E-07	3%	N
			Mercury	3.7E-01	3.7E-07	1.0E-03	1.0E-03	2000	0.07	4170	1	1	3.7E-10	3%	N
			Vanadium	4.9E+01	4.9E-05	1.0E-03	1.0E-03	2000	0.026	4170	1	1	4.9E-08	8%	N
Future	Rec. User - Older Child swimmer	Adjacent to Landfill	Aluminum	1.7E+04	1.7E-02	1.0E-03	1.0E-03	2000	0.01	11000	1	1	1.7E-05	55%	Y
			Arsenic	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.95	11000	1	1	1.1E-08	1%	N
			Cadmium	1.6E+01	1.6E-05	1.0E-03	1.0E-03	2000	0.025	11000	1	1	1.6E-08	22%	Y
			Chromium	2.2E+02	2.2E-04	2.0E-03	1.0E-03	2000	0.025	11000	1	1	4.3E-07	44%	Y
			Cobalt	9.2E+00	9.2E-06	4.0E-04	1.0E-03	2000	0.97	11000	1	1	3.7E-09	0%	N
			Copper	4.3E+02	4.3E-04	1.0E-03	1.0E-03	2000	0.57	11000	1	1	4.3E-07	1%	N
			Cyanide	1.1E+01	1.1E-05	1.0E-03	1.0E-03	2000	0.47	11000	1	1	1.1E-08	1%	N
			Iron	4.5E+04	4.5E-02	1.0E-03	1.0E-03	2000	0.5	11000	1	1	4.5E-05	1%	N
			Lead	2.7E+02	2.7E-04	1.0E-04	1.0E-03	2000	0.5	11000	1	1	2.7E-08	0%	N
			Manganese	7.5E+02	7.5E-04	1.0E-03	1.0E-03	2000	0.06	11000	1	1	7.5E-07	9%	N
			Mercury	3.7E-01	3.7E-07	1.0E-03	1.0E-03	2000	0.07	11000	1	1	3.7E-10	8%	N
			Vanadium	4.9E+01	4.9E-05	1.0E-03	1.0E-03	2000	0.026	11000	1	1	4.9E-08	21%	Y
Future	Rec. User - Adult wader	Downstream of Landfill	Aluminum	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.01	7310	1	1	2.8E-07	37%	Y
			Arsenic	3.0E+00	3.0E-06	1.0E-03	1.0E-03	2000	0.95	7310	1	1	3.0E-09	0%	N
			Cadmium	5.6E-01	5.6E-07	1.0E-03	1.0E-03	2000	0.025	7310	1	1	5.6E-10	15%	Y
			Chromium	3.3E+00	3.3E-06	2.0E-03	1.0E-03	2000	0.025	7310	1	1	6.6E-09	29%	Y
			Cobalt	8.1E-01	8.1E-07	4.0E-04	1.0E-03	2000	0.97	7310	1	1	3.2E-10	0%	N
			Copper	9.3E+00	9.3E-06	1.0E-03	1.0E-03	2000	0.57	7310	1	1	9.3E-09	1%	N
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	7310	1	1	N/A	N/A	N/A
			Iron	7.5E+03	7.5E-03	1.0E-03	1.0E-03	2000	0.5	7310	1	1	7.5E-06	1%	N
			Lead	6.8E+00	6.8E-06	1.0E-04	1.0E-03	2000	0.5	7310	1	1	6.8E-10	0%	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	3.2E-07	6%	N
			Mercury	1.6E-02	1.6E-08	1.0E-03	1.0E-03	2000	0.07	7310	1	1	1.6E-11	5%	N
			Vanadium	1.9E+00	1.9E-06	1.0E-03	1.0E-03	2000	0.026	7310	1	1	1.9E-09	14%	Y

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm ³ /day	ABSGI	A cm ²	t _{event} hr/event	EV event/day	DA _{event} mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Downstream of Landfill	Aluminum	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.01	18000	1	1	2.8E-07	90%	Y
			Arsenic	3.0E+00	3.0E-06	1.0E-03	1.0E-03	2000	0.95	18000	1	1	3.0E-09	1%	N
			Cadmium	5.6E-01	5.6E-07	1.0E-03	1.0E-03	2000	0.025	18000	1	1	5.6E-10	36%	Y
			Chromium	3.3E+00	3.3E-06	2.0E-03	1.0E-03	2000	0.025	18000	1	1	6.6E-09	72%	Y
			Cobalt	8.1E-01	8.1E-07	4.0E-04	1.0E-03	2000	0.97	18000	1	1	3.2E-10	0%	N
			Copper	9.3E+00	9.3E-06	1.0E-03	1.0E-03	2000	0.57	18000	1	1	9.3E-09	2%	N
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	18000	1	1	N/A	N/A	N/A
			Iron	7.5E+03	7.5E-03	1.0E-03	1.0E-03	2000	0.5	18000	1	1	7.5E-06	2%	N
			Lead	6.8E+00	6.8E-06	1.0E-04	1.0E-03	2000	0.5	18000	1	1	6.8E-10	0%	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	18000	1	1	3.2E-07	15%	Y
			Mercury	1.6E-02	1.6E-08	1.0E-03	1.0E-03	2000	0.07	18000	1	1	1.6E-11	13%	Y
			Vanadium	1.9E+00	1.9E-06	1.0E-03	1.0E-03	2000	0.026	18000	1	1	1.9E-09	35%	Y
Future	Rec. User - Older Child wader	Downstream of Landfill	Aluminum	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.01	4170	1	1	2.8E-07	21%	Y
			Arsenic	3.0E+00	3.0E-06	1.0E-03	1.0E-03	2000	0.95	4170	1	1	3.0E-09	0%	N
			Cadmium	5.6E-01	5.6E-07	1.0E-03	1.0E-03	2000	0.025	4170	1	1	5.6E-10	8%	N
			Chromium	3.3E+00	3.3E-06	2.0E-03	1.0E-03	2000	0.025	4170	1	1	6.6E-09	17%	Y
			Cobalt	8.1E-01	8.1E-07	4.0E-04	1.0E-03	2000	0.97	4170	1	1	3.2E-10	0%	N
			Copper	9.3E+00	9.3E-06	1.0E-03	1.0E-03	2000	0.57	4170	1	1	9.3E-09	0%	N
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	4170	1	1	N/A	N/A	N/A
			Iron	7.5E+03	7.5E-03	1.0E-03	1.0E-03	2000	0.5	4170	1	1	7.5E-06	0%	N
			Lead	6.8E+00	6.8E-06	1.0E-04	1.0E-03	2000	0.5	4170	1	1	6.8E-10	0%	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	3.2E-07	3%	N
			Mercury	1.6E-02	1.6E-08	1.0E-03	1.0E-03	2000	0.07	4170	1	1	1.6E-11	3%	N
			Vanadium	1.9E+00	1.9E-06	1.0E-03	1.0E-03	2000	0.026	4170	1	1	1.9E-09	8%	N
Future	Rec. User - Older Child swimmer	Downstream of Landfill	Aluminum	2.8E+02	2.8E-04	1.0E-03	1.0E-03	2000	0.01	11000	1	1	2.8E-07	55%	Y
			Arsenic	3.0E+00	3.0E-06	1.0E-03	1.0E-03	2000	0.95	11000	1	1	3.0E-09	1%	N
			Cadmium	5.6E-01	5.6E-07	1.0E-03	1.0E-03	2000	0.025	11000	1	1	5.6E-10	22%	Y
			Chromium	3.3E+00	3.3E-06	2.0E-03	1.0E-03	2000	0.025	11000	1	1	6.6E-09	44%	Y
			Cobalt	8.1E-01	8.1E-07	4.0E-04	1.0E-03	2000	0.97	11000	1	1	3.2E-10	0%	N
			Copper	9.3E+00	9.3E-06	1.0E-03	1.0E-03	2000	0.57	11000	1	1	9.3E-09	1%	N
			Cyanide	ND	N/A	1.0E-03	1.0E-03	2000	0.47	11000	1	1	N/A	N/A	N/A
			Iron	7.5E+03	7.5E-03	1.0E-03	1.0E-03	2000	0.5	11000	1	1	7.5E-06	1%	N
			Lead	6.8E+00	6.8E-06	1.0E-04	1.0E-03	2000	0.5	11000	1	1	6.8E-10	0%	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	11000	1	1	3.2E-07	9%	N
			Mercury	1.6E-02	1.6E-08	1.0E-03	1.0E-03	2000	0.07	11000	1	1	1.6E-11	8%	N
			Vanadium	1.9E+00	1.9E-06	1.0E-03	1.0E-03	2000	0.026	11000	1	1	1.9E-09	21%	Y
Future	Rec. User - Adult wader	Wetlands	Arsenic	1.6E+00	1.6E-06	1.0E-03	1.0E-03	2000	0.95	7310	1	1	1.6E-09	0%	N
			Cobalt	2.0E+00	2.0E-06	4.0E-04	1.0E-03	2000	0.97	7310	1	1	8.2E-10	0%	N
			Cyanide	9.2E+01	9.2E-05	1.0E-03	1.0E-03	2000	0.47	7310	1	1	9.2E-08	1%	N
			Iron	1.6E+03	1.6E-03	1.0E-03	1.0E-03	2000	0.5	7310	1	1	1.6E-06	1%	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	7310	1	1	3.2E-07	6%	N
Future	Rec. User - Adult swimmer	Wetlands	Arsenic	1.6E+00	1.6E-06	1.0E-03	1.0E-03	2000	0.95	18000	1	1	1.6E-09	1%	N
			Cobalt	2.0E+00	2.0E-06	4.0E-04	1.0E-03	2000	0.97	18000	1	1	8.2E-10	0%	N
			Cyanide	9.2E+01	9.2E-05	1.0E-03	1.0E-03	2000	0.47	18000	1	1	9.2E-08	2%	N
			Iron	1.6E+03	1.6E-03	1.0E-03	1.0E-03	2000	0.5	18000	1	1	1.6E-06	2%	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	18000	1	1	3.2E-07	15%	Y
Future	Rec. User - Older Child wader	Wetlands	Arsenic	1.6E+00	1.6E-06	1.0E-03	1.0E-03	2000	0.95	4170	1	1	1.6E-09	0%	N
			Cobalt	2.0E+00	2.0E-06	4.0E-04	1.0E-03	2000	0.97	4170	1	1	8.2E-10	0%	N
			Cyanide	9.2E+01	9.2E-05	1.0E-03	1.0E-03	2000	0.47	4170	1	1	9.2E-08	0%	N
			Iron	1.6E+03	1.6E-03	1.0E-03	1.0E-03	2000	0.5	4170	1	1	1.6E-06	0%	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	4170	1	1	3.2E-07	3%	N

TABLE 4. DERMAL SCREENING - SURFACE WATER INORGANICS
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	Kp (cm/hr)	Isc cm	IR cm ³ /day	ABSGI	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Wetlands	Arsenic	1.6E+00	1.6E-06	1.0E-03	1.0E-03	2000	0.95	11000	1	1	1.6E-09	1%	N
			Cobalt	2.0E+00	2.0E-06	4.0E-04	1.0E-03	2000	0.97	11000	1	1	8.2E-10	0%	N
			Cyanide	9.2E+01	9.2E-05	1.0E-03	1.0E-03	2000	0.47	11000	1	1	9.2E-08	1%	N
			Iron	1.6E+03	1.6E-03	1.0E-03	1.0E-03	2000	0.5	11000	1	1	1.6E-06	1%	N
			Manganese	3.2E+02	3.2E-04	1.0E-03	1.0E-03	2000	0.06	11000	1	1	3.2E-07	9%	N

DERMAL ABSORPTION CALCULATION EXAMPLE

Note: This EPA spreadsheet utilized as basis for Appendix U calculations.

FOR INORGANIC CHEMICALS IN WATER (latest version 04/01)

Worksheet to Calculate Dermal Absorption of Inorganic Chemicals from Aqueous Media

Enter the Following Exposure Conditions: for site specific conditions, change values for A through AT (Given are default values from Table 8-6)

Concentration (mg/L * L/1000 cm ³):	Conc =	0.001 mg/cm ³ (default value for purpose of illustration)
Input site specific concentrations in Column marked "Conc"	= 1 mg/L (1 ppm)	= 1 ug/cm ³ = 1000 ppb
Area exposed (cm ²):	SA =	18000 cm ²
Event time (hr/event):	t _{event} =	0.58 hr/event (35 minutes/event)
Event frequency (events/day):	EV =	1 event/day
Exposure frequency (days/year):	EF =	350 days/yr
Exposure duration (years):	ED =	30 years
Body weight (kg):	BW =	70 kg
Averaging time (days):	AT =	25550 days
for carcinogenic effects, AT=70 years (25,550 days)		
for noncarcinogenic effects, AT=ED (in days)		

Default conditions for screening purposes:

Compare Dermal to Drinking: Adults showering for 35 minutes/day, compared to drinking 2L water/day

$$\text{Dermal (mg/day)} = \text{DA}_{\text{event}} * A * \text{EV}$$

$$\text{Drinking (mg/day)} = \text{Conc} * \text{IR} * \text{ABSIG}$$

IR: Ingestion rate of drinking water

IR =

2000 (cm³/day = L/day * 1000 cm³/L)

ABSIG: Absorption fraction in GI tract

Chemical specific

Condition for screening: "Y" when Dermal is 10% of Drinking

Compare Dermal to Total dose exposed during adult showering assuming 5 gal/min of water flow rate

$$\text{Total dose (mg/day)} = Q * T_{\text{event}} * \text{EV}$$

Q: Shower flow rate (5-15 gal/min; here using 5 gal/min)

Q =

1135500 (cm³/hr = gal/min * 3.785 gal/l * 60 min/hr * 1000 cm³/hr)

Refer to Appendix A for equations to evaluate DA_{event} and DAD

CHEMICAL	Kp (cm/hr)	Source of Kp (exp or default)	Conc (mg/cm ³)	DA _{event} (mg/cm ² -event)	DAD (mg/kg-day)	ABSGI (chemical specific)	Screening	Chemicals to be assessed	Derm/ Total Dose
Antimony	1.0E-03	default	1.0E-03	5.8E-07	6.2E-05	15%	3.50%	N	0.00%

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island	4-Methylphenol	1.1E+00	1.1E-06	106445	108.1	1.95	7.7E-03	1.0E-03	2000	1	0.031	0.42	1.0	-3.41E+00	3.93E-04	3.93E-07	3.2E-01	3.5E-01	N/A	1.02
			Acenaphthylene	1.7E-02	1.7E-08	208968	152.2	3.94	9.1E-02	1.0E-03	2000	1	0.432	0.75	1.0	-3.65E+00	2.23E-04	2.23E-07	6.4E-01	6.6E-01	N/A	1.80
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	1.70	1.0	-4.01E+00	9.82E-05	9.82E-08	3.2E-01	3.5E-01	N/A	4.07
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	ND	N/A	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	7.7E-01	7.7E-07	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	ND	N/A	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Dibenz(a,h)anthracene	ND	N/A	53703	278.4	6.84	NA	1.0E-03	2000	1	N/A	3.81	0.6	-4.36E+00	4.37E-05	4.37E-08	N/A	N/A	N/A	9.14
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	1.85	1.0	-4.04E+00	9.02E-05	9.02E-08	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	2.3E-01	2.3E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			N-Nitrosodiphenylamine	2.4E+00	2.4E-06	86306	198.2	3.13	1.5E-02	1.0E-03	2000	1	0.079	1.35	1.0	-3.91E+00	1.23E-04	1.23E-07	3.5E-01	3.9E-01	N/A	3.25
			Pentachlorophenol	ND	N/A	87865	266.4	5.86	NA	1.0E-03	2000	1	N/A	3.26	0.9	-4.29E+00	5.11E-05	5.11E-08	N/A	N/A	N/A	7.83
			Phenanthrene	1.6E-01	1.6E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	1.8E+00	1.8E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	6.4E+02	6.4E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Chlorobenzene	1.4E+01	1.4E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	0.45	1.0	-3.43E+00	3.71E-04	3.71E-07	3.8E-01	4.1E-01	N/A	1.08
			Ethylbenzene	1.1E+00	1.1E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99
			Xylene (total)	3.0E+00	3.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99
			Total PCBs	2.0E-01	2.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.0E-03	5.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	4.1E-03	4.1E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
Current	Trespasser - Adolescent wader	Unnamed Island Ponds	Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.1E-01	1.1E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	1.9E-01	1.9E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island	4-Methylphenol	1.02	3700	1	1	1.5E-08	3%	N
			Acenaphthylene	1.80	3700	1	1	3.7E-09	40%	Y
			Atrazine	4.07	3700	1	1	5.9E-08	3%	N
			Benzo(a)anthracene	N/A	3700	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	3700	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	3700	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	3700	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	3700	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	3700	1	1	1.7E-07	41%	Y
			Chrysene	N/A	3700	1	1	N/A	N/A	N/A
			Dibenz(a,h)anthracene	N/A	3700	1	1	N/A	N/A	N/A
			Dibenzofuran	4.44	3700	1	1	1.2E-07	51%	Y
			Indeno(1,2,3-cd)pyrene	N/A	3700	1	1	N/A	N/A	N/A
			Naphthalene	1.32	3700	1	1	2.1E-08	18%	Y
			N-Nitrosodiphenylamine	3.25	3700	1	1	1.1E-07	9%	N
			Pentachlorophenol	N/A	3700	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	3700	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	3700	1	1	1.8E-07	18%	Y
			Benzene	0.69	3700	1	1	1.5E-05	4%	N
			Chlorobenzene	1.08	3700	1	1	7.2E-07	10%	N
			Ethylbenzene	0.99	3700	1	1	9.5E-08	17%	Y
			Xylene (total)	0.99	3700	1	1	2.7E-07	17%	Y
			Total PCBs	N/A	3700	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	3700	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	3700	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	3700	1	1	N/A	N/A	N/A
			alpha-BHC	10.73	3700	1	1	2.5E-10	13%	Y
			alpha-Chlordane	49.90	3700	1	1	N/A	N/A	N/A
			Dieldrin	34.33	3700	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	3700	1	1	N/A	N/A	N/A
Current	Trespasser - Adolescent wader	Unnamed Island Ponds	Benzo(a)anthracene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	2.9E-07	85%	Y
			Chrysene	N/A	7600	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7600	1	1	1.8E-08	36%	Y
			Phenanthrene	N/A	7600	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	N/A	N/A	N/A
			Benzene	0.69	7600	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7600	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7600	1	1	9.9E-10	113%	Y
			beta-BHC	10.73	7600	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7600	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	7600	1	1	1.3E-09	113%	Y
			Heptachlor Epoxide	38.21	7600	1	1	1.2E-09	88%	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isr cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Rec. User - Adult wader	Southern Bank	Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Current	Rec. User - Older Child wader	Southern Bank	Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Rec. User - Adult wader	Southern Bank	Benzo(a)anthracene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	N/A	N/A	N/A
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7310	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	7310	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	N/A	N/A	N/A
			Benzene	0.69	7310	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7310	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7310	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7310	1	1	2.5E-10	37%	Y
			Gamma-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7310	1	1	N/A	N/A	N/A
Current	Rec. User - Older Child wader	Southern Bank	Benzo(a)anthracene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	N/A	N/A	N/A
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Naphthalene	1.32	4170	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	4170	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	N/A	N/A	N/A
			Benzene	0.69	4170	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	4170	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			beta-BHC	10.73	4170	1	1	N/A	N/A	N/A
			Dieldrin	34.33	4170	1	1	2.5E-10	21%	Y
			Gamma-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	4170	1	1	N/A	N/A	N/A

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Trespasser - Adolescent wader	Upstream of Landfill	Benzo(a)anthracene	1.0E-01	1.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.4E-01	1.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.0E-01	2.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.0E+01	1.0E-05	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.5E-01	1.5E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.0E-01	1.0E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.7E-01	1.7E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.8E-03	5.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	4.4E-03	4.4E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	2.9E-03	2.9E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Current	Trespasser - Adolescent wader	Adjacent to Landfill	Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	2.3E-01	2.3E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	2.0E-01	2.0E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	5.4E-01	5.4E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	8.0E-01	8.0E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	2.5E-02	2.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Upstream of Landfill	Benzo(a)anthracene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	2.2E-06	85%	Y
			Chrysene	N/A	7600	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7600	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	7600	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	N/A	N/A	N/A
			Benzene	0.69	7600	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7600	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7600	1	1	1.3E-09	113%	Y
			beta-BHC	10.73	7600	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7600	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	7600	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7600	1	1	6.7E-10	88%	Y
Current	Trespasser - Adolescent wader	Adjacent to Landfill	Benzo(a)anthracene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	N/A	N/A	N/A
			Chrysene	N/A	7600	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7600	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	7600	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	5.2E-08	37%	Y
			Benzene	0.69	7600	1	1	1.9E-08	9%	N
			Aroclor-1260	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7600	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7600	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7600	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7600	1	1	1.4E-09	39%	Y
			Gamma-Chlordane	49.90	7600	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7600	1	1	8.5E-10	88%	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Trespasser - Adolescent wader	Downstream of Landfill	Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	1.4E-01	1.4E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Current	Trespasser - Adolescent wader	Wetlands	Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Adult wader	Leachate - Landfill/Unnamed Island	4-Methylphenol	1.1E+00	1.1E-06	106445	108.1	1.95	7.7E-03	1.0E-03	2000	1	0.031	0.42	1.0	-3.41E+00	3.93E-04	3.93E-07	3.2E-01	3.5E-01	N/A	1.02
			Acenaphthylene	1.7E-02	1.7E-08	208968	152.2	3.94	9.1E-02	1.0E-03	2000	1	0.432	0.75	1.0	-3.65E+00	2.23E-04	2.23E-07	6.4E-01	6.6E-01	N/A	1.80
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	1.70	1.0	-4.01E+00	9.82E-05	9.82E-08	3.2E-01	3.5E-01	N/A	4.07
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	ND	N/A	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	7.7E-01	7.7E-07	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	ND	N/A	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Dibenz(a,h)anthracene	ND	N/A	53703	278.4	6.84	NA	1.0E-03	2000	1	N/A	3.81	0.6	-4.36E+00	4.37E-05	4.37E-08	N/A	N/A	N/A	9.14
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	1.85	1.0	-4.04E+00	9.02E-05	9.02E-08	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	2.3E-01	2.3E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			N-Nitrosodiphenylamine	2.4E+00	2.4E-06	86306	198.2	3.13	1.5E-02	1.0E-03	2000	1	0.079	1.35	1.0	-3.91E+00	1.23E-04	1.23E-07	3.5E-01	3.9E-01	N/A	3.25
			Pentachlorophenol	ND	N/A	87865	266.4	5.86	NA	1.0E-03	2000	1	N/A	3.26	0.9	-4.29E+00	5.11E-05	5.11E-08	N/A	N/A	N/A	7.83
			Phenanthrene	1.6E-01	1.6E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	1.8E+00	1.8E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	6.4E+02	6.4E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Chlorobenzene	1.4E+01	1.4E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	0.45	1.0	-3.43E+00	3.71E-04	3.71E-07	3.8E-01	4.1E-01	N/A	1.08
			Ethylbenzene	1.1E+00	1.1E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99
			Xylene (total)	3.0E+00	3.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99
			Total PCBs	2.0E-01	2.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.0E-03	5.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	4.1E-03	4.1E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8							

(Variable Definitions follow Table)

[illegible]

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child wader	Leachate - Landfill/Unnamed Island	4-Methylphenol	1.1E+00	1.1E-06	106445	108.1	1.95	7.7E-03	1.0E-03	2000	1	0.031	0.42	1.0	-3.41E+00	3.93E-04	3.93E-07	3.2E-01	3.5E-01	N/A	1.02
			Acenaphthylene	1.7E-02	1.7E-08	208968	152.2	3.94	9.1E-02	1.0E-03	2000	1	0.432	0.75	1.0	-3.65E+00	2.23E-04	2.23E-07	6.4E-01	6.6E-01	N/A	1.80
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	1.70	1.0	-4.01E+00	9.82E-05	9.82E-08	3.2E-01	3.5E-01	N/A	4.07
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	ND	N/A	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	7.7E-01	7.7E-07	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	ND	N/A	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Dibenz(a,h)anthracene	ND	N/A	53703	278.4	6.84	NA	1.0E-03	2000	1	N/A	3.81	0.6	-4.36E+00	4.37E-05	4.37E-08	N/A	N/A	N/A	9.14
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	1.85	1.0	-4.04E+00	9.02E-05	9.02E-08	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	2.3E-01	2.3E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			N-Nitrosodiphenylamine	2.4E+00	2.4E-06	86306	198.2	3.13	1.5E-02	1.0E-03	2000	1	0.079	1.35	1.0	-3.91E+00	1.23E-04	1.23E-07	3.5E-01	3.9E-01	N/A	3.25
			Pentachlorophenol	ND	N/A	87865	266.4	5.86	NA	1.0E-03	2000	1	N/A	3.26	0.9	-4.29E+00	5.11E-05	5.11E-08	N/A	N/A	N/A	7.83
			Phenanthrene	1.6E-01	1.6E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	1.8E+00	1.8E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	6.4E+02	6.4E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Chlorobenzene	1.4E+01	1.4E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	0.45	1.0	-3.43E+00	3.71E-04	3.71E-07	3.8E-01	4.1E-01	N/A	1.08
			Ethylbenzene	1.1E+00	1.1E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99
			Xylene (total)	3.0E+00	3.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99
			Total PCBs	2.0E-01	2.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.0E-03	5.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	4.1E-03	4.1E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
Future	Rec. User - Adult wader	Unnamed Island Ponds	Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.1E-01	1.1E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	1.9E-01	1.9E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child wader	Leachate - Landfill/Unnamed Island	4-Methylphenol	1.02	2700	1	1	1.5E-08	2%	N
			Acenaphthylene	1.80	2700	1	1	3.7E-09	29%	Y
			Atrazine	4.07	2700	1	1	5.9E-08	3%	N
			Benzo(a)anthracene	N/A	2700	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	2700	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	2700	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	2700	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	2700	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	2700	1	1	1.7E-07	30%	Y
			Chrysene	N/A	2700	1	1	N/A	N/A	N/A
			Dibenz(a,h)anthracene	N/A	2700	1	1	N/A	N/A	N/A
			Dibenzofuran	4.44	2700	1	1	1.2E-07	37%	Y
			Indeno(1,2,3-cd)pyrene	N/A	2700	1	1	N/A	N/A	N/A
			Naphthalene	1.32	2700	1	1	2.1E-08	13%	Y
			N-Nitrosodiphenylamine	3.25	2700	1	1	1.1E-07	6%	N
			Pentachlorophenol	N/A	2700	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	2700	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	2700	1	1	1.8E-07	13%	Y
			Benzene	0.69	2700	1	1	1.5E-05	3%	N
			Chlorobenzene	1.08	2700	1	1	7.2E-07	7%	N
			Ethylbenzene	0.99	2700	1	1	9.5E-08	12%	Y
			Xylene (total)	0.99	2700	1	1	2.7E-07	12%	Y
			Total PCBs	N/A	2700	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	2700	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	2700	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	2700	1	1	N/A	N/A	N/A
			alpha-BHC	10.73	2700	1	1	2.5E-10	10%	N
			alpha-Chlordane	49.90	2700	1	1	N/A	N/A	N/A
			Dieldrin	34.33	2700	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	2700	1	1	N/A	N/A	N/A
Future	Rec. User - Adult wader	Unnamed Island Ponds	Benzo(a)anthracene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	2.9E-07	81%	Y
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7310	1	1	1.8E-08	35%	Y
			Phenanthrene	N/A	7310	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	N/A	N/A	N/A
			Benzene	0.69	7310	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7310	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7310	1	1	9.9E-10	109%	Y
			beta-BHC	10.73	7310	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7310	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	7310	1	1	1.3E-09	109%	Y
			Heptachlor Epoxide	38.21	7310	1	1	1.2E-09	84%	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Unnamed Island Ponds	Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.1E-01	1.1E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	1.9E-01	1.9E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Unnamed Island Ponds	Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.1E-01	1.1E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	1.9E-01	1.9E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Unnamed Island Ponds	Benzo(a)anthracene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	2.9E-07	200%	Y
			Chrysene	N/A	18000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	18000	1	1	1.8E-08	86%	Y
			Phenanthrene	N/A	18000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	N/A	N/A	N/A
			Benzene	0.69	18000	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	18000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	18000	1	1	9.9E-10	269%	Y
			beta-BHC	10.73	18000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	18000	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	18000	1	1	1.3E-09	269%	Y
			Heptachlor Epoxide	38.21	18000	1	1	1.2E-09	207%	Y
Future	Rec. User - Older Child wader	Unnamed Island Ponds	Benzo(a)anthracene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	2.9E-07	46%	Y
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Naphthalene	1.32	4170	1	1	1.8E-08	20%	Y
			Phenanthrene	N/A	4170	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	N/A	N/A	N/A
			Benzene	0.69	4170	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	4170	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	4170	1	1	9.9E-10	62%	Y
			beta-BHC	10.73	4170	1	1	N/A	N/A	N/A
			Dieldrin	34.33	4170	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	4170	1	1	1.3E-09	62%	Y
			Heptachlor Epoxide	38.21	4170	1	1	1.2E-09	48%	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds	Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.1E-01	1.1E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	1.9E-01	1.9E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Southern Bank	Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds	Benzo(a)anthracene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	2.9E-07	122%	Y
			Chrysene	N/A	11000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	11000	1	1	1.8E-08	53%	Y
			Phenanthrene	N/A	11000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	N/A	N/A	N/A
			Benzene	0.69	11000	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	11000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	11000	1	1	9.9E-10	164%	Y
			beta-BHC	10.73	11000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	11000	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	11000	1	1	1.3E-09	164%	Y
			Heptachlor Epoxide	38.21	11000	1	1	1.2E-09	127%	Y
Future	Rec. User - Adult wader	Southern Bank	Benzo(a)anthracene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	N/A	N/A	N/A
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7310	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	7310	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	N/A	N/A	N/A
			Benzene	0.69	7310	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7310	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7310	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7310	1	1	2.5E-10	37%	Y
			Gamma-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7310	1	1	N/A	N/A	N/A

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Southern Bank	Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Southern Bank	Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Southern Bank	Benzo(a)anthracene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	N/A	N/A	N/A
			Chrysene	N/A	18000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	18000	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	18000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	N/A	N/A	N/A
			Benzene	0.69	18000	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	18000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	18000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	18000	1	1	2.5E-10	92%	Y
			Gamma-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	18000	1	1	N/A	N/A	N/A
Future	Rec. User - Older Child wader	Southern Bank	Benzo(a)anthracene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	N/A	N/A	N/A
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Naphthalene	1.32	4170	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	4170	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	N/A	N/A	N/A
			Benzene	0.69	4170	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	4170	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			beta-BHC	10.73	4170	1	1	N/A	N/A	N/A
			Dieldrin	34.33	4170	1	1	2.5E-10	21%	Y
			Gamma-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	4170	1	1	N/A	N/A	N/A

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Southern Bank	Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Upstream of Landfill	Benzo(a)anthracene	1.0E-01	1.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.4E-01	1.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.0E-01	2.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.0E+01	1.0E-05	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.5E-01	1.5E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.0E-01	1.0E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.7E-01	1.7E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.8E-03	5.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	4.4E-03	4.4E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	2.9E-03	2.9E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Southern Bank	Benzo(a)anthracene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	N/A	N/A	N/A
			Chrysene	N/A	11000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	11000	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	11000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	N/A	N/A	N/A
			Benzene	0.69	11000	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	11000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	11000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	11000	1	1	2.5E-10	56%	Y
			Gamma-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	11000	1	1	N/A	N/A	N/A
Future	Rec. User - Adult wader	Upstream of Landfill	Benzo(a)anthracene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	2.2E-06	81%	Y
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7310	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	7310	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	N/A	N/A	N/A
			Benzene	0.69	7310	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7310	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7310	1	1	1.3E-09	109%	Y
			beta-BHC	10.73	7310	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7310	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7310	1	1	6.7E-10	84%	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Upstream of Landfill	Benzo(a)anthracene	1.0E-01	1.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.4E-01	1.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.0E-01	2.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.0E+01	1.0E-05	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.5E-01	1.5E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.0E-01	1.0E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.7E-01	1.7E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.8E-03	5.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	4.4E-03	4.4E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	2.9E-03	2.9E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Upstream of Landfill	Benzo(a)anthracene	1.0E-01	1.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.4E-01	1.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.0E-01	2.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.0E+01	1.0E-05	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.5E-01	1.5E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.0E-01	1.0E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.7E-01	1.7E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.8E-03	5.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	4.4E-03	4.4E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	2.9E-03	2.9E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Upstream of Landfill	Benzo(a)anthracene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	2.2E-06	200%	Y
			Chrysene	N/A	18000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	18000	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	18000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	N/A	N/A	N/A
			Benzene	0.69	18000	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	18000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	18000	1	1	1.3E-09	269%	Y
			beta-BHC	10.73	18000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	18000	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	18000	1	1	6.7E-10	207%	Y
Future	Rec. User - Older Child wader	Upstream of Landfill	Benzo(a)anthracene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	2.2E-06	46%	Y
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Naphthalene	1.32	4170	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	4170	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	N/A	N/A	N/A
			Benzene	0.69	4170	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	4170	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	4170	1	1	1.3E-09	62%	Y
			beta-BHC	10.73	4170	1	1	N/A	N/A	N/A
			Dieldrin	34.33	4170	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	4170	1	1	6.7E-10	48%	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Upstream of Landfill	Benzo(a)anthracene	1.0E-01	1.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.4E-01	1.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.0E-01	2.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.0E+01	1.0E-05	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.5E-01	1.5E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.0E-01	1.0E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.7E-01	1.7E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.8E-03	5.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	4.4E-03	4.4E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	2.9E-03	2.9E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Adjacent to Landfill	Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	2.3E-01	2.3E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	2.0E-01	2.0E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	5.4E-01	5.4E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	8.0E-01	8.0E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	2.5E-02	2.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Upstream of Landfill	Benzo(a)anthracene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	2.2E-06	122%	Y
			Chrysene	N/A	11000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	11000	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	11000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	N/A	N/A	N/A
			Benzene	0.69	11000	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	11000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	11000	1	1	1.3E-09	164%	Y
			beta-BHC	10.73	11000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	11000	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	11000	1	1	6.7E-10	127%	Y
Future	Rec. User - Adult wader	Adjacent to Landfill	Benzo(a)anthracene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	N/A	N/A	N/A
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7310	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	7310	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	5.2E-08	35%	Y
			Benzene	0.69	7310	1	1	1.9E-08	8%	N
			Aroclor-1260	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7310	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7310	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7310	1	1	1.4E-09	37%	Y
			Gamma-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7310	1	1	8.5E-10	84%	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Adjacent to Landfill	Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	2.3E-01	2.3E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	2.0E-01	2.0E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	5.4E-01	5.4E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	8.0E-01	8.0E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	2.5E-02	2.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Adjacent to Landfill	Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	2.3E-01	2.3E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	2.0E-01	2.0E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	5.4E-01	5.4E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	8.0E-01	8.0E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	2.5E-02	2.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Adjacent to Landfill	Benzo(a)anthracene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	N/A	N/A	N/A
			Chrysene	N/A	18000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	18000	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	18000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	5.2E-08	87%	Y
			Benzene	0.69	18000	1	1	1.9E-08	21%	Y
			Aroclor-1260	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	18000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	18000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	18000	1	1	1.4E-09	92%	Y
			Gamma-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	18000	1	1	8.5E-10	207%	Y
Future	Rec. User - Older Child wader	Adjacent to Landfill	Benzo(a)anthracene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	N/A	N/A	N/A
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Naphthalene	1.32	4170	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	4170	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	5.2E-08	20%	Y
			Benzene	0.69	4170	1	1	1.9E-08	5%	N
			Aroclor-1260	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	4170	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			beta-BHC	10.73	4170	1	1	N/A	N/A	N/A
			Dieldrin	34.33	4170	1	1	1.4E-09	21%	Y
			Gamma-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	4170	1	1	8.5E-10	48%	Y

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Adjacent to Landfill	Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	2.3E-01	2.3E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	2.0E-01	2.0E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	5.4E-01	5.4E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	8.0E-01	8.0E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	2.5E-02	2.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Downstream of Landfill	Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	1.4E-01	1.4E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Adjacent to Landfill	Benzo(a)anthracene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	N/A	N/A	N/A
			Chrysene	N/A	11000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	11000	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	11000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	5.2E-08	53%	Y
			Benzene	0.69	11000	1	1	1.9E-08	13%	Y
			Aroclor-1260	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	11000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	11000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	11000	1	1	1.4E-09	56%	Y
			Gamma-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	11000	1	1	8.5E-10	127%	Y
Future	Rec. User - Adult wader	Downstream of Landfill	Benzo(a)anthracene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	N/A	N/A	N/A
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7310	1	1	1.3E-08	35%	Y
			Phenanthrene	N/A	7310	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	N/A	N/A	N/A
			Benzene	0.69	7310	1	1	5.6E-08	8%	N
			Aroclor-1260	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7310	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7310	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7310	1	1	4.1E-10	37%	Y
			Gamma-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7310	1	1	N/A	N/A	N/A

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Downstream of Landfill	Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	1.4E-01	1.4E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Downstream of Landfill	Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	1.4E-01	1.4E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Downstream of Landfill	Benzo(a)anthracene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	N/A	N/A	N/A
			Chrysene	N/A	18000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	18000	1	1	1.3E-08	86%	Y
			Phenanthrene	N/A	18000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	N/A	N/A	N/A
			Benzene	0.69	18000	1	1	5.6E-08	21%	Y
			Aroclor-1260	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	18000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	18000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	18000	1	1	4.1E-10	92%	Y
			Gamma-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	18000	1	1	N/A	N/A	N/A
Future	Rec. User - Older Child wader	Downstream of Landfill	Benzo(a)anthracene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	N/A	N/A	N/A
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Naphthalene	1.32	4170	1	1	1.3E-08	20%	Y
			Phenanthrene	N/A	4170	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	N/A	N/A	N/A
			Benzene	0.69	4170	1	1	5.6E-08	5%	N
			Aroclor-1260	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	4170	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			beta-BHC	10.73	4170	1	1	N/A	N/A	N/A
			Dieldrin	34.33	4170	1	1	4.1E-10	21%	Y
			Gamma-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	4170	1	1	N/A	N/A	N/A

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Downstream of Landfill	Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	1.0E-01	1.0E-07	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	1.4E-01	1.4E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Wetlands	Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Adult swimmer	Wetlands	Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Older Child wader	Wetlands	Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Older Child swimmer	Wetlands	Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73

TABLE 5.RME. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Downstream of Landfill	Benzo(a)anthracene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	N/A	N/A	N/A
			Chrysene	N/A	11000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	11000	1	1	1.3E-08	53%	Y
			Phenanthrene	N/A	11000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	N/A	N/A	N/A
			Benzene	0.69	11000	1	1	5.6E-08	13%	Y
			Aroclor-1260	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	11000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	11000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	11000	1	1	4.1E-10	56%	Y
			Gamma-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	11000	1	1	N/A	N/A	N/A
Future	Rec. User - Adult wader	Wetlands	Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	4.2E-07	81%	Y
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7310	1	1	3.5E-10	26%	Y
Future	Rec. User - Adult swimmer	Wetlands	Benzo(b)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	4.2E-07	200%	Y
			Chrysene	N/A	18000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	18000	1	1	3.5E-10	64%	Y
Future	Rec. User - Older Child wader	Wetlands	Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	4.2E-07	46%	Y
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			beta-BHC	10.73	4170	1	1	3.5E-10	15%	Y
Future	Rec. User - Older Child swimmer	Wetlands	Benzo(b)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	4.2E-07	122%	Y
			Chrysene	N/A	11000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	11000	1	1	3.5E-10	39%	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island	4-Methylphenol	1.1E+00	1.1E-06	106445	108.1	1.95	7.7E-03	1.0E-03	2000	1	0.031	0.42	1.0	-3.41E+00	3.93E-04	3.93E-07	3.2E-01	3.5E-01	N/A	1.02
			Acenaphthylene	1.7E-02	1.7E-08	208968	152.2	3.94	9.1E-02	1.0E-03	2000	1	0.432	0.75	1.0	-3.65E+00	2.23E-04	2.23E-07	6.4E-01	6.6E-01	N/A	1.80
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	1.70	1.0	-4.01E+00	9.82E-05	9.82E-08	3.2E-01	3.5E-01	N/A	4.07
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	ND	N/A	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	7.7E-01	7.7E-07	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	ND	N/A	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Dibenz(a,h)anthracene	ND	N/A	53703	278.4	6.84	NA	1.0E-03	2000	1	N/A	3.81	0.6	-4.36E+00	4.37E-05	4.37E-08	N/A	N/A	N/A	9.14
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	1.85	1.0	-4.04E+00	9.02E-05	9.02E-08	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	2.3E-01	2.3E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			N-Nitrosodiphenylamine	2.4E+00	2.4E-06	86306	198.2	3.13	1.5E-02	1.0E-03	2000	1	0.079	1.35	1.0	-3.91E+00	1.23E-04	1.23E-07	3.5E-01	3.9E-01	N/A	3.25
			Pentachlorophenol	ND	N/A	87865	266.4	5.86	NA	1.0E-03	2000	1	N/A	3.26	0.9	-4.29E+00	5.11E-05	5.11E-08	N/A	N/A	N/A	7.83
			Phenanthrene	1.6E-01	1.6E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	1.8E+00	1.8E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	6.4E+02	6.4E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Chlorobenzene	1.4E+01	1.4E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	0.45	1.0	-3.43E+00	3.71E-04	3.71E-07	3.8E-01	4.1E-01	N/A	1.08
			Ethylbenzene	1.1E+00	1.1E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99
			Xylene (total)	3.0E+00	3.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99
			Total PCBs	2.0E-01	2.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	2.8E-03	2.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	4.1E-03	4.1E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
Current	Trespasser - Adolescent wader	Unnamed Island Ponds	Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.4E-02	5.4E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	5.9E-02	5.9E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island	4-Methylphenol	1.02	3700	1	1	1.5E-08	3%	N
			Acenaphthylene	1.80	3700	1	1	3.7E-09	40%	Y
			Atrazine	4.07	3700	1	1	5.9E-08	3%	N
			Benzo(a)anthracene	N/A	3700	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	3700	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	3700	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	3700	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	3700	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	3700	1	1	1.7E-07	41%	Y
			Chrysene	N/A	3700	1	1	N/A	N/A	N/A
			Dibenz(a,h)anthracene	N/A	3700	1	1	N/A	N/A	N/A
			Dibenzofuran	4.44	3700	1	1	1.2E-07	51%	Y
			Indeno(1,2,3-cd)pyrene	N/A	3700	1	1	N/A	N/A	N/A
			Naphthalene	1.32	3700	1	1	2.1E-08	18%	Y
			N-Nitrosodiphenylamine	3.25	3700	1	1	1.1E-07	9%	N
			Pentachlorophenol	N/A	3700	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	3700	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	3700	1	1	1.8E-07	18%	Y
			Benzene	0.69	3700	1	1	1.5E-05	4%	N
			Chlorobenzene	1.08	3700	1	1	7.2E-07	10%	N
			Ethylbenzene	0.99	3700	1	1	9.5E-08	17%	Y
			Xylene (total)	0.99	3700	1	1	2.7E-07	17%	Y
			Total PCBs	N/A	3700	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	3700	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	3700	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	3700	1	1	N/A	N/A	N/A
			alpha-BHC	10.73	3700	1	1	2.5E-10	13%	Y
			alpha-Chlordane	49.90	3700	1	1	N/A	N/A	N/A
			Dieldrin	34.33	3700	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	3700	1	1	N/A	N/A	N/A
Current	Trespasser - Adolescent wader	Unnamed Island Ponds	Benzo(a)anthracene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	2.9E-07	85%	Y
			Chrysene	N/A	7600	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7600	1	1	5.7E-09	36%	Y
			Phenanthrene	N/A	7600	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	N/A	N/A	N/A
			Benzene	0.69	7600	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7600	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7600	1	1	9.9E-10	113%	Y
			beta-BHC	10.73	7600	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7600	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	7600	1	1	1.3E-09	113%	Y
			Heptachlor Epoxide	38.21	7600	1	1	1.2E-09	88%	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Rec. User - Adult wader	Southern Bank	Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Current	Rec. User - Older Child wader	Southern Bank	Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Rec. User - Adult wader	Southern Bank	Benzo(a)anthracene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	N/A	N/A	N/A
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7310	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	7310	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	N/A	N/A	N/A
			Benzene	0.69	7310	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7310	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7310	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7310	1	1	2.5E-10	37%	Y
			Gamma-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7310	1	1	N/A	N/A	N/A
Current	Rec. User - Older Child wader	Southern Bank	Benzo(a)anthracene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	N/A	N/A	N/A
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Naphthalene	1.32	4170	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	4170	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	N/A	N/A	N/A
			Benzene	0.69	4170	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	4170	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			beta-BHC	10.73	4170	1	1	N/A	N/A	N/A
			Dieldrin	34.33	4170	1	1	2.5E-10	21%	Y
			Gamma-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	4170	1	1	N/A	N/A	N/A

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Trespasser - Adolescent wader	Upstream of Landfill	Benzo(a)anthracene	7.0E-02	7.0E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	8.0E-02	8.0E-08	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	6.7E-02	6.7E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	5.0E+00	5.0E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	8.0E-02	8.0E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	7.0E-02	7.0E-08	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.0E-02	9.0E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	4.0E-03	4.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	2.0E-03	2.0E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	1.8E-03	1.8E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Current	Trespasser - Adolescent wader	Adjacent to Landfill	Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	7.0E-02	7.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	6.7E-02	6.7E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	2.8E-01	2.8E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	5.7E-01	5.7E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.5E-02	1.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Upstream of Landfill	Benzo(a)anthracene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	1.1E-06	85%	Y
			Chrysene	N/A	7600	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7600	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	7600	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	N/A	N/A	N/A
			Benzene	0.69	7600	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7600	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7600	1	1	6.0E-10	113%	Y
			beta-BHC	10.73	7600	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7600	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	7600	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7600	1	1	4.1E-10	88%	Y
Current	Trespasser - Adolescent wader	Adjacent to Landfill	Benzo(a)anthracene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	N/A	N/A	N/A
			Chrysene	N/A	7600	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7600	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	7600	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	2.7E-08	37%	Y
			Benzene	0.69	7600	1	1	1.3E-08	9%	N
			Aroclor-1260	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7600	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7600	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7600	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7600	1	1	1.4E-09	39%	Y
			Gamma-Chlordane	49.90	7600	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7600	1	1	8.5E-10	88%	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Current	Trespasser - Adolescent wader	Downstream of Landfill	Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.0E-02	5.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	5.0E-02	5.0E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Current	Trespasser - Adolescent wader	Wetlands	Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	5.4E-02	5.4E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Adult wader	Leachate - Landfill/Unnamed Island	4-Methylphenol	1.1E+00	1.1E-06	106445	108.1	1.95	7.7E-03	1.0E-03	2000	1	0.031	0.42	1.0	-3.41E+00	3.93E-04	3.93E-07	3.2E-01	3.5E-01	N/A	1.02
			Acenaphthylene	1.7E-02	1.7E-08	208968	152.2	3.94	9.1E-02	1.0E-03	2000	1	0.432	0.75	1.0	-3.65E+00	2.23E-04	2.23E-07	6.4E-01	6.6E-01	N/A	1.80
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	1.70	1.0	-4.01E+00	9.82E-05	9.82E-08	3.2E-01	3.5E-01	N/A	4.07
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	ND	N/A	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	7.7E-01	7.7E-07	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	ND	N/A	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Dibenz(a,h)anthracene	ND	N/A	53703	278.4	6.84	NA	1.0E-03	2000	1	N/A	3.81	0.6	-4.36E+00	4.37E-05	4.37E-08	N/A	N/A	N/A	9.14
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	1.85	1.0	-4.04E+00	9.02E-05	9.02E-08	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	2.3E-01	2.3E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			N-Nitrosodiphenylamine	2.4E+00	2.4E-06	86306	198.2	3.13	1.5E-02	1.0E-03	2000	1	0.079	1.35	1.0	-3.91E+00	1.23E-04	1.23E-07	3.5E-01	3.9E-01	N/A	3.25
			Pentachlorophenol	ND	N/A	87865	266.4	5.86	NA	1.0E-03	2000	1	N/A	3.26	0.9	-4.29E+00	5.11E-05	5.11E-08	N/A	N/A	N/A	7.83
			Phenanthrene	1.6E-01	1.6E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	1.8E+00	1.8E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	6.4E+02	6.4E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Chlorobenzene	1.4E+01	1.4E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	0.45	1.0	-3.43E+00	3.71E-04	3.71E-07	3.8E-01	4.1E-01	N/A	1.08
			Ethylbenzene	1.1E+00	1.1E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99
			Xylene (total)	3.0E+00	3.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99
			Total PCBs	2.0E-01	2.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	2.8E-03	2.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	4.1E-03	4.1E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00</						

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Current	Trespasser - Adolescent wader	Downstream of Landfill	Benzo(a)anthracene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7600	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	N/A	N/A	N/A
			Chrysene	N/A	7600	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7600	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7600	1	1	4.8E-09	36%	Y
			Phenanthrene	N/A	7600	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7600	1	1	N/A	N/A	N/A
			Benzene	0.69	7600	1	1	5.6E-08	9%	N
			Aroclor-1260	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7600	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7600	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7600	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7600	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7600	1	1	4.1E-10	39%	Y
			Gamma-Chlordane	49.90	7600	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7600	1	1	N/A	N/A	N/A
Current	Trespasser - Adolescent wader	Wetlands	Benzo(b)fluoranthene	N/A	7600	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7600	1	1	4.2E-07	85%	Y
			Chrysene	N/A	7600	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7600	1	1	3.5E-10	27%	Y
Future	Rec. User - Adult wader	Leachate - Landfill/Unnamed Island	4-Methylphenol	1.02	4500	1	1	1.5E-08	3%	N
			Acenaphthylene	1.80	4500	1	1	3.7E-09	49%	Y
			Atrazine	4.07	4500	1	1	5.9E-08	4%	N
			Benzo(a)anthracene	N/A	4500	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	4500	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	4500	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	4500	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	4500	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4500	1	1	1.7E-07	50%	Y
			Chrysene	N/A	4500	1	1	N/A	N/A	N/A
			Dibenz(a,h)anthracene	N/A	4500	1	1	N/A	N/A	N/A
			Dibenzofuran	4.44	4500	1	1	1.2E-07	62%	Y
			Indeno(1,2,3-cd)pyrene	N/A	4500	1	1	N/A	N/A	N/A
			Naphthalene	1.32	4500	1	1	2.1E-08	21%	Y
			N-Nitrosodiphenylamine	3.25	4500	1	1	1.1E-07	11%	Y
			Pentachlorophenol	N/A	4500	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	4500	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	4500	1	1	1.8E-07	22%	Y
			Benzene	0.69	4500	1	1	1.5E-05	5%	N
			Chlorobenzene	1.08	4500	1	1	7.2E-07	12%	Y
			Ethylbenzene	0.99	4500	1	1	9.5E-08	20%	Y
			Xylene (total)	0.99	4500	1	1	2.7E-07	20%	Y
			Total PCBs	N/A	4500	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	4500	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	4500	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	4500	1	1	N/A	N/A	N/A
			alpha-BHC	10.73	4500	1	1	2.5E-10	16%	Y
			alpha-Chlordane	49.90	4500	1	1	N/A	N/A	N/A
			Dieldrin	34.33	4500	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	4500	1	1	N/A	N/A	N/A

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child wader	Leachate - Landfill/Unnamed Island	4-Methylphenol	1.1E+00	1.1E-06	106445	108.1	1.95	7.7E-03	1.0E-03	2000	1	0.031	0.42	1.0	-3.41E+00	3.93E-04	3.93E-07	3.2E-01	3.5E-01	N/A	1.02
			Acenaphthylene	1.7E-02	1.7E-08	208968	152.2	3.94	9.1E-02	1.0E-03	2000	1	0.432	0.75	1.0	-3.65E+00	2.23E-04	2.23E-07	6.4E-01	6.6E-01	N/A	1.80
			Atrazine	3.2E+00	3.2E-06	1912249	215.7	2.61	5.2E-03	1.0E-03	2000	1	0.030	1.70	1.0	-4.01E+00	9.82E-05	9.82E-08	3.2E-01	3.5E-01	N/A	4.07
			Benzo(a)anthracene	3.1E-02	3.1E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	ND	N/A	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	7.7E-01	7.7E-07	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	ND	N/A	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Dibenz(a,h)anthracene	ND	N/A	53703	278.4	6.84	NA	1.0E-03	2000	1	N/A	3.81	0.6	-4.36E+00	4.37E-05	4.37E-08	N/A	N/A	N/A	9.14
			Dibenzofuran	4.2E-01	4.2E-07	132649	222.3	4.39	7.3E-02	1.0E-03	2000	1	0.420	1.85	1.0	-4.04E+00	9.02E-05	9.02E-08	6.3E-01	6.6E-01	N/A	4.44
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	2.3E-01	2.3E-07	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			N-Nitrosodiphenylamine	2.4E+00	2.4E-06	86306	198.2	3.13	1.5E-02	1.0E-03	2000	1	0.079	1.35	1.0	-3.91E+00	1.23E-04	1.23E-07	3.5E-01	3.9E-01	N/A	3.25
			Pentachlorophenol	ND	N/A	87865	266.4	5.86	NA	1.0E-03	2000	1	N/A	3.26	0.9	-4.29E+00	5.11E-05	5.11E-08	N/A	N/A	N/A	7.83
			Phenanthrene	1.6E-01	1.6E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	1.8E+00	1.8E-06	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	6.4E+02	6.4E-04	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Chlorobenzene	1.4E+01	1.4E-05	108907	112.6	2.84	2.8E-02	1.0E-03	2000	1	0.115	0.45	1.0	-3.43E+00	3.71E-04	3.71E-07	3.8E-01	4.1E-01	N/A	1.08
			Ethylbenzene	1.1E+00	1.1E-06	100414	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99
			Xylene (total)	3.0E+00	3.0E-06	1330207	106.2	3.15	4.9E-02	1.0E-03	2000	1	0.195	0.41	1.0	-3.39E+00	4.03E-04	4.03E-07	4.4E-01	4.7E-01	N/A	0.99
			Total PCBs	2.0E-01	2.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	2.8E-03	2.8E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	4.1E-03	4.1E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-BHC	3.5E-03	3.5E-09	319846	290.8	3.81	1.2E-02	1.0E-03	2000	1	0.082	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
Future	Rec. User - Adult wader	Unnamed Island Ponds	Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.4E-02	5.4E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	5.9E-02	5.9E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child wader	Leachate - Landfill/Unnamed Island	4-Methylphenol	1.02	2700	1	1	1.5E-08	2%	N
			Acenaphthylene	1.80	2700	1	1	3.7E-09	29%	Y
			Atrazine	4.07	2700	1	1	5.9E-08	3%	N
			Benzo(a)anthracene	N/A	2700	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	2700	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	2700	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	2700	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	2700	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	2700	1	1	1.7E-07	30%	Y
			Chrysene	N/A	2700	1	1	N/A	N/A	N/A
			Dibenz(a,h)anthracene	N/A	2700	1	1	N/A	N/A	N/A
			Dibenzofuran	4.44	2700	1	1	1.2E-07	37%	Y
			Indeno(1,2,3-cd)pyrene	N/A	2700	1	1	N/A	N/A	N/A
			Naphthalene	1.32	2700	1	1	2.1E-08	13%	Y
			N-Nitrosodiphenylamine	3.25	2700	1	1	1.1E-07	6%	N
			Pentachlorophenol	N/A	2700	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	2700	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	2700	1	1	1.8E-07	13%	Y
			Benzene	0.69	2700	1	1	1.5E-05	3%	N
			Chlorobenzene	1.08	2700	1	1	7.2E-07	7%	N
			Ethylbenzene	0.99	2700	1	1	9.5E-08	12%	Y
			Xylene (total)	0.99	2700	1	1	2.7E-07	12%	Y
			Total PCBs	N/A	2700	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	2700	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	2700	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	2700	1	1	N/A	N/A	N/A
			alpha-BHC	10.73	2700	1	1	2.5E-10	10%	N
			alpha-Chlordane	49.90	2700	1	1	N/A	N/A	N/A
			Dieldrin	34.33	2700	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	2700	1	1	N/A	N/A	N/A
Future	Rec. User - Adult wader	Unnamed Island Ponds	Benzo(a)anthracene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	2.9E-07	81%	Y
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7310	1	1	5.7E-09	35%	Y
			Phenanthrene	N/A	7310	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	N/A	N/A	N/A
			Benzene	0.69	7310	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7310	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7310	1	1	9.9E-10	109%	Y
			beta-BHC	10.73	7310	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7310	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	7310	1	1	1.3E-09	109%	Y
			Heptachlor Epoxide	38.21	7310	1	1	1.2E-09	84%	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Unnamed Island Ponds	Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.4E-02	5.4E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	5.9E-02	5.9E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Unnamed Island Ponds	Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.4E-02	5.4E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	5.9E-02	5.9E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Unnamed Island Ponds	Benzo(a)anthracene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	2.9E-07	200%	Y
			Chrysene	N/A	18000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	18000	1	1	5.7E-09	86%	Y
			Phenanthrene	N/A	18000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	N/A	N/A	N/A
			Benzene	0.69	18000	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	18000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	18000	1	1	9.9E-10	269%	Y
			beta-BHC	10.73	18000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	18000	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	18000	1	1	1.3E-09	269%	Y
			Heptachlor Epoxide	38.21	18000	1	1	1.2E-09	207%	Y
Future	Rec. User - Older Child wader	Unnamed Island Ponds	Benzo(a)anthracene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	2.9E-07	46%	Y
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Naphthalene	1.32	4170	1	1	5.7E-09	20%	Y
			Phenanthrene	N/A	4170	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	N/A	N/A	N/A
			Benzene	0.69	4170	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	4170	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	4170	1	1	9.9E-10	62%	Y
			beta-BHC	10.73	4170	1	1	N/A	N/A	N/A
			Dieldrin	34.33	4170	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	4170	1	1	1.3E-09	62%	Y
			Heptachlor Epoxide	38.21	4170	1	1	1.2E-09	48%	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds	Benzo(a)anthracene	1.3E-01	1.3E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.2E-01	1.2E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	2.5E-01	2.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.4E-02	5.4E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.3E+00	1.3E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.1E-01	1.1E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	5.9E-02	5.9E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.4E-01	1.4E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.2E-02	1.2E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	9.2E-03	9.2E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	3.3E-03	3.3E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	4.2E-03	4.2E-09	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	5.1E-03	5.1E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Southern Bank	Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds	Benzo(a)anthracene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	2.9E-07	122%	Y
			Chrysene	N/A	11000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	11000	1	1	5.7E-09	53%	Y
			Phenanthrene	N/A	11000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	N/A	N/A	N/A
			Benzene	0.69	11000	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	11000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	11000	1	1	9.9E-10	164%	Y
			beta-BHC	10.73	11000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	11000	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	11000	1	1	1.3E-09	164%	Y
			Heptachlor Epoxide	38.21	11000	1	1	1.2E-09	127%	Y
Future	Rec. User - Adult wader	Southern Bank	Benzo(a)anthracene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	N/A	N/A	N/A
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7310	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	7310	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	N/A	N/A	N/A
			Benzene	0.69	7310	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7310	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7310	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7310	1	1	2.5E-10	37%	Y
			Gamma-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7310	1	1	N/A	N/A	N/A

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Southern Bank	Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Southern Bank	Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Southern Bank	Benzo(a)anthracene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	N/A	N/A	N/A
			Chrysene	N/A	18000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	18000	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	18000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	N/A	N/A	N/A
			Benzene	0.69	18000	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	18000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	18000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	18000	1	1	2.5E-10	92%	Y
			Gamma-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	18000	1	1	N/A	N/A	N/A
Future	Rec. User - Older Child wader	Southern Bank	Benzo(a)anthracene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	N/A	N/A	N/A
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Naphthalene	1.32	4170	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	4170	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	N/A	N/A	N/A
			Benzene	0.69	4170	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	4170	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			beta-BHC	10.73	4170	1	1	N/A	N/A	N/A
			Dieldrin	34.33	4170	1	1	2.5E-10	21%	Y
			Gamma-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	4170	1	1	N/A	N/A	N/A

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Southern Bank	Benzo(a)anthracene	ND	N/A	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	1.7E-01	1.7E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	ND	N/A	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.4E-01	1.4E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	1.2E-01	1.2E-07	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	ND	N/A	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	2.4E-03	2.4E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Upstream of Landfill	Benzo(a)anthracene	7.0E-02	7.0E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	8.0E-02	8.0E-08	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	6.7E-02	6.7E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	5.0E+00	5.0E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	8.0E-02	8.0E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	7.0E-02	7.0E-08	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.0E-02	9.0E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	4.0E-03	4.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	2.0E-03	2.0E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	1.8E-03	1.8E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Southern Bank	Benzo(a)anthracene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	N/A	N/A	N/A
			Chrysene	N/A	11000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	11000	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	11000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	N/A	N/A	N/A
			Benzene	0.69	11000	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	11000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	11000	1	1	N/A	N/A	N/A
Future	Rec. User - Adult wader	Upstream of Landfill	Dieldrin	34.33	11000	1	1	2.5E-10	56%	Y
			Gamma-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	11000	1	1	N/A	N/A	N/A
			Benzo(a)anthracene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	1.1E-06	81%	Y
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7310	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	7310	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	N/A	N/A	N/A
			Benzene	0.69	7310	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7310	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7310	1	1	6.0E-10	109%	Y
			beta-BHC	10.73	7310	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7310	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7310	1	1	4.1E-10	84%	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Upstream of Landfill	Benzo(a)anthracene	7.0E-02	7.0E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	8.0E-02	8.0E-08	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	6.7E-02	6.7E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	5.0E+00	5.0E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	8.0E-02	8.0E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	7.0E-02	7.0E-08	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.0E-02	9.0E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	4.0E-03	4.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	2.0E-03	2.0E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	1.8E-03	1.8E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Upstream of Landfill	Benzo(a)anthracene	7.0E-02	7.0E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	8.0E-02	8.0E-08	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	6.7E-02	6.7E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	5.0E+00	5.0E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	8.0E-02	8.0E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	7.0E-02	7.0E-08	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.0E-02	9.0E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	4.0E-03	4.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	2.0E-03	2.0E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	1.8E-03	1.8E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Upstream of Landfill	Benzo(a)anthracene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	1.1E-06	200%	Y
			Chrysene	N/A	18000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	18000	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	18000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	N/A	N/A	N/A
			Benzene	0.69	18000	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	18000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	18000	1	1	6.0E-10	269%	Y
			beta-BHC	10.73	18000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	18000	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	18000	1	1	4.1E-10	207%	Y
Future	Rec. User - Older Child wader	Upstream of Landfill	Benzo(a)anthracene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	1.1E-06	46%	Y
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Naphthalene	1.32	4170	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	4170	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	N/A	N/A	N/A
			Benzene	0.69	4170	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	4170	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	4170	1	1	6.0E-10	62%	Y
			beta-BHC	10.73	4170	1	1	N/A	N/A	N/A
			Dieldrin	34.33	4170	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	4170	1	1	4.1E-10	48%	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Upstream of Landfill	Benzo(a)anthracene	7.0E-02	7.0E-08	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	8.0E-02	8.0E-08	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	6.7E-02	6.7E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	5.0E+00	5.0E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	8.0E-02	8.0E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	7.0E-02	7.0E-08	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.0E-02	9.0E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	ND	N/A	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	ND	N/A	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	4.0E-03	4.0E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	ND	N/A	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	2.0E-03	2.0E-09	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	ND	N/A	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	1.8E-03	1.8E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Adjacent to Landfill	Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	7.0E-02	7.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	6.7E-02	6.7E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	2.8E-01	2.8E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	5.7E-01	5.7E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.5E-02	1.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Upstream of Landfill	Benzo(a)anthracene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	1.1E-06	122%	Y
			Chrysene	N/A	11000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	11000	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	11000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	N/A	N/A	N/A
			Benzene	0.69	11000	1	1	N/A	N/A	N/A
			Aroclor-1260	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	11000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	11000	1	1	6.0E-10	164%	Y
			beta-BHC	10.73	11000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	11000	1	1	N/A	N/A	N/A
			Gamma-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	11000	1	1	4.1E-10	127%	Y
Future	Rec. User - Adult wader	Adjacent to Landfill	Benzo(a)anthracene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	N/A	N/A	N/A
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7310	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	7310	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	2.7E-08	35%	Y
			Benzene	0.69	7310	1	1	1.3E-08	8%	N
			Aroclor-1260	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7310	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7310	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7310	1	1	1.4E-09	37%	Y
			Gamma-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7310	1	1	8.5E-10	84%	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Adjacent to Landfill	Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	7.0E-02	7.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	6.7E-02	6.7E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	2.8E-01	2.8E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	5.7E-01	5.7E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.5E-02	1.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Adjacent to Landfill	Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	7.0E-02	7.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	6.7E-02	6.7E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	2.8E-01	2.8E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	5.7E-01	5.7E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.5E-02	1.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Adjacent to Landfill	Benzo(a)anthracene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	N/A	N/A	N/A
			Chrysene	N/A	18000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	18000	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	18000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	2.7E-08	87%	Y
			Benzene	0.69	18000	1	1	1.3E-08	21%	Y
			Aroclor-1260	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	18000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	18000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	18000	1	1	1.4E-09	92%	Y
			Gamma-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	18000	1	1	8.5E-10	207%	Y
Future	Rec. User - Older Child wader	Adjacent to Landfill	Benzo(a)anthracene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	N/A	N/A	N/A
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Naphthalene	1.32	4170	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	4170	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	2.7E-08	20%	Y
			Benzene	0.69	4170	1	1	1.3E-08	5%	N
			Aroclor-1260	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	4170	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			beta-BHC	10.73	4170	1	1	N/A	N/A	N/A
			Dieldrin	34.33	4170	1	1	1.4E-09	21%	Y
			Gamma-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	4170	1	1	8.5E-10	48%	Y

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Adjacent to Landfill	Benzo(a)anthracene	2.0E-01	2.0E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	3.4E-01	3.4E-07	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	3.6E-01	3.6E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	7.0E-02	7.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	2.6E-01	2.6E-07	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	3.0E-01	3.0E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	1.9E-01	1.9E-07	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	ND	N/A	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	6.7E-02	6.7E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	2.8E-01	2.8E-07	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	5.7E-01	5.7E-07	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	3.0E-01	3.0E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	1.5E-02	1.5E-08	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.5E-02	1.5E-08	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	ND	N/A	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	1.4E-02	1.4E-08	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	3.7E-03	3.7E-09	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Downstream of Landfill	Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.0E-02	5.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	5.0E-02	5.0E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Adjacent to Landfill	Benzo(a)anthracene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	N/A	N/A	N/A
			Chrysene	N/A	11000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	11000	1	1	N/A	N/A	N/A
			Phenanthrene	N/A	11000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	2.7E-08	53%	Y
			Benzene	0.69	11000	1	1	1.3E-08	13%	Y
			Aroclor-1260	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	11000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	11000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	11000	1	1	1.4E-09	56%	Y
			Gamma-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	11000	1	1	8.5E-10	127%	Y
Future	Rec. User - Adult wader	Downstream of Landfill	Benzo(a)anthracene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	7310	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	N/A	N/A	N/A
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	7310	1	1	N/A	N/A	N/A
			Naphthalene	1.32	7310	1	1	4.8E-09	35%	Y
			Phenanthrene	N/A	7310	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	7310	1	1	N/A	N/A	N/A
			Benzene	0.69	7310	1	1	5.6E-08	8%	N
			Aroclor-1260	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	7310	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	7310	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7310	1	1	N/A	N/A	N/A
			Dieldrin	34.33	7310	1	1	4.1E-10	37%	Y
			Gamma-Chlordane	49.90	7310	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	7310	1	1	N/A	N/A	N/A

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	lsc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Adult swimmer	Downstream of Landfill	Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.0E-02	5.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	5.0E-02	5.0E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Older Child wader	Downstream of Landfill	Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.0E-02	5.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	5.0E-02	5.0E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_{star} (hr)	A cm^2	t_{event} hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Adult swimmer	Downstream of Landfill	Benzo(a)anthracene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	18000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	N/A	N/A	N/A
			Chrysene	N/A	18000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	18000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	18000	1	1	4.8E-09	86%	Y
			Phenanthrene	N/A	18000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	18000	1	1	N/A	N/A	N/A
			Benzene	0.69	18000	1	1	5.6E-08	21%	Y
			Aroclor-1260	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	18000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	18000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	18000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	18000	1	1	4.1E-10	92%	Y
			Gamma-Chlordane	49.90	18000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	18000	1	1	N/A	N/A	N/A
Future	Rec. User - Older Child wader	Downstream of Landfill	Benzo(a)anthracene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	4170	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	N/A	N/A	N/A
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	4170	1	1	N/A	N/A	N/A
			Naphthalene	1.32	4170	1	1	4.8E-09	20%	Y
			Phenanthrene	N/A	4170	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	4170	1	1	N/A	N/A	N/A
			Benzene	0.69	4170	1	1	5.6E-08	5%	N
			Aroclor-1260	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	4170	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	4170	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			beta-BHC	10.73	4170	1	1	N/A	N/A	N/A
			Dieldrin	34.33	4170	1	1	4.1E-10	21%	Y
			Gamma-Chlordane	49.90	4170	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	4170	1	1	N/A	N/A	N/A

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER
(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	Conc ug/L	Conc mg/cm3	CAS No.	MWT	logKow	Kp (cm/hr) predicted	Isc cm	IR cm ³ /day	ABSGI	B	tau (hr)	FA for tau>3	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Future	Rec. User - Older Child swimmer	Downstream of Landfill	Benzo(a)anthracene	1.2E-01	1.2E-07	56553	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Benzo(a)pyrene	ND	N/A	50328	250.0	6.10	NA	1.0E-03	2000	1	N/A	2.64	1.0	-4.20E+00	6.31E-05	6.31E-08	N/A	N/A	N/A	6.34
			Benzo(b)fluoranthene	1.5E-01	1.5E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			Benzo(g,h,i)perylene	5.0E-02	5.0E-08	191242	276.3	7.23	NA	1.0E-03	2000	1	N/A	3.71	1.0	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Benzo(k)fluoranthene	ND	N/A	207089	252.3	6.11	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	ND	N/A	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	1.1E-01	1.1E-07	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			Indeno(1,2,3-cd)pyrene	ND	N/A	193395	276.3	6.58	NA	1.0E-03	2000	1	N/A	3.71	0.6	-4.35E+00	4.49E-05	4.49E-08	N/A	N/A	N/A	8.90
			Naphthalene	5.0E-02	5.0E-08	91203	128.2	3.30	4.7E-02	1.0E-03	2000	1	0.203	0.55	1.0	-3.52E+00	3.03E-04	3.03E-07	4.4E-01	4.8E-01	N/A	1.32
			Phenanthrene	9.8E-02	9.8E-08	85018	178.2	4.46	NA	1.0E-03	2000	1	N/A	1.05	1.0	-3.80E+00	1.59E-04	1.59E-07	N/A	N/A	N/A	2.51
			1,4-Dichlorobenzene	ND	N/A	106467	147.0	3.39	4.2E-02	1.0E-03	2000	1	0.196	0.70	1.0	-3.62E+00	2.38E-04	2.38E-07	4.4E-01	4.7E-01	N/A	1.68
			Benzene	2.4E+00	2.4E-06	71432	78.1	2.13	1.5E-02	1.0E-03	2000	1	0.051	0.29	1.0	-3.24E+00	5.79E-04	5.79E-07	3.3E-01	3.7E-01	N/A	0.69
			Aroclor-1260	1.2E-01	1.2E-07	11096825	292.0	6.03	NA	1.0E-03	2000	1	N/A	4.54	1.0	-4.44E+00	3.67E-05	3.67E-08	N/A	N/A	N/A	10.90
			4,4'-DDD	5.2E-03	5.2E-09	72548	320.0	5.80	NA	1.0E-03	2000	1	N/A	6.51	0.8	-4.59E+00	2.56E-05	2.56E-08	N/A	N/A	N/A	15.63
			4,4'-DDE	1.4E-03	1.4E-09	72559	318.0	5.69	NA	1.0E-03	2000	1	N/A	6.35	0.8	-4.58E+00	2.63E-05	2.63E-08	N/A	N/A	N/A	15.24
			4,4'-DDT	1.7E-03	1.7E-09	50293	355.0	6.36	NA	1.0E-03	2000	1	N/A	10.23	0.7	-4.79E+00	1.63E-05	1.63E-08	N/A	N/A	N/A	24.55
			alpha-Chlordane	ND	N/A	5103719	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			beta-BHC	ND	N/A	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
			Dieldrin	4.0E-03	4.0E-09	60571	381.0	4.56	1.2E-02	1.0E-03	2000	1	0.092	14.30	0.8	-4.93E+00	1.17E-05	1.17E-08	3.6E-01	4.0E-01	N/A	34.33
			Gamma-Chlordane	ND	N/A	5103742	410.0	5.47	3.4E-02	1.0E-03	2000	1	0.264	20.79	0.7	-5.10E+00	8.02E-06	8.02E-09	4.9E-01	5.3E-01	N/A	49.90
			Heptachlor Epoxide	ND	N/A	1024573	389.3	4.98	2.1E-02	1.0E-03	2000	1	0.158	15.92	1.0	-4.98E+00	1.05E-05	1.05E-08	4.1E-01	4.5E-01	N/A	38.21
Future	Rec. User - Adult wader	Wetlands	Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	5.4E-02	5.4E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Adult swimmer	Wetlands	Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	5.4E-02	5.4E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Older Child wader	Wetlands	Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	5.4E-02	5.4E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73
Future	Rec. User - Older Child swimmer	Wetlands	Benzo(b)fluoranthene	1.0E-01	1.0E-07	205992	252.3	6.12	NA	1.0E-03	2000	1	N/A	2.72	1.0	-4.21E+00	6.13E-05	6.13E-08	N/A	N/A	N/A	6.53
			bis(2-Ethylhexyl)phthalat	1.9E+00	1.9E-06	117817	391.0	5.11	2.5E-02	1.0E-03	2000	1	0.190	16.27	0.8	-4.99E+00	1.02E-05	1.02E-08	4.3E-01	4.7E-01	N/A	39.05
			Chrysene	5.4E-02	5.4E-08	218019	228.3	5.66	NA	1.0E-03	2000	1	N/A	2.00	1.0	-4.08E+00	8.35E-05	8.35E-08	N/A	N/A	N/A	4.79
			beta-BHC	4.9E-03	4.9E-09	319857	290.8	3.80	1.2E-02	1.0E-03	2000	1	0.080	4.47	1.0	-4.43E+00	3.73E-05	3.73E-08	3.5E-01	3.9E-01	N/A	10.73

TABLE 5.CT. DERMALLY ABSORBED DOSE CALCULATIONS - SURFACE WATER

(Variable Definitions follow Table)

Timeframe	Receptor	Exposure Point	Chemical	t_star (hr)	A cm ²	t_event hr/event	EV event/day	DA_event mg/cm2-evt	Derm/Drink Kp	Chem Assess
Future	Rec. User - Older Child swimmer	Downstream of Landfill	Benzo(a)anthracene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(a)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(b)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(g,h,i)perylene	N/A	11000	1	1	N/A	N/A	N/A
			Benzo(k)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	N/A	N/A	N/A
			Chrysene	N/A	11000	1	1	N/A	N/A	N/A
			Indeno(1,2,3-cd)pyrene	N/A	11000	1	1	N/A	N/A	N/A
			Naphthalene	1.32	11000	1	1	4.8E-09	53%	Y
			Phenanthrene	N/A	11000	1	1	N/A	N/A	N/A
			1,4-Dichlorobenzene	1.68	11000	1	1	N/A	N/A	N/A
			Benzene	0.69	11000	1	1	5.6E-08	13%	Y
			Aroclor-1260	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDD	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDE	N/A	11000	1	1	N/A	N/A	N/A
			4,4'-DDT	N/A	11000	1	1	N/A	N/A	N/A
			alpha-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	11000	1	1	N/A	N/A	N/A
			Dieldrin	34.33	11000	1	1	4.1E-10	56%	Y
			Gamma-Chlordane	49.90	11000	1	1	N/A	N/A	N/A
			Heptachlor Epoxide	38.21	11000	1	1	N/A	N/A	N/A
Future	Rec. User - Adult wader	Wetlands	Benzo(b)fluoranthene	N/A	7310	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	7310	1	1	4.2E-07	81%	Y
			Chrysene	N/A	7310	1	1	N/A	N/A	N/A
			beta-BHC	10.73	7310	1	1	3.5E-10	26%	Y
Future	Rec. User - Adult swimmer	Wetlands	Benzo(b)fluoranthene	N/A	18000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	18000	1	1	4.2E-07	200%	Y
			Chrysene	N/A	18000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	18000	1	1	3.5E-10	64%	Y
Future	Rec. User - Older Child wader	Wetlands	Benzo(b)fluoranthene	N/A	4170	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	4170	1	1	4.2E-07	46%	Y
			Chrysene	N/A	4170	1	1	N/A	N/A	N/A
			beta-BHC	10.73	4170	1	1	3.5E-10	15%	Y
Future	Rec. User - Older Child swimmer	Wetlands	Benzo(b)fluoranthene	N/A	11000	1	1	N/A	N/A	N/A
			bis(2-Ethylhexyl)phthalat	39.05	11000	1	1	4.2E-07	122%	Y
			Chrysene	N/A	11000	1	1	N/A	N/A	N/A
			beta-BHC	10.73	11000	1	1	3.5E-10	39%	Y

DERMAL ABSORPTION CALCULATION EXAMPLE

Note: This EPA spreadsheet utilized as basis for Appendix U calculations.

FOR ORGANIC CHEMICALS IN WATER (updated on 11/99)

Worksheet to Calculate Dermal Absorption of Organic Chemicals from Aqueous Media (updated 11/99)

Enter the Following Exposure Conditions: for site specific conditions, change values in Cells G5-G18

Concentration (mg/L*L/1000 cm3):	Conc =	1.0E-03 mg/cm3 (default value for purpose of illustration)
Input site specific concentrations in Column marked "Conc"		= 1 mg/L (1 ppm) = 1 ug/cm3 = 1000 ppb
Area exposed (cm2):	A =	5672.0 cm2
Event time (hr/event):	t_event =	0.5 hr/event (35 minutes/event)
Event frequency (events/day):	EV =	1.0 event/day
Exposure frequency (days/year):	EF =	26.0 days/yr
Exposure duration (years):	ED =	7.0 years
Body weight (kg):	BW =	70.0 kg
Averaging time (days):	AT =	2555.0 days
for carcinogenic effects, AT=70 years (25,550 days)		
for noncarcinogenic effects, AT=ED (in days)		
Skin thickness (assumed to be 10 um):	lsc =	1.0E-03 cm

Default conditions for screening purposes:

Compare Dermal to Drinking: Adults showering for 35 minutes/day, compared to drinking 2L water/day

Dermal (mg/day) = DA_event * A * EV	IR =	2000.0 (cm3/day = L/day * 1000 cm3/L)
Drinking (mg/day) = Conc * IR * ABSIG	ABSGI =	1.0 (assumed 100% GI absorption)

IR: Ingestion rate of drinking water
ABSIG: Absorption fraction in GI tract

Refer to Appendix A for equations to evaluate DA_event and DAD

(*): outside of the Effective Prediction Domain (EPD) determined by the Flynn's measured Kp data

95% LCI and UCI are evaluated by Dr. Paul Pinsky in NCEA using SAS

CHEMICAL	CAS No.	MWT	logKow	Kp 95% LCI	Kp (cm/hr) predicted	Kp (cm/hr) measured	Kp 95% UCI	Chemicals outside EPD (*)	Derm/ Drink Kp	Chem Assess	B	tau (hr)	t_star (hr)
118 Heptachlor	76448	373.5	4.27	3.4E-04	8.6E-03		2.2E-01		14%	Y	0.1	12.99	31.16
	FA for tau>3	Conc (mg/cm3)	DA_event (mg/cm2-evt)	DAD (mg/kg-day)		log(Ds/lsc)	Dsc/lsc	Dsc		b	c	t_star1 B>0.6	t_star3 B<=0.6
	0.8	1.4E-09	6.8E-11	3.9E-10		-4.89E+00	1.28E-05	1.28E-08		3.4E-01	3.8E-01	#NUM!	31.16

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island													
			4-Methylphenol	Surface Water	--	1	7.7E-03	cm/hr	1	hr/event	0.42	hr	1.02	hr	0.0306
			Acenaphthylene	Surface Water	--	1	9.1E-02	cm/hr	1	hr/event	0.75	hr	1.80	hr	0.4320
			Atrazine	Surface Water	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Dibenz(a,h)anthracene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.81	hr	N/A	hr	N/A
			Dibenzofuran	Surface Water	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			N-Nitrosodiphenylamine	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	1.35	hr	3.25	hr	0.0788
			Pentachlorophenol	Surface Water	--	0.9	NA	cm/hr	1	hr/event	3.26	hr	N/A	hr	N/A
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Chlorobenzene	Surface Water	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Ethylbenzene	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Xylene (total)	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Total PCBs	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Current	Rec. User - Adult wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Rec. User - Older Child wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Current	Trespasser - Adolescent wader	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Current	Trespasser - Adolescent wader	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Adult wader	Leachate - Landfill/Unnamed Island													
			4-Methylphenol	Surface Water	--	1	7.7E-03	cm/hr	1	hr/event	0.42	hr	1.02	hr	0.0306
			Acenaphthylene	Surface Water	--	1	9.1E-02	cm/hr	1	hr/event	0.75	hr	1.80	hr	0.4320
			Atrazine	Surface Water	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Dibenz(a,h)anthracene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.81	hr	N/A	hr	N/A
			Dibenzofuran	Surface Water	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			N-Nitrosodiphenylamine	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	1.35	hr	3.25	hr	0.0788
			Pentachlorophenol	Surface Water	--	0.9	NA	cm/hr	1	hr/event	3.26	hr	N/A	hr	N/A
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Chlorobenzene	Surface Water	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Ethylbenzene	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Xylene (total)	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Total PCBs	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Leachate - Landfill/Unnamed Island	4-Methylphenol	Surface Water	--	1	7.7E-03	cm/hr	1	hr/event	0.42	hr	1.02	hr	0.0306
			Acenaphthylene	Surface Water	--	1	9.1E-02	cm/hr	1	hr/event	0.75	hr	1.80	hr	0.4320
			Atrazine	Surface Water	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Dibenz(a,h)anthracene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.81	hr	N/A	hr	N/A
			Dibenzofuran	Surface Water	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			N-Nitrosodiphenylamine	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	1.35	hr	3.25	hr	0.0788
			Pentachlorophenol	Surface Water	--	0.9	NA	cm/hr	1	hr/event	3.26	hr	N/A	hr	N/A
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Chlorobenzene	Surface Water	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Ethylbenzene	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Xylene (total)	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Total PCBs	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
Future	Rec. User - Older Child swimmer	Southern Bank	alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
Future	Rec. User - Adult swimmer	Upstream of Landfill	alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.RME. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Adult swimmer	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Older Child wader	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Older Child swimmer	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804

FA = Fraction Absorbed Water
Kp = Dermal Permeability Coefficient of Compound in Water

T(event) = Event Duration
Tau = Lag Time

T* = Time to Reach Steady-State
B = Dimensionless Ratio of the Permeability Coefficient of a Compound Through the Stratum Comeum Relative to its Permeability Coefficient Across the Viable Epidermis

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Leachate - Landfill/Unnamed Island													
			4-Methylphenol	Surface Water	--	1	7.7E-03	cm/hr	1	hr/event	0.42	hr	1.02	hr	0.0306
			Acenaphthylene	Surface Water	--	1	9.1E-02	cm/hr	1	hr/event	0.75	hr	1.80	hr	0.4320
			Atrazine	Surface Water	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Dibenz(a,h)anthracene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.81	hr	N/A	hr	N/A
			Dibenzofuran	Surface Water	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			N-Nitrosodiphenylamine	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	1.35	hr	3.25	hr	0.0788
			Pentachlorophenol	Surface Water	--	0.9	NA	cm/hr	1	hr/event	3.26	hr	N/A	hr	N/A
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Chlorobenzene	Surface Water	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Ethylbenzene	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Xylene (total)	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Total PCBs	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
Current	Rec. User - Adult wader	Southern Bank	alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Rec. User - Older Child wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Current	Trespasser - Adolescent wader	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Current	Trespasser - Adolescent wader	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Current	Trespasser - Adolescent wader	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Adult wader	Leachate - Landfill/Unnamed Island													
			4-Methylphenol	Surface Water	--	1	7.7E-03	cm/hr	1	hr/event	0.42	hr	1.02	hr	0.0306
			Acenaphthylene	Surface Water	--	1	9.1E-02	cm/hr	1	hr/event	0.75	hr	1.80	hr	0.4320
			Atrazine	Surface Water	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Dibenz(a,h)anthracene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.81	hr	N/A	hr	N/A
			Dibenzofuran	Surface Water	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			N-Nitrosodiphenylamine	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	1.35	hr	3.25	hr	0.0788
			Pentachlorophenol	Surface Water	--	0.9	NA	cm/hr	1	hr/event	3.26	hr	N/A	hr	N/A
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Chlorobenzene	Surface Water	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Ethylbenzene	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Xylene (total)	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Total PCBs	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Leachate - Landfill/Unnamed Island	4-Methylphenol	Surface Water	--	1	7.7E-03	cm/hr	1	hr/event	0.42	hr	1.02	hr	0.0306
			Acenaphthylene	Surface Water	--	1	9.1E-02	cm/hr	1	hr/event	0.75	hr	1.80	hr	0.4320
			Atrazine	Surface Water	--	1	5.2E-03	cm/hr	1	hr/event	1.70	hr	4.07	hr	0.0296
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Dibenz(a,h)anthracene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.81	hr	N/A	hr	N/A
			Dibenzofuran	Surface Water	--	1	7.3E-02	cm/hr	1	hr/event	1.85	hr	4.44	hr	0.4204
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			N-Nitrosodiphenylamine	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	1.35	hr	3.25	hr	0.0788
			Pentachlorophenol	Surface Water	--	0.9	NA	cm/hr	1	hr/event	3.26	hr	N/A	hr	N/A
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Chlorobenzene	Surface Water	--	1	2.8E-02	cm/hr	1	hr/event	0.45	hr	1.08	hr	0.1152
			Ethylbenzene	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1952
			Xylene (total)	Surface Water	--	1	4.9E-02	cm/hr	1	hr/event	0.41	hr	0.99	hr	0.1953
			Total PCBs	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0816
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Unnamed Island Ponds													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

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Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Southern Bank													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
Future	Rec. User - Older Child swimmer	Southern Bank	alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
Future	Rec. User - Adult swimmer	Upstream of Landfill	alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Upstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Adjacent to Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Adult swimmer	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Older Child wader	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585
Future	Rec. User - Older Child swimmer	Downstream of Landfill													
			Benzo(a)anthracene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Benzo(a)pyrene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.64	hr	N/A	hr	N/A
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			Benzo(g,h,i)perylene	Surface Water	--	1	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Benzo(k)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			Indeno(1,2,3-cd)pyrene	Surface Water	--	0.6	NA	cm/hr	1	hr/event	3.71	hr	N/A	hr	N/A
			Naphthalene	Surface Water	--	1	4.7E-02	cm/hr	1	hr/event	0.55	hr	1.32	hr	0.2031
			Phenanthrene	Surface Water	--	1	NA	cm/hr	1	hr/event	1.05	hr	N/A	hr	N/A
			1,4-Dichlorobenzene	Surface Water	--	1	4.2E-02	cm/hr	1	hr/event	0.70	hr	1.68	hr	0.1957
			Benzene	Surface Water	--	1	1.5E-02	cm/hr	1	hr/event	0.29	hr	0.69	hr	0.0505
			Aroclor-1260	Surface Water	--	1	NA	cm/hr	1	hr/event	4.54	hr	N/A	hr	N/A
			4,4'-DDD	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.51	hr	N/A	hr	N/A
			4,4'-DDE	Surface Water	--	0.8	NA	cm/hr	1	hr/event	6.35	hr	N/A	hr	N/A
			4,4'-DDT	Surface Water	--	0.7	NA	cm/hr	1	hr/event	10.23	hr	N/A	hr	N/A
			alpha-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
			Dieldrin	Surface Water	--	0.8	1.2E-02	cm/hr	1	hr/event	14.30	hr	34.33	hr	0.0918
			Gamma-Chlordane	Surface Water	--	0.7	3.4E-02	cm/hr	1	hr/event	20.79	hr	49.90	hr	0.2635
			Heptachlor Epoxide	Surface Water	--	1	2.1E-02	cm/hr	1	hr/event	15.92	hr	38.21	hr	0.1585

Table 6.CT. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SURFACE WATER

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Future	Rec. User - Adult wader	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Adult swimmer	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Older Child wader	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804
Future	Rec. User - Older Child swimmer	Wetlands													
			Benzo(b)fluoranthene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.72	hr	N/A	hr	N/A
			bis(2-Ethylhexyl)phthalate	Surface Water	--	0.8	2.5E-02	cm/hr	1	hr/event	16.27	hr	39.05	hr	0.1896
			Chrysene	Surface Water	--	1	NA	cm/hr	1	hr/event	2.00	hr	N/A	hr	N/A
			beta-BHC	Surface Water	--	1	1.2E-02	cm/hr	1	hr/event	4.47	hr	10.73	hr	0.0804

FA = Fraction Absorbed Water
Kp = Dermal Permeability Coefficient of Compound in Water

T(event) = Event Duration
Tau = Lag Time

T* = Time to Reach Steady-State
B = Dimensionless Ratio of the Permeability Coefficient of a Compound Through the Stratum Comeum Relative to its Permeability Coefficient Across the Viable Epidermis

Table 7. Dermal Worksheet
Intermediate Variables for Calculating DA(event)
PETERSON PURITAN SUPERFUND SITE - OPERABLE UNIT 2 - SOIL/SEDIMENT

Timeframe	Receptor	Exposure Point	Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
						Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
All	All	All	1,4-Dioxane	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			2,4-Dimethylphenol	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4-Chloro-3-methylphenol	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4-Chloroaniline	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4-Methylphenol	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4-Nitrophenol	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Acenaphthylene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Atrazine	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Benzo(a)anthracene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Benzo(a)pyrene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Benzo(b)fluoranthene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Benzo(g,h,i)perylene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Benzo(k)fluoranthene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Bis(2-ethylhexyl)phthalate	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Carbazole	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Chrysene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Dibenz(a,h)anthracene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Dibenzofuran	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Hexachlorobenzene	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Indeno(1,2,3-cd)pyrene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Isophorone	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Naphthalene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			N-Nitrosodiphenylamine	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Pentachlorophenol	Sediment/Soil	0.25	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Phenanthrene	Sediment/Soil	0.13	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Aroclor-1242	Sediment/Soil	0.14	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Aroclor-1248	Sediment/Soil	0.14	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Aroclor-1254	Sediment/Soil	0.14	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Aroclor-1260	Sediment/Soil	0.14	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Total PCBs	Sediment/Soil	0.14	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Total PCB Homologs	Sediment/Soil	0.14	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4,4'-DDD	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4,4'-DDE	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			4,4'-DDT	Sediment/Soil	0.03	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Aldrin	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			alpha-BHC	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			alpha-Chlordane	Sediment/Soil	0.04	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			beta-BHC	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Dielsin	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Endosulfan I	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Endosulfan II	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Endosulfan Sulfate	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			gamma-BHC (Lindane)	Sediment/Soil	0.04	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			gamma-Chlordane	Sediment/Soil	0.04	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Heptachlor	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Heptachlor epoxide	Sediment/Soil	0.1	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Dioxin TEQ	Sediment/Soil	0.03	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Arsenic	Sediment/Soil	0.03	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
			Cadmium	Sediment/Soil	0.001	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data

FA = Fraction Absorbed Water
Kp = Dermal Permeability Coefficient of
Compound in Water

T(event) = Event Duration
Tau = Lag Time

T* = Time to Reach Steady-State
B = Dimensionless Ratio of the Permeability Coefficient of a Compound Through the
Stratum Comeum Relative to its Permeability Coefficient Across the Viable Epidermis

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			H:\JCV\Puritan\2007\EPCs\Sediment\adj_land_sediment.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	bis(2-Ethylhexyl)phthalate											
10												
11	General Statistics											
12	Number of Valid Samples					15	Number of Detected Data					11
13	Number of Unique Samples					11	Number of Non-Detect Data					4
14							Percent Non-Detects					26.67%
15												
16	Raw Statistics						Log-transformed Statistics					
17	Minimum Detected					120	Minimum Detected					4.787
18	Maximum Detected					58000	Maximum Detected					10.97
19	Mean of Detected					7324	Mean of Detected					7.325
20	SD of Detected					16964	SD of Detected					1.863
21	Minimum Non-Detect					360	Minimum Non-Detect					5.886
22	Maximum Non-Detect					570	Maximum Non-Detect					6.346
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					7
25	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					8
26	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					46.67%
27												
28	UCL Statistics											
29	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
30	Shapiro Wilk Test Statistic					0.458	Shapiro Wilk Test Statistic					0.939
31	5% Shapiro Wilk Critical Value					0.85	5% Shapiro Wilk Critical Value					0.85
32	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
33												
34	Assuming Normal Distribution						Assuming Lognormal Distribution					
35	DL/2 Substitution Method						DL/2 Substitution Method					
36	Mean					5431	Mean					6.813
37	SD					14701	SD					1.806
38	95% DL/2 (t) UCL					12117	95% H-Stat (DL/2) UCL					29490
39												
40	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
41	Mean					-2976	Mean in Log Scale					6.728
42	SD					21351	SD in Log Scale					1.879
43	95% MLE (t) UCL					6734	Mean in Original Scale					5414
44	95% MLE (Tiku) UCL					8746	SD in Original Scale					14708
45							95% Percentile Bootstrap UCL					12703
46							95% BCA Bootstrap UCL					16902
47												
48	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
49	k star (bias corrected)					0.363	Data appear Gamma Distributed at 5% Significance Level					
50	Theta Star					20186						
51	nu star					7.982						
52												
53	A-D Test Statistic					0.792	Nonparametric Statistics					

	A	B	C	D	E	F	G	H	I	J	K	L
54	5% A-D Critical Value					0.798	Kaplan-Meier (KM) Method					
55	K-S Test Statistic					0.798	Mean					5412
56	5% K-S Critical Value					0.272	SD					14210
57	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					3848
58							95% KM (t) UCL					12189
59	Assuming Gamma Distribution						95% KM (z) UCL					11741
60	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					12101
61	Minimum					0	95% KM (bootstrap t) UCL					43522
62	Maximum					58000	95% KM (BCA) UCL					13420
63	Mean					5340	95% KM (percentile) UCL					12871
64	Median					1100	95% KM (Chebyshev) UCL					22185
65	SD					14736	97.5% KM (Chebyshev) UCL					29442
66	k star					0.0939	99% KM (Chebyshev) UCL					43699
67	Theta star					56892						
68	Nu star					2.816	Potential UCLs to Use					
69	AppChi2					0.32	95% KM (Chebyshev) UCL					22185
70	95% Gamma Approximate UCL					46986						
71	95% Adjusted Gamma UCL					61503						
72												
73												
74	Benzo(a)pyrene											
75												
76	General Statistics											
77	Number of Valid Samples					15	Number of Unique Samples					12
78												
79	Raw Statistics					Log-transformed Statistics						
80	Minimum					22	Minimum of Log Data					3.091
81	Maximum					1900	Maximum of Log Data					7.55
82	Mean					950.5	Mean of log Data					6.349
83	Median					880	SD of log Data					1.305
84	SD					705.1						
85	Coefficient of Variation					0.742						
86	Skewness					0.0355						
87												
88	Relevant UCL Statistics											
89	Normal Distribution Test					Lognormal Distribution Test						
90	Shapiro Wilk Test Statistic					0.875	Shapiro Wilk Test Statistic					0.844
91	Shapiro Wilk Critical Value					0.881	Shapiro Wilk Critical Value					0.881
92	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
93												
94	Assuming Normal Distribution						Assuming Lognormal Distribution					
95	95% Student's-t UCL					1271	95% H-UCL					4173
96	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					3242
97	95% Adjusted-CLT UCL					1252	97.5% Chebyshev (MVUE) UCL					4116
98	95% Modified-t UCL					1271	99% Chebyshev (MVUE) UCL					5833
99												
100	Gamma Distribution Test						Nonparametric Test					
101	k star (bias corrected)					0.942	Data appear Gamma Distributed at 5% Significance Level					
102	Theta Star					1009						
103	nu star					28.27						
104	Approximate Chi Square Value (.05)					17.14	Nonparametric Statistics					
105	Adjusted Level of Significance					0.0324	95% CLT UCL					1250
106	Adjusted Chi Square Value					16.08	95% Jackknife UCL					1271

	A	B	C	D	E	F	G	H	I	J	K	L	
107						95% Standard Bootstrap UCL							1240
108	Anderson-Darling Test Statistic					0.716	95% Bootstrap-t UCL						1272
109	Anderson-Darling 5% Critical Value					0.761	95% Hall's Bootstrap UCL						1226
110	Kolmogorov-Smirnov Test Statistic					0.173	95% Percentile Bootstrap UCL						1247
111	Kolmogorov-Smirnov 5% Critical Value					0.227	95% BCA Bootstrap UCL						1245
112	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL						1744
113							97.5% Chebyshev(Mean, Sd) UCL						2087
114	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL						2762
115	95% Approximate Gamma UCL					1568							
116	95% Adjusted Gamma UCL					1671							
117													
118	Potential UCL to Use						Use 95% Approximate Gamma UCL						1568
119													
120													
121	Benzo(b)fluoranthene												
122													
123	General Statistics												
124	Number of Valid Samples					15	Number of Unique Samples						15
125													
126	Raw Statistics						Log-transformed Statistics						
127	Minimum					27	Minimum of Log Data						3.296
128	Maximum					2400	Maximum of Log Data						7.783
129	Mean					1096	Mean of log Data						6.459
130	Median					1200	SD of log Data						1.331
131	SD					849.7							
132	Coefficient of Variation					0.775							
133	Skewness					0.155							
134													
135	Relevant UCL Statistics												
136	Normal Distribution Test						Lognormal Distribution Test						
137	Shapiro Wilk Test Statistic					0.902	Shapiro Wilk Test Statistic						0.874
138	Shapiro Wilk Critical Value					0.881	Shapiro Wilk Critical Value						0.881
139	Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level						
140													
141	Assuming Normal Distribution						Assuming Lognormal Distribution						
142	95% Student's-t UCL					1483	95% H-UCL						5017
143	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL						3779
144	95% Adjusted-CLT UCL					1466	97.5% Chebyshev (MVUE) UCL						4807
145	95% Modified-t UCL					1484	99% Chebyshev (MVUE) UCL						6825
146													
147	Gamma Distribution Test						Nonparametric Test						
148	k star (bias corrected)					0.893	Data appear Normal at 5% Significance Level						
149	Theta Star					1227							
150	nu star					26.79							
151	Approximate Chi Square Value (.05)					15.99	Nonparametric Statistics						
152	Adjusted Level of Significance					0.0324	95% CLT UCL						1457
153	Adjusted Chi Square Value					14.97	95% Jackknife UCL						1483
154							95% Standard Bootstrap UCL						1450
155	Anderson-Darling Test Statistic					0.571	95% Bootstrap-t UCL						1497
156	Anderson-Darling 5% Critical Value					0.762	95% Hall's Bootstrap UCL						1447
157	Kolmogorov-Smirnov Test Statistic					0.196	95% Percentile Bootstrap UCL						1432
158	Kolmogorov-Smirnov 5% Critical Value					0.228	95% BCA Bootstrap UCL						1436
159	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL						2052

	A	B	C	D	E	F	G	H	I	J	K	L
160							97.5% Chebyshev(Mean, Sd) UCL					2466
161	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					3279
162	95% Approximate Gamma UCL					1837						
163	95% Adjusted Gamma UCL					1962						
164												
165	Potential UCL to Use						Use 95% Student's-t UCL					1483
166												
167												
168	Benzo[a]anthracene											
169												
170	General Statistics											
171	Number of Valid Samples					15	Number of Unique Samples					14
172												
173	Raw Statistics						Log-transformed Statistics					
174	Minimum					21	Minimum of Log Data					3.045
175	Maximum					2100	Maximum of Log Data					7.65
176	Mean					965.9	Mean of log Data					6.362
177	Median					820	SD of log Data					1.32
178	SD					727.1						
179	Coefficient of Variation					0.753						
180	Skewness					0.236						
181												
182	Relevant UCL Statistics											
183	Normal Distribution Test						Lognormal Distribution Test					
184	Shapiro Wilk Test Statistic					0.913	Shapiro Wilk Test Statistic					0.858
185	Shapiro Wilk Critical Value					0.881	Shapiro Wilk Critical Value					0.881
186	Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
187												
188	Assuming Normal Distribution						Assuming Lognormal Distribution					
189	95% Student's-t UCL					1297	95% H-UCL					4418
190	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					3370
191	95% Adjusted-CLT UCL					1287	97.5% Chebyshev (MVUE) UCL					4283
192	95% Modified-t UCL					1298	99% Chebyshev (MVUE) UCL					6077
193												
194	Gamma Distribution Test						Nonparametric Test					
195	k star (bias corrected)					0.937	Data appear Normal at 5% Significance Level					
196	Theta Star					1031						
197	nu star					28.1						
198	Approximate Chi Square Value (.05)					17	Nonparametric Statistics					
199	Adjusted Level of Significance					0.0324	95% CLT UCL					1275
200	Adjusted Chi Square Value					15.95	95% Jackknife UCL					1297
201							95% Standard Bootstrap UCL					1266
202	Anderson-Darling Test Statistic					0.496	95% Bootstrap-t UCL					1311
203	Anderson-Darling 5% Critical Value					0.761	95% Hall's Bootstrap UCL					1273
204	Kolmogorov-Smirnov Test Statistic					0.147	95% Percentile Bootstrap UCL					1251
205	Kolmogorov-Smirnov 5% Critical Value					0.227	95% BCA Bootstrap UCL					1264
206	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					1784
207							97.5% Chebyshev(Mean, Sd) UCL					2138
208	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					2834
209	95% Approximate Gamma UCL					1596						
210	95% Adjusted Gamma UCL					1702						
211												
212	Potential UCL to Use						Use 95% Student's-t UCL					1297

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214												
215	Dibenz[a,h]anthracene											
216												
217	General Statistics											
218	Number of Valid Samples					15	Number of Detected Data					13
219	Number of Unique Samples					13	Number of Non-Detect Data					2
220							Percent Non-Detects					13.33%
221												
222	Raw Statistics					Log-transformed Statistics						
223	Minimum Detected					5.8	Minimum Detected					1.758
224	Maximum Detected					340	Maximum Detected					5.829
225	Mean of Detected					143	Mean of Detected					4.448
226	SD of Detected					115	SD of Detected					1.252
227	Minimum Non-Detect					630	Minimum Non-Detect					6.446
228	Maximum Non-Detect					1100	Maximum Non-Detect					7.003
229												
230	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				15	
231	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				0	
232	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				100.00%	
233												
234	UCL Statistics											
235	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
236	Shapiro Wilk Test Statistic					0.894	Shapiro Wilk Test Statistic					0.887
237	5% Shapiro Wilk Critical Value					0.866	5% Shapiro Wilk Critical Value					0.866
238	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
239												
240	Assuming Normal Distribution					Assuming Lognormal Distribution						
241	DL/2 Substitution Method						DL/2 Substitution Method					
242	Mean					181.6	Mean					4.659
243	SD					153.9	SD					1.291
244	95% DL/2 (t) UCL					251.6	95% H-Stat (DL/2) UCL					1879
245												
246	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
247							Mean in Log Scale					4.448
248							SD in Log Scale					1.159
249							Mean in Original Scale					135.3
250							SD in Original Scale					108.4
251							95% Percentile Bootstrap UCL					181.9
252							95% BCA Bootstrap UCL					185.8
253												
254	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
255	k star (bias corrected)					0.904	Data appear Normal at 5% Significance Level					
256	Theta Star					158.2						
257	nu star					23.49						
258												
259	A-D Test Statistic					0.596	Nonparametric Statistics					
260	5% A-D Critical Value					0.756	Kaplan-Meier (KM) Method					
261	K-S Test Statistic					0.756	Mean					143
262	5% K-S Critical Value					0.243	SD					110.5
263	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					31.9	
264							95% KM (t) UCL					199.2
265	Assuming Gamma Distribution					95% KM (z) UCL					195.5	

	A	B	C	D	E	F	G	H	I	J	K	L
266	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL					199.5	
267	Minimum					N/A	95% KM (bootstrap t) UCL					203.1
268	Maximum					N/A	95% KM (BCA) UCL					195.2
269	Mean					N/A	95% KM (percentile) UCL					192.7
270	Median					N/A	95% KM (Chebyshev) UCL					282
271	SD					N/A	97.5% KM (Chebyshev) UCL					342.2
272	k star					N/A	99% KM (Chebyshev) UCL					460.4
273	Theta star					N/A						
274	Nu star					N/A	Potential UCLs to Use					
275	AppChi2					N/A	95% KM (t) UCL					199.2
276	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					192.7
277	95% Adjusted Gamma UCL					N/A						
278												
279												
280	Indeno(1,2,3-cd)pyrene											
281												
282	General Statistics											
283	Number of Valid Samples					15	Number of Unique Samples					13
284												
285	Raw Statistics					Log-transformed Statistics						
286	Minimum					18	Minimum of Log Data					2.89
287	Maximum					1000	Maximum of Log Data					6.908
288	Mean					481.5	Mean of log Data					5.696
289	Median					530	SD of log Data					1.231
290	SD					353.5						
291	Coefficient of Variation					0.734						
292	Skewness					0.00299						
293												
294	Relevant UCL Statistics											
295	Normal Distribution Test					Lognormal Distribution Test						
296	Shapiro Wilk Test Statistic					0.888	Shapiro Wilk Test Statistic					0.851
297	Shapiro Wilk Critical Value					0.881	Shapiro Wilk Critical Value					0.881
298	Data appear Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
299												
300	Assuming Normal Distribution					Assuming Lognormal Distribution						
301	95% Student's-t UCL					642.2	95% H-UCL					1777
302	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					1496	
303	95% Adjusted-CLT UCL					631.7	97.5% Chebyshev (MVUE) UCL					1890
304	95% Modified-t UCL					642.2	99% Chebyshev (MVUE) UCL					2662
305												
306	Gamma Distribution Test					Nonparametric Test						
307	k star (bias corrected)					0.988	Data appear Normal at 5% Significance Level					
308	Theta Star					487.5						
309	nu star					29.63						
310	Approximate Chi Square Value (.05)					18.2	Nonparametric Statistics					
311	Adjusted Level of Significance					0.0324	95% CLT UCL					631.6
312	Adjusted Chi Square Value					17.1	95% Jackknife UCL					642.2
313							95% Standard Bootstrap UCL					628.5
314	Anderson-Darling Test Statistic					0.853	95% Bootstrap-t UCL					639
315	Anderson-Darling 5% Critical Value					0.76	95% Hall's Bootstrap UCL					621
316	Kolmogorov-Smirnov Test Statistic					0.245	95% Percentile Bootstrap UCL					625.3
317	Kolmogorov-Smirnov 5% Critical Value					0.227	95% BCA Bootstrap UCL					628
318	Data not Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					879.3	

	A	B	C	D	E	F	G	H	I	J	K	L	
319						97.5% Chebyshev(Mean, Sd) UCL							1051
320	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL							1390
321	95% Approximate Gamma UCL					783.7							
322	95% Adjusted Gamma UCL					834							
323													
324	Potential UCL to Use					Use 95% Student's-t UCL							642.2
325													
326													
327	Aroclor-1242												
328													
329	General Statistics												
330	Number of Valid Samples					15	Number of Detected Data					2	
331	Number of Unique Samples					2	Number of Non-Detect Data					13	
332							Percent Non-Detects					86.67%	
333													
334	Raw Statistics					Log-transformed Statistics							
335	Minimum Detected					9.6	Minimum Detected					2.262	
336	Maximum Detected					250	Maximum Detected					5.521	
337	Mean of Detected					129.8	Mean of Detected					3.892	
338	SD of Detected					170	SD of Detected					2.305	
339	Minimum Non-Detect					6.5	Minimum Non-Detect					1.872	
340	Maximum Non-Detect					13	Maximum Non-Detect					2.565	
341													
342	Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect					14		
343	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),					Number treated as Detected					1		
344	those Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage					93.33%		
345													
346	UCL Statistics												
347	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
348	Shapiro Wilk Test Statistic					1	Shapiro Wilk Test Statistic					1	
349	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A	
350	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
351													
352	Assuming Normal Distribution					Assuming Lognormal Distribution							
353	DL/2 Substitution Method						DL/2 Substitution Method						
354	Mean					21.21	Mean					1.802	
355	SD					63.32	SD					1.068	
356	95% DL/2 (t) UCL					50	95% H-Stat (DL/2) UCL					16.72	
357													
358	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method						
359							Mean in Log Scale					-3.386	
360							SD in Log Scale					3.276	
361							Mean in Original Scale					17.33	
362							SD in Original Scale					64.41	
363							95% Percentile Bootstrap UCL					50.03	
364							95% BCA Bootstrap UCL					83.34	
365													
366	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only							
367	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)						
368	Theta Star					N/A							
369	nu star					N/A							
370													
371	A-D Test Statistic					0.355	Nonparametric Statistics						

	A	B	C	D	E	F	G	H	I	J	K	L
372	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
373	K-S Test Statistic					N/A	Mean					25.63
374	5% K-S Critical Value					N/A	SD					59.97
375	Data not Gamma Distributed at 5% Significance Level						SE of Mean					21.9
376							95% KM (t) UCL					64.19
377	Assuming Gamma Distribution						95% KM (z) UCL					61.64
378	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					187.3
379	Minimum					N/A	95% KM (bootstrap t) UCL					1.8E+308
380	Maximum					N/A	95% KM (BCA) UCL					1E+31
381	Mean					N/A	95% KM (percentile) UCL					1E+31
382	Median					N/A	95% KM (Chebyshev) UCL					121.1
383	SD					N/A	97.5% KM (Chebyshev) UCL					162.4
384	k star					N/A	99% KM (Chebyshev) UCL					243.5
385	Theta star					N/A						
386	Nu star					N/A	Potential UCLs to Use					
387	AppChi2					N/A	99% KM (Chebyshev) UCL					243.5
388	95% Gamma Approximate UCL					N/A						
389	95% Adjusted Gamma UCL					N/A						
390												
391												
392	Aroclor-1248											
393												
394	General Statistics											
395	Number of Valid Samples					14	Number of Detected Data					2
396	Number of Unique Samples					2	Number of Non-Detect Data					12
397	Number of Missing Values					1	Percent Non-Detects					85.71%
398												
399	Raw Statistics						Log-transformed Statistics					
400	Minimum Detected					9.6	Minimum Detected					2.262
401	Maximum Detected					130	Maximum Detected					4.868
402	Mean of Detected					69.8	Mean of Detected					3.565
403	SD of Detected					85.14	SD of Detected					1.843
404	Minimum Non-Detect					7.3	Minimum Non-Detect					1.988
405	Maximum Non-Detect					13	Maximum Non-Detect					2.565
406												
407	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					13
408	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1
409	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					92.86%
410												
411	UCL Statistics											
412	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
413	Shapiro Wilk Test Statistic					1	Shapiro Wilk Test Statistic					1
414	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A
415	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
416												
417	Assuming Normal Distribution						Assuming Lognormal Distribution					
418	DL/2 Substitution Method						DL/2 Substitution Method					
419	Mean					13.9	Mean					1.795
420	SD					33.46	SD					0.929
421	95% DL/2 (t) UCL					29.73	95% H-Stat (DL/2) UCL					14.03
422												
423	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
424							Mean in Log Scale					-1.898

	A	B	C	D	E	F	G	H	I	J	K	L
425						SD in Log Scale						2.579
426						Mean in Original Scale						10.06
427						SD in Original Scale						34.61
428						95% Percentile Bootstrap UCL						27.99
429						95% BCA Bootstrap UCL						37.91
430												
431	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
432	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)					
433	Theta Star					N/A						
434	nu star					N/A						
435												
436	A-D Test Statistic					0.356	Nonparametric Statistics					
437	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
438	K-S Test Statistic					N/A	Mean					18.2
439	5% K-S Critical Value					N/A	SD					31.01
440	Data not Gamma Distributed at 5% Significance Level						SE of Mean					11.72
441							95% KM (t) UCL					38.96
442	Assuming Gamma Distribution						95% KM (z) UCL					37.48
443	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					99.56
444	Minimum					N/A	95% KM (bootstrap t) UCL					18.2
445	Maximum					N/A	95% KM (BCA) UCL					1E+31
446	Mean					N/A	95% KM (percentile) UCL					1E+31
447	Median					N/A	95% KM (Chebyshev) UCL					69.29
448	SD					N/A	97.5% KM (Chebyshev) UCL					91.39
449	k star					N/A	99% KM (Chebyshev) UCL					134.8
450	Theta star					N/A						
451	Nu star					N/A	Potential UCLs to Use					
452	AppChi2					N/A	97.5% KM (Chebyshev) UCL					91.39
453	95% Gamma Approximate UCL					N/A						
454	95% Adjusted Gamma UCL					N/A						
455												
456												
457	Aroclor-1254											
458												
459	General Statistics											
460	Number of Valid Samples					15	Number of Detected Data					6
461	Number of Unique Samples					6	Number of Non-Detect Data					9
462							Percent Non-Detects					60.00%
463												
464	Raw Statistics					Log-transformed Statistics						
465	Minimum Detected					9.6	Minimum Detected					2.262
466	Maximum Detected					550	Maximum Detected					6.31
467	Mean of Detected					139	Mean of Detected					3.659
468	SD of Detected					219.2	SD of Detected					1.759
469	Minimum Non-Detect					6.5	Minimum Non-Detect					1.872
470	Maximum Non-Detect					13	Maximum Non-Detect					2.565
471												
472	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					11
473	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					4
474	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					73.33%
475												
476	UCL Statistics											
477	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					

	A	B	C	D	E	F	G	H	I	J	K	L
478	Shapiro Wilk Test Statistic					0.699	Shapiro Wilk Test Statistic					0.799
479	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
480	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
481												
482	Assuming Normal Distribution						Assuming Lognormal Distribution					
483	DL/2 Substitution Method						DL/2 Substitution Method					
484	Mean					58.21	Mean					2.336
485	SD					147.7	SD					1.543
486	95% DL/2 (t) UCL					125.4	95% H-Stat (DL/2) UCL					61.05
487												
488	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
489	Mean					-222.7	Mean in Log Scale					0.853
490	SD					358.9	SD in Log Scale					2.608
491	95% MLE (t) UCL					-59.54	Mean in Original Scale					55.81
492	95% MLE (Tiku) UCL					92.14	SD in Original Scale					148.7
493							95% Percentile Bootstrap UCL					123.3
494							95% BCA Bootstrap UCL					165.1
495												
496	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
497	k star (bias corrected)					0.36	Data appear Lognormal at 5% Significance Level					
498	Theta Star					385.7						
499	nu star					4.323						
500												
501	A-D Test Statistic					0.761	Nonparametric Statistics					
502	5% A-D Critical Value					0.736	Kaplan-Meier (KM) Method					
503	K-S Test Statistic					0.736	Mean					61.34
504	5% K-S Critical Value					0.349	SD					141.6
505	Data not Gamma Distributed at 5% Significance Level						SE of Mean					40.04
506							95% KM (t) UCL					131.9
507	Assuming Gamma Distribution						95% KM (z) UCL					127.2
508	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					127.8
509	Minimum					0	95% KM (bootstrap t) UCL					2492
510	Maximum					550	95% KM (BCA) UCL					132.7
511	Mean					54.28	95% KM (percentile) UCL					133.1
512	Median					0	95% KM (Chebyshev) UCL					235.9
513	SD					149.2	97.5% KM (Chebyshev) UCL					311.4
514	k star					0.0834	99% KM (Chebyshev) UCL					459.7
515	Theta star					651.1						
516	Nu star					2.501	Potential UCLs to Use					
517	AppChi2					0.241	97.5% KM (Chebyshev) UCL					311.4
518	95% Gamma Approximate UCL					562.5						
519	95% Adjusted Gamma UCL					732.1						
520												
521												
522	Aroclor-1260											
523												
524	General Statistics											
525	Number of Valid Samples					15	Number of Detected Data					9
526	Number of Unique Samples					8	Number of Non-Detect Data					6
527							Percent Non-Detects					40.00%
528												
529	Raw Statistics						Log-transformed Statistics					
530	Minimum Detected					13	Minimum Detected					2.565

	A	B	C	D	E	F	G	H	I	J	K	L
531	Maximum Detected					310	Maximum Detected					5.737
532	Mean of Detected					125	Mean of Detected					4.529
533	SD of Detected					86.72	SD of Detected					0.952
534	Minimum Non-Detect					7.4	Minimum Non-Detect					2.001
535	Maximum Non-Detect					11	Maximum Non-Detect					2.398
536												
537	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					6
538	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					9
539	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					40.00%
540												
541	UCL Statistics											
542	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
543	Shapiro Wilk Test Statistic					0.908	Shapiro Wilk Test Statistic					0.873
544	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
545	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
546												
547	Assuming Normal Distribution						Assuming Lognormal Distribution					
548	DL/2 Substitution Method						DL/2 Substitution Method					
549	Mean					76.69	Mean					3.289
550	SD					89.71	SD					1.732
551	95% DL/2 (t) UCL					117.5	95% H-Stat (DL/2) UCL					594.2
552												
553	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
554	Mean					43.41	Mean in Log Scale					3.651
555	SD					126.4	SD in Log Scale					1.333
556	95% MLE (t) UCL					100.9	Mean in Original Scale					79.22
557	95% MLE (Tiku) UCL					108.3	SD in Original Scale					87.57
558							95% Percentile Bootstrap UCL					117
559							95% BCA Bootstrap UCL					122.7
560												
561	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
562	k star (bias corrected)					1.288	Data appear Normal at 5% Significance Level					
563	Theta Star					97.01						
564	nu star					23.19						
565												
566	A-D Test Statistic					0.439	Nonparametric Statistics					
567	5% A-D Critical Value					0.731	Kaplan-Meier (KM) Method					
568	K-S Test Statistic					0.731	Mean					80.2
569	5% K-S Critical Value					0.283	SD					83.8
570	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					22.95
571							95% KM (t) UCL					120.6
572	Assuming Gamma Distribution						95% KM (z) UCL					117.9
573	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					116.9
574	Minimum					0	95% KM (bootstrap t) UCL					127.3
575	Maximum					310	95% KM (BCA) UCL					146.7
576	Mean					78.42	95% KM (percentile) UCL					137.3
577	Median					32	95% KM (Chebyshev) UCL					180.2
578	SD					88.49	97.5% KM (Chebyshev) UCL					223.5
579	k star					0.162	99% KM (Chebyshev) UCL					308.5
580	Theta star					484.4						
581	Nu star					4.857	Potential UCLs to Use					
582	AppChi2					1.087	95% KM (t) UCL					120.6
583	95% Gamma Approximate UCL					350.5	95% KM (Percentile Bootstrap) UCL					137.3

	A	B	C	D	E	F	G	H	I	J	K	L
584	95% Adjusted Gamma UCL					429.5						
585												
586												
587	Dieldrin											
588												
589	General Statistics											
590	Number of Valid Samples					15	Number of Detected Data					13
591	Number of Unique Samples					13	Number of Non-Detect Data					2
592							Percent Non-Detects					13.33%
593												
594	Raw Statistics					Log-transformed Statistics						
595	Minimum Detected					0.93	Minimum Detected					-0.0726
596	Maximum Detected					33	Maximum Detected					3.497
597	Mean of Detected					7.787	Mean of Detected					1.432
598	SD of Detected					8.994	SD of Detected					1.215
599	Minimum Non-Detect					0.73	Minimum Non-Detect					-0.315
600	Maximum Non-Detect					0.74	Maximum Non-Detect					-0.301
601												
602	Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect					2	
603	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),					Number treated as Detected					13	
604	those Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage					13.33%	
605												
606	UCL Statistics											
607	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
608	Shapiro Wilk Test Statistic					0.764	Shapiro Wilk Test Statistic					0.917
609	5% Shapiro Wilk Critical Value					0.866	5% Shapiro Wilk Critical Value					0.866
610	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
611												
612	Assuming Normal Distribution					Assuming Lognormal Distribution						
613	DL/2 Substitution Method						DL/2 Substitution Method					
614	Mean					6.798	Mean					1.107
615	SD					8.727	SD					1.414
616	95% DL/2 (t) UCL					10.77	95% H-Stat (DL/2) UCL					25.49
617												
618	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
619	Mean					6.075	Mean in Log Scale					1.053
620	SD					9.313	SD in Log Scale					1.504
621	95% MLE (t) UCL					10.31	Mean in Original Scale					6.781
622	95% MLE (Tiku) UCL					10.16	SD in Original Scale					8.74
623							95% Percentile Bootstrap UCL					10.64
624							95% BCA Bootstrap UCL					11.94
625												
626	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
627	k star (bias corrected)					0.772	Data appear Gamma Distributed at 5% Significance Level					
628	Theta Star					10.08						
629	nu star					20.08						
630												
631	A-D Test Statistic					0.45	Nonparametric Statistics					
632	5% A-D Critical Value					0.761	Kaplan-Meier (KM) Method					
633	K-S Test Statistic					0.761	Mean					6.873
634	5% K-S Critical Value					0.244	SD					8.376
635	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					2.251	
636							95% KM (t) UCL					10.84

	A	B	C	D	E	F	G	H	I	J	K	L
637	Assuming Gamma Distribution						95% KM (z) UCL					10.57
638	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					10.81
639	Minimum					0	95% KM (bootstrap t) UCL					13.13
640	Maximum					33	95% KM (BCA) UCL					11.05
641	Mean					6.749	95% KM (percentile) UCL					10.97
642	Median					3	95% KM (Chebyshev) UCL					16.68
643	SD					8.766	97.5% KM (Chebyshev) UCL					20.93
644	k star					0.214	99% KM (Chebyshev) UCL					29.27
645	Theta star					31.48						
646	Nu star					6.432	Potential UCLs to Use					
647	AppChi2					1.864	95% KM (Chebyshev) UCL					16.68
648	95% Gamma Approximate UCL					23.28						
649	95% Adjusted Gamma UCL					27.51						
650												
651												
652	Aluminum											
653												
654	General Statistics											
655	Number of Valid Samples					15	Number of Unique Samples					15
656												
657	Raw Statistics						Log-transformed Statistics					
658	Minimum					1800	Minimum of Log Data					7.496
659	Maximum					23300	Maximum of Log Data					10.06
660	Mean					6039	Mean of log Data					8.431
661	Median					3510	SD of log Data					0.718
662	SD					5573						
663	Coefficient of Variation					0.923						
664	Skewness					2.387						
665												
666	Relevant UCL Statistics											
667	Normal Distribution Test						Lognormal Distribution Test					
668	Shapiro Wilk Test Statistic					0.717	Shapiro Wilk Test Statistic					0.937
669	Shapiro Wilk Critical Value					0.881	Shapiro Wilk Critical Value					0.881
670	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
671												
672	Assuming Normal Distribution						Assuming Lognormal Distribution					
673	95% Student's-t UCL					8573	95% H-UCL					9278
674	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					10773
675	95% Adjusted-CLT UCL					9353	97.5% Chebyshev (MVUE) UCL					12918
676	95% Modified-t UCL					8721	99% Chebyshev (MVUE) UCL					17134
677												
678	Gamma Distribution Test						Nonparametric Test					
679	k star (bias corrected)					1.619	Data appear Gamma Distributed at 5% Significance Level					
680	Theta Star					3729						
681	nu star					48.58						
682	Approximate Chi Square Value (.05)					33.58	Nonparametric Statistics					
683	Adjusted Level of Significance					0.0324	95% CLT UCL					8406
684	Adjusted Chi Square Value					32.05	95% Jackknife UCL					8573
685							95% Standard Bootstrap UCL					8345
686	Anderson-Darling Test Statistic					0.646	95% Bootstrap-t UCL					11080
687	Anderson-Darling 5% Critical Value					0.747	95% Hall's Bootstrap UCL					18027
688	Kolmogorov-Smirnov Test Statistic					0.207	95% Percentile Bootstrap UCL					8625
689	Kolmogorov-Smirnov 5% Critical Value					0.224	95% BCA Bootstrap UCL					9425

	A	B	C	D	E	F	G	H	I	J	K	L
690	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					12311
691							97.5% Chebyshev(Mean, Sd) UCL					15025
692	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					20357
693	95% Approximate Gamma UCL					8736						
694	95% Adjusted Gamma UCL					9153						
695												
696	Potential UCL to Use						Use 95% Approximate Gamma UCL					8736
697												
698												
699	Antimony											
700												
701	General Statistics											
702	Number of Valid Samples					15	Number of Detected Data					8
703	Number of Unique Samples					8	Number of Non-Detect Data					7
704							Percent Non-Detects					46.67%
705												
706	Raw Statistics						Log-transformed Statistics					
707	Minimum Detected					0.29	Minimum Detected					-1.238
708	Maximum Detected					3.6	Maximum Detected					1.281
709	Mean of Detected					2.008	Mean of Detected					0.333
710	SD of Detected					1.406	SD of Detected					1.046
711	Minimum Non-Detect					0.1	Minimum Non-Detect					-2.303
712	Maximum Non-Detect					1.7	Maximum Non-Detect					0.531
713												
714	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					11
715	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					4
716	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					73.33%
717												
718	UCL Statistics											
719	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
720	Shapiro Wilk Test Statistic					0.87	Shapiro Wilk Test Statistic					0.833
721	5% Shapiro Wilk Critical Value					0.818	5% Shapiro Wilk Critical Value					0.818
722	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
723												
724	Assuming Normal Distribution						Assuming Lognormal Distribution					
725	DL/2 Substitution Method						DL/2 Substitution Method					
726	Mean					1.266	Mean					-0.35
727	SD					1.301	SD					1.216
728	95% DL/2 (t) UCL					1.858	95% H-Stat (DL/2) UCL					3.248
729												
730	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
731	Mean					1.133	Mean in Log Scale					-0.485
732	SD					1.845	SD in Log Scale					1.206
733	95% MLE (t) UCL					1.972	Mean in Original Scale					1.191
734	95% MLE (Tiku) UCL					2.597	SD in Original Scale					1.344
735							95% Percentile Bootstrap UCL					1.787
736							95% BCA Bootstrap UCL					1.83
737												
738	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
739	k star (bias corrected)					1.034	Data appear Normal at 5% Significance Level					
740	Theta Star					1.942						
741	nu star					16.54						
742												

	A	B	C	D	E	F	G	H	I	J	K	L	
743	A-D Test Statistic					0.549	Nonparametric Statistics						
744	5% A-D Critical Value					0.728	Kaplan-Meier (KM) Method						
745	K-S Test Statistic					0.728	Mean					1.228	
746	5% K-S Critical Value					0.299	SD					1.278	
747	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.354	
748							95% KM (t) UCL					1.852	
749	Assuming Gamma Distribution						95% KM (z) UCL					1.811	
750	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.829	
751	Minimum					1.447	95% KM (bootstrap t) UCL					1.944	
752	Maximum					3.6	95% KM (BCA) UCL					2.127	
753	Mean					2.473	95% KM (percentile) UCL					1.941	
754	Median					2.431	95% KM (Chebyshev) UCL					2.773	
755	SD					0.623	97.5% KM (Chebyshev) UCL					3.441	
756	k star					13.43	99% KM (Chebyshev) UCL					4.754	
757	Theta star					0.184							
758	Nu star					402.9	Potential UCLs to Use						
759	AppChi2					357.4	95% KM (t) UCL					1.852	
760	95% Gamma Approximate UCL					2.788	95% KM (Percentile Bootstrap) UCL					1.941	
761	95% Adjusted Gamma UCL					2.83							
762													
763													
764	Arsenic												
765													
766	General Statistics												
767	Number of Valid Samples					15	Number of Unique Samples					15	
768													
769	Raw Statistics						Log-transformed Statistics						
770	Minimum					2.7	Minimum of Log Data					0.993	
771	Maximum					92.3	Maximum of Log Data					4.525	
772	Mean					24.28	Mean of log Data					2.748	
773	Median					15.4	SD of log Data					1.024	
774	SD					24.01							
775	Coefficient of Variation					0.989							
776	Skewness					1.865							
777													
778	Relevant UCL Statistics												
779	Normal Distribution Test						Lognormal Distribution Test						
780	Shapiro Wilk Test Statistic					0.806	Shapiro Wilk Test Statistic					0.97	
781	Shapiro Wilk Critical Value					0.881	Shapiro Wilk Critical Value					0.881	
782	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
783													
784	Assuming Normal Distribution						Assuming Lognormal Distribution						
785	95% Student's-t UCL					35.2	95% H-UCL					56.43	
786	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					56.78	
787	95% Adjusted-CLT UCL					37.67	97.5% Chebyshev (MVUE) UCL					70.49	
788	95% Modified-t UCL					35.7	99% Chebyshev (MVUE) UCL					97.42	
789													
790	Gamma Distribution Test						Nonparametric Test						
791	k star (bias corrected)					1.061	Data appear Gamma Distributed at 5% Significance Level						
792	Theta Star					22.88							
793	nu star					31.84							
794	Approximate Chi Square Value (.05)					19.95	Nonparametric Statistics						
795	Adjusted Level of Significance					0.0324	95% CLT UCL					34.48	

	A	B	C	D	E	F	G	H	I	J	K	L
796	Adjusted Chi Square Value					18.8	95% Jackknife UCL					35.2
797							95% Standard Bootstrap UCL					34.05
798	Anderson-Darling Test Statistic					0.215	95% Bootstrap-t UCL					41.33
799	Anderson-Darling 5% Critical Value					0.758	95% Hall's Bootstrap UCL					84.01
800	Kolmogorov-Smirnov Test Statistic					0.101	95% Percentile Bootstrap UCL					35.12
801	Kolmogorov-Smirnov 5% Critical Value					0.227	95% BCA Bootstrap UCL					38.51
802	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					51.3
803							97.5% Chebyshev(Mean, Sd) UCL					62.99
804	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					85.96
805	95% Approximate Gamma UCL					38.76						
806	95% Adjusted Gamma UCL					41.14						
807												
808	Potential UCL to Use						Use 95% Approximate Gamma UCL					38.76
809												
810												
811	Barium											
812												
813	General Statistics											
814	Number of Valid Samples					15	Number of Detected Data					10
815	Number of Unique Samples					10	Number of Non-Detect Data					5
816							Percent Non-Detects					33.33%
817												
818	Raw Statistics						Log-transformed Statistics					
819	Minimum Detected					8.7	Minimum Detected					2.163
820	Maximum Detected					203	Maximum Detected					5.313
821	Mean of Detected					82.05	Mean of Detected					3.895
822	SD of Detected					73.97	SD of Detected					1.181
823	Minimum Non-Detect					40	Minimum Non-Detect					3.689
824	Maximum Non-Detect					55	Maximum Non-Detect					4.007
825												
826	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					10
827	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					5
828	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					66.67%
829												
830	UCL Statistics											
831	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
832	Shapiro Wilk Test Statistic					0.859	Shapiro Wilk Test Statistic					0.898
833	5% Shapiro Wilk Critical Value					0.842	5% Shapiro Wilk Critical Value					0.842
834	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
835												
836	Assuming Normal Distribution						Assuming Lognormal Distribution					
837	DL/2 Substitution Method						DL/2 Substitution Method					
838	Mean					62.37	Mean					3.64
839	SD					65.95	SD					1.019
840	95% DL/2 (t) UCL					92.36	95% H-Stat (DL/2) UCL					150.9
841												
842	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
843	Mean					147.2	Mean in Log Scale					3.594
844	SD					46.93	SD in Log Scale					1.055
845	95% MLE (t) UCL					168.5	Mean in Original Scale					61.55
846	95% MLE (Tiku) UCL					183.7	SD in Original Scale					66.53
847							95% Percentile Bootstrap UCL					89.59
848							95% BCA Bootstrap UCL					92.9

	A	B	C	D	E	F	G	H	I	J	K	L
849												
850	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
851	k star (bias corrected)					0.845	Data appear Normal at 5% Significance Level					
852	Theta Star					97.06						
853	nu star					16.91						
854												
855	A-D Test Statistic					0.435	Nonparametric Statistics					
856	5% A-D Critical Value					0.746	Kaplan-Meier (KM) Method					
857	K-S Test Statistic					0.746	Mean					61.57
858	5% K-S Critical Value					0.273	SD					64.44
859	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					17.67
860							95% KM (t) UCL					92.69
861	Assuming Gamma Distribution						95% KM (z) UCL					90.63
862	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					92.25
863	Minimum					0	95% KM (bootstrap t) UCL					102.8
864	Maximum					203	95% KM (BCA) UCL					91.44
865	Mean					70.4	95% KM (percentile) UCL					89.63
866	Median					57.5	95% KM (Chebyshev) UCL					138.6
867	SD					64.78	97.5% KM (Chebyshev) UCL					171.9
868	k star					0.21	99% KM (Chebyshev) UCL					237.4
869	Theta star					334.6						
870	Nu star					6.312	Potential UCLs to Use					
871	AppChi2					1.801	95% KM (t) UCL					92.69
872	95% Gamma Approximate UCL					246.7	95% KM (Percentile Bootstrap) UCL					89.63
873	95% Adjusted Gamma UCL					292.1						
874												
875												
876	Cadmium											
877												
878	General Statistics											
879	Number of Valid Samples					15	Number of Detected Data					14
880	Number of Unique Samples					14	Number of Non-Detect Data					1
881							Percent Non-Detects					6.67%
882												
883	Raw Statistics						Log-transformed Statistics					
884	Minimum Detected					0.11	Minimum Detected					-2.207
885	Maximum Detected					14.7	Maximum Detected					2.688
886	Mean of Detected					4.383	Mean of Detected					0.467
887	SD of Detected					5.168	SD of Detected					1.699
888	Minimum Non-Detect					0.046	Minimum Non-Detect					-3.079
889	Maximum Non-Detect					0.046	Maximum Non-Detect					-3.079
890												
891												
892	UCL Statistics											
893	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
894	Shapiro Wilk Test Statistic					0.8	Shapiro Wilk Test Statistic					0.927
895	5% Shapiro Wilk Critical Value					0.874	5% Shapiro Wilk Critical Value					0.874
896	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
897												
898	Assuming Normal Distribution						Assuming Lognormal Distribution					
899	DL/2 Substitution Method						DL/2 Substitution Method					
900	Mean					4.092	Mean					0.184
901	SD					5.106	SD					1.969

	A	B	C	D	E	F	G	H	I	J	K	L
902	95% DL/2 (t) UCL					6.414	95% H-Stat (DL/2) UCL					76.1
903												
904	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
905	Mean					3.893	Mean in Log Scale					0.191
906	SD					5.189	SD in Log Scale					1.955
907	95% MLE (t) UCL					6.253	Mean in Original Scale					4.092
908	95% MLE (Tiku) UCL					6.122	SD in Original Scale					5.106
909							95% Percentile Bootstrap UCL					6.319
910							95% BCA Bootstrap UCL					6.574
911												
912	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
913	k star (bias corrected)					0.527	Data appear Gamma Distributed at 5% Significance Level					
914	Theta Star					8.322						
915	nu star					14.75						
916												
917	A-D Test Statistic					0.458	Nonparametric Statistics					
918	5% A-D Critical Value					0.783	Kaplan-Meier (KM) Method					
919	K-S Test Statistic					0.783	Mean					4.098
920	5% K-S Critical Value					0.24	SD					4.928
921	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					1.32
922							95% KM (t) UCL					6.424
923	Assuming Gamma Distribution						95% KM (z) UCL					6.27
924	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					6.415
925	Minimum					0.11	95% KM (bootstrap t) UCL					7.446
926	Maximum					14.7	95% KM (BCA) UCL					6.426
927	Mean					4.114	95% KM (percentile) UCL					6.363
928	Median					1.25	95% KM (Chebyshev) UCL					9.853
929	SD					5.087	97.5% KM (Chebyshev) UCL					12.34
930	k star					0.517	99% KM (Chebyshev) UCL					17.24
931	Theta star					7.954						
932	Nu star					15.52	Potential UCLs to Use					
933	AppChi2					7.623	95% KM (Chebyshev) UCL					9.853
934	95% Gamma Approximate UCL					8.375						
935	95% Adjusted Gamma UCL					9.185						
936												
937												
938	Chromium											
939												
940	General Statistics											
941	Number of Valid Samples					15	Number of Unique Samples					15
942												
943	Raw Statistics						Log-transformed Statistics					
944	Minimum					6	Minimum of Log Data					1.792
945	Maximum					153	Maximum of Log Data					5.03
946	Mean					51.36	Mean of log Data					3.287
947	Median					14.5	SD of log Data					1.198
948	SD					56.18						
949	Coefficient of Variation					1.094						
950	Skewness					0.914						
951												
952	Relevant UCL Statistics											
953	Normal Distribution Test						Lognormal Distribution Test					
954	Shapiro Wilk Test Statistic					0.751	Shapiro Wilk Test Statistic					0.828

	A	B	C	D	E	F	G	H	I	J	K	L
955	Shapiro Wilk Critical Value					0.881	Shapiro Wilk Critical Value					0.881
956	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
957												
958	Assuming Normal Distribution						Assuming Lognormal Distribution					
959	95% Student's-t UCL					76.91	95% H-UCL					146.6
960	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					127.6
961	95% Adjusted-CLT UCL					78.88	97.5% Chebyshev (MVUE) UCL					160.8
962	95% Modified-t UCL					77.48	99% Chebyshev (MVUE) UCL					225.9
963												
964	Gamma Distribution Test						Nonparametric Test					
965	k star (bias corrected)					0.762	Data do not follow a Discernable Distribution (0.05)					
966	Theta Star					67.37						
967	nu star					22.87						
968	Approximate Chi Square Value (.05)					12.99	Nonparametric Statistics					
969	Adjusted Level of Significance					0.0324	95% CLT UCL					75.22
970	Adjusted Chi Square Value					12.08	95% Jackknife UCL					76.91
971							95% Standard Bootstrap UCL					74.02
972	Anderson-Darling Test Statistic					1.384	95% Bootstrap-t UCL					82.26
973	Anderson-Darling 5% Critical Value					0.768	95% Hall's Bootstrap UCL					72.68
974	Kolmogorov-Smirnov Test Statistic					0.297	95% Percentile Bootstrap UCL					76.4
975	Kolmogorov-Smirnov 5% Critical Value					0.229	95% BCA Bootstrap UCL					77.53
976	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					114.6
977							97.5% Chebyshev(Mean, Sd) UCL					141.9
978	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					195.7
979	95% Approximate Gamma UCL					90.4						
980	95% Adjusted Gamma UCL					97.21						
981												
982	Potential UCL to Use						Use 99% Chebyshev (Mean, Sd) UCL					195.7
983	Recommended UCL exceeds the maximum observation											
984												
985												
986	Copper											
987												
988	General Statistics											
989	Number of Valid Samples					15	Number of Unique Samples					14
990												
991	Raw Statistics						Log-transformed Statistics					
992	Minimum					5.7	Minimum of Log Data					1.74
993	Maximum					218	Maximum of Log Data					5.384
994	Mean					72.23	Mean of log Data					3.508
995	Median					19.5	SD of log Data					1.333
996	SD					82.76						
997	Coefficient of Variation					1.146						
998	Skewness					0.89						
999												
1000	Relevant UCL Statistics											
1001	Normal Distribution Test						Lognormal Distribution Test					
1002	Shapiro Wilk Test Statistic					0.743	Shapiro Wilk Test Statistic					0.867
1003	Shapiro Wilk Critical Value					0.881	Shapiro Wilk Critical Value					0.881
1004	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
1005												
1006	Assuming Normal Distribution						Assuming Lognormal Distribution					
1007	95% Student's-t UCL					109.9	95% H-UCL					264

	A	B	C	D	E	F	G	H	I	J	K	L	
1008	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL						198.3
1009	95% Adjusted-CLT UCL					112.6	97.5% Chebyshev (MVUE) UCL						252.3
1010	95% Modified-t UCL					110.7	99% Chebyshev (MVUE) UCL						358.3
1011													
1012	Gamma Distribution Test						Nonparametric Test						
1013	k star (bias corrected)					0.662	Data do not follow a Discernable Distribution (0.05)						
1014	Theta Star					109							
1015	nu star					19.87							
1016	Approximate Chi Square Value (.05)					10.76	Nonparametric Statistics						
1017	Adjusted Level of Significance					0.0324	95% CLT UCL						107.4
1018	Adjusted Chi Square Value					9.939	95% Jackknife UCL						109.9
1019							95% Standard Bootstrap UCL						106.7
1020	Anderson-Darling Test Statistic					1.159	95% Bootstrap-t UCL						118.5
1021	Anderson-Darling 5% Critical Value					0.774	95% Hall's Bootstrap UCL						101.9
1022	Kolmogorov-Smirnov Test Statistic					0.238	95% Percentile Bootstrap UCL						106.5
1023	Kolmogorov-Smirnov 5% Critical Value					0.23	95% BCA Bootstrap UCL						110.4
1024	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL						165.4
1025							97.5% Chebyshev(Mean, Sd) UCL						205.7
1026	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL						284.8
1027	95% Approximate Gamma UCL					133.4							
1028	95% Adjusted Gamma UCL					144.4							
1029													
1030	Potential UCL to Use						Use 99% Chebyshev (Mean, Sd) UCL						284.8
1031	Recommended UCL exceeds the maximum observation												
1032													
1033													
1034	Iron												
1035													
1036	General Statistics												
1037	Number of Valid Samples					15	Number of Unique Samples					15	
1038													
1039	Raw Statistics						Log-transformed Statistics						
1040	Minimum					3600	Minimum of Log Data					8.189	
1041	Maximum					46300	Maximum of Log Data					10.74	
1042	Mean					15518	Mean of log Data					9.401	
1043	Median					13600	SD of log Data					0.753	
1044	SD					11367							
1045	Coefficient of Variation					0.733							
1046	Skewness					1.456							
1047													
1048	Relevant UCL Statistics												
1049	Normal Distribution Test						Lognormal Distribution Test						
1050	Shapiro Wilk Test Statistic					0.857	Shapiro Wilk Test Statistic					0.939	
1051	Shapiro Wilk Critical Value					0.881	Shapiro Wilk Critical Value					0.881	
1052	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
1053													
1054	Assuming Normal Distribution						Assuming Lognormal Distribution						
1055	95% Student's-t UCL					20687	95% H-UCL					25919	
1056	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL						29807
1057	95% Adjusted-CLT UCL					21524	97.5% Chebyshev (MVUE) UCL					35913	
1058	95% Modified-t UCL					20871	99% Chebyshev (MVUE) UCL					47906	
1059													
1060	Gamma Distribution Test						Nonparametric Test						

	A	B	C	D	E	F	G	H	I	J	K	L	
1061	k star (bias corrected)					1.772	Data appear Gamma Distributed at 5% Significance Level						
1062	Theta Star					8757							
1063	nu star					53.16							
1064	Approximate Chi Square Value (.05)					37.41	Nonparametric Statistics						
1065	Adjusted Level of Significance					0.0324	95% CLT UCL					20346	
1066	Adjusted Chi Square Value					35.79	95% Jackknife UCL					20687	
1067							95% Standard Bootstrap UCL					20322	
1068	Anderson-Darling Test Statistic					0.411	95% Bootstrap-t UCL					22840	
1069	Anderson-Darling 5% Critical Value					0.746	95% Hall's Bootstrap UCL					25076	
1070	Kolmogorov-Smirnov Test Statistic					0.154	95% Percentile Bootstrap UCL					20447	
1071	Kolmogorov-Smirnov 5% Critical Value					0.224	95% BCA Bootstrap UCL					20877	
1072	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					28311	
1073							97.5% Chebyshev(Mean, Sd) UCL					33847	
1074	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					44720	
1075	95% Approximate Gamma UCL					22051							
1076	95% Adjusted Gamma UCL					23051							
1077													
1078	Potential UCL to Use						Use 95% Approximate Gamma UCL					22051	
1079													
1080													
1081	Lead												
1082													
1083	General Statistics												
1084	Number of Valid Samples					15	Number of Unique Samples					15	
1085													
1086	Raw Statistics						Log-transformed Statistics						
1087	Minimum					8.3	Minimum of Log Data					2.116	
1088	Maximum					206	Maximum of Log Data					5.328	
1089	Mean					70.98	Mean of log Data					3.577	
1090	Median					20	SD of log Data					1.244	
1091	SD					77.98							
1092	Coefficient of Variation					1.099							
1093	Skewness					0.86							
1094													
1095	Relevant UCL Statistics												
1096	Normal Distribution Test						Lognormal Distribution Test						
1097	Shapiro Wilk Test Statistic					0.749	Shapiro Wilk Test Statistic					0.849	
1098	Shapiro Wilk Critical Value					0.881	Shapiro Wilk Critical Value					0.881	
1099	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level						
1100													
1101	Assuming Normal Distribution						Assuming Lognormal Distribution						
1102	95% Student's-t UCL					106.4	95% H-UCL					221	
1103	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					183.6	
1104	95% Adjusted-CLT UCL					108.9	97.5% Chebyshev (MVUE) UCL					232.1	
1105	95% Modified-t UCL					107.2	99% Chebyshev (MVUE) UCL					327.4	
1106													
1107	Gamma Distribution Test						Nonparametric Test						
1108	k star (bias corrected)					0.731	Data do not follow a Discernable Distribution (0.05)						
1109	Theta Star					97.09							
1110	nu star					21.93							
1111	Approximate Chi Square Value (.05)					12.29	Nonparametric Statistics						
1112	Adjusted Level of Significance					0.0324	95% CLT UCL					104.1	
1113	Adjusted Chi Square Value					11.4	95% Jackknife UCL					106.4	

	A	B	C	D	E	F	G	H	I	J	K	L	
1114						95% Standard Bootstrap UCL							103.4
1115	Anderson-Darling Test Statistic					1.193	95% Bootstrap-t UCL						117.1
1116	Anderson-Darling 5% Critical Value					0.77	95% Hall's Bootstrap UCL						99.21
1117	Kolmogorov-Smirnov Test Statistic					0.254	95% Percentile Bootstrap UCL						105
1118	Kolmogorov-Smirnov 5% Critical Value					0.229	95% BCA Bootstrap UCL						107.2
1119	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL						158.7
1120							97.5% Chebyshev(Mean, Sd) UCL						196.7
1121	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL						271.3
1122	95% Approximate Gamma UCL					126.7							
1123	95% Adjusted Gamma UCL					136.5							
1124													
1125	Potential UCL to Use						Use 99% Chebyshev (Mean, Sd) UCL						271.3
1126	Recommended UCL exceeds the maximum observation												
1127													
1128													
1129	Manganese												
1130													
1131	General Statistics												
1132	Number of Valid Samples					15	Number of Unique Samples					15	
1133													
1134	Raw Statistics					Log-transformed Statistics							
1135	Minimum					30	Minimum of Log Data					3.401	
1136	Maximum					484	Maximum of Log Data					6.182	
1137	Mean					182.1	Mean of log Data					4.904	
1138	Median					124	SD of log Data					0.832	
1139	SD					143.2							
1140	Coefficient of Variation					0.786							
1141	Skewness					1.079							
1142													
1143	Relevant UCL Statistics												
1144	Normal Distribution Test					Lognormal Distribution Test							
1145	Shapiro Wilk Test Statistic					0.863	Shapiro Wilk Test Statistic					0.968	
1146	Shapiro Wilk Critical Value					0.881	Shapiro Wilk Critical Value					0.881	
1147	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
1148													
1149	Assuming Normal Distribution						Assuming Lognormal Distribution						
1150	95% Student's-t UCL					247.3	95% H-UCL					331.5	
1151	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					370.7	
1152	95% Adjusted-CLT UCL					254	97.5% Chebyshev (MVUE) UCL					451	
1153	95% Modified-t UCL					249	99% Chebyshev (MVUE) UCL					608.8	
1154													
1155	Gamma Distribution Test						Nonparametric Test						
1156	k star (bias corrected)					1.492	Data appear Gamma Distributed at 5% Significance Level						
1157	Theta Star					122.1							
1158	nu star					44.77							
1159	Approximate Chi Square Value (.05)					30.42	Nonparametric Statistics						
1160	Adjusted Level of Significance					0.0324	95% CLT UCL					243	
1161	Adjusted Chi Square Value					28.97	95% Jackknife UCL					247.3	
1162							95% Standard Bootstrap UCL					240.9	
1163	Anderson-Darling Test Statistic					0.279	95% Bootstrap-t UCL					269.3	
1164	Anderson-Darling 5% Critical Value					0.749	95% Hall's Bootstrap UCL					250.2	
1165	Kolmogorov-Smirnov Test Statistic					0.124	95% Percentile Bootstrap UCL					240.4	
1166	Kolmogorov-Smirnov 5% Critical Value					0.225	95% BCA Bootstrap UCL					244.6	

	A	B	C	D	E	F	G	H	I	J	K	L
1167	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					343.3
1168							97.5% Chebyshev(Mean, Sd) UCL					413
1169	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					550
1170	95% Approximate Gamma UCL					268						
1171	95% Adjusted Gamma UCL					281.5						
1172												
1173	Potential UCL to Use						Use 95% Approximate Gamma UCL					268
1174												
1175												
1176	Mercury											
1177												
1178	General Statistics											
1179	Number of Valid Samples					15	Number of Detected Data					8
1180	Number of Unique Samples					8	Number of Non-Detect Data					7
1181							Percent Non-Detects					46.67%
1182												
1183	Raw Statistics					Log-transformed Statistics						
1184	Minimum Detected					0.017	Minimum Detected					-4.075
1185	Maximum Detected					0.58	Maximum Detected					-0.545
1186	Mean of Detected					0.338	Mean of Detected					-1.486
1187	SD of Detected					0.213	SD of Detected					1.227
1188	Minimum Non-Detect					0.046	Minimum Non-Detect					-3.079
1189	Maximum Non-Detect					0.072	Maximum Non-Detect					-2.631
1190												
1191	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					8
1192	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					7
1193	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					53.33%
1194												
1195	UCL Statistics											
1196	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
1197	Shapiro Wilk Test Statistic					0.911	Shapiro Wilk Test Statistic					0.79
1198	5% Shapiro Wilk Critical Value					0.818	5% Shapiro Wilk Critical Value					0.818
1199	Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
1200												
1201	Assuming Normal Distribution						Assuming Lognormal Distribution					
1202	DL/2 Substitution Method						DL/2 Substitution Method					
1203	Mean					0.193	Mean					-2.47
1204	SD					0.22	SD					1.396
1205	95% DL/2 (t) UCL					0.293	95% H-Stat (DL/2) UCL					0.752
1206												
1207	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
1208	Mean					0.0633	Mean in Log Scale					-2.478
1209	SD					0.358	SD in Log Scale					1.399
1210	95% MLE (t) UCL					0.226	Mean in Original Scale					0.193
1211	95% MLE (Tiku) UCL					0.271	SD in Original Scale					0.22
1212							95% Percentile Bootstrap UCL					0.284
1213							95% BCA Bootstrap UCL					0.298
1214												
1215	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
1216	k star (bias corrected)					0.953	Data appear Normal at 5% Significance Level					
1217	Theta Star					0.354						
1218	nu star					15.26						
1219												

	A	B	C	D	E	F	G	H	I	J	K	L
1220	A-D Test Statistic					0.614	Nonparametric Statistics					
1221	5% A-D Critical Value					0.73	Kaplan-Meier (KM) Method					
1222	K-S Test Statistic					0.73	Mean					0.188
1223	5% K-S Critical Value					0.299	SD					0.216
1224	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0597
1225							95% KM (t) UCL					0.293
1226	Assuming Gamma Distribution						95% KM (z) UCL					0.286
1227	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.282
1228	Minimum					0.00686	95% KM (bootstrap t) UCL					0.296
1229	Maximum					0.58	95% KM (BCA) UCL					0.405
1230	Mean					0.234	95% KM (percentile) UCL					0.347
1231	Median					0.167	95% KM (Chebyshev) UCL					0.448
1232	SD					0.193	97.5% KM (Chebyshev) UCL					0.561
1233	k star					1.032	99% KM (Chebyshev) UCL					0.782
1234	Theta star					0.227						
1235	Nu star					30.95	Potential UCLs to Use					
1236	AppChi2					19.24	95% KM (t) UCL					0.293
1237	95% Gamma Approximate UCL					0.376	95% KM (Percentile Bootstrap) UCL					0.347
1238	95% Adjusted Gamma UCL					0.4						
1239												
1240												
1241	Thallium											
1242												
1243	General Statistics											
1244	Number of Valid Samples					15	Number of Detected Data					4
1245	Number of Unique Samples					4	Number of Non-Detect Data					11
1246							Percent Non-Detects					73.33%
1247												
1248	Raw Statistics						Log-transformed Statistics					
1249	Minimum Detected					0.023	Minimum Detected					-3.772
1250	Maximum Detected					1.3	Maximum Detected					0.262
1251	Mean of Detected					0.356	Mean of Detected					-2.369
1252	SD of Detected					0.629	SD of Detected					1.794
1253	Minimum Non-Detect					0.43	Minimum Non-Detect					-0.844
1254	Maximum Non-Detect					0.95	Maximum Non-Detect					-0.0513
1255												
1256	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					14
1257	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1
1258	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					93.33%
1259												
1260	UCL Statistics											
1261	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1262	Shapiro Wilk Test Statistic					0.65	Shapiro Wilk Test Statistic					0.809
1263	5% Shapiro Wilk Critical Value					0.748	5% Shapiro Wilk Critical Value					0.748
1264	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1265												
1266	Assuming Normal Distribution						Assuming Lognormal Distribution					
1267	DL/2 Substitution Method						DL/2 Substitution Method					
1268	Mean					0.351	Mean					-1.425
1269	SD					0.3	SD					1.04
1270	95% DL/2 (t) UCL					0.487	95% H-Stat (DL/2) UCL					2.361
1271												
1272	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					

	A	B	C	D	E	F	G	H	I	J	K	L	
1273						Mean in Log Scale							-2.91
1274						SD in Log Scale							0.897
1275						Mean in Original Scale							0.128
1276						SD in Original Scale							0.324
1277						95% Percentile Bootstrap UCL							0.295
1278						95% BCA Bootstrap UCL							0.379
1279													
1280	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only							
1281	k star (bias corrected)					0.286	Data appear Lognormal at 5% Significance Level						
1282	Theta Star					1.244							
1283	nu star					2.29							
1284													
1285	A-D Test Statistic					0.702	Nonparametric Statistics						
1286	5% A-D Critical Value					0.683	Kaplan-Meier (KM) Method						
1287	K-S Test Statistic					0.683	Mean						0.125
1288	5% K-S Critical Value					0.411	SD						0.314
1289	Data not Gamma Distributed at 5% Significance Level					SE of Mean						0.094	
1290							95% KM (t) UCL						0.291
1291	Assuming Gamma Distribution					95% KM (z) UCL						0.28	
1292	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL						0.274
1293	Minimum					N/A	95% KM (bootstrap t) UCL						1.842
1294	Maximum					N/A	95% KM (BCA) UCL						1.3
1295	Mean					N/A	95% KM (percentile) UCL						0.375
1296	Median					N/A	95% KM (Chebyshev) UCL						0.535
1297	SD					N/A	97.5% KM (Chebyshev) UCL						0.712
1298	k star					N/A	99% KM (Chebyshev) UCL						1.06
1299	Theta star					N/A							
1300	Nu star					N/A	Potential UCLs to Use						
1301	AppChi2					N/A	97.5% KM (Chebyshev) UCL						0.712
1302	95% Gamma Approximate UCL					N/A							
1303	95% Adjusted Gamma UCL					N/A							
1304													
1305													
1306	Vanadium												
1307													
1308	General Statistics												
1309	Number of Valid Samples					15	Number of Detected Data					11	
1310	Number of Unique Samples					11	Number of Non-Detect Data					4	
1311							Percent Non-Detects					26.67%	
1312													
1313	Raw Statistics					Log-transformed Statistics							
1314	Minimum Detected					3.4	Minimum Detected					1.224	
1315	Maximum Detected					48.9	Maximum Detected					3.89	
1316	Mean of Detected					18.64	Mean of Detected					2.643	
1317	SD of Detected					13.62	SD of Detected					0.838	
1318	Minimum Non-Detect					10	Minimum Non-Detect					2.303	
1319	Maximum Non-Detect					14	Maximum Non-Detect					2.639	
1320													
1321	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					9	
1322	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					6	
1323	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					60.00%	
1324													
1325	UCL Statistics												

	A	B	C	D	E	F	G	H	I	J	K	L
1326	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1327	Shapiro Wilk Test Statistic					0.905	Shapiro Wilk Test Statistic					0.942
1328	5% Shapiro Wilk Critical Value					0.85	5% Shapiro Wilk Critical Value					0.85
1329	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1330												
1331	Assuming Normal Distribution						Assuming Lognormal Distribution					
1332	DL/2 Substitution Method						DL/2 Substitution Method					
1333	Mean					15.23	Mean					2.408
1334	SD					12.92	SD					0.818
1335	95% DL/2 (t) UCL					21.11	95% H-Stat (DL/2) UCL					27.59
1336												
1337	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
1338	Mean					9.429	Mean in Log Scale					2.424
1339	SD					19.11	SD in Log Scale					0.803
1340	95% MLE (t) UCL					18.12	Mean in Original Scale					15.32
1341	95% MLE (Tiku) UCL					21.66	SD in Original Scale					12.85
1342							95% Percentile Bootstrap UCL					21.04
1343							95% BCA Bootstrap UCL					21.92
1344												
1345	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
1346	k star (bias corrected)					1.457	Data appear Normal at 5% Significance Level					
1347	Theta Star					12.79						
1348	nu star					32.05						
1349												
1350	A-D Test Statistic					0.313	Nonparametric Statistics					
1351	5% A-D Critical Value					0.739	Kaplan-Meier (KM) Method					
1352	K-S Test Statistic					0.739	Mean					15.23
1353	5% K-S Critical Value					0.259	SD					12.52
1354	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					3.407
1355							95% KM (t) UCL					21.23
1356	Assuming Gamma Distribution						95% KM (z) UCL					20.83
1357	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					21.17
1358	Minimum					0	95% KM (bootstrap t) UCL					22.89
1359	Maximum					48.9	95% KM (BCA) UCL					21.03
1360	Mean					14.7	95% KM (percentile) UCL					21.14
1361	Median					12	95% KM (Chebyshev) UCL					30.08
1362	SD					13.74	97.5% KM (Chebyshev) UCL					36.5
1363	k star					0.215	99% KM (Chebyshev) UCL					49.13
1364	Theta star					68.3						
1365	Nu star					6.458	Potential UCLs to Use					
1366	AppChi2					1.878	95% KM (t) UCL					21.23
1367	95% Gamma Approximate UCL					50.56	95% KM (Percentile Bootstrap) UCL					21.14
1368	95% Adjusted Gamma UCL					59.7						
1369												

	A	B	C	D	E	F	G	H	I	J	K	L	
1				General UCL Statistics for Data Sets with Non-Detects									
2	User Selected Options												
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Adjacent to LF SD.wst									
4	Full Precision			OFF									
5	Confidence Coefficient			95%									
6	Number of Bootstrap Operations			2000									
7													
8													
9	Benzo(k)fluoranthene												
10													
11	General Statistics												
12	Number of Valid Observations				15		Number of Distinct Observations				15		
13													
14	Raw Statistics					Log-transformed Statistics							
15					Minimum	0.012						Minimum of Log Data	-4.423
16					Maximum	1.6						Maximum of Log Data	0.47
17					Mean	0.553						Mean of log Data	-1.154
18					Median	0.61						SD of log Data	1.358
19					SD	0.459							
20					Coefficient of Variation	0.831							
21					Skewness	0.764							
22													
23	Relevant UCL Statistics												
24	Normal Distribution Test					Lognormal Distribution Test							
25					Shapiro Wilk Test Statistic	0.908						Shapiro Wilk Test Statistic	0.886
26					Shapiro Wilk Critical Value	0.881						Shapiro Wilk Critical Value	0.881
27	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
28													
29	Assuming Normal Distribution					Assuming Lognormal Distribution							
30					95% Student's-t UCL	0.762						95% H-UCL	2.681
31	95% UCLs (Adjusted for Skewness)									95% Chebyshev (MVUE) UCL			1.953
32					95% Adjusted-CLT UCL	0.773						97.5% Chebyshev (MVUE) UCL	2.489
33					95% Modified-t UCL	0.766						99% Chebyshev (MVUE) UCL	3.54
34													
35	Gamma Distribution Test					Data Distribution							
36					k star (bias corrected)	0.864							Data appear Normal at 5% Significance Level
37					Theta Star	0.64							
38					nu star	25.92							
39					Approximate Chi Square Value (.05)	15.32							Nonparametric Statistics
40					Adjusted Level of Significance	0.0324						95% CLT UCL	0.748
41					Adjusted Chi Square Value	14.32						95% Jackknife UCL	0.762
42												95% Standard Bootstrap UCL	0.739
43					Anderson-Darling Test Statistic	0.521						95% Bootstrap-t UCL	0.797
44					Anderson-Darling 5% Critical Value	0.763						95% Hall's Bootstrap UCL	0.794
45					Kolmogorov-Smirnov Test Statistic	0.222						95% Percentile Bootstrap UCL	0.739
46					Kolmogorov-Smirnov 5% Critical Value	0.228						95% BCA Bootstrap UCL	0.773
47	Data appear Gamma Distributed at 5% Significance Level									95% Chebyshev(Mean, Sd) UCL			1.07
48												97.5% Chebyshev(Mean, Sd) UCL	1.293
49	Assuming Gamma Distribution									99% Chebyshev(Mean, Sd) UCL			1.732
50					95% Approximate Gamma UCL	0.935							
51					95% Adjusted Gamma UCL	1.001							
52													
53	Potential UCL to Use									Use 95% Student's-t UCL			0.762

	A	B	C	D	E	F	G	H	I	J	K	L	
54													
55													
56	Carbazole												
57													
58	General Statistics												
59	Number of Valid Data					15	Number of Detected Data					10	
60	Number of Distinct Detected Data					8	Number of Non-Detect Data					5	
61							Percent Non-Detects					33.33%	
62													
63	Raw Statistics					Log-transformed Statistics							
64	Minimum Detected					0.078	Minimum Detected					-2.551	
65	Maximum Detected					0.63	Maximum Detected					-0.462	
66	Mean of Detected					0.198	Mean of Detected					-1.806	
67	SD of Detected					0.16	SD of Detected					0.582	
68	Minimum Non-Detect					0.08	Minimum Non-Detect					-2.526	
69	Maximum Non-Detect					0.4	Maximum Non-Detect					-0.916	
70													
71	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				14		
72	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				1		
73	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				93.33%		
74													
75	UCL Statistics												
76	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
77	Shapiro Wilk Test Statistic					0.659	Shapiro Wilk Test Statistic					0.899	
78	5% Shapiro Wilk Critical Value					0.842	5% Shapiro Wilk Critical Value					0.842	
79	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
80													
81	Assuming Normal Distribution					Assuming Lognormal Distribution							
82	DL/2 Substitution Method						DL/2 Substitution Method						
83	Mean					0.184	Mean					-1.867	
84	SD					0.134	SD					0.601	
85	95% DL/2 (t) UCL					0.245	95% H-Stat (DL/2) UCL					0.35	
86													
87	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
88	MLE method failed to converge properly					Mean in Log Scale					-1.916		
89							SD in Log Scale					0.535	
90							Mean in Original Scale					0.174	
91							SD in Original Scale					0.135	
92							95% Percentile Bootstrap UCL					0.238	
93							95% BCA Bootstrap UCL					0.269	
94													
95	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only							
96	k star (bias corrected)					2.063	Data appear Gamma Distributed at 5% Significance Level						
97	Theta Star					0.0959							
98	nu star					41.26							
99													
100	A-D Test Statistic					0.726	Nonparametric Statistics						
101	5% A-D Critical Value					0.733	Kaplan-Meier (KM) Method						
102	K-S Test Statistic					0.733	Mean					0.175	
103	5% K-S Critical Value					0.269	SD					0.132	
104	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					0.0368		
105							95% KM (t) UCL					0.24	
106	Assuming Gamma Distribution					95% KM (z) UCL					0.236		

	A	B	C	D	E	F	G	H	I	J	K	L
107	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.238
108	Minimum					0.0286	95% KM (bootstrap t) UCL					0.31
109	Maximum					0.63	95% KM (BCA) UCL					0.251
110	Mean					0.19	95% KM (Percentile Bootstrap) UCL					0.242
111	Median					0.15	95% KM (Chebyshev) UCL					0.336
112	SD					0.138	97.5% KM (Chebyshev) UCL					0.405
113	k star					2.163	99% KM (Chebyshev) UCL					0.542
114	Theta star					0.0877						
115	Nu star					64.89	Potential UCLs to Use					
116	AppChi2					47.36	95% KM (Percentile Bootstrap) UCL					0.242
117	95% Gamma Approximate UCL					0.26						
118	95% Adjusted Gamma UCL					0.27						
119	Note: DL/2 is not a recommended method.											
120												
121												
122	Dibenzofuran											
123												
124	General Statistics											
125	Number of Valid Data					15	Number of Detected Data					6
126	Number of Distinct Detected Data					6	Number of Non-Detect Data					9
127							Percent Non-Detects					60.00%
128												
129	Raw Statistics						Log-transformed Statistics					
130	Minimum Detected					0.062	Minimum Detected					-2.781
131	Maximum Detected					0.5	Maximum Detected					-0.693
132	Mean of Detected					0.157	Mean of Detected					-2.152
133	SD of Detected					0.169	SD of Detected					0.745
134	Minimum Non-Detect					0.08	Minimum Non-Detect					-2.526
135	Maximum Non-Detect					0.63	Maximum Non-Detect					-0.462
136												
137	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					15
138	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0
139	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
140												
141	Warning: There are only 6 Detected Values in this data											
142	Note: It should be noted that even though bootstrap may be performed on this data set											
143	the resulting calculations may not be reliable enough tp draw conclusions											
144												
145	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
146												
147												
148	UCL Statistics											
149	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
150	Shapiro Wilk Test Statistic					0.6	Shapiro Wilk Test Statistic					0.758
151	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
152	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
153												
154	Assuming Normal Distribution						Assuming Lognormal Distribution					
155	DL/2 Substitution Method						DL/2 Substitution Method					
156	Mean					0.159	Mean					-2.089
157	SD					0.124	SD					0.734
158	95% DL/2 (t) UCL					0.215	95% H-Stat (DL/2) UCL					0.35
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
161	MLE method failed to converge properly						Mean in Log Scale					-2.402
162							SD in Log Scale					0.525
163							Mean in Original Scale					0.11
164							SD in Original Scale					0.109
165							95% Percentile Bootstrap UCL					0.164
166							95% BCA Bootstrap UCL					0.196
167												
168	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
169	k star (bias corrected)					1.012	Data do not follow a Discernable Distribution (0.05)					
170	Theta Star					0.155						
171	nu star					12.15						
172												
173	A-D Test Statistic					1.004	Nonparametric Statistics					
174	5% A-D Critical Value					0.706	Kaplan-Meier (KM) Method					
175	K-S Test Statistic					0.706	Mean					0.112
176	5% K-S Critical Value					0.336	SD					0.109
177	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0323
178							95% KM (t) UCL					0.169
179	Assuming Gamma Distribution						95% KM (z) UCL					0.165
180	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.164
181	Minimum					0.062	95% KM (bootstrap t) UCL					0.349
182	Maximum					0.5	95% KM (BCA) UCL					0.18
183	Mean					0.158	95% KM (Percentile Bootstrap) UCL					0.172
184	Median					0.157	95% KM (Chebyshev) UCL					0.253
185	SD					0.101	97.5% KM (Chebyshev) UCL					0.314
186	k star					3.452	99% KM (Chebyshev) UCL					0.434
187	Theta star					0.0458						
188	Nu star					103.6	Potential UCLs to Use					
189	AppChi2					81.07	95% KM (t) UCL					0.169
190	95% Gamma Approximate UCL					0.202	95% KM (% Bootstrap) UCL					0.172
191	95% Adjusted Gamma UCL					0.208						
192	Note: DL/2 is not a recommended method.											
193												
194												
195	Phenanthrene											
196												
197	General Statistics											
198	Number of Valid Observations					15	Number of Distinct Observations					14
199												
200	Raw Statistics						Log-transformed Statistics					
201	Minimum					0.066	Minimum of Log Data					-2.718
202	Maximum					5.3	Maximum of Log Data					1.668
203	Mean					1.228	Mean of log Data					-0.367
204	Median					0.94	SD of log Data					1.251
205	SD					1.324						
206	Coefficient of Variation					1.078						
207	Skewness					2.282						
208												
209	Relevant UCL Statistics											
210	Normal Distribution Test						Lognormal Distribution Test					
211	Shapiro Wilk Test Statistic					0.756	Shapiro Wilk Test Statistic					0.928
212	Shapiro Wilk Critical Value					0.881	Shapiro Wilk Critical Value					0.881

	A	B	C	D	E	F	G	H	I	J	K	L
213	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
214												
215	Assuming Normal Distribution						Assuming Lognormal Distribution					
216	95% Student's-t UCL					1.83	95% H-UCL					4.361
217	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					3.596
218	95% Adjusted-CLT UCL					2.006	97.5% Chebyshev (MVUE) UCL					4.548
219	95% Modified-t UCL					1.864	99% Chebyshev (MVUE) UCL					6.419
220												
221	Gamma Distribution Test						Data Distribution					
222	k star (bias corrected)					0.85	Data appear Gamma Distributed at 5% Significance Level					
223	Theta Star					1.444						
224	nu star					25.51						
225	Approximate Chi Square Value (.05)					15	Nonparametric Statistics					
226	Adjusted Level of Significance					0.0324	95% CLT UCL					1.791
227	Adjusted Chi Square Value					14.02	95% Jackknife UCL					1.83
228							95% Standard Bootstrap UCL					1.765
229	Anderson-Darling Test Statistic					0.352	95% Bootstrap-t UCL					2.33
230	Anderson-Darling 5% Critical Value					0.763	95% Hall's Bootstrap UCL					4.612
231	Kolmogorov-Smirnov Test Statistic					0.139	95% Percentile Bootstrap UCL					1.796
232	Kolmogorov-Smirnov 5% Critical Value					0.228	95% BCA Bootstrap UCL					2.021
233	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					2.719
234							97.5% Chebyshev(Mean, Sd) UCL					3.363
235	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					4.63
236	95% Approximate Gamma UCL					2.088						
237	95% Adjusted Gamma UCL					2.235						
238												
239	Potential UCL to Use						Use 95% Approximate Gamma UCL					2.088
240												
241												
242	Cobalt											
243												
244	General Statistics											
245	Number of Valid Data					15	Number of Detected Data					9
246	Number of Distinct Detected Data					9	Number of Non-Detect Data					6
247							Percent Non-Detects					40.00%
248												
249	Raw Statistics						Log-transformed Statistics					
250	Minimum Detected					1.1	Minimum Detected					0.0953
251	Maximum Detected					16	Maximum Detected					2.773
252	Mean of Detected					3.822	Mean of Detected					0.979
253	SD of Detected					4.654	SD of Detected					0.784
254	Minimum Non-Detect					10	Minimum Non-Detect					2.303
255	Maximum Non-Detect					16	Maximum Non-Detect					2.773
256												
257	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					14
258	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1
259	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					93.33%
260												
261	Warning: There are only 9 Detected Values in this data											
262	Note: It should be noted that even though bootstrap may be performed on this data set											
263	the resulting calculations may not be reliable enough tp draw conclusions											
264												
265	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											

	A	B	C	D	E	F	G	H	I	J	K	L	
266													
267													
268	UCL Statistics												
269	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
270	Shapiro Wilk Test Statistic					0.57	Shapiro Wilk Test Statistic					0.863	
271	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829	
272	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
273													
274	Assuming Normal Distribution						Assuming Lognormal Distribution						
275	DL/2 Substitution Method						DL/2 Substitution Method						
276	Mean					5.027	Mean					1.349	
277	SD					3.912	SD					0.766	
278	95% DL/2 (t) UCL					6.806	95% H-Stat (DL/2) UCL					11.8	
279													
280	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
281	MLE method failed to converge properly						Mean in Log Scale					0.918	
282							SD in Log Scale					0.61	
283							Mean in Original Scale					3.223	
284							SD in Original Scale					3.61	
285							95% Percentile Bootstrap UCL					4.904	
286							95% BCA Bootstrap UCL					6.005	
287													
288	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only						
289	k star (bias corrected)					1.091	Data appear Lognormal at 5% Significance Level						
290	Theta Star					3.502							
291	nu star					19.65							
292													
293	A-D Test Statistic					0.959	Nonparametric Statistics						
294	5% A-D Critical Value					0.734	Kaplan-Meier (KM) Method						
295	K-S Test Statistic					0.734	Mean					3.213	
296	5% K-S Critical Value					0.284	SD					3.526	
297	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.987	
298							95% KM (t) UCL					4.952	
299	Assuming Gamma Distribution						95% KM (z) UCL					4.837	
300	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4.921	
301	Minimum					1.1	95% KM (bootstrap t) UCL					8.486	
302	Maximum					16	95% KM (BCA) UCL					4.942	
303	Mean					3.826	95% KM (Percentile Bootstrap) UCL					4.992	
304	Median					3.255	95% KM (Chebyshev) UCL					7.516	
305	SD					3.525	97.5% KM (Chebyshev) UCL					9.378	
306	k star					1.996	99% KM (Chebyshev) UCL					13.04	
307	Theta star					1.917							
308	Nu star					59.87	Potential UCLs to Use						
309	AppChi2					43.08	95% KM (t) UCL					4.952	
310	95% Gamma Approximate UCL					5.317	95% KM (% Bootstrap) UCL					4.992	
311	95% Adjusted Gamma UCL					5.542							
312	Note: DL/2 is not a recommended method.												
313													

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Adjacent to LF SW.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	1,4-Dichlorobenzene											
10												
11	General Statistics											
12	Number of Valid Data				9		Number of Detected Data				1	
13	Number of Distinct Detected Data				1		Number of Non-Detect Data				8	
14							Percent Non-Detects				88.89%	
15												
16	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
17	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
18												
19	The data set for variable 1,4-Dichlorobenzene was not processed!											
20												
21												
22												
23	Benzo(g,h,i)perylene											
24												
25	General Statistics											
26	Number of Valid Data				9		Number of Detected Data				1	
27	Number of Distinct Detected Data				1		Number of Non-Detect Data				8	
28							Percent Non-Detects				88.89%	
29												
30	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
31	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
32												
33	The data set for variable Benzo(g,h,i)perylene was not processed!											
34												
35												
36												
37	Cobalt											
38												
39	General Statistics											
40	Number of Valid Data				9		Number of Detected Data				4	
41	Number of Distinct Detected Data				4		Number of Non-Detect Data				5	
42							Percent Non-Detects				55.56%	
43												
44	Raw Statistics					Log-transformed Statistics						
45	Minimum Detected				0.59		Minimum Detected				-0.528	
46	Maximum Detected				9.2		Maximum Detected				2.219	
47	Mean of Detected				2.809		Mean of Detected				0.257	
48	SD of Detected				4.262		SD of Detected				1.315	
49	Minimum Non-Detect				0.5		Minimum Non-Detect				-0.693	
50	Maximum Non-Detect				0.64		Maximum Non-Detect				-0.446	
51												
52	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				6	
53	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				3	

	A	B	C	D	E	F	G	H	I	J	K	L
54	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					66.67%
55												
56	Warning: There are only 4 Distinct Detected Values in this data											
57	Note: It should be noted that even though bootstrap may be performed on this data set											
58	the resulting calculations may not be reliable enough tp draw conclusions											
59												
60	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
61												
62												
63	UCL Statistics											
64	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
65	Shapiro Wilk Test Statistic				0.649	Shapiro Wilk Test Statistic					0.715	
66	5% Shapiro Wilk Critical Value				0.748	5% Shapiro Wilk Critical Value					0.748	
67	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
68												
69	Assuming Normal Distribution					Assuming Lognormal Distribution						
70	DL/2 Substitution Method					DL/2 Substitution Method						
71	Mean				1.407	Mean					-0.585	
72	SD				2.929	SD					1.136	
73	95% DL/2 (t) UCL				3.222	95% H-Stat (DL/2) UCL					1.881	
74												
75	Maximum Likelihood Estimate(MLE) Method				N/A	Log ROS Method						
76	MLE yields a negative mean					Mean in Log Scale					-1.555	
77						SD in Log Scale					1.903	
78						Mean in Original Scale					1.276	
79						SD in Original Scale					2.987	
80						95% Percentile Bootstrap UCL					3.221	
81						95% BCA Bootstrap UCL					4.183	
82												
83	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
84	k star (bias corrected)				0.359	Data do not follow a Discernable Distribution (0.05)						
85	Theta Star				7.825							
86	nu star				2.872							
87												
88	A-D Test Statistic				0.816	Nonparametric Statistics						
89	5% A-D Critical Value				0.67	Kaplan-Meier (KM) Method						
90	K-S Test Statistic				0.67	Mean					1.576	
91	5% K-S Critical Value				0.405	SD					2.696	
92	Data not Gamma Distributed at 5% Significance Level					SE of Mean					1.038	
93						95% KM (t) UCL					3.506	
94	Assuming Gamma Distribution					95% KM (z) UCL					3.283	
95	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL					3.328	
96	Minimum				1E-09	95% KM (bootstrap t) UCL					42.44	
97	Maximum				9.2	95% KM (BCA) UCL					9.2	
98	Mean				1.248	95% KM (Percentile Bootstrap) UCL					3.493	
99	Median				1E-09	95% KM (Chebyshev) UCL					6.1	
100	SD				3	97.5% KM (Chebyshev) UCL					8.057	
101	k star				0.122	99% KM (Chebyshev) UCL					11.9	
102	Theta star				10.19							
103	Nu star				2.204	Potential UCLs to Use						
104	AppChi2				0.182	95% KM (BCA) UCL					9.2	
105	95% Gamma Approximate UCL				15.13							
106	95% Adjusted Gamma UCL				N/A							

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\BR-1 FI.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	4-Chloro-3-methylphenol											
10												
11	General Statistics											
12	Number of Valid Data			16	Number of Detected Data			0				
13	Number of Distinct Detected Data			0	Number of Non-Detect Data			16				
14					Percent Non-Detects			100.00%				
15												
16	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
17	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
18	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
19												
20	The data set for variable 4-Chloro-3-methylphenol was not processed!											
21												
22												
23												
24	4-Nitrophenol											
25												
26	General Statistics											
27	Number of Valid Data			16	Number of Detected Data			0				
28	Number of Distinct Detected Data			0	Number of Non-Detect Data			16				
29					Percent Non-Detects			100.00%				
30												
31	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
32	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
33	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
34												
35	The data set for variable 4-Nitrophenol was not processed!											
36												
37												
38												
39	Aldrin											
40												
41	General Statistics											
42	Number of Valid Data			16	Number of Detected Data			0				
43	Number of Distinct Detected Data			0	Number of Non-Detect Data			16				
44					Percent Non-Detects			100.00%				
45												
46	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
47	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
48	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
49												
50	The data set for variable Aldrin was not processed!											
51												
52												
53												

	A	B	C	D	E	F	G	H	I	J	K	L	
54	Benzaldehyde												
55													
56	General Statistics												
57	Number of Valid Data					16	Number of Detected Data					4	
58	Number of Distinct Detected Data					4	Number of Non-Detect Data					12	
59							Percent Non-Detects					75.00%	
60													
61	Raw Statistics					Log-transformed Statistics							
62	Minimum Detected					0.086	Minimum Detected					-2.453	
63	Maximum Detected					0.17	Maximum Detected					-1.772	
64	Mean of Detected					0.111	Mean of Detected					-2.24	
65	SD of Detected					0.0398	SD of Detected					0.319	
66	Minimum Non-Detect					0.15	Minimum Non-Detect					-1.897	
67	Maximum Non-Detect					0.16	Maximum Non-Detect					-1.833	
68													
69	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					15	
70	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1	
71	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					93.75%	
72													
73	Warning: There are only 4 Distinct Detected Values in this data												
74	Note: It should be noted that even though bootstrap may be performed on this data set												
75	the resulting calculations may not be reliable enough tp draw conclusions												
76													
77	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.												
78													
79													
80	UCL Statistics												
81	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
82	Shapiro Wilk Test Statistic					0.75	Shapiro Wilk Test Statistic					0.787	
83	5% Shapiro Wilk Critical Value					0.748	5% Shapiro Wilk Critical Value					0.748	
84	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
85													
86	Assuming Normal Distribution					Assuming Lognormal Distribution							
87	DL/2 Substitution Method						DL/2 Substitution Method						
88	Mean					0.0865	Mean					-2.47	
89	SD					0.0231	SD					0.2	
90	95% DL/2 (t) UCL					0.0966	95% H-Stat (DL/2) UCL					0.108	
91													
92	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
93	MLE method failed to converge properly						Mean in Log Scale					-2.343	
94							SD in Log Scale					0.225	
95							Mean in Original Scale					0.0985	
96							SD in Original Scale					0.0245	
97							95% Percentile Bootstrap UCL					0.109	
98							95% BCA Bootstrap UCL					0.109	
99													
100	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only							
101	k star (bias corrected)					3.229	Data appear Normal at 5% Significance Level						
102	Theta Star					0.0344							
103	nu star					25.84							
104													
105	A-D Test Statistic					0.614	Nonparametric Statistics						
106	5% A-D Critical Value					0.657	Kaplan-Meier (KM) Method						

	A	B	C	D	E	F	G	H	I	J	K	L
107	K-S Test Statistic					0.657	Mean					0.0963
108	5% K-S Critical Value					0.395	SD					0.02
109	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.00672
110							95% KM (t) UCL					0.108
111	Assuming Gamma Distribution						95% KM (z) UCL					0.107
112	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.108
113	Minimum					0.0777	95% KM (bootstrap t) UCL					0.118
114	Maximum					0.17	95% KM (BCA) UCL					0.114
115	Mean					0.107	95% KM (Percentile Bootstrap) UCL					0.113
116	Median					0.0992	95% KM (Chebyshev) UCL					0.126
117	SD					0.0255	97.5% KM (Chebyshev) UCL					0.138
118	k star					17.03	99% KM (Chebyshev) UCL					0.163
119	Theta star					0.00628						
120	Nu star					544.9	Potential UCLs to Use					
121	AppChi2					491.8	95% KM (t) UCL					0.108
122	95% Gamma Approximate UCL					0.118	95% KM (Percentile Bootstrap) UCL					0.113
123	95% Adjusted Gamma UCL					N/A						
124	Note: DL/2 is not a recommended method.											
125												
126												
127	Endosulfan I											
128												
129	General Statistics											
130	Number of Valid Data					16	Number of Detected Data					6
131	Number of Distinct Detected Data					5	Number of Non-Detect Data					10
132							Percent Non-Detects					62.50%
133												
134	Raw Statistics						Log-transformed Statistics					
135	Minimum Detected					0.0026	Minimum Detected					-5.952
136	Maximum Detected					0.0048	Maximum Detected					-5.339
137	Mean of Detected					0.00333	Mean of Detected					-5.727
138	SD of Detected					0.0008238	SD of Detected					0.227
139	Minimum Non-Detect					0.00032	Minimum Non-Detect					-8.047
140	Maximum Non-Detect					0.00033	Maximum Non-Detect					-8.016
141												
142	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					10
143	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					6
144	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					62.50%
145												
146	Warning: There are only 6 Detected Values in this data											
147	Note: It should be noted that even though bootstrap may be performed on this data set											
148	the resulting calculations may not be reliable enough tp draw conclusions											
149												
150	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
151												
152												
153	UCL Statistics											
154	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
155	Shapiro Wilk Test Statistic					0.828	Shapiro Wilk Test Statistic					0.865
156	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
157	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
158												
159	Assuming Normal Distribution						Assuming Lognormal Distribution					

	A	B	C	D	E	F	G	H	I	J	K	L
160	DL/2 Substitution Method					DL/2 Substitution Method						
161	Mean					0.00135	Mean					-7.599
162	SD					0.00165	SD					1.503
163	95% DL/2 (t) UCL					0.00208	95% H-Stat (DL/2) UCL					0.00163
164												
165	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
166	MLE yields a negative mean						Mean in Log Scale					-6.212
167							SD in Log Scale					0.454
168							Mean in Original Scale					0.00221
169							SD in Original Scale					0.00106
170							95% Percentile Bootstrap UCL					0.00266
171							95% BCA Bootstrap UCL					0.0027
172												
173	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
174	k star (bias corrected)					11.17	Data appear Normal at 5% Significance Level					
175	Theta Star					0.0002985						
176	nu star					134						
177												
178	A-D Test Statistic					0.555	Nonparametric Statistics					
179	5% A-D Critical Value					0.697	Kaplan-Meier (KM) Method					
180	K-S Test Statistic					0.697	Mean					0.00288
181	5% K-S Critical Value					0.332	SD					0.0005815
182	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0001593
183							95% KM (t) UCL					0.00315
184	Assuming Gamma Distribution						95% KM (z) UCL					0.00314
185	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.00313
186	Minimum					0.0026	95% KM (bootstrap t) UCL					0.00355
187	Maximum					0.0048	95% KM (BCA) UCL					0.00339
188	Mean					0.00327	95% KM (Percentile Bootstrap) UCL					0.00328
189	Median					0.00311	95% KM (Chebyshev) UCL					0.00357
190	SD					0.0005178	97.5% KM (Chebyshev) UCL					0.00387
191	k star					39.28	99% KM (Chebyshev) UCL					0.00446
192	Theta star					8.325E-05						
193	Nu star					1257	Potential UCLs to Use					
194	AppChi2					1176	95% KM (t) UCL					0.00315
195	95% Gamma Approximate UCL					0.0035	95% KM (Percentile Bootstrap) UCL					0.00328
196	95% Adjusted Gamma UCL					0.00352						
197	Note: DL/2 is not a recommended method.											
198												
199												
200	Endosulfan II											
201												
202	General Statistics											
203	Number of Valid Data					16	Number of Detected Data					1
204	Number of Distinct Detected Data					1	Number of Non-Detect Data					15
205							Percent Non-Detects					93.75%
206												
207	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
208	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
209												
210	The data set for variable Endosulfan II was not processed!											
211												
212												

	A	B	C	D	E	F	G	H	I	J	K	L	
213													
214	Endosulfan Sulfate												
215													
216	General Statistics												
217	Number of Valid Observations					16	Number of Distinct Observations					14	
218													
219	Raw Statistics					Log-transformed Statistics							
220	Minimum					0.00085	Minimum of Log Data					-7.07	
221	Maximum					0.0048	Maximum of Log Data					-5.339	
222	Mean					0.00171	Mean of log Data					-6.535	
223	Median					0.0012	SD of log Data					0.546	
224	SD					0.00122							
225	Coefficient of Variation					0.713							
226	Skewness					1.995							
227													
228	Relevant UCL Statistics												
229	Normal Distribution Test					Lognormal Distribution Test							
230	Shapiro Wilk Test Statistic					0.689	Shapiro Wilk Test Statistic					0.845	
231	Shapiro Wilk Critical Value					0.887	Shapiro Wilk Critical Value					0.887	
232	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
233													
234	Assuming Normal Distribution					Assuming Lognormal Distribution							
235	95% Student's-t UCL					0.00225	95% H-UCL					0.00226	
236	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					0.0027		
237	95% Adjusted-CLT UCL					0.00238	97.5% Chebyshev (MVUE) UCL					0.00314	
238	95% Modified-t UCL					0.00227	99% Chebyshev (MVUE) UCL					0.00401	
239													
240	Gamma Distribution Test					Data Distribution							
241	k star (bias corrected)					2.622	Data do not follow a Discernable Distribution (0.05)						
242	Theta Star					0.0006535							
243	nu star					83.89							
244	Approximate Chi Square Value (.05)					63.78	Nonparametric Statistics						
245	Adjusted Level of Significance					0.0335	95% CLT UCL					0.00222	
246	Adjusted Chi Square Value					61.79	95% Jackknife UCL					0.00225	
247							95% Standard Bootstrap UCL					0.0022	
248	Anderson-Darling Test Statistic					1.218	95% Bootstrap-t UCL					0.00303	
249	Anderson-Darling 5% Critical Value					0.744	95% Hall's Bootstrap UCL					0.00484	
250	Kolmogorov-Smirnov Test Statistic					0.22	95% Percentile Bootstrap UCL					0.00222	
251	Kolmogorov-Smirnov 5% Critical Value					0.217	95% BCA Bootstrap UCL					0.00239	
252	Data not Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					0.00304		
253							97.5% Chebyshev(Mean, Sd) UCL					0.00362	
254	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					0.00475		
255	95% Approximate Gamma UCL					0.00225							
256	95% Adjusted Gamma UCL					0.00233							
257													
258	Potential UCL to Use					Use 95% Chebyshev (Mean, Sd) UCL					0.00304		
259													
260													
261	Heptachlor												
262													
263	General Statistics												
264	Number of Valid Data					16	Number of Detected Data					0	
265	Number of Distinct Detected Data					0	Number of Non-Detect Data					16	

	A	B	C	D	E	F	G	H	I	J	K	L
266							Percent Non-Detects					100.00%
267												
268	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
269	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
270	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
271												
272	The data set for variable Heptachlor was not processed!											
273												
274												
275												
276	Hexachlorobenzene											
277												
278	General Statistics											
279	Number of Valid Data					16	Number of Detected Data					0
280	Number of Distinct Detected Data					0	Number of Non-Detect Data					16
281							Percent Non-Detects					100.00%
282												
283	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
284	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
285	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
286												
287	The data set for variable Hexachlorobenzene was not processed!											
288												
289												
290												
291	Isophorone											
292												
293	General Statistics											
294	Number of Valid Data					16	Number of Detected Data					4
295	Number of Distinct Detected Data					4	Number of Non-Detect Data					12
296							Percent Non-Detects					75.00%
297												
298	Raw Statistics					Log-transformed Statistics						
299	Minimum Detected					0.086	Minimum Detected					-2.453
300	Maximum Detected					0.22	Maximum Detected					-1.514
301	Mean of Detected					0.137	Mean of Detected					-2.059
302	SD of Detected					0.0602	SD of Detected					0.416
303	Minimum Non-Detect					0.15	Minimum Non-Detect					-1.897
304	Maximum Non-Detect					0.16	Maximum Non-Detect					-1.833
305												
306	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					15
307	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1
308	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					93.75%
309												
310	Warning: There are only 4 Distinct Detected Values in this data											
311	Note: It should be noted that even though bootstrap may be performed on this data set											
312	the resulting calculations may not be reliable enough tp draw conclusions											
313												
314	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
315												
316												
317	UCL Statistics											
318	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					

	A	B	C	D	E	F	G	H	I	J	K	L
319	Shapiro Wilk Test Statistic					0.898	Shapiro Wilk Test Statistic					0.947
320	5% Shapiro Wilk Critical Value					0.748	5% Shapiro Wilk Critical Value					0.748
321	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
322												
323	Assuming Normal Distribution						Assuming Lognormal Distribution					
324	DL/2 Substitution Method						DL/2 Substitution Method					
325	Mean				0.0926		Mean				-2.429	
326	SD				0.0376		SD				0.29	
327	95% DL/2 (t) UCL				0.109		95% H-Stat (DL/2) UCL				0.121	
328												
329	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
330	MLE method failed to converge properly						Mean in Log Scale				-2.199	
331							SD in Log Scale				0.299	
332							Mean in Original Scale				0.116	
333							SD in Original Scale				0.0378	
334							95% Percentile Bootstrap UCL				0.132	
335							95% BCA Bootstrap UCL				0.134	
336												
337	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
338	k star (bias corrected)				2.056		Data appear Normal at 5% Significance Level					
339	Theta Star				0.0664							
340	nu star				16.45							
341												
342	A-D Test Statistic				0.304		Nonparametric Statistics					
343	5% A-D Critical Value				0.658		Kaplan-Meier (KM) Method					
344	K-S Test Statistic				0.658		Mean				0.116	
345	5% K-S Critical Value				0.395		SD				0.0349	
346	Data appear Gamma Distributed at 5% Significance Level						SE of Mean				0.0163	
347							95% KM (t) UCL				0.144	
348	Assuming Gamma Distribution						95% KM (z) UCL				0.142	
349	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				0.149	
350	Minimum				0.086		95% KM (bootstrap t) UCL				0.144	
351	Maximum				0.22		95% KM (BCA) UCL				0.15	
352	Mean				0.132		95% KM (Percentile Bootstrap) UCL				0.15	
353	Median				0.128		95% KM (Chebyshev) UCL				0.187	
354	SD				0.0324		97.5% KM (Chebyshev) UCL				0.217	
355	k star				15.9		99% KM (Chebyshev) UCL				0.278	
356	Theta star				0.00827							
357	Nu star				508.9		Potential UCLs to Use					
358	AppChi2				457.6		95% KM (t) UCL				0.144	
359	95% Gamma Approximate UCL				0.146		95% KM (Percentile Bootstrap) UCL				0.15	
360	95% Adjusted Gamma UCL				N/A							
361	Note: DL/2 is not a recommended method.											
362												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\BR-2 FI.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	4-Chloro-3-methylphenol											
10												
11	General Statistics											
12	Number of Valid Data			16	Number of Detected Data			0				
13	Number of Distinct Detected Data			0	Number of Non-Detect Data			16				
14					Percent Non-Detects			100.00%				
15												
16	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
17	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
18	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
19												
20	The data set for variable 4-Chloro-3-methylphenol was not processed!											
21												
22												
23												
24	4-Nitrophenol											
25												
26	General Statistics											
27	Number of Valid Data			16	Number of Detected Data			0				
28	Number of Distinct Detected Data			0	Number of Non-Detect Data			16				
29					Percent Non-Detects			100.00%				
30												
31	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
32	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
33	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
34												
35	The data set for variable 4-Nitrophenol was not processed!											
36												
37												
38												
39	Aldrin											
40												
41	General Statistics											
42	Number of Valid Data			16	Number of Detected Data			0				
43	Number of Distinct Detected Data			0	Number of Non-Detect Data			16				
44					Percent Non-Detects			100.00%				
45												
46	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
47	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
48	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
49												
50	The data set for variable Aldrin was not processed!											
51												
52												
53												

	A	B	C	D	E	F	G	H	I	J	K	L
54	Benzaldehyde											
55												
56	General Statistics											
57	Number of Valid Data					16	Number of Detected Data					0
58	Number of Distinct Detected Data					0	Number of Non-Detect Data					16
59							Percent Non-Detects					100.00%
60												
61	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
62	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
63	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
64												
65	The data set for variable Benzaldehyde was not processed!											
66												
67												
68												
69	Endosulfan I											
70												
71	General Statistics											
72	Number of Valid Data					16	Number of Detected Data					0
73	Number of Distinct Detected Data					0	Number of Non-Detect Data					16
74							Percent Non-Detects					100.00%
75												
76	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
77	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
78	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
79												
80	The data set for variable Endosulfan I was not processed!											
81												
82												
83												
84	Endosulfan II											
85												
86	General Statistics											
87	Number of Valid Data					16	Number of Detected Data					1
88	Number of Distinct Detected Data					1	Number of Non-Detect Data					15
89							Percent Non-Detects					93.75%
90												
91	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
92	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
93												
94	The data set for variable Endosulfan II was not processed!											
95												
96												
97												
98	Endosulfan Sulfate											
99												
100	General Statistics											
101	Number of Valid Observations					16	Number of Distinct Observations					13
102												
103	Raw Statistics						Log-transformed Statistics					
104	Minimum					0.0029	Minimum of Log Data					-5.843
105	Maximum					0.018	Maximum of Log Data					-4.017
106	Mean					0.00751	Mean of log Data					-5.07

	A	B	C	D	E	F	G	H	I	J	K	L
107	Median					0.006	SD of log Data					0.62
108	SD					0.00465						
109	Coefficient of Variation					0.62						
110	Skewness					0.946						
111												
112	Relevant UCL Statistics											
113	Normal Distribution Test						Lognormal Distribution Test					
114	Shapiro Wilk Test Statistic					0.886	Shapiro Wilk Test Statistic					0.922
115	Shapiro Wilk Critical Value					0.887	Shapiro Wilk Critical Value					0.887
116	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
117												
118	Assuming Normal Distribution						Assuming Lognormal Distribution					
119	95% Student's-t UCL					0.00954	95% H-UCL					0.0108
120	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					0.0128
121	95% Adjusted-CLT UCL					0.00971	97.5% Chebyshev (MVUE) UCL					0.0151
122	95% Modified-t UCL					0.00959	99% Chebyshev (MVUE) UCL					0.0196
123												
124	Gamma Distribution Test						Data Distribution					
125	k star (bias corrected)					2.45	Data appear Gamma Distributed at 5% Significance Level					
126	Theta Star					0.00306						
127	nu star					78.39						
128	Approximate Chi Square Value (.05)					58.99	Nonparametric Statistics					
129	Adjusted Level of Significance					0.0335	95% CLT UCL					0.00942
130	Adjusted Chi Square Value					57.07	95% Jackknife UCL					0.00954
131							95% Standard Bootstrap UCL					0.00934
132	Anderson-Darling Test Statistic					0.453	95% Bootstrap-t UCL					0.0102
133	Anderson-Darling 5% Critical Value					0.745	95% Hall's Bootstrap UCL					0.0098
134	Kolmogorov-Smirnov Test Statistic					0.144	95% Percentile Bootstrap UCL					0.00954
135	Kolmogorov-Smirnov 5% Critical Value					0.217	95% BCA Bootstrap UCL					0.00954
136	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					0.0126
137							97.5% Chebyshev(Mean, Sd) UCL					0.0148
138	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					0.0191
139	95% Approximate Gamma UCL					0.00997						
140	95% Adjusted Gamma UCL					0.0103						
141												
142	Potential UCL to Use						Use 95% Approximate Gamma UCL					0.00997
143												
144												
145	Heptachlor											
146												
147	General Statistics											
148	Number of Valid Data					16	Number of Detected Data					1
149	Number of Distinct Detected Data					1	Number of Non-Detect Data					15
150							Percent Non-Detects					93.75%
151												
152	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
153	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
154												
155	The data set for variable Heptachlor was not processed!											
156												
157												
158												
159	Hexachlorobenzene											

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161	General Statistics											
162	Number of Valid Data					16	Number of Detected Data					1
163	Number of Distinct Detected Data					1	Number of Non-Detect Data					15
164							Percent Non-Detects					93.75%
165												
166	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
167	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
168												
169	The data set for variable Hexachlorobenzene was not processed!											
170												
171												
172												
173	Isophorone											
174												
175	General Statistics											
176	Number of Valid Data					16	Number of Detected Data					7
177	Number of Distinct Detected Data					7	Number of Non-Detect Data					9
178							Percent Non-Detects					56.25%
179												
180	Raw Statistics					Log-transformed Statistics						
181	Minimum Detected					0.21	Minimum Detected					-1.561
182	Maximum Detected					0.52	Maximum Detected					-0.654
183	Mean of Detected					0.336	Mean of Detected					-1.131
184	SD of Detected					0.104	SD of Detected					0.303
185	Minimum Non-Detect					0.29	Minimum Non-Detect					-1.238
186	Maximum Non-Detect					0.31	Maximum Non-Detect					-1.171
187												
188	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					12
189	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					4
190	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					75.00%
191												
192	Warning: There are only 7 Detected Values in this data											
193	Note: It should be noted that even though bootstrap may be performed on this data set											
194	the resulting calculations may not be reliable enough tp draw conclusions											
195												
196	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
197												
198												
199	UCL Statistics											
200	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
201	Shapiro Wilk Test Statistic					0.955	Shapiro Wilk Test Statistic					0.992
202	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
203	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
204												
205	Assuming Normal Distribution					Assuming Lognormal Distribution						
206	DL/2 Substitution Method						DL/2 Substitution Method					
207	Mean					0.231	Mean					-1.562
208	SD					0.116	SD					0.437
209	95% DL/2 (t) UCL					0.282	95% H-Stat (DL/2) UCL					0.264
210												
211	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
212	Mean					0.206	Mean in Log Scale					-1.29

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Downstream of LF SD.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Observations				9		Number of Distinct Observations				9	
13												
14	Raw Statistics						Log-transformed Statistics					
15	Minimum				0.0275		Minimum of Log Data				-3.594	
16	Maximum				3.2		Maximum of Log Data				1.163	
17	Mean				1.27		Mean of log Data				-0.518	
18	Median				1.1		SD of log Data				1.757	
19	SD				1.082							
20	Coefficient of Variation				0.852							
21	Skewness				0.578							
22												
23												
24	Warning: There are only 9 Values in this data											
25	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
26	the resulting calculations may not be reliable enough to draw conclusions											
27												
28	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
29												
30	Relevant UCL Statistics											
31	Normal Distribution Test						Lognormal Distribution Test					
32	Shapiro Wilk Test Statistic				0.944		Shapiro Wilk Test Statistic				0.811	
33	Shapiro Wilk Critical Value				0.829		Shapiro Wilk Critical Value				0.829	
34	Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
35												
36	Assuming Normal Distribution						Assuming Lognormal Distribution					
37	95% Student's-t UCL				1.941		95% H-UCL				65.64	
38	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL				7.303	
39	95% Adjusted-CLT UCL				1.937		97.5% Chebyshev (MVUE) UCL				9.585	
40	95% Modified-t UCL				1.952		99% Chebyshev (MVUE) UCL				14.07	
41												
42	Gamma Distribution Test						Data Distribution					
43	k star (bias corrected)				0.598		Data appear Normal at 5% Significance Level					
44	Theta Star				2.124							
45	nu star				10.76							
46	Approximate Chi Square Value (.05)				4.424		Nonparametric Statistics					
47	Adjusted Level of Significance				0.0231		95% CLT UCL				1.863	
48	Adjusted Chi Square Value				3.607		95% Jackknife UCL				1.941	
49							95% Standard Bootstrap UCL				1.833	
50	Anderson-Darling Test Statistic				0.463		95% Bootstrap-t UCL				2.121	
51	Anderson-Darling 5% Critical Value				0.75		95% Hall's Bootstrap UCL				1.942	
52	Kolmogorov-Smirnov Test Statistic				0.185		95% Percentile Bootstrap UCL				1.856	
53	Kolmogorov-Smirnov 5% Critical Value				0.289		95% BCA Bootstrap UCL				1.885	

	A	B	C	D	E	F	G	H	I	J	K	L
54	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					2.842
55							97.5% Chebyshev(Mean, Sd) UCL					3.523
56	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					4.859
57	95% Approximate Gamma UCL					3.089						
58	95% Adjusted Gamma UCL					3.789						
59												
60	Potential UCL to Use						Use 95% Student's-t UCL					1.941
61												
62												
63	Carbazole											
64												
65	General Statistics											
66	Number of Valid Data					9	Number of Detected Data					7
67	Number of Distinct Detected Data					7	Number of Non-Detect Data					2
68							Percent Non-Detects					22.22%
69												
70	Raw Statistics					Log-transformed Statistics						
71	Minimum Detected					0.058	Minimum Detected					-2.847
72	Maximum Detected					0.46	Maximum Detected					-0.777
73	Mean of Detected					0.236	Mean of Detected					-1.662
74	SD of Detected					0.156	SD of Detected					0.75
75	Minimum Non-Detect					0.39	Minimum Non-Detect					-0.942
76	Maximum Non-Detect					0.39	Maximum Non-Detect					-0.942
77												
78												
79	Warning: There are only 7 Detected Values in this data											
80	Note: It should be noted that even though bootstrap may be performed on this data set											
81	the resulting calculations may not be reliable enough tp draw conclusions											
82												
83	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
84												
85												
86	UCL Statistics											
87	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
88	Shapiro Wilk Test Statistic					0.899	Shapiro Wilk Test Statistic					0.936
89	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
90	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
91												
92	Assuming Normal Distribution					Assuming Lognormal Distribution						
93	DL/2 Substitution Method						DL/2 Substitution Method					
94	Mean					0.227	Mean					-1.656
95	SD					0.136	SD					0.649
96	95% DL/2 (t) UCL					0.311	95% H-Stat (DL/2) UCL					0.582
97												
98	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
99	MLE method failed to converge properly						Mean in Log Scale					-1.737
100							SD in Log Scale					0.68
101							Mean in Original Scale					0.215
102							SD in Original Scale					0.142
103							95% Percentile Bootstrap UCL					0.291
104							95% BCA Bootstrap UCL					0.306
105												
106	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						

	A	B	C	D	E	F	G	H	I	J	K	L	
107	k star (bias corrected)					1.489	Data appear Normal at 5% Significance Level						
108	Theta Star					0.159							
109	nu star					20.84							
110													
111	A-D Test Statistic					0.33	Nonparametric Statistics						
112	5% A-D Critical Value					0.714	Kaplan-Meier (KM) Method						
113	K-S Test Statistic					0.714	Mean						0.219
114	5% K-S Critical Value					0.315	SD						0.137
115	Data appear Gamma Distributed at 5% Significance Level						SE of Mean						0.0525
116							95% KM (t) UCL						0.317
117	Assuming Gamma Distribution						95% KM (z) UCL						0.305
118	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL						0.317
119	Minimum					0.058	95% KM (bootstrap t) UCL						0.329
120	Maximum					0.46	95% KM (BCA) UCL						0.303
121	Mean					0.237	95% KM (Percentile Bootstrap) UCL						0.303
122	Median					0.186	95% KM (Chebyshev) UCL						0.448
123	SD					0.137	97.5% KM (Chebyshev) UCL						0.547
124	k star					2.076	99% KM (Chebyshev) UCL						0.741
125	Theta star					0.114							
126	Nu star					37.37	Potential UCLs to Use						
127	AppChi2					24.38	95% KM (t) UCL						0.317
128	95% Gamma Approximate UCL					0.363	95% KM (Percentile Bootstrap) UCL						0.303
129	95% Adjusted Gamma UCL					0.398							
130	Note: DL/2 is not a recommended method.												
131													
132													
133	Dibenzofuran												
134													
135	General Statistics												
136	Number of Valid Data					9	Number of Detected Data					5	
137	Number of Distinct Detected Data					5	Number of Non-Detect Data					4	
138							Percent Non-Detects					44.44%	
139													
140	Raw Statistics					Log-transformed Statistics							
141	Minimum Detected					0.059	Minimum Detected					-2.83	
142	Maximum Detected					0.1	Maximum Detected					-2.303	
143	Mean of Detected					0.0784	Mean of Detected					-2.57	
144	SD of Detected					0.0189	SD of Detected					0.246	
145	Minimum Non-Detect					0.15	Minimum Non-Detect					-1.897	
146	Maximum Non-Detect					0.39	Maximum Non-Detect					-0.942	
147													
148	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					9	
149	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0	
150	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%	
151													
152	Warning: There are only 5 Detected Values in this data												
153	Note: It should be noted that even though bootstrap may be performed on this data set												
154	the resulting calculations may not be reliable enough tp draw conclusions												
155													
156	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.												
157													
158													
159	UCL Statistics												

	A	B	C	D	E	F	G	H	I	J	K	L
160	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
161	Shapiro Wilk Test Statistic					0.882	Shapiro Wilk Test Statistic					0.872
162	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
163	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
164												
165	Assuming Normal Distribution						Assuming Lognormal Distribution					
166	DL/2 Substitution Method						DL/2 Substitution Method					
167	Mean					0.105	Mean					-2.346
168	SD					0.0528	SD					0.443
169	95% DL/2 (t) UCL					0.138	95% H-Stat (DL/2) UCL					0.207
170												
171	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
172	MLE method failed to converge properly						Mean in Log Scale					-2.57
173							SD in Log Scale					0.187
174							Mean in Original Scale					0.0777
175							SD in Original Scale					0.0143
176							95% Percentile Bootstrap UCL					0.0857
177							95% BCA Bootstrap UCL					0.0855
178												
179	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
180	k star (bias corrected)					8.58	Data appear Normal at 5% Significance Level					
181	Theta Star					0.00914						
182	nu star					85.8						
183												
184	A-D Test Statistic					0.417	Nonparametric Statistics					
185	5% A-D Critical Value					0.679	Kaplan-Meier (KM) Method					
186	K-S Test Statistic					0.679	Mean					0.0784
187	5% K-S Critical Value					0.357	SD					0.0169
188	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.00844
189							95% KM (t) UCL					0.0941
190	Assuming Gamma Distribution						95% KM (z) UCL					0.0923
191	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0949
192	Minimum					0.059	95% KM (bootstrap t) UCL					0.101
193	Maximum					0.1	95% KM (BCA) UCL					0.0926
194	Mean					0.0793	95% KM (Percentile Bootstrap) UCL					0.0922
195	Median					0.0811	95% KM (Chebyshev) UCL					0.115
196	SD					0.0144	97.5% KM (Chebyshev) UCL					0.131
197	k star					22.03	99% KM (Chebyshev) UCL					0.162
198	Theta star					0.0036						
199	Nu star					396.5	Potential UCLs to Use					
200	AppChi2					351.3	95% KM (t) UCL					0.0941
201	95% Gamma Approximate UCL					0.0895	95% KM (Percentile Bootstrap) UCL					0.0922
202	95% Adjusted Gamma UCL					0.0919						
203	Note: DL/2 is not a recommended method.											
204												
205												
206	Phenanthrene											
207												
208	General Statistics											
209	Number of Valid Observations					9	Number of Distinct Observations					9
210												
211	Raw Statistics						Log-transformed Statistics					
212	Minimum					0.007	Minimum of Log Data					-4.962

	A	B	C	D	E	F	G	H	I	J	K	L
213	Maximum					3.4	Maximum of Log Data					1.224
214	Mean					1.799	Mean of log Data					-0.269
215	Median					1.9	SD of log Data					2.179
216	SD					1.179						
217	Coefficient of Variation					0.656						
218	Skewness					-0.526						
219												
220												
221	Warning: There are only 9 Values in this data											
222	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
223	the resulting calculations may not be reliable enough to draw conclusions											
224												
225	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
226												
227	Relevant UCL Statistics											
228	Normal Distribution Test						Lognormal Distribution Test					
229	Shapiro Wilk Test Statistic					0.924	Shapiro Wilk Test Statistic					0.689
230	Shapiro Wilk Critical Value					0.829	Shapiro Wilk Critical Value					0.829
231	Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
232												
233	Assuming Normal Distribution						Assuming Lognormal Distribution					
234	95% Student's-t UCL					2.53	95% H-UCL					953.7
235	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					18.86
236	95% Adjusted-CLT UCL					2.372	97.5% Chebyshev (MVUE) UCL					25.03
237	95% Modified-t UCL					2.519	99% Chebyshev (MVUE) UCL					37.14
238												
239	Gamma Distribution Test						Data Distribution					
240	k star (bias corrected)					0.544	Data appear Normal at 5% Significance Level					
241	Theta Star					3.307						
242	nu star					9.792						
243	Approximate Chi Square Value (.05)					3.812	Nonparametric Statistics					
244	Adjusted Level of Significance					0.0231	95% CLT UCL					2.446
245	Adjusted Chi Square Value					3.066	95% Jackknife UCL					2.53
246							95% Standard Bootstrap UCL					2.41
247	Anderson-Darling Test Statistic					1.198	95% Bootstrap-t UCL					2.44
248	Anderson-Darling 5% Critical Value					0.755	95% Hall's Bootstrap UCL					2.393
249	Kolmogorov-Smirnov Test Statistic					0.337	95% Percentile Bootstrap UCL					2.397
250	Kolmogorov-Smirnov 5% Critical Value					0.29	95% BCA Bootstrap UCL					2.336
251	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					3.513
252							97.5% Chebyshev(Mean, Sd) UCL					4.254
253	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					5.711
254	95% Approximate Gamma UCL					4.621						
255	95% Adjusted Gamma UCL					5.745						
256												
257	Potential UCL to Use						Use 95% Student's-t UCL					2.53
258												
259												
260	Cobalt											
261												
262	General Statistics											
263	Number of Valid Data					9	Number of Detected Data					7
264	Number of Distinct Detected Data					7	Number of Non-Detect Data					2
265							Percent Non-Detects					22.22%

	A	B	C	D	E	F	G	H	I	J	K	L
266												
267	Raw Statistics						Log-transformed Statistics					
268	Minimum Detected					1.75	Minimum Detected					0.56
269	Maximum Detected					8.6	Maximum Detected					2.152
270	Mean of Detected					5.064	Mean of Detected					1.511
271	SD of Detected					2.344	SD of Detected					0.54
272	Minimum Non-Detect					11	Minimum Non-Detect					2.398
273	Maximum Non-Detect					11	Maximum Non-Detect					2.398
274												
275												
276	Warning: There are only 7 Detected Values in this data											
277	Note: It should be noted that even though bootstrap may be performed on this data set											
278	the resulting calculations may not be reliable enough tp draw conclusions											
279												
280	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
281												
282												
283	UCL Statistics											
284	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
285	Shapiro Wilk Test Statistic					0.988	Shapiro Wilk Test Statistic					0.954
286	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
287	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
288												
289	Assuming Normal Distribution						Assuming Lognormal Distribution					
290	DL/2 Substitution Method						DL/2 Substitution Method					
291	Mean					5.161	Mean					1.554
292	SD					2.039	SD					0.475
293	95% DL/2 (t) UCL					6.425	95% H-Stat (DL/2) UCL					12.05
294												
295	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
296	MLE method failed to converge properly						Mean in Log Scale					1.511
297							SD in Log Scale					0.489
298							Mean in Original Scale					4.988
299							SD in Original Scale					2.139
300							95% Percentile Bootstrap UCL					6.06
301							95% BCA Bootstrap UCL					6.15
302												
303	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
304	k star (bias corrected)					2.765	Data appear Normal at 5% Significance Level					
305	Theta Star					1.832						
306	nu star					38.7						
307												
308	A-D Test Statistic					0.179	Nonparametric Statistics					
309	5% A-D Critical Value					0.71	Kaplan-Meier (KM) Method					
310	K-S Test Statistic					0.71	Mean					5.064
311	5% K-S Critical Value					0.313	SD					2.17
312	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.886
313							95% KM (t) UCL					6.712
314	Assuming Gamma Distribution						95% KM (z) UCL					6.521
315	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					6.742
316	Minimum					1.75	95% KM (bootstrap t) UCL					6.88
317	Maximum					8.6	95% KM (BCA) UCL					6.3
318	Mean					5.103	95% KM (Percentile Bootstrap) UCL					6.383

	A	B	C	D	E	F	G	H	I	J	K	L
319	Median					5.3	95% KM (Chebyshev) UCL					8.926
320	SD					2.137	97.5% KM (Chebyshev) UCL					10.6
321	k star					3.739	99% KM (Chebyshev) UCL					13.88
322	Theta star					1.365						
323	Nu star					67.3	Potential UCLs to Use					
324	AppChi2					49.42	95% KM (t) UCL					6.712
325	95% Gamma Approximate UCL					6.949	95% KM (Percentile Bootstrap) UCL					6.383
326	95% Adjusted Gamma UCL					7.433						
327	Note: DL/2 is not a recommended method.											
328												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Downstream of LF SW.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	1,4-Dichlorobenzene											
10												
11	General Statistics											
12	Number of Valid Data				6		Number of Detected Data				0	
13	Number of Distinct Detected Data				0		Number of Non-Detect Data				6	
14							Percent Non-Detects				100.00%	
15												
16	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
17	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
18	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
19												
20	The data set for variable 1,4-Dichlorobenzene was not processed!											
21												
22												
23												
24	Benzo(g,h,i)perylene											
25												
26	General Statistics											
27	Number of Valid Data				8		Number of Detected Data				1	
28	Number of Distinct Detected Data				1		Number of Non-Detect Data				7	
29							Percent Non-Detects				87.50%	
30												
31	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
32	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
33												
34	The data set for variable Benzo(g,h,i)perylene was not processed!											
35												
36												
37												
38	Cobalt											
39												
40	General Statistics											
41	Number of Valid Data				8		Number of Detected Data				3	
42	Number of Distinct Detected Data				3		Number of Non-Detect Data				5	
43							Percent Non-Detects				62.50%	
44												
45	Raw Statistics					Log-transformed Statistics						
46	Minimum Detected				0.395		Minimum Detected				-0.929	
47	Maximum Detected				1.4		Maximum Detected				0.336	
48	Mean of Detected				0.768		Mean of Detected				-0.422	
49	SD of Detected				0.55		SD of Detected				0.669	
50	Minimum Non-Detect				0.41		Minimum Non-Detect				-0.892	
51	Maximum Non-Detect				0.7		Maximum Non-Detect				-0.357	
52												
53	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				7	

	A	B	C	D	E	F	G	H	I	J	K	L
54	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1
55	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					87.50%
56												
57	Warning: There are only 3 Distinct Detected Values in this data set											
58	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
59	Those methods will return a 'N/A' value on your output display!											
60												
61	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
62	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
63												
64												
65	UCL Statistics											
66	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
67	Shapiro Wilk Test Statistic					0.835	Shapiro Wilk Test Statistic					0.894
68	5% Shapiro Wilk Critical Value					0.767	5% Shapiro Wilk Critical Value					0.767
69	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
70												
71	Assuming Normal Distribution					Assuming Lognormal Distribution						
72	DL/2 Substitution Method						DL/2 Substitution Method					
73	Mean					0.453	Mean					-1
74	SD					0.395	SD					0.615
75	95% DL/2 (t) UCL					0.718	95% H-Stat (DL/2) UCL					0.594
76												
77	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
78	MLE method failed to converge properly						Mean in Log Scale					-0.789
79							SD in Log Scale					0.485
80							Mean in Original Scale					0.518
81							SD in Original Scale					0.362
82							95% Percentile Bootstrap UCL					0.764
83							95% BCA Bootstrap UCL					0.795
84												
85	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
86	k star (bias corrected)					N/A	Data appear Normal at 5% Significance Level					
87	Theta Star					N/A						
88	nu star					N/A						
89												
90	A-D Test Statistic					0.429	Nonparametric Statistics					
91	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
92	K-S Test Statistic					N/A	Mean					0.541
93	5% K-S Critical Value					N/A	SD					0.328
94	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.142
95							95% KM (t) UCL					0.81
96	Assuming Gamma Distribution						95% KM (z) UCL					0.775
97	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.761
98	Minimum					N/A	95% KM (bootstrap t) UCL					1.387
99	Maximum					N/A	95% KM (BCA) UCL					1.4
100	Mean					N/A	95% KM (Percentile Bootstrap) UCL					1.4
101	Median					N/A	95% KM (Chebyshev) UCL					1.161
102	SD					N/A	97.5% KM (Chebyshev) UCL					1.43
103	k star					N/A	99% KM (Chebyshev) UCL					1.957
104	Theta star					N/A						
105	Nu star					N/A	Potential UCLs to Use					
106	AppChi2					N/A	95% KM (t) UCL					0.81

	A	B	C	D	E	F	G	H	I	J	K	L	
107	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					1.4	
108	95% Adjusted Gamma UCL					N/A							
109	Note: DL/2 is not a recommended method.												
110													
111													
112	Naphthalene												
113													
114	General Statistics												
115	Number of Valid Data					8	Number of Detected Data					3	
116	Number of Distinct Detected Data					3	Number of Non-Detect Data					5	
117							Percent Non-Detects					62.50%	
118													
119	Raw Statistics					Log-transformed Statistics							
120	Minimum Detected					0.0067	Minimum Detected					-5.006	
121	Maximum Detected					0.14	Maximum Detected					-1.966	
122	Mean of Detected					0.0512	Mean of Detected					-3.983	
123	SD of Detected					0.0769	SD of Detected					1.746	
124	Minimum Non-Detect					0.1	Minimum Non-Detect					-2.303	
125	Maximum Non-Detect					0.1	Maximum Non-Detect					-2.303	
126													
127													
128	Warning: There are only 3 Distinct Detected Values in this data set												
129	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.												
130	Those methods will return a 'N/A' value on your output display!												
131													
132	It is necessary to have 4 or more Distinct Values for bootstrap methods.												
133	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.												
134													
135													
136	UCL Statistics												
137	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
138	Shapiro Wilk Test Statistic					0.751	Shapiro Wilk Test Statistic					0.757	
139	5% Shapiro Wilk Critical Value					0.767	5% Shapiro Wilk Critical Value					0.767	
140	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
141													
142	Assuming Normal Distribution					Assuming Lognormal Distribution							
143	DL/2 Substitution Method						DL/2 Substitution Method						
144	Mean					0.0505	Mean					-3.366	
145	SD					0.0411	SD					1.064	
146	95% DL/2 (t) UCL					0.078	95% H-Stat (DL/2) UCL					0.605	
147													
148	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
149	MLE method failed to converge properly						Mean in Log Scale					-4.551	
150							SD in Log Scale					1.292	
151							Mean in Original Scale					0.0259	
152							SD in Original Scale					0.0467	
153							95% Percentile Bootstrap UCL					0.057	
154							95% BCA Bootstrap UCL					0.0726	
155													
156	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only							
157	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)						
158	Theta Star					N/A							
159	nu star					N/A							

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161	A-D Test Statistic					0.599	Nonparametric Statistics					
162	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
163	K-S Test Statistic					N/A	Mean					0.0235
164	5% K-S Critical Value					N/A	SD					0.0441
165	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0191
166							95% KM (t) UCL					0.0596
167	Assuming Gamma Distribution						95% KM (z) UCL					0.0548
168	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.055
169	Minimum					N/A	95% KM (bootstrap t) UCL					6.514
170	Maximum					N/A	95% KM (BCA) UCL					0.14
171	Mean					N/A	95% KM (Percentile Bootstrap) UCL					0.14
172	Median					N/A	95% KM (Chebyshev) UCL					0.107
173	SD					N/A	97.5% KM (Chebyshev) UCL					0.143
174	k star					N/A	99% KM (Chebyshev) UCL					0.213
175	Theta star					N/A						
176	Nu star					N/A	Potential UCLs to Use					
177	AppChi2					N/A	97.5% KM (Chebyshev) UCL					0.143
178	95% Gamma Approximate UCL					N/A						
179	95% Adjusted Gamma UCL					N/A						
180	Warning: Recommended UCL exceeds the maximum observation											
181	Note: DL/2 is not a recommended method.											
182												
183												
184	Phenanthrene											
185												
186	General Statistics											
187	Number of Valid Data					8	Number of Detected Data					4
188	Number of Distinct Detected Data					4	Number of Non-Detect Data					4
189							Percent Non-Detects					50.00%
190												
191	Raw Statistics						Log-transformed Statistics					
192	Minimum Detected					0.041	Minimum Detected					-3.194
193	Maximum Detected					0.14	Maximum Detected					-1.966
194	Mean of Detected					0.0898	Mean of Detected					-2.559
195	SD of Detected					0.0525	SD of Detected					0.646
196	Minimum Non-Detect					0.1	Minimum Non-Detect					-2.303
197	Maximum Non-Detect					0.1	Maximum Non-Detect					-2.303
198												
199												
200	Warning: There are only 4 Distinct Detected Values in this data											
201	Note: It should be noted that even though bootstrap may be performed on this data set											
202	the resulting calculations may not be reliable enough tp draw conclusions											
203												
204	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
205												
206												
207	UCL Statistics											
208	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
209	Shapiro Wilk Test Statistic					0.809	Shapiro Wilk Test Statistic					0.816
210	5% Shapiro Wilk Critical Value					0.748	5% Shapiro Wilk Critical Value					0.748
211	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213	Assuming Normal Distribution						Assuming Lognormal Distribution					
214	DL/2 Substitution Method						DL/2 Substitution Method					
215	Mean					0.0699	Mean					-2.778
216	SD					0.0404	SD					0.483
217	95% DL/2 (t) UCL					0.0969	95% H-Stat (DL/2) UCL					0.136
218												
219	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
220	MLE method failed to converge properly						Mean in Log Scale					-2.821
221							SD in Log Scale					0.562
222							Mean in Original Scale					0.069
223							SD in Original Scale					0.0424
224							95% Percentile Bootstrap UCL					0.0933
225							95% BCA Bootstrap UCL					0.0975
226												
227	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
228	k star (bias corrected)					1.048	Data appear Normal at 5% Significance Level					
229	Theta Star					0.0857						
230	nu star					8.381						
231												
232	A-D Test Statistic					0.552	Nonparametric Statistics					
233	5% A-D Critical Value					0.659	Kaplan-Meier (KM) Method					
234	K-S Test Statistic					0.659	Mean					0.0671
235	5% K-S Critical Value					0.396	SD					0.0394
236	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0162
237							95% KM (t) UCL					0.0978
238	Assuming Gamma Distribution						95% KM (z) UCL					0.0937
239	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0959
240	Minimum					0.0345	95% KM (bootstrap t) UCL					0.0861
241	Maximum					0.14	95% KM (BCA) UCL					0.133
242	Mean					0.0828	95% KM (Percentile Bootstrap) UCL					0.131
243	Median					0.076	95% KM (Chebyshev) UCL					0.138
244	SD					0.0422	97.5% KM (Chebyshev) UCL					0.168
245	k star					2.659	99% KM (Chebyshev) UCL					0.228
246	Theta star					0.0312						
247	Nu star					42.54	Potential UCLs to Use					
248	AppChi2					28.59	95% KM (t) UCL					0.0978
249	95% Gamma Approximate UCL					0.123	95% KM (Percentile Bootstrap) UCL					0.131
250	95% Adjusted Gamma UCL					N/A						
251	Note: DL/2 is not a recommended method.											
252												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Landfill SS.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Observations				20		Number of Distinct Observations				18	
13												
14	Raw Statistics						Log-transformed Statistics					
15	Minimum				0.055		Minimum of Log Data				-2.9	
16	Maximum				1.4		Maximum of Log Data				0.336	
17	Mean				0.643		Mean of log Data				-0.703	
18	Median				0.6		SD of log Data				0.896	
19	SD				0.365							
20	Coefficient of Variation				0.568							
21	Skewness				0.198							
22												
23	Relevant UCL Statistics											
24	Normal Distribution Test						Lognormal Distribution Test					
25	Shapiro Wilk Test Statistic				0.963		Shapiro Wilk Test Statistic				0.815	
26	Shapiro Wilk Critical Value				0.905		Shapiro Wilk Critical Value				0.905	
27	Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
28												
29	Assuming Normal Distribution						Assuming Lognormal Distribution					
30	95% Student's-t UCL				0.784		95% H-UCL				1.222	
31	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL				1.411	
32	95% Adjusted-CLT UCL				0.781		97.5% Chebyshev (MVUE) UCL				1.71	
33	95% Modified-t UCL				0.785		99% Chebyshev (MVUE) UCL				2.298	
34												
35	Gamma Distribution Test						Data Distribution					
36	k star (bias corrected)				1.787		Data appear Normal at 5% Significance Level					
37	Theta Star				0.36							
38	nu star				71.48							
39	Approximate Chi Square Value (.05)				53.01		Nonparametric Statistics					
40	Adjusted Level of Significance				0.038		95% CLT UCL				0.777	
41	Adjusted Chi Square Value				51.75		95% Jackknife UCL				0.784	
42							95% Standard Bootstrap UCL				0.776	
43	Anderson-Darling Test Statistic				0.841		95% Bootstrap-t UCL				0.787	
44	Anderson-Darling 5% Critical Value				0.752		95% Hall's Bootstrap UCL				0.775	
45	Kolmogorov-Smirnov Test Statistic				0.198		95% Percentile Bootstrap UCL				0.777	
46	Kolmogorov-Smirnov 5% Critical Value				0.196		95% BCA Bootstrap UCL				0.77	
47	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL				0.999	
48							97.5% Chebyshev(Mean, Sd) UCL				1.153	
49	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					
50	95% Approximate Gamma UCL				0.867							
51	95% Adjusted Gamma UCL				0.888							
52												
53	Potential UCL to Use						Use 95% Student's-t UCL				0.784	

	A	B	C	D	E	F	G	H	I	J	K	L	
54													
55													
56	Carbazole												
57													
58	General Statistics												
59	Number of Valid Data					20	Number of Detected Data					17	
60	Number of Distinct Detected Data					11	Number of Non-Detect Data					3	
61							Percent Non-Detects					15.00%	
62													
63	Raw Statistics					Log-transformed Statistics							
64	Minimum Detected					0.096	Minimum Detected					-2.343	
65	Maximum Detected					0.44	Maximum Detected					-0.821	
66	Mean of Detected					0.188	Mean of Detected					-1.757	
67	SD of Detected					0.09	SD of Detected					0.402	
68	Minimum Non-Detect					0.34	Minimum Non-Detect					-1.079	
69	Maximum Non-Detect					0.39	Maximum Non-Detect					-0.942	
70													
71	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					19	
72	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1	
73	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					95.00%	
74													
75	UCL Statistics												
76	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
77	Shapiro Wilk Test Statistic					0.796	Shapiro Wilk Test Statistic					0.924	
78	5% Shapiro Wilk Critical Value					0.892	5% Shapiro Wilk Critical Value					0.892	
79	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
80													
81	Assuming Normal Distribution					Assuming Lognormal Distribution							
82	DL/2 Substitution Method						DL/2 Substitution Method						
83	Mean					0.186	Mean					-1.753	
84	SD					0.0828	SD					0.37	
85	95% DL/2 (t) UCL					0.218	95% H-Stat (DL/2) UCL					0.237	
86													
87	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
88	MLE method failed to converge properly					Mean in Log Scale							-1.767
89							SD in Log Scale					0.373	
90							Mean in Original Scale					0.184	
91							SD in Original Scale					0.0835	
92							95% Percentile Bootstrap UCL					0.215	
93							95% BCA Bootstrap UCL					0.222	
94													
95	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only							
96	k star (bias corrected)					5.048	Data Follow Appr. Gamma Distribution at 5% Significance Level						
97	Theta Star					0.0372							
98	nu star					171.6							
99													
100	A-D Test Statistic					0.798	Nonparametric Statistics						
101	5% A-D Critical Value					0.741	Kaplan-Meier (KM) Method						
102	K-S Test Statistic					0.741	Mean					0.184	
103	5% K-S Critical Value					0.21	SD					0.0834	
104	Data follow Appr. Gamma Distribution at 5% Significance Level					SE of Mean					0.0198		
105							95% KM (t) UCL					0.218	
106	Assuming Gamma Distribution					95% KM (z) UCL					0.217		

	A	B	C	D	E	F	G	H	I	J	K	L	
107	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.218	
108	Minimum					0.096	95% KM (bootstrap t) UCL					0.236	
109	Maximum					0.44	95% KM (BCA) UCL					0.218	
110	Mean					0.189	95% KM (Percentile Bootstrap) UCL					0.215	
111	Median					0.175	95% KM (Chebyshev) UCL					0.271	
112	SD					0.083	97.5% KM (Chebyshev) UCL					0.308	
113	k star					6.018	99% KM (Chebyshev) UCL					0.382	
114	Theta star					0.0314							
115	Nu star					240.7	Potential UCLs to Use						
116	AppChi2					205.8	95% KM (BCA) UCL					0.218	
117	95% Gamma Approximate UCL					0.221							
118	95% Adjusted Gamma UCL					0.224							
119	Note: DL/2 is not a recommended method.												
120													
121													
122	Dibenzofuran												
123													
124	General Statistics												
125	Number of Valid Data					20	Number of Detected Data					12	
126	Number of Distinct Detected Data					10	Number of Non-Detect Data					8	
127							Percent Non-Detects					40.00%	
128													
129	Raw Statistics						Log-transformed Statistics						
130	Minimum Detected					0.045	Minimum Detected					-3.101	
131	Maximum Detected					0.39	Maximum Detected					-0.942	
132	Mean of Detected					0.101	Mean of Detected					-2.508	
133	SD of Detected					0.0944	SD of Detected					0.595	
134	Minimum Non-Detect					0.34	Minimum Non-Detect					-1.079	
135	Maximum Non-Detect					0.83	Maximum Non-Detect					-0.186	
136													
137	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					20	
138	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0	
139	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%	
140													
141	UCL Statistics												
142	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
143	Shapiro Wilk Test Statistic					0.569	Shapiro Wilk Test Statistic					0.833	
144	5% Shapiro Wilk Critical Value					0.859	5% Shapiro Wilk Critical Value					0.859	
145	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level						
146													
147	Assuming Normal Distribution						Assuming Lognormal Distribution						
148	DL/2 Substitution Method						DL/2 Substitution Method						
149	Mean					0.158	Mean					-2.088	
150	SD					0.112	SD					0.718	
151	95% DL/2 (t) UCL					0.201	95% H-Stat (DL/2) UCL					0.336	
152													
153	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
154	MLE method failed to converge properly						Mean in Log Scale					-2.528	
155							SD in Log Scale					0.46	
156							Mean in Original Scale					0.0918	
157							SD in Original Scale					0.073	
158							95% Percentile Bootstrap UCL					0.121	
159							95% BCA Bootstrap UCL					0.138	

	A	B	C	D	E	F	G	H	I	J	K	L	
160													
161	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only						
162	k star (bias corrected)				1.917		Data Follow Appr. Gamma Distribution at 5% Significance Level						
163	Theta Star				0.0526								
164	nu star				46.02								
165													
166	A-D Test Statistic				1.098		Nonparametric Statistics						
167	5% A-D Critical Value				0.74		Kaplan-Meier (KM) Method						
168	K-S Test Statistic				0.74		Mean					0.0957	
169	5% K-S Critical Value				0.248		SD					0.0823	
170	Data follow Appr. Gamma Distribution at 5% Significance Level						SE of Mean					0.0225	
171							95% KM (t) UCL					0.134	
172	Assuming Gamma Distribution						95% KM (z) UCL					0.133	
173	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.135	
174	Minimum				0.045		95% KM (bootstrap t) UCL					0.196	
175	Maximum				0.39		95% KM (BCA) UCL					0.138	
176	Mean				0.102		95% KM (Percentile Bootstrap) UCL					0.135	
177	Median				0.0994		95% KM (Chebyshev) UCL					0.194	
178	SD				0.0719		97.5% KM (Chebyshev) UCL					0.236	
179	k star				3.461		99% KM (Chebyshev) UCL					0.319	
180	Theta star				0.0294								
181	Nu star				138.5		Potential UCLs to Use						
182	AppChi2				112.3		95% KM (t) UCL					0.134	
183	95% Gamma Approximate UCL				0.126								
184	95% Adjusted Gamma UCL				0.128								
185	Note: DL/2 is not a recommended method.												
186													
187													
188	Dioxin TEQ												
189													
190	General Statistics												
191	Number of Valid Observations				3		Number of Distinct Observations				3		
192													
193													
194	Warning: This data set only has 3 observations!												
195	Data set is too small to compute reliable and meaningful statistics and estimates!												
196	The data set for variable Dioxin TEQ was not processed!												
197													
198	It is suggested to collect at least 8 to 10 observations before using these statistical methods!												
199	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.												
200													
201													
202													
203	Cobalt												
204													
205	General Statistics												
206	Number of Valid Data				20		Number of Detected Data				2		
207	Number of Distinct Detected Data				1		Number of Non-Detect Data				18		
208							Percent Non-Detects				90.00%		
209													
210	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!												
211	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).												
212													

	A	B	C	D	E	F	G	H	I	J	K	L
213	The data set for variable Cobalt was not processed!											
214												
215												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Leachate.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	4,4'-DDD											
10												
11	General Statistics											
12	Number of Valid Data			22	Number of Detected Data			1				
13	Number of Distinct Detected Data			1	Number of Non-Detect Data			21				
14					Percent Non-Detects			95.45%				
15												
16	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
17	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
18												
19	The data set for variable 4,4'-DDD was not processed!											
20												
21												
22												
23	4,4'-DDE											
24												
25	General Statistics											
26	Number of Valid Data			23	Number of Detected Data			2				
27	Number of Distinct Detected Data			2	Number of Non-Detect Data			21				
28					Percent Non-Detects			91.30%				
29												
30	Raw Statistics				Log-transformed Statistics							
31	Minimum Detected		0.0038	Minimum Detected		-5.573						
32	Maximum Detected		0.0056	Maximum Detected		-5.185						
33	Mean of Detected		0.0047	Mean of Detected		-5.379						
34	SD of Detected		0.00127	SD of Detected		0.274						
35	Minimum Non-Detect		0.005	Minimum Non-Detect		-5.298						
36	Maximum Non-Detect		0.01	Maximum Non-Detect		-4.605						
37												
38	Note: Data have multiple DLs - Use of KM Method is recommended				Number treated as Non-Detect			23				
39	For all methods (except KM, DL/2, and ROS Methods),				Number treated as Detected			0				
40	Observations < Largest ND are treated as NDs				Single DL Non-Detect Percentage			100.00%				
41												
42	Warning: Data set has only 2 Distinct Detected Values.											
43	This may not be adequate enough to compute meaningful and reliable test statistics and estimates.											
44	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
45												
46	Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.											
47												
48	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
49	Those methods will return a 'N/A' value on your output display!											
50												
51	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
52	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
53												

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55	UCL Statistics											
56	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
57	Shapiro Wilk Test Statistic					1	Shapiro Wilk Test Statistic					1
58	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A
59	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
60												
61	Assuming Normal Distribution						Assuming Lognormal Distribution					
62	DL/2 Substitution Method						DL/2 Substitution Method					
63	Mean					0.00283	Mean					-5.898
64	SD					0.0008335	SD					0.227
65	95% DL/2 (t) UCL					0.00312	95% H-Stat (DL/2) UCL					0.00304
66												
67	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
68	MLE method failed to converge properly						Mean in Log Scale					N/A
69							SD in Log Scale					N/A
70							Mean in Original Scale					N/A
71							SD in Original Scale					N/A
72							95% Percentile Bootstrap UCL					N/A
73							95% BCA Bootstrap UCL					N/A
74												
75	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
76	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)					
77	Theta Star					N/A						
78	nu star					N/A						
79												
80	A-D Test Statistic					0.359	Nonparametric Statistics					
81	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
82	K-S Test Statistic					N/A	Mean					0.00388
83	5% K-S Critical Value					N/A	SD					0.0003749
84	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0001131
85							95% KM (t) UCL					0.00408
86	Assuming Gamma Distribution						95% KM (z) UCL					0.00407
87	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.00507
88	Minimum					N/A	95% KM (bootstrap t) UCL					0.00389
89	Maximum					N/A	95% KM (BCA) UCL					0.0056
90	Mean					N/A	95% KM (Percentile Bootstrap) UCL					0.0056
91	Median					N/A	95% KM (Chebyshev) UCL					0.00437
92	SD					N/A	97.5% KM (Chebyshev) UCL					0.00459
93	k star					N/A	99% KM (Chebyshev) UCL					0.00501
94	Theta star					N/A						
95	Nu star					N/A	Potential UCLs to Use					
96	AppChi2					N/A	95% KM (t) UCL					0.00408
97	95% Gamma Approximate UCL					N/A	95% KM (% Bootstrap) UCL					0.0056
98	95% Adjusted Gamma UCL					N/A						
99	Note: DL/2 is not a recommended method.											
100												
101												
102	4,4'-DDT											
103												
104	General Statistics											
105	Number of Valid Data					23	Number of Detected Data					0
106	Number of Distinct Detected Data					0	Number of Non-Detect Data					23

	A	B	C	D	E	F	G	H	I	J	K	L
107							Percent Non-Detects					100.00%
108												
109	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
110	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
111	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
112												
113	The data set for variable 4,4'-DDT was not processed!											
114												
115												
116												
117	alpha-Chlordane											
118												
119	General Statistics											
120	Number of Valid Data					23	Number of Detected Data					0
121	Number of Distinct Detected Data					0	Number of Non-Detect Data					23
122							Percent Non-Detects					100.00%
123												
124	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
125	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
126	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
127												
128	The data set for variable alpha-Chlordane was not processed!											
129												
130												
131												
132	Aroclor-1254											
133												
134	General Statistics											
135	Number of Valid Data					23	Number of Detected Data					0
136	Number of Distinct Detected Data					0	Number of Non-Detect Data					23
137							Percent Non-Detects					100.00%
138												
139	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
140	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
141	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
142												
143	The data set for variable Aroclor-1254 was not processed!											
144												
145												
146												
147	Aroclor-1260											
148												
149	General Statistics											
150	Number of Valid Data					23	Number of Detected Data					0
151	Number of Distinct Detected Data					0	Number of Non-Detect Data					23
152							Percent Non-Detects					100.00%
153												
154	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
155	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
156	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
157												
158	The data set for variable Aroclor-1260 was not processed!											
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161												
162	Chrysene											
163												
164	General Statistics											
165	Number of Valid Data				23		Number of Detected Data				0	
166	Number of Distinct Detected Data				0		Number of Non-Detect Data				23	
167							Percent Non-Detects				100.00%	
168												
169	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
170	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
171	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
172												
173	The data set for variable Chrysene was not processed!											
174												
175												
176												
177	Ethylbenzene											
178												
179	General Statistics											
180	Number of Valid Data				23		Number of Detected Data				2	
181	Number of Distinct Detected Data				2		Number of Non-Detect Data				21	
182							Percent Non-Detects				91.30%	
183												
184	Raw Statistics					Log-transformed Statistics						
185	Minimum Detected			1		Minimum Detected			0			
186	Maximum Detected			1.4		Maximum Detected			0.336			
187	Mean of Detected			1.2		Mean of Detected			0.168			
188	SD of Detected			0.283		SD of Detected			0.238			
189	Minimum Non-Detect			0.5		Minimum Non-Detect			-0.693			
190	Maximum Non-Detect			0.5		Maximum Non-Detect			-0.693			
191												
192												
193	Warning: Data set has only 2 Distinct Detected Values.											
194	This may not be adequate enough to compute meaningful and reliable test statistics and estimates.											
195	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
196												
197	Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.											
198												
199	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
200	Those methods will return a 'N/A' value on your output display!											
201												
202	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
203	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
204												
205												
206	UCL Statistics											
207	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
208	Shapiro Wilk Test Statistic			1		Shapiro Wilk Test Statistic			1			
209	5% Shapiro Wilk Critical Value			N/A		5% Shapiro Wilk Critical Value			N/A			
210	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
211												
212	Assuming Normal Distribution					Assuming Lognormal Distribution						

	A	B	C	D	E	F	G	H	I	J	K	L
213	DL/2 Substitution Method					DL/2 Substitution Method						
214	Mean					0.333	Mean					-1.251
215	SD					0.28	SD					0.451
216	95% DL/2 (t) UCL					0.433	95% H-Stat (DL/2) UCL					0.338
217												
218	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
219	MLE method failed to converge properly						Mean in Log Scale					N/A
220							SD in Log Scale					N/A
221							Mean in Original Scale					N/A
222							SD in Original Scale					N/A
223							95% Percentile Bootstrap UCL					N/A
224							95% BCA Bootstrap UCL					N/A
225												
226	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
227	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)					
228	Theta Star					N/A						
229	nu star					N/A						
230												
231	A-D Test Statistic					0.359	Nonparametric Statistics					
232	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
233	K-S Test Statistic					N/A	Mean					1.017
234	5% K-S Critical Value					N/A	SD					0.0816
235	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0241
236							95% KM (t) UCL					1.059
237	Assuming Gamma Distribution						95% KM (z) UCL					1.057
238	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					N/A
239	Minimum					N/A	95% KM (bootstrap t) UCL					N/A
240	Maximum					N/A	95% KM (BCA) UCL					N/A
241	Mean					N/A	95% KM (Percentile Bootstrap) UCL					N/A
242	Median					N/A	95% KM (Chebyshev) UCL					1.122
243	SD					N/A	97.5% KM (Chebyshev) UCL					1.168
244	k star					N/A	99% KM (Chebyshev) UCL					1.257
245	Theta star					N/A						
246	Nu star					N/A	Potential UCLs to Use					
247	AppChi2					N/A	95% KM (t) UCL					1.059
248	95% Gamma Approximate UCL					N/A	95% KM (% Bootstrap) UCL					N/A
249	95% Adjusted Gamma UCL					N/A						
250	Note: DL/2 is not a recommended method.											
251												
252												
253	Gamma-Chlordane											
254												
255	General Statistics											
256	Number of Valid Data					23	Number of Detected Data					0
257	Number of Distinct Detected Data					0	Number of Non-Detect Data					23
258							Percent Non-Detects					100.00%
259												
260	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
261	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
262	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
263												
264	The data set for variable Gamma-Chlordane was not processed!											
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266												
267												
268	N-Nitrosodiphenylamine											
269												
270	General Statistics											
271	Number of Valid Data					23	Number of Detected Data					11
272	Number of Distinct Detected Data					8	Number of Non-Detect Data					12
273							Percent Non-Detects					52.17%
274												
275	Raw Statistics					Log-transformed Statistics						
276	Minimum Detected					0.35	Minimum Detected					-1.05
277	Maximum Detected					4.7	Maximum Detected					1.548
278	Mean of Detected					2.25	Mean of Detected					0.596
279	SD of Detected					1.403	SD of Detected					0.75
280	Minimum Non-Detect					0.52	Minimum Non-Detect					-0.654
281	Maximum Non-Detect					5	Maximum Non-Detect					1.609
282												
283	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				23	
284	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				0	
285	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				100.00%	
286												
287	UCL Statistics											
288	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
289	Shapiro Wilk Test Statistic					0.919	Shapiro Wilk Test Statistic					0.929
290	5% Shapiro Wilk Critical Value					0.85	5% Shapiro Wilk Critical Value					0.85
291	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
292												
293	Assuming Normal Distribution					Assuming Lognormal Distribution						
294	DL/2 Substitution Method						DL/2 Substitution Method					
295	Mean					1.993	Mean					0.379
296	SD					1.248	SD					0.944
297	95% DL/2 (t) UCL					2.44	95% H-Stat (DL/2) UCL					4.774
298												
299	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
300	MLE method failed to converge properly					Mean in Log Scale					0.217	
301							SD in Log Scale					0.87
302							Mean in Original Scale					1.731
303							SD in Original Scale					1.381
304							95% Percentile Bootstrap UCL					2.218
305							95% BCA Bootstrap UCL					2.23
306												
307	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
308	k star (bias corrected)					1.864	Data appear Normal at 5% Significance Level					
309	Theta Star					1.207						
310	nu star					41.01						
311												
312	A-D Test Statistic					0.249	Nonparametric Statistics					
313	5% A-D Critical Value					0.736	Kaplan-Meier (KM) Method					
314	K-S Test Statistic					0.736	Mean					1.743
315	5% K-S Critical Value					0.258	SD					1.421
316	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					0.385	
317							95% KM (t) UCL					2.404
318	Assuming Gamma Distribution					95% KM (z) UCL					2.376	

	A	B	C	D	E	F	G	H	I	J	K	L
319	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					2.363
320	Minimum					0.298	95% KM (bootstrap t) UCL					2.529
321	Maximum					4.808	95% KM (BCA) UCL					2.608
322	Mean					2.267	95% KM (Percentile Bootstrap) UCL					2.45
323	Median					1.8	95% KM (Chebyshev) UCL					3.421
324	SD					1.433	97.5% KM (Chebyshev) UCL					4.146
325	k star					1.926	99% KM (Chebyshev) UCL					5.572
326	Theta star					1.177						
327	Nu star					88.59	Potential UCLs to Use					
328	AppChi2					67.89	95% KM (t) UCL					2.404
329	95% Gamma Approximate UCL					2.958	95% KM (Percentile Bootstrap) UCL					2.45
330	95% Adjusted Gamma UCL					3.016						
331	Note: DL/2 is not a recommended method.											
332												
333												
334	Xylene (Total)											
335												
336	General Statistics											
337	Number of Valid Data					23	Number of Detected Data					6
338	Number of Distinct Detected Data					6	Number of Non-Detect Data					17
339							Percent Non-Detects					73.91%
340												
341	Raw Statistics						Log-transformed Statistics					
342	Minimum Detected					0.2	Minimum Detected					-1.609
343	Maximum Detected					16.5	Maximum Detected					2.803
344	Mean of Detected					5.339	Mean of Detected					0.66
345	SD of Detected					6.581	SD of Detected					1.77
346	Minimum Non-Detect					0.5	Minimum Non-Detect					-0.693
347	Maximum Non-Detect					1.5	Maximum Non-Detect					0.405
348												
349	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					20
350	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					3
351	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					86.96%
352												
353	Warning: There are only 6 Detected Values in this data											
354	Note: It should be noted that even though bootstrap may be performed on this data set											
355	the resulting calculations may not be reliable enough tp draw conclusions											
356												
357	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
358												
359												
360	UCL Statistics											
361	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
362	Shapiro Wilk Test Statistic					0.828	Shapiro Wilk Test Statistic					0.924
363	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
364	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
365												
366	Assuming Normal Distribution						Assuming Lognormal Distribution					
367	DL/2 Substitution Method						DL/2 Substitution Method					
368	Mean					1.643	Mean					-0.709
369	SD					3.862	SD					1.241
370	95% DL/2 (t) UCL					3.026	95% H-Stat (DL/2) UCL					1.691
371												

	A	B	C	D	E	F	G	H	I	J	K	L
372	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
373	MLE method failed to converge properly						Mean in Log Scale					-1.544
374							SD in Log Scale					1.973
375							Mean in Original Scale					1.538
376							SD in Original Scale					3.899
377							95% Percentile Bootstrap UCL					2.941
378							95% BCA Bootstrap UCL					3.54
379												
380	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
381	k star (bias corrected)					0.415	Data appear Normal at 5% Significance Level					
382	Theta Star					12.87						
383	nu star					4.979						
384												
385	A-D Test Statistic					0.349	Nonparametric Statistics					
386	5% A-D Critical Value					0.729	Kaplan-Meier (KM) Method					
387	K-S Test Statistic					0.729	Mean					1.547
388	5% K-S Critical Value					0.346	SD					3.807
389	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.87
390							95% KM (t) UCL					3.04
391	Assuming Gamma Distribution						95% KM (z) UCL					2.978
392	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					2.784
393	Minimum					0.2	95% KM (bootstrap t) UCL					6.402
394	Maximum					16.5	95% KM (BCA) UCL					5.07
395	Mean					4.939	95% KM (Percentile Bootstrap) UCL					3.897
396	Median					4.875	95% KM (Chebyshev) UCL					5.338
397	SD					3.194	97.5% KM (Chebyshev) UCL					6.978
398	k star					1.754	99% KM (Chebyshev) UCL					10.2
399	Theta star					2.815						
400	Nu star					80.7	Potential UCLs to Use					
401	AppChi2					61	95% KM (t) UCL					3.04
402	95% Gamma Approximate UCL					6.534	95% KM (Percentile Bootstrap) UCL					3.897
403	95% Adjusted Gamma UCL					6.67						
404	Note: DL/2 is not a recommended method.											
405												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Nunes GW to Air.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	1,4-Dichlorobenzene											
10												
11	General Statistics											
12	Number of Valid Data				18		Number of Detected Data				5	
13	Number of Distinct Detected Data				5		Number of Non-Detect Data				13	
14							Percent Non-Detects				72.22%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				0.25		Minimum Detected				-1.386	
18	Maximum Detected				8.4		Maximum Detected				2.128	
19	Mean of Detected				2.272		Mean of Detected				0.0586	
20	SD of Detected				3.445		SD of Detected				1.304	
21	Minimum Non-Detect				0.5		Minimum Non-Detect				-0.693	
22	Maximum Non-Detect				0.5		Maximum Non-Detect				-0.693	
23												
24												
25	Warning: There are only 5 Detected Values in this data											
26	Note: It should be noted that even though bootstrap may be performed on this data set											
27	the resulting calculations may not be reliable enough tp draw conclusions											
28												
29	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
30												
31												
32	UCL Statistics											
33	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
34	Shapiro Wilk Test Statistic				0.654		Shapiro Wilk Test Statistic				0.933	
35	5% Shapiro Wilk Critical Value				0.762		5% Shapiro Wilk Critical Value				0.762	
36	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
37												
38	Assuming Normal Distribution					Assuming Lognormal Distribution						
39	DL/2 Substitution Method						DL/2 Substitution Method					
40	Mean				0.812		Mean				-0.985	
41	SD				1.913		SD				0.919	
42	95% DL/2 (t) UCL				1.596		95% H-Stat (DL/2) UCL				0.99	
43												
44	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
45	MLE yields a negative mean					Mean in Log Scale				-1.353		
46							SD in Log Scale				1.377	
47							Mean in Original Scale				0.79	
48							SD in Original Scale				1.926	
49							95% Percentile Bootstrap UCL				1.655	
50							95% BCA Bootstrap UCL				2.197	
51												
52	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
53	k star (bias corrected)				0.446		Data appear Gamma Distributed at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L	
54	Theta Star					5.096							
55	nu star					4.458							
56													
57	A-D Test Statistic					0.535	Nonparametric Statistics						
58	5% A-D Critical Value					0.697	Kaplan-Meier (KM) Method						
59	K-S Test Statistic					0.697	Mean					0.812	
60	5% K-S Critical Value					0.366	SD					1.859	
61	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.49	
62							95% KM (t) UCL					1.664	
63	Assuming Gamma Distribution						95% KM (z) UCL					1.618	
64	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.489	
65	Minimum					1E-09	95% KM (bootstrap t) UCL					4.556	
66	Maximum					8.4	95% KM (BCA) UCL					2.206	
67	Mean					1.679	95% KM (Percentile Bootstrap) UCL					1.924	
68	Median					1.305	95% KM (Chebyshev) UCL					2.948	
69	SD					1.891	97.5% KM (Chebyshev) UCL					3.872	
70	k star					0.264	99% KM (Chebyshev) UCL					5.687	
71	Theta star					6.363							
72	Nu star					9.498	Potential UCLs to Use						
73	AppChi2					3.63	95% KM (t) UCL					1.664	
74	95% Gamma Approximate UCL					4.392							
75	95% Adjusted Gamma UCL					4.847							
76	Note: DL/2 is not a recommended method.												
77													
78													
79	Ethylbenzene												
80													
81	General Statistics												
82	Number of Valid Data					18	Number of Detected Data					1	
83	Number of Distinct Detected Data					1	Number of Non-Detect Data					17	
84							Percent Non-Detects					94.44%	
85													
86	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!												
87	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).												
88													
89	The data set for variable Ethylbenzene was not processed!												
90													
91													
92													
93	Naphthalene												
94													
95	General Statistics												
96	Number of Valid Data					18	Number of Detected Data					2	
97	Number of Distinct Detected Data					2	Number of Non-Detect Data					16	
98							Percent Non-Detects					88.89%	
99													
100	Raw Statistics						Log-transformed Statistics						
101	Minimum Detected					0.12	Minimum Detected					-2.12	
102	Maximum Detected					14	Maximum Detected					2.639	
103	Mean of Detected					7.06	Mean of Detected					0.259	
104	SD of Detected					9.815	SD of Detected					3.365	
105	Minimum Non-Detect					0.1	Minimum Non-Detect					-2.303	
106	Maximum Non-Detect					11	Maximum Non-Detect					2.398	

	A	B	C	D	E	F	G	H	I	J	K	L
107												
108	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					17
109	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1
110	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					94.44%
111												
112	Warning: Data set has only 2 Distinct Detected Values.											
113	This may not be adequate enough to compute meaningful and reliable test statistics and estimates.											
114	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
115												
116	Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.											
117												
118	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
119	Those methods will return a 'N/A' value on your output display!											
120												
121	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
122	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
123												
124												
125	UCL Statistics											
126	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
127	Shapiro Wilk Test Statistic					1	Shapiro Wilk Test Statistic					1
128	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A
129	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
130												
131	Assuming Normal Distribution					Assuming Lognormal Distribution						
132	DL/2 Substitution Method						DL/2 Substitution Method					
133	Mean					3.359	Mean					-0.321
134	SD					3.665	SD					2.381
135	95% DL/2 (t) UCL					4.862	95% H-Stat (DL/2) UCL					215.9
136												
137	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
138	MLE method failed to converge properly						Mean in Log Scale					N/A
139							SD in Log Scale					N/A
140							Mean in Original Scale					N/A
141							SD in Original Scale					N/A
142							95% Percentile Bootstrap UCL					N/A
143							95% BCA Bootstrap UCL					N/A
144												
145	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
146	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)					
147	Theta Star					N/A						
148	nu star					N/A						
149												
150	A-D Test Statistic					0.357	Nonparametric Statistics					
151	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
152	K-S Test Statistic					N/A	Mean					0.891
153	5% K-S Critical Value					N/A	SD					3.179
154	Data not Gamma Distributed at 5% Significance Level						SE of Mean					1.06
155							95% KM (t) UCL					2.735
156	Assuming Gamma Distribution						95% KM (z) UCL					2.634
157	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					10.14
158	Minimum					N/A	95% KM (bootstrap t) UCL					1.8E+308
159	Maximum					N/A	95% KM (BCA) UCL					14

	A	B	C	D	E	F	G	H	I	J	K	L
160	Mean					N/A	95% KM (Percentile Bootstrap) UCL					14
161	Median					N/A	95% KM (Chebyshev) UCL					5.511
162	SD					N/A	97.5% KM (Chebyshev) UCL					7.51
163	k star					N/A	99% KM (Chebyshev) UCL					11.44
164	Theta star					N/A						
165	Nu star					N/A	Potential UCLs to Use					
166	AppChi2					N/A	99% KM (Chebyshev) UCL					11.44
167	95% Gamma Approximate UCL					N/A						
168	95% Adjusted Gamma UCL					N/A						
169	Note: DL/2 is not a recommended method.											
170												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Nunes SS.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Data				20		Number of Detected Data				19	
13	Number of Distinct Detected Data				19		Number of Non-Detect Data				1	
14							Percent Non-Detects				5.00%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				0.12		Minimum Detected				-2.12	
18	Maximum Detected				3		Maximum Detected				1.099	
19	Mean of Detected				0.877		Mean of Detected				-0.45	
20	SD of Detected				0.742		SD of Detected				0.857	
21	Minimum Non-Detect				0.14		Minimum Non-Detect				-1.966	
22	Maximum Non-Detect				0.14		Maximum Non-Detect				-1.966	
23												
24												
25	UCL Statistics											
26	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
27	Shapiro Wilk Test Statistic				0.813		Shapiro Wilk Test Statistic				0.967	
28	5% Shapiro Wilk Critical Value				0.901		5% Shapiro Wilk Critical Value				0.901	
29	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
30												
31	Assuming Normal Distribution					Assuming Lognormal Distribution						
32	DL/2 Substitution Method						DL/2 Substitution Method					
33	Mean				0.837		Mean				-0.56	
34	SD				0.745		SD				0.97	
35	95% DL/2 (t) UCL				1.124		95% H-Stat (DL/2) UCL				1.364	
36												
37	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
38	Mean				0.771		Mean in Log Scale				-0.523	
39	SD				0.818		SD in Log Scale				0.896	
40	95% MLE (t) UCL				1.087		Mean in Original Scale				0.84	
41	95% MLE (Tiku) UCL				1.085		SD in Original Scale				0.741	
42							95% Percentile Bootstrap UCL				1.118	
43							95% BCA Bootstrap UCL				1.161	
44												
45	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
46	k star (bias corrected)				1.483		Data appear Gamma Distributed at 5% Significance Level					
47	Theta Star				0.591							
48	nu star				56.35							
49												
50	A-D Test Statistic				0.268		Nonparametric Statistics					
51	5% A-D Critical Value				0.755		Kaplan-Meier (KM) Method					
52	K-S Test Statistic				0.755		Mean				0.839	
53	5% K-S Critical Value				0.202		SD				0.723	

	A	B	C	D	E	F	G	H	I	J	K	L
54	Data appear Gamma Distributed at 5% Significance Level						SE of Mean				0.166	
55						95% KM (t) UCL				1.126		
56	Assuming Gamma Distribution						95% KM (z) UCL				1.112	
57	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL				1.126		
58	Minimum				1E-09	95% KM (bootstrap t) UCL				1.319		
59	Maximum				3	95% KM (BCA) UCL				1.12		
60	Mean				0.833	95% KM (Percentile Bootstrap) UCL				1.124		
61	Median				0.7	95% KM (Chebyshev) UCL				1.563		
62	SD				0.749	97.5% KM (Chebyshev) UCL				1.876		
63	k star				0.455	99% KM (Chebyshev) UCL				2.492		
64	Theta star				1.829							
65	Nu star				18.22	Potential UCLs to Use						
66	AppChi2				9.547	95% KM (Chebyshev) UCL				1.563		
67	95% Gamma Approximate UCL				1.589							
68	95% Adjusted Gamma UCL				1.676							
69	Note: DL/2 is not a recommended method.											
70												
71												
72	Carbazole											
73												
74	General Statistics											
75	Number of Valid Data				20	Number of Detected Data				16		
76	Number of Distinct Detected Data				14	Number of Non-Detect Data				4		
77						Percent Non-Detects				20.00%		
78												
79	Raw Statistics					Log-transformed Statistics						
80	Minimum Detected				0.046	Minimum Detected				-3.079		
81	Maximum Detected				1.6	Maximum Detected				0.47		
82	Mean of Detected				0.355	Mean of Detected				-1.358		
83	SD of Detected				0.366	SD of Detected				0.809		
84	Minimum Non-Detect				0.14	Minimum Non-Detect				-1.966		
85	Maximum Non-Detect				0.35	Maximum Non-Detect				-1.05		
86												
87	Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect				15		
88	For all methods (except KM, DL/2, and ROS Methods),					Number treated as Detected				5		
89	Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage				75.00%		
90												
91	UCL Statistics											
92	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
93	Shapiro Wilk Test Statistic				0.637	Shapiro Wilk Test Statistic				0.946		
94	5% Shapiro Wilk Critical Value				0.887	5% Shapiro Wilk Critical Value				0.887		
95	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
96												
97	Assuming Normal Distribution					Assuming Lognormal Distribution						
98	DL/2 Substitution Method					DL/2 Substitution Method						
99	Mean				0.303	Mean				-1.569		
100	SD				0.342	SD				0.858		
101	95% DL/2 (t) UCL				0.436	95% H-Stat (DL/2) UCL				0.35		
102												
103	Maximum Likelihood Estimate(MLE) Method				N/A	Log ROS Method						
104	MLE yields a negative mean					Mean in Log Scale				-1.551		
105						SD in Log Scale				0.832		
106						Mean in Original Scale				0.304		

	A	B	C	D	E	F	G	H	I	J	K	L
107							SD in Original Scale					0.341
108							95% Percentile Bootstrap UCL					0.443
109							95% BCA Bootstrap UCL					0.508
110												
111	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
112	k star (bias corrected)					1.424	Data appear Gamma Distributed at 5% Significance Level					
113	Theta Star					0.249						
114	nu star					45.57						
115												
116	A-D Test Statistic					0.737	Nonparametric Statistics					
117	5% A-D Critical Value					0.753	Kaplan-Meier (KM) Method					
118	K-S Test Statistic					0.753	Mean					0.305
119	5% K-S Critical Value					0.218	SD					0.333
120	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0772
121							95% KM (t) UCL					0.439
122	Assuming Gamma Distribution						95% KM (z) UCL					0.432
123	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.438
124	Minimum					0.043	95% KM (bootstrap t) UCL					0.597
125	Maximum					1.6	95% KM (BCA) UCL					0.443
126	Mean					0.318	95% KM (Percentile Bootstrap) UCL					0.449
127	Median					0.255	95% KM (Chebyshev) UCL					0.642
128	SD					0.338	97.5% KM (Chebyshev) UCL					0.787
129	k star					1.386	99% KM (Chebyshev) UCL					1.073
130	Theta star					0.229						
131	Nu star					55.42	Potential UCLs to Use					
132	AppChi2					39.32	95% KM (BCA) UCL					0.443
133	95% Gamma Approximate UCL					0.448						
134	95% Adjusted Gamma UCL					0.46						
135	Note: DL/2 is not a recommended method.											
136												
137												
138	Dibenzofuran											
139												
140	General Statistics											
141	Number of Valid Data					20	Number of Detected Data					14
142	Number of Distinct Detected Data					13	Number of Non-Detect Data					6
143							Percent Non-Detects					30.00%
144												
145	Raw Statistics						Log-transformed Statistics					
146	Minimum Detected					0.045	Minimum Detected					-3.101
147	Maximum Detected					0.76	Maximum Detected					-0.274
148	Mean of Detected					0.168	Mean of Detected					-2.163
149	SD of Detected					0.204	SD of Detected					0.78
150	Minimum Non-Detect					0.14	Minimum Non-Detect					-1.966
151	Maximum Non-Detect					0.41	Maximum Non-Detect					-0.892
152												
153	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					18
154	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					2
155	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					90.00%
156												
157	UCL Statistics											
158	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
159	Shapiro Wilk Test Statistic					0.571	Shapiro Wilk Test Statistic					0.805

	A	B	C	D	E	F	G	H	I	J	K	L
160	5% Shapiro Wilk Critical Value					0.874	5% Shapiro Wilk Critical Value					0.874
161	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
162												
163	Assuming Normal Distribution						Assuming Lognormal Distribution					
164	DL/2 Substitution Method						DL/2 Substitution Method					
165	Mean					0.157	Mean					-2.158
166	SD					0.173	SD					0.702
167	95% DL/2 (t) UCL					0.224	95% H-Stat (DL/2) UCL					0.222
168												
169	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
170	MLE method failed to converge properly						Mean in Log Scale					-2.226
171							SD in Log Scale					0.659
172							Mean in Original Scale					0.146
173							SD in Original Scale					0.173
174							95% Percentile Bootstrap UCL					0.213
175							95% BCA Bootstrap UCL					0.234
176												
177	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
178	k star (bias corrected)					1.191	Data do not follow a Discernable Distribution (0.05)					
179	Theta Star					0.141						
180	nu star					33.34						
181												
182	A-D Test Statistic					1.825	Nonparametric Statistics					
183	5% A-D Critical Value					0.751	Kaplan-Meier (KM) Method					
184	K-S Test Statistic					0.751	Mean					0.144
185	5% K-S Critical Value					0.233	SD					0.169
186	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0394
187							95% KM (t) UCL					0.212
188	Assuming Gamma Distribution						95% KM (z) UCL					0.209
189	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.212
190	Minimum					0.045	95% KM (bootstrap t) UCL					0.438
191	Maximum					0.76	95% KM (BCA) UCL					0.216
192	Mean					0.169	95% KM (Percentile Bootstrap) UCL					0.213
193	Median					0.114	95% KM (Chebyshev) UCL					0.316
194	SD					0.169	97.5% KM (Chebyshev) UCL					0.39
195	k star					1.746	99% KM (Chebyshev) UCL					0.537
196	Theta star					0.097						
197	Nu star					69.84	Potential UCLs to Use					
198	AppChi2					51.6	95% KM (BCA) UCL					0.216
199	95% Gamma Approximate UCL					0.229						
200	95% Adjusted Gamma UCL					0.235						
201	Note: DL/2 is not a recommended method.											
202												
203												
204	Dioxin TEQ											
205												
206	General Statistics											
207	Number of Valid Observations					2	Number of Distinct Observations					2
208												
209												
210	Warning: This data set only has 2 observations!											
211	Data set is too small to compute reliable and meaningful statistics and estimates!											
212	The data set for variable Dioxin TEQ was not processed!											

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
215	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
216												
217												
218												
219	Cobalt											
220												
221	General Statistics											
222	Number of Valid Data					20	Number of Detected Data					9
223	Number of Distinct Detected Data					8	Number of Non-Detect Data					11
224							Percent Non-Detects					55.00%
225												
226	Raw Statistics					Log-transformed Statistics						
227	Minimum Detected					2.7	Minimum Detected					0.993
228	Maximum Detected					19.3	Maximum Detected					2.96
229	Mean of Detected					10.9	Mean of Detected					2.224
230	SD of Detected					5.659	SD of Detected					0.667
231	Minimum Non-Detect					11	Minimum Non-Detect					2.398
232	Maximum Non-Detect					14	Maximum Non-Detect					2.639
233												
234	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				18	
235	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				2	
236	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				90.00%	
237												
238	Warning: There are only 9 Detected Values in this data											
239	Note: It should be noted that even though bootstrap may be performed on this data set											
240	the resulting calculations may not be reliable enough tp draw conclusions											
241												
242	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
243												
244												
245	UCL Statistics											
246	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
247	Shapiro Wilk Test Statistic					0.961	Shapiro Wilk Test Statistic					0.902
248	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
249	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
250												
251	Assuming Normal Distribution					Assuming Lognormal Distribution						
252	DL/2 Substitution Method						DL/2 Substitution Method					
253	Mean					8.113	Mean					1.969
254	SD					4.508	SD					0.497
255	95% DL/2 (t) UCL					9.855	95% H-Stat (DL/2) UCL					10.9
256												
257	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
258	MLE method failed to converge properly						Mean in Log Scale					1.977
259							SD in Log Scale					0.54
260							Mean in Original Scale					8.284
261							SD in Original Scale					4.592
262							95% Percentile Bootstrap UCL					9.981
263							95% BCA Bootstrap UCL					10.3
264												
265	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						

	A	B	C	D	E	F	G	H	I	J	K	L	
266	k star (bias corrected)					2.207	Data appear Normal at 5% Significance Level						
267	Theta Star					4.939							
268	nu star					39.73							
269													
270	A-D Test Statistic					0.337	Nonparametric Statistics						
271	5% A-D Critical Value					0.726	Kaplan-Meier (KM) Method						
272	K-S Test Statistic					0.726	Mean						8.801
273	5% K-S Critical Value					0.281	SD						4.764
274	Data appear Gamma Distributed at 5% Significance Level						SE of Mean						1.534
275							95% KM (t) UCL						11.45
276	Assuming Gamma Distribution						95% KM (z) UCL						11.32
277	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL						11.66
278	Minimum					2.7	95% KM (bootstrap t) UCL						11.63
279	Maximum					19.3	95% KM (BCA) UCL						11.43
280	Mean					11.12	95% KM (Percentile Bootstrap) UCL						11.51
281	Median					11.34	95% KM (Chebyshev) UCL						15.49
282	SD					3.729	97.5% KM (Chebyshev) UCL						18.38
283	k star					5.795	99% KM (Chebyshev) UCL						24.06
284	Theta star					1.918							
285	Nu star					231.8	Potential UCLs to Use						
286	AppChi2					197.6	95% KM (t) UCL						11.45
287	95% Gamma Approximate UCL					13.04	95% KM (Percentile Bootstrap) UCL						11.51
288	95% Adjusted Gamma UCL					13.21							
289	Note: DL/2 is not a recommended method.												
290													

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Nunes SS+Sub to Air.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	1,1'-Biphenyl											
10												
11	General Statistics											
12	Number of Valid Data				37		Number of Detected Data				6	
13	Number of Distinct Detected Data				5		Number of Non-Detect Data				31	
14							Percent Non-Detects				83.78%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				0.04		Minimum Detected				-3.219	
18	Maximum Detected				0.12		Maximum Detected				-2.12	
19	Mean of Detected				0.0845		Mean of Detected				-2.561	
20	SD of Detected				0.0365		SD of Detected				0.481	
21	Minimum Non-Detect				0.14		Minimum Non-Detect				-1.966	
22	Maximum Non-Detect				4.2		Maximum Non-Detect				1.435	
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				37	
25	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				0	
26	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				100.00%	
27												
28	Warning: There are only 6 Detected Values in this data											
29	Note: It should be noted that even though bootstrap may be performed on this data set											
30	the resulting calculations may not be reliable enough tp draw conclusions											
31												
32	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
33												
34												
35	UCL Statistics											
36	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
37	Shapiro Wilk Test Statistic				0.843		Shapiro Wilk Test Statistic				0.858	
38	5% Shapiro Wilk Critical Value				0.788		5% Shapiro Wilk Critical Value				0.788	
39	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
40												
41	Assuming Normal Distribution					Assuming Lognormal Distribution						
42	DL/2 Substitution Method						DL/2 Substitution Method					
43	Mean				0.194		Mean				-2.013	
44	SD				0.329		SD				0.708	
45	95% DL/2 (t) UCL				0.285		95% H-Stat (DL/2) UCL				0.289	
46												
47	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
48	MLE method failed to converge properly					Mean in Log Scale				-2.561		
49						SD in Log Scale				0.318		
50						Mean in Original Scale				0.0811		
51						SD in Original Scale				0.0253		
52						95% Percentile Bootstrap UCL				0.088		
53						95% BCA Bootstrap UCL				0.0879		

	A	B	C	D	E	F	G	H	I	J	K	L	
54													
55	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only						
56	k star (bias corrected)					2.972	Data appear Normal at 5% Significance Level						
57	Theta Star					0.0284							
58	nu star					35.67							
59													
60	A-D Test Statistic					0.51	Nonparametric Statistics						
61	5% A-D Critical Value					0.698	Kaplan-Meier (KM) Method						
62	K-S Test Statistic					0.698	Mean					0.0845	
63	5% K-S Critical Value					0.333	SD					0.0333	
64	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0149	
65							95% KM (t) UCL					0.11	
66	Assuming Gamma Distribution						95% KM (z) UCL					0.109	
67	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.112	
68	Minimum					0.0371	95% KM (bootstrap t) UCL					0.111	
69	Maximum					0.123	95% KM (BCA) UCL					0.11	
70	Mean					0.0866	95% KM (Percentile Bootstrap) UCL					0.109	
71	Median					0.0894	95% KM (Chebyshev) UCL					0.149	
72	SD					0.0246	97.5% KM (Chebyshev) UCL					0.177	
73	k star					9.923	99% KM (Chebyshev) UCL					0.233	
74	Theta star					0.00873							
75	Nu star					734.3	Potential UCLs to Use						
76	AppChi2					672.4	95% KM (t) UCL					0.11	
77	95% Gamma Approximate UCL					0.0946	95% KM (Percentile Bootstrap) UCL					0.109	
78	95% Adjusted Gamma UCL					0.0949							
79	Note: DL/2 is not a recommended method.												
80													
81													
82	Acenaphthene												
83													
84	General Statistics												
85	Number of Valid Data					37	Number of Detected Data					20	
86	Number of Distinct Detected Data					15	Number of Non-Detect Data					17	
87							Percent Non-Detects					45.95%	
88													
89	Raw Statistics						Log-transformed Statistics						
90	Minimum Detected					0.068	Minimum Detected					-2.688	
91	Maximum Detected					2.4	Maximum Detected					0.875	
92	Mean of Detected					0.464	Mean of Detected					-1.354	
93	SD of Detected					0.592	SD of Detected					1.04	
94	Minimum Non-Detect					0.14	Minimum Non-Detect					-1.966	
95	Maximum Non-Detect					4.2	Maximum Non-Detect					1.435	
96													
97	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					37	
98	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0	
99	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%	
100													
101	UCL Statistics												
102	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
103	Shapiro Wilk Test Statistic					0.674	Shapiro Wilk Test Statistic					0.86	
104	5% Shapiro Wilk Critical Value					0.905	5% Shapiro Wilk Critical Value					0.905	
105	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level						
106													

	A	B	C	D	E	F	G	H	I	J	K	L
107	Assuming Normal Distribution						Assuming Lognormal Distribution					
108	DL/2 Substitution Method						DL/2 Substitution Method					
109	Mean					0.355	Mean					-1.709
110	SD					0.551	SD					1.027
111	95% DL/2 (t) UCL					0.508	95% H-Stat (DL/2) UCL					0.404
112												
113	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
114	MLE method failed to converge properly						Mean in Log Scale					-1.74
115							SD in Log Scale					0.908
116							Mean in Original Scale					0.306
117							SD in Original Scale					0.465
118							95% Percentile Bootstrap UCL					0.433
119							95% BCA Bootstrap UCL					0.498
120												
121	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
122	k star (bias corrected)					0.873	Data do not follow a Discernable Distribution (0.05)					
123	Theta Star					0.531						
124	nu star					34.92						
125												
126	A-D Test Statistic					1.784	Nonparametric Statistics					
127	5% A-D Critical Value					0.769	Kaplan-Meier (KM) Method					
128	K-S Test Statistic					0.769	Mean					0.31
129	5% K-S Critical Value					0.199	SD					0.464
130	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0794
131							95% KM (t) UCL					0.444
132	Assuming Gamma Distribution						95% KM (z) UCL					0.44
133	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.442
134	Minimum					0.068	95% KM (bootstrap t) UCL					0.551
135	Maximum					2.4	95% KM (BCA) UCL					0.456
136	Mean					0.469	95% KM (Percentile Bootstrap) UCL					0.451
137	Median					0.416	95% KM (Chebyshev) UCL					0.656
138	SD					0.435	97.5% KM (Chebyshev) UCL					0.806
139	k star					1.556	99% KM (Chebyshev) UCL					1.1
140	Theta star					0.302						
141	Nu star					115.1	Potential UCLs to Use					
142	AppChi2					91.37	97.5% KM (Chebyshev) UCL					0.806
143	95% Gamma Approximate UCL					0.591						
144	95% Adjusted Gamma UCL					0.597						
145	Note: DL/2 is not a recommended method.											
146												
147												
148	Benzaldehyde											
149												
150	General Statistics											
151	Number of Valid Data					37	Number of Detected Data					13
152	Number of Distinct Detected Data					11	Number of Non-Detect Data					24
153							Percent Non-Detects					64.86%
154												
155	Raw Statistics						Log-transformed Statistics					
156	Minimum Detected					0.04	Minimum Detected					-3.219
157	Maximum Detected					0.54	Maximum Detected					-0.616
158	Mean of Detected					0.109	Mean of Detected					-2.531
159	SD of Detected					0.133	SD of Detected					0.684

	A	B	C	D	E	F	G	H	I	J	K	L	
160	Minimum Non-Detect					0.14	Minimum Non-Detect					-1.966	
161	Maximum Non-Detect					4.2	Maximum Non-Detect					1.435	
162													
163	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					37	
164	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0	
165	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%	
166													
167	UCL Statistics												
168	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
169	Shapiro Wilk Test Statistic					0.502	Shapiro Wilk Test Statistic					0.811	
170	5% Shapiro Wilk Critical Value					0.866	5% Shapiro Wilk Critical Value					0.866	
171	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level						
172													
173	Assuming Normal Distribution						Assuming Lognormal Distribution						
174	DL/2 Substitution Method						DL/2 Substitution Method						
175	Mean					0.185	Mean					-2.138	
176	SD					0.337	SD					0.776	
177	95% DL/2 (t) UCL					0.279	95% H-Stat (DL/2) UCL					0.305	
178													
179	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
180	MLE method failed to converge properly						Mean in Log Scale					-2.629	
181							SD in Log Scale					0.459	
182							Mean in Original Scale					0.0843	
183							SD in Original Scale					0.0804	
184							95% Percentile Bootstrap UCL					0.11	
185							95% BCA Bootstrap UCL					0.125	
186													
187	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only						
188	k star (bias corrected)					1.393	Data do not follow a Discernable Distribution (0.05)						
189	Theta Star					0.0781							
190	nu star					36.23							
191													
192	A-D Test Statistic					1.468	Nonparametric Statistics						
193	5% A-D Critical Value					0.747	Kaplan-Meier (KM) Method						
194	K-S Test Statistic					0.747	Mean					0.0832	
195	5% K-S Critical Value					0.24	SD					0.0814	
196	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0151	
197							95% KM (t) UCL					0.109	
198	Assuming Gamma Distribution						95% KM (z) UCL					0.108	
199	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.108	
200	Minimum					0.04	95% KM (bootstrap t) UCL					0.139	
201	Maximum					0.54	95% KM (BCA) UCL					0.111	
202	Mean					0.111	95% KM (Percentile Bootstrap) UCL					0.111	
203	Median					0.111	95% KM (Chebyshev) UCL					0.149	
204	SD					0.0773	97.5% KM (Chebyshev) UCL					0.177	
205	k star					4.214	99% KM (Chebyshev) UCL					0.233	
206	Theta star					0.0263							
207	Nu star					311.9	Potential UCLs to Use						
208	AppChi2					272	95% KM (t) UCL					0.109	
209	95% Gamma Approximate UCL					0.127	95% KM (% Bootstrap) UCL					0.111	
210	95% Adjusted Gamma UCL					0.128							
211	Note: DL/2 is not a recommended method.												
212													

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	Ethylbenzene											
215												
216	General Statistics											
217	Number of Valid Data					37	Number of Detected Data					1
218	Number of Distinct Detected Data					1	Number of Non-Detect Data					36
219							Percent Non-Detects					97.30%
220												
221	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
222	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
223												
224	The data set for variable Ethylbenzene was not processed!											
225												
226												
227												
228	Methyl acetate											
229												
230	General Statistics											
231	Number of Valid Data					37	Number of Detected Data					6
232	Number of Distinct Detected Data					5	Number of Non-Detect Data					31
233							Percent Non-Detects					83.78%
234												
235	Raw Statistics					Log-transformed Statistics						
236	Minimum Detected					0.005	Minimum Detected					-5.298
237	Maximum Detected					1.1	Maximum Detected					0.0953
238	Mean of Detected					0.19	Mean of Detected					-4.066
239	SD of Detected					0.446	SD of Detected					2.06
240	Minimum Non-Detect					0.0011	Minimum Non-Detect					-6.812
241	Maximum Non-Detect					0.11	Maximum Non-Detect					-2.207
242												
243	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					36
244	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1
245	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					97.30%
246												
247	Warning: There are only 6 Detected Values in this data											
248	Note: It should be noted that even though bootstrap may be performed on this data set											
249	the resulting calculations may not be reliable enough tp draw conclusions											
250												
251	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
252												
253												
254	UCL Statistics											
255	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
256	Shapiro Wilk Test Statistic					0.501	Shapiro Wilk Test Statistic					0.632
257	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
258	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
259												
260	Assuming Normal Distribution					Assuming Lognormal Distribution						
261	DL/2 Substitution Method						DL/2 Substitution Method					
262	Mean					0.0365	Mean					-5.525
263	SD					0.18	SD					1.513
264	95% DL/2 (t) UCL					0.0865	95% H-Stat (DL/2) UCL					0.0228
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
267	MLE method failed to converge properly						Mean in Log Scale					-7.872
268							SD in Log Scale					2.331
269							Mean in Original Scale					0.0313
270							SD in Original Scale					0.181
271							95% Percentile Bootstrap UCL					0.0905
272							95% BCA Bootstrap UCL					0.121
273												
274	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
275	k star (bias corrected)					0.255	Data do not follow a Discernable Distribution (0.05)					
276	Theta Star					0.743						
277	nu star					3.065						
278												
279	A-D Test Statistic					1.44	Nonparametric Statistics					
280	5% A-D Critical Value					0.771	Kaplan-Meier (KM) Method					
281	K-S Test Statistic					0.771	Mean					0.0352
282	5% K-S Critical Value					0.358	SD					0.177
283	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.032
284							95% KM (t) UCL					0.0892
285	Assuming Gamma Distribution						95% KM (z) UCL					0.0878
286	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0845
287	Minimum					1E-09	95% KM (bootstrap t) UCL					3.95
288	Maximum					13.59	95% KM (BCA) UCL					0.125
289	Mean					1.826	95% KM (Percentile Bootstrap) UCL					0.0947
290	Median					0.235	95% KM (Chebyshev) UCL					0.175
291	SD					3.265	97.5% KM (Chebyshev) UCL					0.235
292	k star					0.168	99% KM (Chebyshev) UCL					0.353
293	Theta star					10.89						
294	Nu star					12.41	Potential UCLs to Use					
295	AppChi2					5.498	99% KM (Chebyshev) UCL					0.353
296	95% Gamma Approximate UCL					4.121						
297	95% Adjusted Gamma UCL					4.276						
298	Note: DL/2 is not a recommended method.											
299												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Nunes SS+Sub.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Data				35		Number of Detected Data				27	
13	Number of Distinct Detected Data				25		Number of Non-Detect Data				8	
14							Percent Non-Detects				22.86%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				0.093		Minimum Detected				-2.375	
18	Maximum Detected				4.9		Maximum Detected				1.589	
19	Mean of Detected				1.009		Mean of Detected				-0.468	
20	SD of Detected				1.078		SD of Detected				1.034	
21	Minimum Non-Detect				0.14		Minimum Non-Detect				-1.966	
22	Maximum Non-Detect				4.2		Maximum Non-Detect				1.435	
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				34	
25	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				1	
26	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				97.14%	
27												
28	UCL Statistics											
29	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
30	Shapiro Wilk Test Statistic				0.758		Shapiro Wilk Test Statistic				0.974	
31	5% Shapiro Wilk Critical Value				0.923		5% Shapiro Wilk Critical Value				0.923	
32	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
33												
34	Assuming Normal Distribution					Assuming Lognormal Distribution						
35	DL/2 Substitution Method						DL/2 Substitution Method					
36	Mean				0.853		Mean				-0.86	
37	SD				1.038		SD				1.281	
38	95% DL/2 (t) UCL				1.15		95% H-Stat (DL/2) UCL				1.179	
39												
40	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
41	MLE method failed to converge properly					Mean in Log Scale				-0.798		
42							SD in Log Scale				1.12	
43							Mean in Original Scale				0.817	
44							SD in Original Scale				1.009	
45							95% Percentile Bootstrap UCL				1.114	
46							95% BCA Bootstrap UCL				1.169	
47												
48	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
49	k star (bias corrected)				1.079		Data appear Gamma Distributed at 5% Significance Level					
50	Theta Star				0.935							
51	nu star				58.29							
52												
53	A-D Test Statistic				0.348		Nonparametric Statistics					

	A	B	C	D	E	F	G	H	I	J	K	L
54	5% A-D Critical Value					0.769	Kaplan-Meier (KM) Method					
55	K-S Test Statistic					0.769	Mean					0.822
56	5% K-S Critical Value					0.172	SD					1.003
57	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.174
58							95% KM (t) UCL					1.116
59	Assuming Gamma Distribution						95% KM (z) UCL					1.108
60	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.115
61	Minimum					1E-09	95% KM (bootstrap t) UCL					1.242
62	Maximum					4.9	95% KM (BCA) UCL					1.106
63	Mean					0.851	95% KM (Percentile Bootstrap) UCL					1.119
64	Median					0.52	95% KM (Chebyshev) UCL					1.58
65	SD					1.008	97.5% KM (Chebyshev) UCL					1.908
66	k star					0.391	99% KM (Chebyshev) UCL					2.553
67	Theta star					2.175						
68	Nu star					27.38	Potential UCLs to Use					
69	AppChi2					16.45	95% KM (BCA) UCL					1.106
70	95% Gamma Approximate UCL					1.416						
71	95% Adjusted Gamma UCL					1.452						
72	Note: DL/2 is not a recommended method.											
73												
74												
75	Carbazole											
76												
77	General Statistics											
78	Number of Valid Data					35	Number of Detected Data					21
79	Number of Distinct Detected Data					18	Number of Non-Detect Data					14
80							Percent Non-Detects					40.00%
81												
82	Raw Statistics						Log-transformed Statistics					
83	Minimum Detected					0.046	Minimum Detected					-3.079
84	Maximum Detected					2	Maximum Detected					0.693
85	Mean of Detected					0.486	Mean of Detected					-1.161
86	SD of Detected					0.527	SD of Detected					0.942
87	Minimum Non-Detect					0.14	Minimum Non-Detect					-1.966
88	Maximum Non-Detect					4.2	Maximum Non-Detect					1.435
89												
90	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					35
91	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0
92	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
93												
94	UCL Statistics											
95	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
96	Shapiro Wilk Test Statistic					0.72	Shapiro Wilk Test Statistic					0.958
97	5% Shapiro Wilk Critical Value					0.908	5% Shapiro Wilk Critical Value					0.908
98	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
99												
100	Assuming Normal Distribution						Assuming Lognormal Distribution					
101	DL/2 Substitution Method						DL/2 Substitution Method					
102	Mean					0.386	Mean					-1.591
103	SD					0.539	SD					1.063
104	95% DL/2 (t) UCL					0.54	95% H-Stat (DL/2) UCL					0.408
105												
106	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					

	A	B	C	D	E	F	G	H	I	J	K	L
107	MLE method failed to converge properly						Mean in Log Scale					-1.71
108							SD in Log Scale					1.04
109							Mean in Original Scale					0.327
110							SD in Original Scale					0.451
111							95% Percentile Bootstrap UCL					0.461
112							95% BCA Bootstrap UCL					0.479
113												
114	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
115	k star (bias corrected)					1.126	Data appear Lognormal at 5% Significance Level					
116	Theta Star					0.432						
117	nu star					47.27						
118												
119	A-D Test Statistic					0.985	Nonparametric Statistics					
120	5% A-D Critical Value					0.763	Kaplan-Meier (KM) Method					
121	K-S Test Statistic					0.763	Mean					0.336
122	5% K-S Critical Value					0.194	SD					0.448
123	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0791
124							95% KM (t) UCL					0.47
125	Assuming Gamma Distribution						95% KM (z) UCL					0.466
126	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.469
127	Minimum					1E-09	95% KM (bootstrap t) UCL					0.542
128	Maximum					2	95% KM (BCA) UCL					0.478
129	Mean					0.433	95% KM (Percentile Bootstrap) UCL					0.483
130	Median					0.274	95% KM (Chebyshev) UCL					0.681
131	SD					0.442	97.5% KM (Chebyshev) UCL					0.83
132	k star					0.433	99% KM (Chebyshev) UCL					1.124
133	Theta star					1						
134	Nu star					30.31	Potential UCLs to Use					
135	AppChi2					18.74	95% KM (t) UCL					0.47
136	95% Gamma Approximate UCL					0.7	95% KM (% Bootstrap) UCL					0.483
137	95% Adjusted Gamma UCL					0.717						
138	Note: DL/2 is not a recommended method.											
139												
140												
141	Chrysene											
142												
143	General Statistics											
144	Number of Valid Data					35	Number of Detected Data					31
145	Number of Distinct Detected Data					24	Number of Non-Detect Data					4
146							Percent Non-Detects					11.43%
147												
148	Raw Statistics						Log-transformed Statistics					
149	Minimum Detected					0.092	Minimum Detected					-2.386
150	Maximum Detected					18	Maximum Detected					2.89
151	Mean of Detected					2.282	Mean of Detected					0.121
152	SD of Detected					3.314	SD of Detected					1.283
153	Minimum Non-Detect					0.14	Minimum Non-Detect					-1.966
154	Maximum Non-Detect					0.17	Maximum Non-Detect					-1.772
155												
156	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					7
157	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					28
158	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					20.00%
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	UCL Statistics											
161	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
162	Shapiro Wilk Test Statistic					0.587	Shapiro Wilk Test Statistic					0.962
163	5% Shapiro Wilk Critical Value					0.929	5% Shapiro Wilk Critical Value					0.929
164	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
165												
166	Assuming Normal Distribution						Assuming Lognormal Distribution					
167	DL/2 Substitution Method						DL/2 Substitution Method					
168	Mean					2.03	Mean					-0.189
169	SD					3.194	SD					1.49
170	95% DL/2 (t) UCL					2.943	95% H-Stat (DL/2) UCL					3.719
171												
172	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
173	Mean					1.55	Mean in Log Scale					-0.129
174	SD					3.67	SD in Log Scale					1.399
175	95% MLE (t) UCL					2.599	Mean in Original Scale					2.036
176	95% MLE (Tiku) UCL					2.584	SD in Original Scale					3.19
177							95% Percentile Bootstrap UCL					2.954
178							95% BCA Bootstrap UCL					3.47
179												
180	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
181	k star (bias corrected)					0.778	Data appear Gamma Distributed at 5% Significance Level					
182	Theta Star					2.933						
183	nu star					48.25						
184												
185	A-D Test Statistic					0.498	Nonparametric Statistics					
186	5% A-D Critical Value					0.783	Kaplan-Meier (KM) Method					
187	K-S Test Statistic					0.783	Mean					2.034
188	5% K-S Critical Value					0.163	SD					3.145
189	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.54
190							95% KM (t) UCL					2.948
191	Assuming Gamma Distribution						95% KM (z) UCL					2.923
192	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					2.946
193	Minimum					1E-09	95% KM (bootstrap t) UCL					3.789
194	Maximum					18	95% KM (BCA) UCL					3.046
195	Mean					2.021	95% KM (Percentile Bootstrap) UCL					3.032
196	Median					1	95% KM (Chebyshev) UCL					4.39
197	SD					3.199	97.5% KM (Chebyshev) UCL					5.409
198	k star					0.239	99% KM (Chebyshev) UCL					7.411
199	Theta star					8.445						
200	Nu star					16.76	Potential UCLs to Use					
201	AppChi2					8.498	95% KM (Chebyshev) UCL					4.39
202	95% Gamma Approximate UCL					3.986						
203	95% Adjusted Gamma UCL					4.121						
204	Note: DL/2 is not a recommended method.											
205												
206												
207	Dibenzofuran											
208												
209	General Statistics											
210	Number of Valid Data					35	Number of Detected Data					19
211	Number of Distinct Detected Data					17	Number of Non-Detect Data					16
212							Percent Non-Detects					45.71%

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	Raw Statistics						Log-transformed Statistics					
215	Minimum Detected					0.045	Minimum Detected					-3.101
216	Maximum Detected					0.92	Maximum Detected					-0.0834
217	Mean of Detected					0.248	Mean of Detected					-1.915
218	SD of Detected					0.282	SD of Detected					0.982
219	Minimum Non-Detect					0.14	Minimum Non-Detect					-1.966
220	Maximum Non-Detect					4.2	Maximum Non-Detect					1.435
221												
222	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					35
223	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0
224	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
225												
226	UCL Statistics											
227	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
228	Shapiro Wilk Test Statistic					0.692	Shapiro Wilk Test Statistic					0.828
229	5% Shapiro Wilk Critical Value					0.901	5% Shapiro Wilk Critical Value					0.901
230	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
231												
232	Assuming Normal Distribution						Assuming Lognormal Distribution					
233	DL/2 Substitution Method						DL/2 Substitution Method					
234	Mean					0.24	Mean					-2.026
235	SD					0.391	SD					0.932
236	95% DL/2 (t) UCL					0.351	95% H-Stat (DL/2) UCL					0.289
237												
238	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
239	MLE method failed to converge properly						Mean in Log Scale					-2.109
240							SD in Log Scale					0.787
241							Mean in Original Scale					0.181
242							SD in Original Scale					0.219
243							95% Percentile Bootstrap UCL					0.244
244							95% BCA Bootstrap UCL					0.263
245												
246	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
247	k star (bias corrected)					0.962	Data do not follow a Discernable Distribution (0.05)					
248	Theta Star					0.257						
249	nu star					36.55						
250												
251	A-D Test Statistic					2.039	Nonparametric Statistics					
252	5% A-D Critical Value					0.767	Kaplan-Meier (KM) Method					
253	K-S Test Statistic					0.767	Mean					0.176
254	5% K-S Critical Value					0.204	SD					0.221
255	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0391
256							95% KM (t) UCL					0.242
257	Assuming Gamma Distribution						95% KM (z) UCL					0.241
258	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.242
259	Minimum					0.045	95% KM (bootstrap t) UCL					0.264
260	Maximum					0.92	95% KM (BCA) UCL					0.243
261	Mean					0.248	95% KM (Percentile Bootstrap) UCL					0.243
262	Median					0.241	95% KM (Chebyshev) UCL					0.347
263	SD					0.205	97.5% KM (Chebyshev) UCL					0.421
264	k star					1.775	99% KM (Chebyshev) UCL					0.566
265	Theta star					0.14						

	A	B	C	D	E	F	G	H	I	J	K	L	
266	Nu star					124.3	Potential UCLs to Use						
267	AppChi2					99.52	95% KM (t) UCL					0.242	
268	95% Gamma Approximate UCL					0.31	95% KM (% Bootstrap) UCL					0.243	
269	95% Adjusted Gamma UCL					0.314							
270	Note: DL/2 is not a recommended method.												
271													
272													
273	Dioxin TEQ												
274													
275	General Statistics												
276	Number of Valid Observations					2	Number of Distinct Observations					2	
277													
278													
279	Warning: This data set only has 2 observations!												
280	Data set is too small to compute reliable and meaningful statistics and estimates!												
281	The data set for variable Dioxin TEQ was not processed!												
282													
283	It is suggested to collect at least 8 to 10 observations before using these statistical methods!												
284	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.												
285													
286													
287													
288	Cobalt												
289													
290	General Statistics												
291	Number of Valid Data					35	Number of Detected Data					19	
292	Number of Distinct Detected Data					17	Number of Non-Detect Data					16	
293							Percent Non-Detects					45.71%	
294													
295	Raw Statistics					Log-transformed Statistics							
296	Minimum Detected					2.2	Minimum Detected					0.788	
297	Maximum Detected					19.3	Maximum Detected					2.96	
298	Mean of Detected					7.066	Mean of Detected					1.718	
299	SD of Detected					5.339	SD of Detected					0.684	
300	Minimum Non-Detect					11	Minimum Non-Detect					2.398	
301	Maximum Non-Detect					14	Maximum Non-Detect					2.639	
302													
303	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				33		
304	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				2		
305	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				94.29%		
306													
307	UCL Statistics												
308	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
309	Shapiro Wilk Test Statistic					0.796	Shapiro Wilk Test Statistic					0.89	
310	5% Shapiro Wilk Critical Value					0.901	5% Shapiro Wilk Critical Value					0.901	
311	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
312													
313	Assuming Normal Distribution					Assuming Lognormal Distribution							
314	DL/2 Substitution Method						DL/2 Substitution Method						
315	Mean					6.511	Mean					1.739	
316	SD					3.946	SD					0.501	
317	95% DL/2 (t) UCL					7.639	95% H-Stat (DL/2) UCL					11.55	
318													

	A	B	C	D	E	F	G	H	I	J	K	L
319	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
320	MLE method failed to converge properly						Mean in Log Scale					1.613
321							SD in Log Scale					0.568
322							Mean in Original Scale					5.991
323							SD in Original Scale					4.216
324							95% Percentile Bootstrap UCL					7.267
325							95% BCA Bootstrap UCL					7.395
326												
327	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
328	k star (bias corrected)					1.939	Data do not follow a Discernable Distribution (0.05)					
329	Theta Star					3.645						
330	nu star					73.66						
331												
332	A-D Test Statistic					1.211	Nonparametric Statistics					
333	5% A-D Critical Value					0.751	Kaplan-Meier (KM) Method					
334	K-S Test Statistic					0.751	Mean					6.032
335	5% K-S Critical Value					0.201	SD					4.377
336	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.877
337							95% KM (t) UCL					7.516
338	Assuming Gamma Distribution						95% KM (z) UCL					7.476
339	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					7.523
340	Minimum					2.2	95% KM (bootstrap t) UCL					7.86
341	Maximum					19.3	95% KM (BCA) UCL					7.589
342	Mean					7.093	95% KM (Percentile Bootstrap) UCL					7.516
343	Median					7.009	95% KM (Chebyshev) UCL					9.857
344	SD					3.887	97.5% KM (Chebyshev) UCL					11.51
345	k star					3.71	99% KM (Chebyshev) UCL					14.76
346	Theta star					1.912						
347	Nu star					259.7	Potential UCLs to Use					
348	AppChi2					223.4	95% KM (t) UCL					7.516
349	95% Gamma Approximate UCL					8.246	95% KM (% Bootstrap) UCL					7.516
350	95% Adjusted Gamma UCL					8.305						
351	Note: DL/2 is not a recommended method.											
352												

A	B	C	D	E	F	G	H	I	J	K	L
1			General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options										
3	From File		C:\aa_Projects\Peterson\AECOM HHRA\Database\OU2 FI.wst								
4	Full Precision		OFF								
5	Confidence Coefficient		95%								
6	Number of Bootstrap Operations		2000								
7											
8											
9	4-Chloro-3-methylphenol										
10											
11	General Statistics										
12	Number of Valid Data			48		Number of Detected Data			1		
13	Number of Distinct Detected Data			1		Number of Non-Detect Data			47		
14						Percent Non-Detects			97.92%		
15											
16	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!										
17	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).										
18											
19	The data set for variable 4-Chloro-3-methylphenol was not processed!										
20											
21											
22											
23	4-Nitrophenol										
24											
25	General Statistics										
26	Number of Valid Data			48		Number of Detected Data			1		
27	Number of Distinct Detected Data			1		Number of Non-Detect Data			47		
28						Percent Non-Detects			97.92%		
29											
30	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!										
31	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).										
32											
33	The data set for variable 4-Nitrophenol was not processed!										
34											
35											
36											
37	Aldrin										
38											
39	General Statistics										
40	Number of Valid Data			48		Number of Detected Data			1		
41	Number of Distinct Detected Data			1		Number of Non-Detect Data			47		
42						Percent Non-Detects			97.92%		
43											
44	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!										
45	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).										
46											
47	The data set for variable Aldrin was not processed!										
48											
49											
50											
51	Benzaldehyde										
52											
53	General Statistics										

	A	B	C	D	E	F	G	H	I	J	K	L
54	Number of Valid Data					48	Number of Detected Data					5
55	Number of Distinct Detected Data					5	Number of Non-Detect Data					43
56							Percent Non-Detects					89.58%
57												
58	Raw Statistics						Log-transformed Statistics					
59	Minimum Detected					0.26	Minimum Detected					-1.347
60	Maximum Detected					0.49	Maximum Detected					-0.713
61	Mean of Detected					0.328	Mean of Detected					-1.143
62	SD of Detected					0.0936	SD of Detected					0.254
63	Minimum Non-Detect					0.29	Minimum Non-Detect					-1.238
64	Maximum Non-Detect					3	Maximum Non-Detect					1.099
65												
66	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					48
67	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0
68	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
69												
70	Warning: There are only 5 Detected Values in this data											
71	Note: It should be noted that even though bootstrap may be performed on this data set											
72	the resulting calculations may not be reliable enough tp draw conclusions											
73												
74	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
75												
76												
77	UCL Statistics											
78	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
79	Shapiro Wilk Test Statistic					0.775	Shapiro Wilk Test Statistic					0.829
80	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
81	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
82												
83	Assuming Normal Distribution						Assuming Lognormal Distribution					
84	DL/2 Substitution Method						DL/2 Substitution Method					
85	Mean					0.475	Mean					-1.297
86	SD					0.563	SD					0.966
87	95% DL/2 (t) UCL					0.612	95% H-Stat (DL/2) UCL					0.769
88												
89	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
90	MLE method failed to converge properly						Mean in Log Scale					-1.325
91							SD in Log Scale					0.158
92							Mean in Original Scale					0.269
93							SD in Original Scale					0.047
94							95% Percentile Bootstrap UCL					0.281
95							95% BCA Bootstrap UCL					0.283
96												
97	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
98	k star (bias corrected)					7.37	Data appear Normal at 5% Significance Level					
99	Theta Star					0.0445						
100	nu star					73.7						
101												
102	A-D Test Statistic					0.567	Nonparametric Statistics					
103	5% A-D Critical Value					0.679	Kaplan-Meier (KM) Method					
104	K-S Test Statistic					0.679	Mean					0.274
105	5% K-S Critical Value					0.357	SD					0.0379
106	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.00781

	A	B	C	D	E	F	G	H	I	J	K	L		
107						95% KM (t) UCL							0.287	
108	Assuming Gamma Distribution					95% KM (z) UCL							0.286	
109	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL							0.289
110	Minimum					0.26	95% KM (bootstrap t) UCL							0.297
111	Maximum					0.49	95% KM (BCA) UCL							0.32
112	Mean					0.321	95% KM (Percentile Bootstrap) UCL							0.32
113	Median					0.318	95% KM (Chebyshev) UCL							0.308
114	SD					0.0294	97.5% KM (Chebyshev) UCL							0.322
115	k star					135.6	99% KM (Chebyshev) UCL							0.351
116	Theta star					0.00237								
117	Nu star					13019	Potential UCLs to Use							
118	AppChi2					12755	95% KM (t) UCL							0.287
119	95% Gamma Approximate UCL					0.328	95% KM (Percentile Bootstrap) UCL							0.32
120	95% Adjusted Gamma UCL					0.328								
121	Note: DL/2 is not a recommended method.													
122														
123														
124	Endosulfan I													
125														
126	General Statistics													
127	Number of Valid Data					48	Number of Detected Data					8		
128	Number of Distinct Detected Data					8	Number of Non-Detect Data					40		
129							Percent Non-Detects					83.33%		
130														
131	Raw Statistics						Log-transformed Statistics							
132	Minimum Detected					0.00034	Minimum Detected					-7.987		
133	Maximum Detected					0.0044	Maximum Detected					-5.426		
134	Mean of Detected					0.00175	Mean of Detected					-6.804		
135	SD of Detected					0.0017	SD of Detected					1.032		
136	Minimum Non-Detect					0.00031	Minimum Non-Detect					-8.079		
137	Maximum Non-Detect					0.00032	Maximum Non-Detect					-8.047		
138														
139	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					40		
140	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					8		
141	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					83.33%		
142														
143	Warning: There are only 8 Detected Values in this data													
144	Note: It should be noted that even though bootstrap may be performed on this data set													
145	the resulting calculations may not be reliable enough tp draw conclusions													
146														
147	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.													
148														
149														
150	UCL Statistics													
151	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only							
152	Shapiro Wilk Test Statistic					0.773	Shapiro Wilk Test Statistic					0.851		
153	5% Shapiro Wilk Critical Value					0.818	5% Shapiro Wilk Critical Value					0.818		
154	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level							
155														
156	Assuming Normal Distribution						Assuming Lognormal Distribution							
157	DL/2 Substitution Method						DL/2 Substitution Method							
158	Mean					0.0004223	Mean					-8.439		
159	SD					0.0008913	SD					0.839		

	A	B	C	D	E	F	G	H	I	J	K	L
160	95% DL/2 (t) UCL					0.0006382	95% H-Stat (DL/2) UCL					0.000318
161												
162	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
163	MLE yields a negative mean						Mean in Log Scale					-10.79
164							SD in Log Scale					2.578
165							Mean in Original Scale					0.0003215
166							SD in Original Scale					0.0009239
167							95% Percentile Bootstrap UCL					0.0005621
168							95% BCA Bootstrap UCL					0.0006537
169												
170	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
171	k star (bias corrected)					0.853	Data appear Lognormal at 5% Significance Level					
172	Theta Star					0.00206						
173	nu star					13.64						
174												
175	A-D Test Statistic					0.753	Nonparametric Statistics					
176	5% A-D Critical Value					0.732	Kaplan-Meier (KM) Method					
177	K-S Test Statistic					0.732	Mean					0.0005756
178	5% K-S Critical Value					0.3	SD					0.0008372
179	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0001292
180							95% KM (t) UCL					0.0007924
181	Assuming Gamma Distribution						95% KM (z) UCL					0.0007881
182	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.000748
183	Minimum					1E-09	95% KM (bootstrap t) UCL					0.0009436
184	Maximum					0.024	95% KM (BCA) UCL					0.00106
185	Mean					0.00945	95% KM (Percentile Bootstrap) UCL					0.0009402
186	Median					0.0082	95% KM (Chebyshev) UCL					0.00114
187	SD					0.00755	97.5% KM (Chebyshev) UCL					0.00138
188	k star					0.683	99% KM (Chebyshev) UCL					0.00186
189	Theta star					0.0138						
190	Nu star					65.56	Potential UCLs to Use					
191	AppChi2					47.93	95% KM (BCA) UCL					0.00106
192	95% Gamma Approximate UCL					0.0129						
193	95% Adjusted Gamma UCL					0.0131						
194	Note: DL/2 is not a recommended method.											
195												
196												
197	Endosulfan II											
198												
199	General Statistics											
200	Number of Valid Data					48	Number of Detected Data					3
201	Number of Distinct Detected Data					3	Number of Non-Detect Data					45
202							Percent Non-Detects					93.75%
203												
204	Raw Statistics						Log-transformed Statistics					
205	Minimum Detected					0.00033	Minimum Detected					-8.016
206	Maximum Detected					0.0004	Maximum Detected					-7.824
207	Mean of Detected					0.00037	Mean of Detected					-7.905
208	SD of Detected					3.606E-05	SD of Detected					0.0996
209	Minimum Non-Detect					0.00031	Minimum Non-Detect					-8.079
210	Maximum Non-Detect					0.00032	Maximum Non-Detect					-8.047
211												
212	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					45

	A	B	C	D	E	F	G	H	I	J	K	L
213	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					3
214	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					93.75%
215												
216	Warning: There are only 3 Distinct Detected Values in this data set											
217	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
218	Those methods will return a 'N/A' value on your output display!											
219												
220	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
221	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
222												
223												
224	UCL Statistics											
225	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
226	Shapiro Wilk Test Statistic				0.942	Shapiro Wilk Test Statistic					0.932	
227	5% Shapiro Wilk Critical Value				0.767	5% Shapiro Wilk Critical Value					0.767	
228	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
229												
230	Assuming Normal Distribution					Assuming Lognormal Distribution						
231	DL/2 Substitution Method					DL/2 Substitution Method						
232	Mean				0.0001696	Mean					-8.711	
233	SD				5.286E-05	SD					0.212	
234	95% DL/2 (t) UCL				0.0001824	95% H-Stat (DL/2) UCL					0.0001747	
235												
236	Maximum Likelihood Estimate(MLE) Method					Log ROS Method						
237	Mean				0.0003767	Mean in Log Scale					-8.628	
238	SD				2.944E-05	SD in Log Scale					0.355	
239	95% MLE (t) UCL				0.0003838	Mean in Original Scale					0.0001906	
240	95% MLE (Tiku) UCL				0.0004049	SD in Original Scale					7.036E-05	
241						95% Percentile Bootstrap UCL					0.0002082	
242						95% BCA Bootstrap UCL					0.0002085	
243												
244	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
245	k star (bias corrected)				N/A	Data appear Normal at 5% Significance Level						
246	Theta Star				N/A							
247	nu star				N/A							
248												
249	A-D Test Statistic				0.337	Nonparametric Statistics						
250	5% A-D Critical Value				N/A	Kaplan-Meier (KM) Method						
251	K-S Test Statistic				N/A	Mean					0.0003325	
252	5% K-S Critical Value				N/A	SD					1.216E-05	
253	Data not Gamma Distributed at 5% Significance Level					SE of Mean					2.15E-06	
254						95% KM (t) UCL					0.0003361	
255	Assuming Gamma Distribution					95% KM (z) UCL					0.000336	
256	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL					0.0003644	
257	Minimum				N/A	95% KM (bootstrap t) UCL					0.0003338	
258	Maximum				N/A	95% KM (BCA) UCL					0.0004	
259	Mean				N/A	95% KM (Percentile Bootstrap) UCL					0.0004	
260	Median				N/A	95% KM (Chebyshev) UCL					0.0003419	
261	SD				N/A	97.5% KM (Chebyshev) UCL					0.0003459	
262	k star				N/A	99% KM (Chebyshev) UCL					0.0003539	
263	Theta star				N/A							
264	Nu star				N/A	Potential UCLs to Use						
265	AppChi2				N/A	95% KM (t) UCL					0.0003361	

	A	B	C	D	E	F	G	H	I	J	K	L
266	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					0.0004
267	95% Adjusted Gamma UCL					N/A						
268	Note: DL/2 is not a recommended method.											
269												
270												
271	Endosulfan Sulfate											
272												
273	General Statistics											
274	Number of Valid Observations					48	Number of Distinct Observations					40
275												
276	Raw Statistics						Log-transformed Statistics					
277	Minimum					0.00044	Minimum of Log Data					-7.729
278	Maximum					0.012	Maximum of Log Data					-4.423
279	Mean					0.00381	Mean of log Data					-5.863
280	Median					0.00345	SD of log Data					0.828
281	SD					0.00281						
282	Coefficient of Variation					0.736						
283	Skewness					1.108						
284												
285	Relevant UCL Statistics											
286	Normal Distribution Test						Lognormal Distribution Test					
287	Shapiro Wilk Test Statistic					0.892	Shapiro Wilk Test Statistic					0.96
288	Shapiro Wilk Critical Value					0.947	Shapiro Wilk Critical Value					0.947
289	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
290												
291	Assuming Normal Distribution						Assuming Lognormal Distribution					
292	95% Student's-t UCL					0.00449	95% H-UCL					0.0052
293	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					0.0063
294	95% Adjusted-CLT UCL					0.00455	97.5% Chebyshev (MVUE) UCL					0.00731
295	95% Modified-t UCL					0.0045	99% Chebyshev (MVUE) UCL					0.00929
296												
297	Gamma Distribution Test						Data Distribution					
298	k star (bias corrected)					1.75	Data appear Gamma Distributed at 5% Significance Level					
299	Theta Star					0.00218						
300	nu star					168						
301	Approximate Chi Square Value (.05)					139	Nonparametric Statistics					
302	Adjusted Level of Significance					0.045	95% CLT UCL					0.00448
303	Adjusted Chi Square Value					138.2	95% Jackknife UCL					0.00449
304							95% Standard Bootstrap UCL					0.00447
305	Anderson-Darling Test Statistic					0.258	95% Bootstrap-t UCL					0.00462
306	Anderson-Darling 5% Critical Value					0.764	95% Hall's Bootstrap UCL					0.00456
307	Kolmogorov-Smirnov Test Statistic					0.0652	95% Percentile Bootstrap UCL					0.00448
308	Kolmogorov-Smirnov 5% Critical Value					0.13	95% BCA Bootstrap UCL					0.0045
309	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					0.00558
310							97.5% Chebyshev(Mean, Sd) UCL					0.00634
311	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					0.00785
312	95% Approximate Gamma UCL					0.00461						
313	95% Adjusted Gamma UCL					0.00464						
314												
315	Potential UCL to Use						Use 95% Approximate Gamma UCL					0.00461
316												
317												
318	Heptachlor											

	A	B	C	D	E	F	G	H	I	J	K	L
319												
320	General Statistics											
321	Number of Valid Data					48	Number of Detected Data					1
322	Number of Distinct Detected Data					1	Number of Non-Detect Data					47
323							Percent Non-Detects					97.92%
324												
325	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
326	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
327												
328	The data set for variable Heptachlor was not processed!											
329												
330												
331												
332	Hexachlorobenzene											
333												
334	General Statistics											
335	Number of Valid Data					48	Number of Detected Data					0
336	Number of Distinct Detected Data					0	Number of Non-Detect Data					48
337							Percent Non-Detects					100.00%
338												
339	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
340	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
341	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
342												
343	The data set for variable Hexachlorobenzene was not processed!											
344												
345												
346												
347	Isophorone											
348												
349	General Statistics											
350	Number of Valid Data					48	Number of Detected Data					11
351	Number of Distinct Detected Data					10	Number of Non-Detect Data					37
352							Percent Non-Detects					77.08%
353												
354	Raw Statistics					Log-transformed Statistics						
355	Minimum Detected					0.18	Minimum Detected					-1.715
356	Maximum Detected					0.71	Maximum Detected					-0.342
357	Mean of Detected					0.37	Mean of Detected					-1.072
358	SD of Detected					0.158	SD of Detected					0.409
359	Minimum Non-Detect					0.29	Minimum Non-Detect					-1.238
360	Maximum Non-Detect					0.31	Maximum Non-Detect					-1.171
361												
362	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					41
363	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					7
364	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					85.42%
365												
366	UCL Statistics											
367	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
368	Shapiro Wilk Test Statistic					0.909	Shapiro Wilk Test Statistic					0.975
369	5% Shapiro Wilk Critical Value					0.85	5% Shapiro Wilk Critical Value					0.85
370	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
371												

	A	B	C	D	E	F	G	H	I	J	K	L
372	Assuming Normal Distribution						Assuming Lognormal Distribution					
373	DL/2 Substitution Method						DL/2 Substitution Method					
374	Mean					0.199	Mean					-1.714
375	SD					0.119	SD					0.401
376	95% DL/2 (t) UCL					0.228	95% H-Stat (DL/2) UCL					0.208
377												
378	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
379	Mean					0.498	Mean in Log Scale					-1.419
380	SD					0.131	SD in Log Scale					0.366
381	95% MLE (t) UCL					0.529	Mean in Original Scale					0.259
382	95% MLE (Tiku) UCL					0.578	SD in Original Scale					0.109
383							95% Percentile Bootstrap UCL					0.287
384							95% BCA Bootstrap UCL					0.291
385												
386	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
387	k star (bias corrected)					4.878	Data appear Normal at 5% Significance Level					
388	Theta Star					0.0758						
389	nu star					107.3						
390												
391	A-D Test Statistic					0.248	Nonparametric Statistics					
392	5% A-D Critical Value					0.731	Kaplan-Meier (KM) Method					
393	K-S Test Statistic					0.731	Mean					0.26
394	5% K-S Critical Value					0.256	SD					0.0978
395	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0199
396							95% KM (t) UCL					0.293
397	Assuming Gamma Distribution						95% KM (z) UCL					0.293
398	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.297
399	Minimum					0.18	95% KM (bootstrap t) UCL					0.304
400	Maximum					0.71	95% KM (BCA) UCL					0.299
401	Mean					0.38	95% KM (Percentile Bootstrap) UCL					0.298
402	Median					0.389	95% KM (Chebyshev) UCL					0.347
403	SD					0.0885	97.5% KM (Chebyshev) UCL					0.384
404	k star					17.52	99% KM (Chebyshev) UCL					0.458
405	Theta star					0.0217						
406	Nu star					1682	Potential UCLs to Use					
407	AppChi2					1588	95% KM (t) UCL					0.293
408	95% Gamma Approximate UCL					0.402	95% KM (Percentile Bootstrap) UCL					0.298
409	95% Adjusted Gamma UCL					0.403						
410	Note: DL/2 is not a recommended method.											
411												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\IP-6 FI.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	4-Chloro-3-methylphenol											
10												
11	General Statistics											
12	Number of Valid Data			8	Number of Detected Data			0				
13	Number of Distinct Detected Data			0	Number of Non-Detect Data			8				
14					Percent Non-Detects			100.00%				
15												
16	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
17	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
18	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
19												
20	The data set for variable 4-Chloro-3-methylphenol was not processed!											
21												
22												
23												
24	4-Nitrophenol											
25												
26	General Statistics											
27	Number of Valid Data			8	Number of Detected Data			0				
28	Number of Distinct Detected Data			0	Number of Non-Detect Data			8				
29					Percent Non-Detects			100.00%				
30												
31	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
32	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
33	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
34												
35	The data set for variable 4-Nitrophenol was not processed!											
36												
37												
38												
39	Aldrin											
40												
41	General Statistics											
42	Number of Valid Data			8	Number of Detected Data			0				
43	Number of Distinct Detected Data			0	Number of Non-Detect Data			8				
44					Percent Non-Detects			100.00%				
45												
46	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
47	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
48	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
49												
50	The data set for variable Aldrin was not processed!											
51												
52												
53												

	A	B	C	D	E	F	G	H	I	J	K	L
54	Benzaldehyde											
55												
56	General Statistics											
57	Number of Valid Data					8	Number of Detected Data					4
58	Number of Distinct Detected Data					4	Number of Non-Detect Data					4
59							Percent Non-Detects					50.00%
60												
61	Raw Statistics					Log-transformed Statistics						
62	Minimum Detected					0.11	Minimum Detected					-2.207
63	Maximum Detected					0.2	Maximum Detected					-1.609
64	Mean of Detected					0.145	Mean of Detected					-1.956
65	SD of Detected					0.0387	SD of Detected					0.252
66	Minimum Non-Detect					0.15	Minimum Non-Detect					-1.897
67	Maximum Non-Detect					0.15	Maximum Non-Detect					-1.897
68												
69												
70	Warning: There are only 4 Distinct Detected Values in this data											
71	Note: It should be noted that even though bootstrap may be performed on this data set											
72	the resulting calculations may not be reliable enough tp draw conclusions											
73												
74	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
75												
76												
77	UCL Statistics											
78	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
79	Shapiro Wilk Test Statistic					0.897	Shapiro Wilk Test Statistic					0.941
80	5% Shapiro Wilk Critical Value					0.748	5% Shapiro Wilk Critical Value					0.748
81	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
82												
83	Assuming Normal Distribution					Assuming Lognormal Distribution						
84	DL/2 Substitution Method						DL/2 Substitution Method					
85	Mean					0.11	Mean					-2.273
86	SD					0.0452	SD					0.377
87	95% DL/2 (t) UCL					0.14	95% H-Stat (DL/2) UCL					0.172
88												
89	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
90	MLE method failed to converge properly						Mean in Log Scale					-2.011
91							SD in Log Scale					0.204
92							Mean in Original Scale					0.136
93							SD in Original Scale					0.03
94							95% Percentile Bootstrap UCL					0.155
95							95% BCA Bootstrap UCL					0.158
96												
97	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
98	k star (bias corrected)					5.261	Data appear Normal at 5% Significance Level					
99	Theta Star					0.0276						
100	nu star					42.08						
101												
102	A-D Test Statistic					0.332	Nonparametric Statistics					
103	5% A-D Critical Value					0.657	Kaplan-Meier (KM) Method					
104	K-S Test Statistic					0.657	Mean					0.136
105	5% K-S Critical Value					0.394	SD					0.0269
106	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0123

	A	B	C	D	E	F	G	H	I	J	K	L
107							95% KM (t) UCL					0.159
108	Assuming Gamma Distribution						95% KM (z) UCL					0.156
109	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.16
110	Minimum					0.11	95% KM (bootstrap t) UCL					0.166
111	Maximum					0.2	95% KM (BCA) UCL					0.155
112	Mean					0.143	95% KM (Percentile Bootstrap) UCL					0.155
113	Median					0.137	95% KM (Chebyshev) UCL					0.189
114	SD					0.027	97.5% KM (Chebyshev) UCL					0.213
115	k star					22.09	99% KM (Chebyshev) UCL					0.258
116	Theta star					0.00647						
117	Nu star					353.5	Potential UCLs to Use					
118	AppChi2					310.9	95% KM (t) UCL					0.159
119	95% Gamma Approximate UCL					0.163	95% KM (Percentile Bootstrap) UCL					0.155
120	95% Adjusted Gamma UCL					N/A						
121	Note: DL/2 is not a recommended method.											
122												
123												
124	Endosulfan I											
125												
126	General Statistics											
127	Number of Valid Data					8	Number of Detected Data					0
128	Number of Distinct Detected Data					0	Number of Non-Detect Data					8
129							Percent Non-Detects					100.00%
130												
131	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
132	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
133	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
134												
135	The data set for variable Endosulfan I was not processed!											
136												
137												
138												
139	Endosulfan II											
140												
141	General Statistics											
142	Number of Valid Data					8	Number of Detected Data					0
143	Number of Distinct Detected Data					0	Number of Non-Detect Data					8
144							Percent Non-Detects					100.00%
145												
146	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
147	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
148	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
149												
150	The data set for variable Endosulfan II was not processed!											
151												
152												
153												
154	Endosulfan Sulfate											
155												
156	General Statistics											
157	Number of Valid Data					8	Number of Detected Data					3
158	Number of Distinct Detected Data					3	Number of Non-Detect Data					5
159							Percent Non-Detects					62.50%

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161	Raw Statistics						Log-transformed Statistics					
162	Minimum Detected				0.00045		Minimum Detected				-7.706	
163	Maximum Detected				0.0011		Maximum Detected				-6.812	
164	Mean of Detected				0.00081		Mean of Detected				-7.185	
165	SD of Detected				0.0003306		SD of Detected				0.465	
166	Minimum Non-Detect				0.00031		Minimum Non-Detect				-8.079	
167	Maximum Non-Detect				0.00032		Maximum Non-Detect				-8.047	
168												
169	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				5	
170	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				3	
171	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				62.50%	
172												
173	Warning: There are only 3 Distinct Detected Values in this data set											
174	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
175	Those methods will return a 'N/A' value on your output display!											
176												
177	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
178	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
179												
180												
181	UCL Statistics											
182	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
183	Shapiro Wilk Test Statistic				0.966		Shapiro Wilk Test Statistic				0.923	
184	5% Shapiro Wilk Critical Value				0.767		5% Shapiro Wilk Critical Value				0.767	
185	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
186												
187	Assuming Normal Distribution						Assuming Lognormal Distribution					
188	DL/2 Substitution Method						DL/2 Substitution Method					
189	Mean				0.0004019		Mean				-8.169	
190	SD				0.0003814		SD				0.852	
191	95% DL/2 (t) UCL				0.0006573		95% H-Stat (DL/2) UCL				0.0007362	
192												
193	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
194	Mean				0.0001462		Mean in Log Scale				-8.239	
195	SD				0.000631		SD in Log Scale				0.972	
196	95% MLE (t) UCL				0.0005689		Mean in Original Scale				0.0003988	
197	95% MLE (Tiku) UCL				0.0007644		SD in Original Scale				0.0003869	
198							95% Percentile Bootstrap UCL				0.0006024	
199							95% BCA Bootstrap UCL				0.0006731	
200												
201	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
202	k star (bias corrected)				N/A		Data appear Normal at 5% Significance Level					
203	Theta Star				N/A							
204	nu star				N/A							
205												
206	A-D Test Statistic				0.334		Nonparametric Statistics					
207	5% A-D Critical Value				N/A		Kaplan-Meier (KM) Method					
208	K-S Test Statistic				N/A		Mean				0.000585	
209	5% K-S Critical Value				N/A		SD				0.0002402	
210	Data not Gamma Distributed at 5% Significance Level						SE of Mean				0.000104	
211							95% KM (t) UCL				0.0007821	
212	Assuming Gamma Distribution						95% KM (z) UCL				0.0007561	

	A	B	C	D	E	F	G	H	I	J	K	L	
213	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL						0.0008873	
214	Minimum					N/A	95% KM (bootstrap t) UCL						0.0006508
215	Maximum					N/A	95% KM (BCA) UCL						0.0011
216	Mean					N/A	95% KM (Percentile Bootstrap) UCL						0.0011
217	Median					N/A	95% KM (Chebyshev) UCL						0.00104
218	SD					N/A	97.5% KM (Chebyshev) UCL						0.00123
219	k star					N/A	99% KM (Chebyshev) UCL						0.00162
220	Theta star					N/A							
221	Nu star					N/A	Potential UCLs to Use						
222	AppChi2					N/A	95% KM (t) UCL						0.0007821
223	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL						0.0011
224	95% Adjusted Gamma UCL					N/A							
225	Note: DL/2 is not a recommended method.												
226													
227													
228	Heptachlor												
229													
230	General Statistics												
231	Number of Valid Data					8	Number of Detected Data					0	
232	Number of Distinct Detected Data					0	Number of Non-Detect Data					8	
233							Percent Non-Detects					100.00%	
234													
235	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!												
236	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!												
237	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).												
238													
239	The data set for variable Heptachlor was not processed!												
240													
241													
242													
243	Hexachlorobenzene												
244													
245	General Statistics												
246	Number of Valid Data					8	Number of Detected Data					2	
247	Number of Distinct Detected Data					2	Number of Non-Detect Data					6	
248							Percent Non-Detects					75.00%	
249													
250	Raw Statistics					Log-transformed Statistics							
251	Minimum Detected					0.0054	Minimum Detected					-5.221	
252	Maximum Detected					0.0074	Maximum Detected					-4.906	
253	Mean of Detected					0.0064	Mean of Detected					-5.064	
254	SD of Detected					0.00141	SD of Detected					0.223	
255	Minimum Non-Detect					0.0037	Minimum Non-Detect					-5.599	
256	Maximum Non-Detect					0.0038	Maximum Non-Detect					-5.573	
257													
258	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					6	
259	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					2	
260	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					75.00%	
261													
262	Warning: Data set has only 2 Distinct Detected Values.												
263	This may not be adequate enough to compute meaningful and reliable test statistics and estimates.												
264	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).												
265													

A	B	C	D	E	F	G	H	I	J	K	L
266	Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.										
267											
268	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.										
269	Those methods will return a 'N/A' value on your output display!										
270											
271	It is necessary to have 4 or more Distinct Values for bootstrap methods.										
272	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.										
273											
274											
275	UCL Statistics										
276	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only					
277	Shapiro Wilk Test Statistic				1	Shapiro Wilk Test Statistic				1	
278	5% Shapiro Wilk Critical Value				N/A	5% Shapiro Wilk Critical Value				N/A	
279	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level					
280											
281	Assuming Normal Distribution					Assuming Lognormal Distribution					
282	DL/2 Substitution Method					DL/2 Substitution Method					
283	Mean				0.00301	Mean				-5.972	
284	SD				0.00216	SD				0.567	
285	95% DL/2 (t) UCL				0.00446	95% H-Stat (DL/2) UCL				0.00406	
286											
287	Maximum Likelihood Estimate(MLE) Method				N/A	Log ROS Method					
288	MLE method failed to converge properly					Mean in Log Scale				N/A	
289						SD in Log Scale				N/A	
290						Mean in Original Scale				N/A	
291						SD in Original Scale				N/A	
292						95% Percentile Bootstrap UCL				N/A	
293						95% BCA Bootstrap UCL				N/A	
294											
295	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only					
296	k star (bias corrected)				N/A	Data do not follow a Discernable Distribution (0.05)					
297	Theta Star				N/A						
298	nu star				N/A						
299											
300	A-D Test Statistic				0.359	Nonparametric Statistics					
301	5% A-D Critical Value				N/A	Kaplan-Meier (KM) Method					
302	K-S Test Statistic				N/A	Mean				0.00565	
303	5% K-S Critical Value				N/A	SD				0.0006614	
304	Data not Gamma Distributed at 5% Significance Level					SE of Mean				0.0003307	
305						95% KM (t) UCL				0.00628	
306	Assuming Gamma Distribution					95% KM (z) UCL				0.00619	
307	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL				0.0071	
308	Minimum				N/A	95% KM (bootstrap t) UCL				1.8E+308	
309	Maximum				N/A	95% KM (BCA) UCL				0.0074	
310	Mean				N/A	95% KM (Percentile Bootstrap) UCL				0.0074	
311	Median				N/A	95% KM (Chebyshev) UCL				0.00709	
312	SD				N/A	97.5% KM (Chebyshev) UCL				0.00772	
313	k star				N/A	99% KM (Chebyshev) UCL				0.00894	
314	Theta star				N/A						
315	Nu star				N/A	Potential UCLs to Use					
316	AppChi2				N/A	95% KM (t) UCL				0.00628	
317	95% Gamma Approximate UCL				N/A	95% KM (% Bootstrap) UCL				0.0074	
318	95% Adjusted Gamma UCL				N/A						

	A	B	C	D	E	F	G	H	I	J	K	L
319	Note: DL/2 is not a recommended method.											
320												
321												
322	Isophorone											
323												
324	General Statistics											
325	Number of Valid Data				8		Number of Detected Data				0	
326	Number of Distinct Detected Data				0		Number of Non-Detect Data				8	
327							Percent Non-Detects				100.00%	
328												
329	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
330	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
331	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
332												
333	The data set for variable Isophorone was not processed!											
334												
335												

	A	B	C	D	E	F	G	H	I	J	K	L		
1				General UCL Statistics for Data Sets with Non-Detects										
2	User Selected Options													
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Quinnville SS.wst										
4	Full Precision			OFF										
5	Confidence Coefficient			95%										
6	Number of Bootstrap Operations			2000										
7														
8														
9	Benzo(k)fluoranthene													
10														
11	General Statistics													
12	Number of Valid Observations				19		Number of Distinct Observations				18			
13														
14	Raw Statistics						Log-transformed Statistics							
15					Minimum	0.01		Minimum of Log Data				-4.605		
16					Maximum	1.4		Maximum of Log Data				0.336		
17					Mean	0.498		Mean of log Data				-1.243		
18					Median	0.455		SD of log Data				1.327		
19					SD	0.419								
20					Coefficient of Variation	0.842								
21					Skewness	0.808								
22														
23	Relevant UCL Statistics													
24	Normal Distribution Test						Lognormal Distribution Test							
25					Shapiro Wilk Test Statistic		0.91		Shapiro Wilk Test Statistic				0.898	
26					Shapiro Wilk Critical Value		0.901		Shapiro Wilk Critical Value				0.901	
27	Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level							
28														
29	Assuming Normal Distribution						Assuming Lognormal Distribution							
30					95% Student's-t UCL		0.665		95% H-UCL				1.836	
31	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL		1.638	
32					95% Adjusted-CLT UCL		0.675		97.5% Chebyshev (MVUE) UCL				2.068	
33					95% Modified-t UCL		0.668		99% Chebyshev (MVUE) UCL				2.913	
34														
35	Gamma Distribution Test						Data Distribution							
36					k star (bias corrected)		0.92		Data appear Normal at 5% Significance Level					
37					Theta Star		0.541							
38					nu star		34.97							
39					Approximate Chi Square Value (.05)		22.44		Nonparametric Statistics					
40					Adjusted Level of Significance		0.0369		95% CLT UCL				0.656	
41					Adjusted Chi Square Value		21.57		95% Jackknife UCL				0.665	
42									95% Standard Bootstrap UCL				0.65	
43					Anderson-Darling Test Statistic		0.272		95% Bootstrap-t UCL				0.697	
44					Anderson-Darling 5% Critical Value		0.768		95% Hall's Bootstrap UCL				0.677	
45					Kolmogorov-Smirnov Test Statistic		0.121		95% Percentile Bootstrap UCL				0.664	
46					Kolmogorov-Smirnov 5% Critical Value		0.204		95% BCA Bootstrap UCL				0.682	
47	Data appear Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL		0.917	
48									97.5% Chebyshev(Mean, Sd) UCL				1.099	
49	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL		1.455	
50					95% Approximate Gamma UCL		0.776							
51					95% Adjusted Gamma UCL		0.808							
52														
53	Potential UCL to Use										Use 95% Student's-t UCL		0.665	

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56	Carbazole											
57												
58	General Statistics											
59	Number of Valid Data					19	Number of Detected Data					10
60	Number of Distinct Detected Data					8	Number of Non-Detect Data					9
61							Percent Non-Detects					47.37%
62												
63	Raw Statistics					Log-transformed Statistics						
64	Minimum Detected					0.052	Minimum Detected					-2.957
65	Maximum Detected					0.21	Maximum Detected					-1.561
66	Mean of Detected					0.136	Mean of Detected					-2.102
67	SD of Detected					0.0585	SD of Detected					0.511
68	Minimum Non-Detect					0.16	Minimum Non-Detect					-1.833
69	Maximum Non-Detect					0.41	Maximum Non-Detect					-0.892
70												
71	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				19	
72	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				0	
73	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				100.00%	
74												
75	UCL Statistics											
76	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
77	Shapiro Wilk Test Statistic					0.904	Shapiro Wilk Test Statistic					0.873
78	5% Shapiro Wilk Critical Value					0.842	5% Shapiro Wilk Critical Value					0.842
79	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
80												
81	Assuming Normal Distribution					Assuming Lognormal Distribution						
82	DL/2 Substitution Method						DL/2 Substitution Method					
83	Mean					0.131	Mean					-2.13
84	SD					0.0567	SD					0.461
85	95% DL/2 (t) UCL					0.153	95% H-Stat (DL/2) UCL					0.211
86												
87	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
88	MLE method failed to converge properly						Mean in Log Scale					-2.229
89							SD in Log Scale					0.407
90							Mean in Original Scale					0.116
91							SD in Original Scale					0.0479
92							95% Percentile Bootstrap UCL					0.134
93							95% BCA Bootstrap UCL					0.136
94												
95	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
96	k star (bias corrected)					3.523	Data appear Normal at 5% Significance Level					
97	Theta Star					0.0385						
98	nu star					70.46						
99												
100	A-D Test Statistic					0.561	Nonparametric Statistics					
101	5% A-D Critical Value					0.729	Kaplan-Meier (KM) Method					
102	K-S Test Statistic					0.729	Mean					0.12
103	5% K-S Critical Value					0.267	SD					0.0536
104	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.016
105							95% KM (t) UCL					0.147
106	Assuming Gamma Distribution						95% KM (z) UCL					0.146

	A	B	C	D	E	F	G	H	I	J	K	L
107	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.148
108	Minimum					0.052	95% KM (bootstrap t) UCL					0.148
109	Maximum					0.21	95% KM (BCA) UCL					0.146
110	Mean					0.14	95% KM (Percentile Bootstrap) UCL					0.145
111	Median					0.152	95% KM (Chebyshev) UCL					0.189
112	SD					0.0444	97.5% KM (Chebyshev) UCL					0.22
113	k star					7.052	99% KM (Chebyshev) UCL					0.279
114	Theta star					0.0199						
115	Nu star					268	Potential UCLs to Use					
116	AppChi2					231.1	95% KM (t) UCL					0.147
117	95% Gamma Approximate UCL					0.163	95% KM (Percentile Bootstrap) UCL					0.145
118	95% Adjusted Gamma UCL					0.165						
119	Note: DL/2 is not a recommended method.											
120												
121												
122	Dibenzofuran											
123												
124	General Statistics											
125	Number of Valid Data					19	Number of Detected Data					4
126	Number of Distinct Detected Data					4	Number of Non-Detect Data					15
127							Percent Non-Detects					78.95%
128												
129	Raw Statistics						Log-transformed Statistics					
130	Minimum Detected					0.065	Minimum Detected					-2.733
131	Maximum Detected					0.17	Maximum Detected					-1.772
132	Mean of Detected					0.116	Mean of Detected					-2.257
133	SD of Detected					0.057	SD of Detected					0.525
134	Minimum Non-Detect					0.16	Minimum Non-Detect					-1.833
135	Maximum Non-Detect					0.47	Maximum Non-Detect					-0.755
136												
137	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					19
138	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0
139	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
140												
141	Warning: There are only 4 Distinct Detected Values in this data											
142	Note: It should be noted that even though bootstrap may be performed on this data set											
143	the resulting calculations may not be reliable enough tp draw conclusions											
144												
145	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
146												
147												
148	UCL Statistics											
149	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
150	Shapiro Wilk Test Statistic					0.786	Shapiro Wilk Test Statistic					0.781
151	5% Shapiro Wilk Critical Value					0.748	5% Shapiro Wilk Critical Value					0.748
152	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
153												
154	Assuming Normal Distribution						Assuming Lognormal Distribution					
155	DL/2 Substitution Method						DL/2 Substitution Method					
156	Mean					0.138	Mean					-2.064
157	SD					0.0567	SD					0.435
158	95% DL/2 (t) UCL					0.161	95% H-Stat (DL/2) UCL					0.226
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
161	MLE method failed to converge properly						Mean in Log Scale					-2.436
162							SD in Log Scale					0.285
163							Mean in Original Scale					0.0913
164							SD in Original Scale					0.0299
165							95% Percentile Bootstrap UCL					0.103
166							95% BCA Bootstrap UCL					0.105
167												
168	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
169	k star (bias corrected)					1.454	Data appear Normal at 5% Significance Level					
170	Theta Star					0.0796						
171	nu star					11.63						
172												
173	A-D Test Statistic					0.614	Nonparametric Statistics					
174	5% A-D Critical Value					0.659	Kaplan-Meier (KM) Method					
175	K-S Test Statistic					0.659	Mean					0.0958
176	5% K-S Critical Value					0.396	SD					0.0449
177	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0204
178							95% KM (t) UCL					0.131
179	Assuming Gamma Distribution						95% KM (z) UCL					0.129
180	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.132
181	Minimum					0.065	95% KM (bootstrap t) UCL					0.137
182	Maximum					0.17	95% KM (BCA) UCL					0.17
183	Mean					0.118	95% KM (Percentile Bootstrap) UCL					0.163
184	Median					0.12	95% KM (Chebyshev) UCL					0.185
185	SD					0.0235	97.5% KM (Chebyshev) UCL					0.223
186	k star					19.75	99% KM (Chebyshev) UCL					0.299
187	Theta star					0.00599						
188	Nu star					750.5	Potential UCLs to Use					
189	AppChi2					687.9	95% KM (t) UCL					0.131
190	95% Gamma Approximate UCL					0.129	95% KM (Percentile Bootstrap) UCL					0.163
191	95% Adjusted Gamma UCL					N/A						
192	Note: DL/2 is not a recommended method.											
193												
194												
195	Cobalt											
196												
197	General Statistics											
198	Number of Valid Data					19	Number of Detected Data					15
199	Number of Distinct Detected Data					11	Number of Non-Detect Data					4
200							Percent Non-Detects					21.05%
201												
202	Raw Statistics						Log-transformed Statistics					
203	Minimum Detected					2.3	Minimum Detected					0.833
204	Maximum Detected					6.3	Maximum Detected					1.841
205	Mean of Detected					3.747	Mean of Detected					1.287
206	SD of Detected					1.037	SD of Detected					0.267
207	Minimum Non-Detect					8.4	Minimum Non-Detect					2.128
208	Maximum Non-Detect					14	Maximum Non-Detect					2.639
209												
210	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					19
211	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0
212	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	UCL Statistics											
215	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
216	Shapiro Wilk Test Statistic					0.938	Shapiro Wilk Test Statistic					0.98
217	5% Shapiro Wilk Critical Value					0.881	5% Shapiro Wilk Critical Value					0.881
218	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
219												
220	Assuming Normal Distribution						Assuming Lognormal Distribution					
221	DL/2 Substitution Method						DL/2 Substitution Method					
222	Mean					4.121	Mean					1.372
223	SD					1.282	SD					0.304
224	95% DL/2 (t) UCL					4.631	95% H-Stat (DL/2) UCL					4.714
225												
226	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
227	MLE method failed to converge properly						Mean in Log Scale					1.287
228							SD in Log Scale					0.235
229							Mean in Original Scale					3.72
230							SD in Original Scale					0.916
231							95% Percentile Bootstrap UCL					4.069
232							95% BCA Bootstrap UCL					4.133
233												
234	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
235	k star (bias corrected)					12.02	Data appear Normal at 5% Significance Level					
236	Theta Star					0.312						
237	nu star					360.6						
238												
239	A-D Test Statistic					0.221	Nonparametric Statistics					
240	5% A-D Critical Value					0.736	Kaplan-Meier (KM) Method					
241	K-S Test Statistic					0.736	Mean					3.747
242	5% K-S Critical Value					0.221	SD					1.002
243	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.268
244							95% KM (t) UCL					4.211
245	Assuming Gamma Distribution						95% KM (z) UCL					4.187
246	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4.214
247	Minimum					2.3	95% KM (bootstrap t) UCL					4.317
248	Maximum					6.3	95% KM (BCA) UCL					4.207
249	Mean					3.789	95% KM (Percentile Bootstrap) UCL					4.178
250	Median					3.945	95% KM (Chebyshev) UCL					4.914
251	SD					0.918	97.5% KM (Chebyshev) UCL					5.419
252	k star					15.83	99% KM (Chebyshev) UCL					6.411
253	Theta star					0.239						
254	Nu star					601.6	Potential UCLs to Use					
255	AppChi2					545.7	95% KM (t) UCL					4.211
256	95% Gamma Approximate UCL					4.177	95% KM (Percentile Bootstrap) UCL					4.178
257	95% Adjusted Gamma UCL					4.212						
258	Note: DL/2 is not a recommended method.											
259												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Shallow GW.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	1,2,4-Trichlorobenzene											
10												
11	General Statistics											
12	Number of Valid Data				51		Number of Detected Data				1	
13	Number of Distinct Detected Data				1		Number of Non-Detect Data				50	
14							Percent Non-Detects				98.04%	
15												
16	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
17	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
18												
19	The data set for variable 1,2,4-Trichlorobenzene was not processed!											
20												
21												
22												
23	1,2-Dichlorobenzene											
24												
25	General Statistics											
26	Number of Valid Data				51		Number of Detected Data				18	
27	Number of Distinct Detected Data				17		Number of Non-Detect Data				33	
28							Percent Non-Detects				64.71%	
29												
30	Raw Statistics					Log-transformed Statistics						
31	Minimum Detected				0.2		Minimum Detected				-1.609	
32	Maximum Detected				4.4		Maximum Detected				1.482	
33	Mean of Detected				1.039		Mean of Detected				-0.33	
34	SD of Detected				1.058		SD of Detected				0.842	
35	Minimum Non-Detect				0.5		Minimum Non-Detect				-0.693	
36	Maximum Non-Detect				0.5		Maximum Non-Detect				-0.693	
37												
38												
39	UCL Statistics											
40	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
41	Lilliefors Test Statistic				0.715		Lilliefors Test Statistic				0.928	
42	5% Lilliefors Critical Value				0.897		5% Lilliefors Critical Value				0.897	
43	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
44												
45	Assuming Normal Distribution					Assuming Lognormal Distribution						
46	DL/2 Substitution Method						DL/2 Substitution Method					
47	Mean				0.529		Mean				-1.013	
48	SD				0.725		SD				0.708	
49	95% DL/2 (t) UCL				0.699		95% H-Stat (DL/2) UCL				0.504	
50												
51	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
52	MLE yields a negative mean					Mean in Log Scale				-0.933		
53							SD in Log Scale				0.812	

	A	B	C	D	E	F	G	H	I	J	K	L	
54						Mean in Original Scale							0.579
55						SD in Original Scale							0.718
56						95% Percentile Bootstrap UCL							0.765
57						95% BCA Bootstrap UCL							0.817
58													
59	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only							
60	k star (bias corrected)					1.289	Data appear Lognormal at 5% Significance Level						
61	Theta Star					0.806							
62	nu star					46.4							
63													
64	A-D Test Statistic					1.004	Nonparametric Statistics						
65	5% A-D Critical Value					0.756	Kaplan-Meier (KM) Method						
66	K-S Test Statistic					0.756	Mean						0.583
67	5% K-S Critical Value					0.207	SD						0.701
68	Data not Gamma Distributed at 5% Significance Level					SE of Mean						0.104	
69							95% KM (t) UCL						0.757
70	Assuming Gamma Distribution					95% KM (z) UCL						0.754	
71	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL						0.756	
72	Minimum					0.2	95% KM (bootstrap t) UCL						0.85
73	Maximum					4.4	95% KM (BCA) UCL						0.778
74	Mean					1.055	95% KM (Percentile Bootstrap) UCL						0.761
75	Median					1.052	95% KM (Chebyshev) UCL						1.036
76	SD					0.617	97.5% KM (Chebyshev) UCL						1.233
77	k star					3.772	99% KM (Chebyshev) UCL						1.619
78	Theta star					0.28							
79	Nu star					384.7	Potential UCLs to Use						
80	AppChi2					340.3	95% KM (t) UCL						0.757
81	95% Gamma Approximate UCL					1.193	95% KM (% Bootstrap) UCL						0.761
82	95% Adjusted Gamma UCL					1.197							
83	Note: DL/2 is not a recommended method.												
84													
85													
86	1,3-Dichlorobenzene												
87													
88	General Statistics												
89	Number of Valid Data					51	Number of Detected Data					1	
90	Number of Distinct Detected Data					1	Number of Non-Detect Data					50	
91							Percent Non-Detects					98.04%	
92													
93	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!												
94	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).												
95													
96	The data set for variable 1,3-Dichlorobenzene was not processed!												
97													
98													
99													
100	2,4-Dimethylphenol												
101													
102	General Statistics												
103	Number of Valid Data					42	Number of Detected Data					2	
104	Number of Distinct Detected Data					2	Number of Non-Detect Data					40	
105							Percent Non-Detects					95.24%	
106													

	A	B	C	D	E	F	G	H	I	J	K	L	
107	Raw Statistics						Log-transformed Statistics						
108	Minimum Detected					0.26	Minimum Detected					-1.347	
109	Maximum Detected					8	Maximum Detected					2.079	
110	Mean of Detected					4.13	Mean of Detected					0.366	
111	SD of Detected					5.473	SD of Detected					2.423	
112	Minimum Non-Detect					0.5	Minimum Non-Detect					-0.693	
113	Maximum Non-Detect					5	Maximum Non-Detect					1.609	
114													
115	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					41	
116	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1	
117	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					97.62%	
118													
119	Warning: Data set has only 2 Distinct Detected Values.												
120	This may not be adequate enough to compute meaningful and reliable test statistics and estimates.												
121	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).												
122													
123	Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.												
124													
125	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.												
126	Those methods will return a 'N/A' value on your output display!												
127													
128	It is necessary to have 4 or more Distinct Values for bootstrap methods.												
129	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.												
130													
131													
132	UCL Statistics												
133	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
134	Shapiro Wilk Test Statistic					1	Shapiro Wilk Test Statistic					1	
135	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A	
136	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
137													
138	Assuming Normal Distribution					Assuming Lognormal Distribution							
139	DL/2 Substitution Method						DL/2 Substitution Method						
140	Mean					2.31	Mean					0.619	
141	SD					1.199	SD					0.837	
142	95% DL/2 (t) UCL					2.622	95% H-Stat (DL/2) UCL					3.256	
143													
144	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
145	MLE method failed to converge properly						Mean in Log Scale					N/A	
146							SD in Log Scale					N/A	
147							Mean in Original Scale					N/A	
148							SD in Original Scale					N/A	
149							95% Percentile Bootstrap UCL					N/A	
150							95% BCA Bootstrap UCL					N/A	
151													
152	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only							
153	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)						
154	Theta Star					N/A							
155	nu star					N/A							
156													
157	A-D Test Statistic					0.355	Nonparametric Statistics						
158	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method						
159	K-S Test Statistic					N/A	Mean					0.444	

	A	B	C	D	E	F	G	H	I	J	K	L
160	5% K-S Critical Value					N/A	SD					1.18
161	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.257
162							95% KM (t) UCL					0.878
163	Assuming Gamma Distribution						95% KM (z) UCL					0.868
164	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					5.49
165	Minimum				N/A		95% KM (bootstrap t) UCL					1.8E+308
166	Maximum				N/A		95% KM (BCA) UCL					8
167	Mean				N/A		95% KM (Percentile Bootstrap) UCL					8
168	Median				N/A		95% KM (Chebyshev) UCL					1.567
169	SD				N/A		97.5% KM (Chebyshev) UCL					2.052
170	k star				N/A		99% KM (Chebyshev) UCL					3.006
171	Theta star				N/A							
172	Nu star				N/A		Potential UCLs to Use					
173	AppChi2				N/A		99% KM (Chebyshev) UCL					3.006
174	95% Gamma Approximate UCL				N/A							
175	95% Adjusted Gamma UCL				N/A							
176	Note: DL/2 is not a recommended method.											
177												
178												
179	2-Butanone											
180												
181	General Statistics											
182	Number of Valid Data				51		Number of Detected Data				1	
183	Number of Distinct Detected Data				1		Number of Non-Detect Data				50	
184							Percent Non-Detects				98.04%	
185												
186	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
187	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
188												
189	The data set for variable 2-Butanone was not processed!											
190												
191												
192												
193	2-Chlorophenol											
194												
195	General Statistics											
196	Number of Valid Data				51		Number of Detected Data				1	
197	Number of Distinct Detected Data				1		Number of Non-Detect Data				50	
198							Percent Non-Detects				98.04%	
199												
200	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
201	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
202												
203	The data set for variable 2-Chlorophenol was not processed!											
204												
205												
206												
207	4,4'-DDD											
208												
209	General Statistics											
210	Number of Valid Data				48		Number of Detected Data				1	
211	Number of Distinct Detected Data				1		Number of Non-Detect Data				47	
212							Percent Non-Detects				97.92%	

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
215	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
216												
217	The data set for variable 4,4'-DDD was not processed!											
218												
219												
220												
221	4,4'-DDE											
222												
223	General Statistics											
224	Number of Valid Data					51	Number of Detected Data					2
225	Number of Distinct Detected Data					2	Number of Non-Detect Data					49
226							Percent Non-Detects					96.08%
227												
228	Raw Statistics					Log-transformed Statistics						
229	Minimum Detected					0.0038	Minimum Detected					-5.573
230	Maximum Detected					0.0056	Maximum Detected					-5.185
231	Mean of Detected					0.0047	Mean of Detected					-5.379
232	SD of Detected					0.00127	SD of Detected					0.274
233	Minimum Non-Detect					0.005	Minimum Non-Detect					-5.298
234	Maximum Non-Detect					0.01	Maximum Non-Detect					-4.605
235												
236	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				51	
237	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				0	
238	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				100.00%	
239												
240	Warning: Data set has only 2 Distinct Detected Values.											
241	This may not be adequate enough to compute meaningful and reliable test statistics and estimates.											
242	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
243												
244	Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.											
245												
246	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
247	Those methods will return a 'N/A' value on your output display!											
248												
249	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
250	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
251												
252												
253	UCL Statistics											
254	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
255	Lilliefors Test Statistic					1	Lilliefors Test Statistic					1
256	5% Lilliefors Critical Value					N/A	5% Lilliefors Critical Value					N/A
257	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
258												
259	Assuming Normal Distribution					Assuming Lognormal Distribution						
260	DL/2 Substitution Method						DL/2 Substitution Method					
261	Mean					0.00277	Mean					-5.914
262	SD					0.0007361	SD					0.203
263	95% DL/2 (t) UCL					0.00294	95% H-Stat (DL/2) UCL					0.00289
264												
265	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					

	A	B	C	D	E	F	G	H	I	J	K	L
266	MLE method failed to converge properly						Mean in Log Scale					N/A
267							SD in Log Scale					N/A
268							Mean in Original Scale					N/A
269							SD in Original Scale					N/A
270							95% Percentile Bootstrap UCL					N/A
271							95% BCA Bootstrap UCL					N/A
272												
273	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
274	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)					
275	Theta Star					N/A						
276	nu star					N/A						
277												
278	A-D Test Statistic					0.359	Nonparametric Statistics					
279	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
280	K-S Test Statistic					N/A	Mean					0.00384
281	5% K-S Critical Value					N/A	SD					0.0002598
282	Data not Gamma Distributed at 5% Significance Level						SE of Mean					5.358E-05
283							95% KM (t) UCL					0.00393
284	Assuming Gamma Distribution						95% KM (z) UCL					0.00393
285	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.00501
286	Minimum					N/A	95% KM (bootstrap t) UCL					0.00384
287	Maximum					N/A	95% KM (BCA) UCL					0.0056
288	Mean					N/A	95% KM (Percentile Bootstrap) UCL					0.0056
289	Median					N/A	95% KM (Chebyshev) UCL					0.00407
290	SD					N/A	97.5% KM (Chebyshev) UCL					0.00417
291	k star					N/A	99% KM (Chebyshev) UCL					0.00437
292	Theta star					N/A						
293	Nu star					N/A	Potential UCLs to Use					
294	AppChi2					N/A	95% KM (t) UCL					0.00393
295	95% Gamma Approximate UCL					N/A	95% KM (% Bootstrap) UCL					0.0056
296	95% Adjusted Gamma UCL					N/A						
297	Note: DL/2 is not a recommended method.											
298												
299												
300	4,4'-DDT											
301												
302	General Statistics											
303	Number of Valid Data					51	Number of Detected Data					1
304	Number of Distinct Detected Data					1	Number of Non-Detect Data					50
305							Percent Non-Detects					98.04%
306												
307	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
308	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
309												
310	The data set for variable 4,4'-DDT was not processed!											
311												
312												
313												
314	4-Chloroaniline											
315												
316	General Statistics											
317	Number of Valid Data					51	Number of Detected Data					1
318	Number of Distinct Detected Data					1	Number of Non-Detect Data					50

	A	B	C	D	E	F	G	H	I	J	K	L
319							Percent Non-Detects					98.04%
320												
321	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
322	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
323												
324	The data set for variable 4-Chloroaniline was not processed!											
325												
326												
327												
328	Aldrin											
329												
330	General Statistics											
331	Number of Valid Data					51	Number of Detected Data					1
332	Number of Distinct Detected Data					1	Number of Non-Detect Data					50
333							Percent Non-Detects					98.04%
334												
335	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
336	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
337												
338	The data set for variable Aldrin was not processed!											
339												
340												
341												
342	alpha-BHC											
343												
344	General Statistics											
345	Number of Valid Data					51	Number of Detected Data					1
346	Number of Distinct Detected Data					1	Number of Non-Detect Data					50
347							Percent Non-Detects					98.04%
348												
349	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
350	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
351												
352	The data set for variable alpha-BHC was not processed!											
353												
354												
355												
356	Aroclor-1248											
357												
358	General Statistics											
359	Number of Valid Data					51	Number of Detected Data					1
360	Number of Distinct Detected Data					1	Number of Non-Detect Data					50
361							Percent Non-Detects					98.04%
362												
363	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
364	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
365												
366	The data set for variable Aroclor-1248 was not processed!											
367												
368												
369												
370	Atrazine											
371												

	A	B	C	D	E	F	G	H	I	J	K	L
372	General Statistics											
373	Number of Valid Data					51	Number of Detected Data					1
374	Number of Distinct Detected Data					1	Number of Non-Detect Data					50
375							Percent Non-Detects					98.04%
376												
377	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
378	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
379												
380	The data set for variable Atrazine was not processed!											
381												
382												
383												
384	Benzaldehyde											
385												
386	General Statistics											
387	Number of Valid Data					51	Number of Detected Data					1
388	Number of Distinct Detected Data					1	Number of Non-Detect Data					50
389							Percent Non-Detects					98.04%
390												
391	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
392	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
393												
394	The data set for variable Benzaldehyde was not processed!											
395												
396												
397												
398	Benzo(g,h,i)perylene											
399												
400	General Statistics											
401	Number of Valid Data					51	Number of Detected Data					1
402	Number of Distinct Detected Data					1	Number of Non-Detect Data					50
403							Percent Non-Detects					98.04%
404												
405	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
406	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
407												
408	The data set for variable Benzo(g,h,i)perylene was not processed!											
409												
410												
411												
412	Bromodichloromethane											
413												
414	General Statistics											
415	Number of Valid Data					51	Number of Detected Data					0
416	Number of Distinct Detected Data					0	Number of Non-Detect Data					51
417							Percent Non-Detects					100.00%
418												
419	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
420	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
421	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
422												
423	The data set for variable Bromodichloromethane was not processed!											
424												

	A	B	C	D	E	F	G	H	I	J	K	L
425												
426												
427	Carbazole											
428												
429	General Statistics											
430	Number of Valid Data					16	Number of Detected Data					1
431	Number of Distinct Detected Data					1	Number of Non-Detect Data					15
432							Percent Non-Detects					93.75%
433												
434	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
435	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
436												
437	The data set for variable Carbazole was not processed!											
438												
439												
440												
441	Chloroethane											
442												
443	General Statistics											
444	Number of Valid Data					51	Number of Detected Data					1
445	Number of Distinct Detected Data					1	Number of Non-Detect Data					50
446							Percent Non-Detects					98.04%
447												
448	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
449	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
450												
451	The data set for variable Chloroethane was not processed!											
452												
453												
454												
455	Cobalt											
456												
457	General Statistics											
458	Number of Valid Data					51	Number of Detected Data					15
459	Number of Distinct Detected Data					14	Number of Non-Detect Data					36
460							Percent Non-Detects					70.59%
461												
462	Raw Statistics					Log-transformed Statistics						
463	Minimum Detected					0.24	Minimum Detected					-1.427
464	Maximum Detected					33	Maximum Detected					3.497
465	Mean of Detected					4.622	Mean of Detected					0.492
466	SD of Detected					8.545	SD of Detected					1.393
467	Minimum Non-Detect					0.1	Minimum Non-Detect					-2.303
468	Maximum Non-Detect					50	Maximum Non-Detect					3.912
469												
470	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					51
471	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0
472	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
473												
474	UCL Statistics											
475	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
476	Lilliefors Test Statistic					0.552	Lilliefors Test Statistic					0.925
477	5% Lilliefors Critical Value					0.881	5% Lilliefors Critical Value					0.881

	A	B	C	D	E	F	G	H	I	J	K	L
478	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
479												
480	Assuming Normal Distribution						Assuming Lognormal Distribution					
481	DL/2 Substitution Method						DL/2 Substitution Method					
482	Mean					18.03	Mean					2.187
483	SD					10.97	SD					1.752
484	95% DL/2 (t) UCL					20.6	95% H-Stat (DL/2) UCL					128.2
485												
486	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
487	MLE method failed to converge properly						Mean in Log Scale					0.123
488							SD in Log Scale					1.676
489							Mean in Original Scale					3.988
490							SD in Original Scale					7.566
491							95% Percentile Bootstrap UCL					5.862
492							95% BCA Bootstrap UCL					6.347
493												
494	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
495	k star (bias corrected)					0.521	Data appear Lognormal at 5% Significance Level					
496	Theta Star					8.876						
497	nu star					15.62						
498												
499	A-D Test Statistic					1.126	Nonparametric Statistics					
500	5% A-D Critical Value					0.786	Kaplan-Meier (KM) Method					
501	K-S Test Statistic					0.786	Mean					4.106
502	5% K-S Critical Value					0.232	SD					7.882
503	Data not Gamma Distributed at 5% Significance Level						SE of Mean					1.979
504							95% KM (t) UCL					7.423
505	Assuming Gamma Distribution						95% KM (z) UCL					7.361
506	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					7.458
507	Minimum					1E-09	95% KM (bootstrap t) UCL					13.84
508	Maximum					33	95% KM (BCA) UCL					7.598
509	Mean					6.189	95% KM (Percentile Bootstrap) UCL					7.629
510	Median					2.591	95% KM (Chebyshev) UCL					12.73
511	SD					7.994	97.5% KM (Chebyshev) UCL					16.46
512	k star					0.142	99% KM (Chebyshev) UCL					23.79
513	Theta star					43.64						
514	Nu star					14.46	Potential UCLs to Use					
515	AppChi2					6.89	95% KM (BCA) UCL					7.598
516	95% Gamma Approximate UCL					12.99						
517	95% Adjusted Gamma UCL					13.29						
518	Note: DL/2 is not a recommended method.											
519												
520												
521	Dibenzofuran											
522												
523	General Statistics											
524	Number of Valid Data					51	Number of Detected Data					2
525	Number of Distinct Detected Data					2	Number of Non-Detect Data					49
526							Percent Non-Detects					96.08%
527												
528	Raw Statistics						Log-transformed Statistics					
529	Minimum Detected					0.32	Minimum Detected					-1.139
530	Maximum Detected					0.42	Maximum Detected					-0.868

	A	B	C	D	E	F	G	H	I	J	K	L
531	Mean of Detected					0.37	Mean of Detected					-1.003
532	SD of Detected					0.0707	SD of Detected					0.192
533	Minimum Non-Detect					0.5	Minimum Non-Detect					-0.693
534	Maximum Non-Detect					5	Maximum Non-Detect					1.609
535												
536	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					51
537	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0
538	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
539												
540	Warning: Data set has only 2 Distinct Detected Values.											
541	This may not be adequate enough to compute meaningful and reliable test statistics and estimates.											
542	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
543												
544	Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.											
545												
546	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
547	Those methods will return a 'N/A' value on your output display!											
548												
549	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
550	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
551												
552												
553	UCL Statistics											
554	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
555	Lilliefors Test Statistic					1	Lilliefors Test Statistic					1
556	5% Lilliefors Critical Value					N/A	5% Lilliefors Critical Value					N/A
557	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
558												
559	Assuming Normal Distribution						Assuming Lognormal Distribution					
560	DL/2 Substitution Method						DL/2 Substitution Method					
561	Mean					1.805	Mean					0.231
562	SD					1.039	SD					1.026
563	95% DL/2 (t) UCL					2.048	95% H-Stat (DL/2) UCL					3.164
564												
565	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
566	MLE method failed to converge properly						Mean in Log Scale					N/A
567							SD in Log Scale					N/A
568							Mean in Original Scale					N/A
569							SD in Original Scale					N/A
570							95% Percentile Bootstrap UCL					N/A
571							95% BCA Bootstrap UCL					N/A
572												
573	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
574	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)					
575	Theta Star					N/A						
576	nu star					N/A						
577												
578	A-D Test Statistic					0.359	Nonparametric Statistics					
579	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
580	K-S Test Statistic					N/A	Mean					0.37
581	5% K-S Critical Value					N/A	SD					0.05
582	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.05
583							95% KM (t) UCL					0.454

	A	B	C	D	E	F	G	H	I	J	K	L
584	Assuming Gamma Distribution						95% KM (z) UCL					0.452
585	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.487
586	Minimum					N/A	95% KM (bootstrap t) UCL					0.47
587	Maximum					N/A	95% KM (BCA) UCL					N/A
588	Mean					N/A	95% KM (Percentile Bootstrap) UCL					0.42
589	Median					N/A	95% KM (Chebyshev) UCL					0.588
590	SD					N/A	97.5% KM (Chebyshev) UCL					0.682
591	k star					N/A	99% KM (Chebyshev) UCL					0.867
592	Theta star					N/A						
593	Nu star					N/A	Potential UCLs to Use					
594	AppChi2					N/A	95% KM (t) UCL					0.454
595	95% Gamma Approximate UCL					N/A	95% KM (% Bootstrap) UCL					0.42
596	95% Adjusted Gamma UCL					N/A						
597	Warning: Recommended UCL exceeds the maximum observation											
598	Note: DL/2 is not a recommended method.											
599												
600												
601	Dieldrin											
602												
603	General Statistics											
604	Number of Valid Data					51	Number of Detected Data					0
605	Number of Distinct Detected Data					0	Number of Non-Detect Data					51
606							Percent Non-Detects					100.00%
607												
608	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
609	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
610	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
611												
612	The data set for variable Dieldrin was not processed!											
613												
614												
615												
616	Endosulfan Sulfate											
617												
618	General Statistics											
619	Number of Valid Data					51	Number of Detected Data					0
620	Number of Distinct Detected Data					0	Number of Non-Detect Data					51
621							Percent Non-Detects					100.00%
622												
623	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
624	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
625	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
626												
627	The data set for variable Endosulfan Sulfate was not processed!											
628												
629												
630												
631	Ethylbenzene											
632												
633	General Statistics											
634	Number of Valid Data					51	Number of Detected Data					5
635	Number of Distinct Detected Data					5	Number of Non-Detect Data					46
636							Percent Non-Detects					90.20%

	A	B	C	D	E	F	G	H	I	J	K	L
637												
638	Raw Statistics						Log-transformed Statistics					
639	Minimum Detected				0.22		Minimum Detected				-1.514	
640	Maximum Detected				17		Maximum Detected				2.833	
641	Mean of Detected				4.004		Mean of Detected				0.148	
642	SD of Detected				7.28		SD of Detected				1.671	
643	Minimum Non-Detect				0.5		Minimum Non-Detect				-0.693	
644	Maximum Non-Detect				0.5		Maximum Non-Detect				-0.693	
645												
646												
647	Warning: There are only 5 Detected Values in this data											
648	Note: It should be noted that even though bootstrap may be performed on this data set											
649	the resulting calculations may not be reliable enough tp draw conclusions											
650												
651	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
652												
653												
654	UCL Statistics											
655	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
656	Lilliefors Test Statistic				0.612		Lilliefors Test Statistic				0.912	
657	5% Lilliefors Critical Value				0.762		5% Lilliefors Critical Value				0.762	
658	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
659												
660	Assuming Normal Distribution						Assuming Lognormal Distribution					
661	DL/2 Substitution Method						DL/2 Substitution Method					
662	Mean				0.618		Mean				-1.236	
663	SD				2.348		SD				0.66	
664	95% DL/2 (t) UCL				1.169		95% H-Stat (DL/2) UCL				0.395	
665												
666	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
667	MLE yields a negative mean						Mean in Log Scale				-1.212	
668							SD in Log Scale				1.178	
669							Mean in Original Scale				0.76	
670							SD in Original Scale				2.354	
671							95% Percentile Bootstrap UCL				1.391	
672							95% BCA Bootstrap UCL				1.849	
673												
674	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
675	k star (bias corrected)				0.338		Data appear Gamma Distributed at 5% Significance Level					
676	Theta Star				11.86							
677	nu star				3.376							
678												
679	A-D Test Statistic				0.604		Nonparametric Statistics					
680	5% A-D Critical Value				0.71		Kaplan-Meier (KM) Method					
681	K-S Test Statistic				0.71		Mean				0.672	
682	5% K-S Critical Value				0.371		SD				2.318	
683	Data appear Gamma Distributed at 5% Significance Level						SE of Mean				0.369	
684							95% KM (t) UCL				1.29	
685	Assuming Gamma Distribution						95% KM (z) UCL				1.279	
686	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				1.256	
687	Minimum				1E-09		95% KM (bootstrap t) UCL				4.246	
688	Maximum				17		95% KM (BCA) UCL				2.012	
689	Mean				2.714		95% KM (Percentile Bootstrap) UCL				1.66	

	A	B	C	D	E	F	G	H	I	J	K	L
690	Median					2.47	95% KM (Chebyshev) UCL					2.279
691	SD					2.976	97.5% KM (Chebyshev) UCL					2.975
692	k star					0.129	99% KM (Chebyshev) UCL					4.341
693	Theta star					21.03						
694	Nu star					13.17	Potential UCLs to Use					
695	AppChi2					6.005	95% KM (t) UCL					1.29
696	95% Gamma Approximate UCL					5.951						
697	95% Adjusted Gamma UCL					6.094						
698	Note: DL/2 is not a recommended method.											
699												
700												
701	Gamma-BHC											
702												
703	General Statistics											
704	Number of Valid Data					51	Number of Detected Data					2
705	Number of Distinct Detected Data					2	Number of Non-Detect Data					49
706							Percent Non-Detects					96.08%
707												
708	Raw Statistics						Log-transformed Statistics					
709	Minimum Detected					0.008	Minimum Detected					-4.828
710	Maximum Detected					0.016	Maximum Detected					-4.135
711	Mean of Detected					0.012	Mean of Detected					-4.482
712	SD of Detected					0.00566	SD of Detected					0.49
713	Minimum Non-Detect					0.0025	Minimum Non-Detect					-5.991
714	Maximum Non-Detect					0.01	Maximum Non-Detect					-4.605
715												
716	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					50
717	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1
718	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					98.04%
719												
720	Warning: Data set has only 2 Distinct Detected Values.											
721	This may not be adequate enough to compute meaningful and reliable test statistics and estimates.											
722	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
723												
724	Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.											
725												
726	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
727	Those methods will return a 'N/A' value on your output display!											
728												
729	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
730	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
731												
732												
733	UCL Statistics											
734	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
735	Lilliefors Test Statistic					1	Lilliefors Test Statistic					1
736	5% Lilliefors Critical Value					N/A	5% Lilliefors Critical Value					N/A
737	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
738												
739	Assuming Normal Distribution						Assuming Lognormal Distribution					
740	DL/2 Substitution Method						DL/2 Substitution Method					
741	Mean					0.0022	Mean					-6.355
742	SD					0.00237	SD					0.573

	A	B	C	D	E	F	G	H	I	J	K	L
743	95% DL/2 (t) UCL					0.00275	95% H-Stat (DL/2) UCL					0.00227
744												
745	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
746	MLE method failed to converge properly						Mean in Log Scale					N/A
747							SD in Log Scale					N/A
748							Mean in Original Scale					N/A
749							SD in Original Scale					N/A
750							95% Percentile Bootstrap UCL					N/A
751							95% BCA Bootstrap UCL					N/A
752												
753	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
754	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)					
755	Theta Star					N/A						
756	nu star					N/A						
757												
758	A-D Test Statistic					0.359	Nonparametric Statistics					
759	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
760	K-S Test Statistic					N/A	Mean					0.00816
761	5% K-S Critical Value					N/A	SD					0.00111
762	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0002197
763							95% KM (t) UCL					0.00852
764	Assuming Gamma Distribution						95% KM (z) UCL					0.00852
765	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0134
766	Minimum					N/A	95% KM (bootstrap t) UCL					1.8E+308
767	Maximum					N/A	95% KM (BCA) UCL					0.016
768	Mean					N/A	95% KM (Percentile Bootstrap) UCL					N/A
769	Median					N/A	95% KM (Chebyshev) UCL					0.00911
770	SD					N/A	97.5% KM (Chebyshev) UCL					0.00953
771	k star					N/A	99% KM (Chebyshev) UCL					0.0103
772	Theta star					N/A						
773	Nu star					N/A	Potential UCLs to Use					
774	AppChi2					N/A	95% KM (t) UCL					0.00852
775	95% Gamma Approximate UCL					N/A	95% KM (% Bootstrap) UCL					N/A
776	95% Adjusted Gamma UCL					N/A						
777	Note: DL/2 is not a recommended method.											
778												
779												
780	Heptachlor											
781												
782	General Statistics											
783	Number of Valid Data					51	Number of Detected Data					1
784	Number of Distinct Detected Data					1	Number of Non-Detect Data					50
785							Percent Non-Detects					98.04%
786												
787	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
788	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
789												
790	The data set for variable Heptachlor was not processed!											
791												
792												
793												
794	Methyl tert butyl ether											
795												

	A	B	C	D	E	F	G	H	I	J	K	L
796	General Statistics											
797	Number of Valid Data					51	Number of Detected Data					10
798	Number of Distinct Detected Data					10	Number of Non-Detect Data					41
799							Percent Non-Detects					80.39%
800												
801	Raw Statistics						Log-transformed Statistics					
802	Minimum Detected					0.23	Minimum Detected					-1.47
803	Maximum Detected					21	Maximum Detected					3.045
804	Mean of Detected					2.714	Mean of Detected					-0.276
805	SD of Detected					6.447	SD of Detected					1.36
806	Minimum Non-Detect					0.5	Minimum Non-Detect					-0.693
807	Maximum Non-Detect					0.5	Maximum Non-Detect					-0.693
808												
809												
810	UCL Statistics											
811	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
812	Lilliefors Test Statistic					0.432	Lilliefors Test Statistic					0.804
813	5% Lilliefors Critical Value					0.842	5% Lilliefors Critical Value					0.842
814	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
815												
816	Assuming Normal Distribution						Assuming Lognormal Distribution					
817	DL/2 Substitution Method						DL/2 Substitution Method					
818	Mean					0.733	Mean					-1.169
819	SD					2.908	SD					0.729
820	95% DL/2 (t) UCL					1.415	95% H-Stat (DL/2) UCL					0.44
821												
822	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
823	MLE yields a negative mean						Mean in Log Scale					-1.038
824							SD in Log Scale					0.991
825							Mean in Original Scale					0.843
826							SD in Original Scale					2.9
827							95% Percentile Bootstrap UCL					1.657
828							95% BCA Bootstrap UCL					2.099
829												
830	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
831	k star (bias corrected)					0.416	Data do not follow a Discernable Distribution (0.05)					
832	Theta Star					6.528						
833	nu star					8.314						
834												
835	A-D Test Statistic					1.569	Nonparametric Statistics					
836	5% A-D Critical Value					0.777	Kaplan-Meier (KM) Method					
837	K-S Test Statistic					0.777	Mean					0.783
838	5% K-S Critical Value					0.281	SD					2.872
839	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.425
840							95% KM (t) UCL					1.494
841	Assuming Gamma Distribution						95% KM (z) UCL					1.481
842	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.465
843	Minimum					1E-09	95% KM (bootstrap t) UCL					6.229
844	Maximum					21	95% KM (BCA) UCL					1.622
845	Mean					2.105	95% KM (Percentile Bootstrap) UCL					1.587
846	Median					1.7	95% KM (Chebyshev) UCL					2.634
847	SD					3.035	97.5% KM (Chebyshev) UCL					3.434
848	k star					0.187	99% KM (Chebyshev) UCL					5.007

	A	B	C	D	E	F	G	H	I	J	K	L	
849	Theta star					11.23							
850	Nu star					19.12	Potential UCLs to Use						
851	AppChi2					10.2	95% KM (BCA) UCL					1.622	
852	95% Gamma Approximate UCL					3.944							
853	95% Adjusted Gamma UCL					4.019							
854	Note: DL/2 is not a recommended method.												
855													
856													
857	Silver												
858													
859	General Statistics												
860	Number of Valid Data					51	Number of Detected Data					5	
861	Number of Distinct Detected Data					5	Number of Non-Detect Data					46	
862							Percent Non-Detects					90.20%	
863													
864	Raw Statistics						Log-transformed Statistics						
865	Minimum Detected					0.21	Minimum Detected					-1.561	
866	Maximum Detected					13.7	Maximum Detected					2.617	
867	Mean of Detected					7.282	Mean of Detected					1.402	
868	SD of Detected					5.058	SD of Detected					1.692	
869	Minimum Non-Detect					0.1	Minimum Non-Detect					-2.303	
870	Maximum Non-Detect					10	Maximum Non-Detect					2.303	
871													
872	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				49		
873	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				2		
874	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				96.08%		
875													
876	Warning: There are only 5 Detected Values in this data												
877	Note: It should be noted that even though bootstrap may be performed on this data set												
878	the resulting calculations may not be reliable enough tp draw conclusions												
879													
880	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.												
881													
882													
883	UCL Statistics												
884	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
885	Lilliefors Test Statistic					0.973	Lilliefors Test Statistic					0.737	
886	5% Lilliefors Critical Value					0.762	5% Lilliefors Critical Value					0.762	
887	Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level						
888													
889	Assuming Normal Distribution						Assuming Lognormal Distribution						
890	DL/2 Substitution Method						DL/2 Substitution Method						
891	Mean					3.203	Mean					-0.144	
892	SD					3.064	SD					2.169	
893	95% DL/2 (t) UCL					3.922	95% H-Stat (DL/2) UCL					27.48	
894													
895	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
896	MLE method failed to converge properly						Mean in Log Scale				-3.159		
897							SD in Log Scale				2.63		
898							Mean in Original Scale				0.868		
899							SD in Original Scale				2.6		
900							95% Percentile Bootstrap UCL				1.514		
901							95% BCA Bootstrap UCL				1.689		

	A	B	C	D	E	F	G	H	I	J	K	L	
902													
903	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only						
904	k star (bias corrected)					0.53	Data appear Normal at 5% Significance Level						
905	Theta Star					13.75							
906	nu star					5.297							
907													
908	A-D Test Statistic					0.585	Nonparametric Statistics						
909	5% A-D Critical Value					0.692	Kaplan-Meier (KM) Method						
910	K-S Test Statistic					0.692	Mean					1.146	
911	5% K-S Critical Value					0.364	SD					2.734	
912	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.499	
913							95% KM (t) UCL					1.983	
914	Assuming Gamma Distribution						95% KM (z) UCL					1.967	
915	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4.593	
916	Minimum					0.21	95% KM (bootstrap t) UCL					1.734	
917	Maximum					141.8	95% KM (BCA) UCL					10.27	
918	Mean					43.45	95% KM (Percentile Bootstrap) UCL					6.965	
919	Median					31.34	95% KM (Chebyshev) UCL					3.323	
920	SD					39.34	97.5% KM (Chebyshev) UCL					4.265	
921	k star					0.895	99% KM (Chebyshev) UCL					6.115	
922	Theta star					48.57							
923	Nu star					91.26	Potential UCLs to Use						
924	AppChi2					70.23	95% KM (t) UCL					1.983	
925	95% Gamma Approximate UCL					56.46	95% KM (Percentile Bootstrap) UCL					6.965	
926	95% Adjusted Gamma UCL					56.89							
927	Note: DL/2 is not a recommended method.												
928													
929													
930	Tetrachloroethene												
931													
932	General Statistics												
933	Number of Valid Data					51	Number of Detected Data					0	
934	Number of Distinct Detected Data					0	Number of Non-Detect Data					51	
935							Percent Non-Detects					100.00%	
936													
937	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!												
938	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!												
939	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).												
940													
941	The data set for variable Tetrachloroethene was not processed!												
942													
943													
944													
945	Toluene												
946													
947	General Statistics												
948	Number of Valid Data					51	Number of Detected Data					7	
949	Number of Distinct Detected Data					7	Number of Non-Detect Data					44	
950							Percent Non-Detects					86.27%	
951													
952	Raw Statistics						Log-transformed Statistics						
953	Minimum Detected					0.22	Minimum Detected					-1.514	
954	Maximum Detected					4.9	Maximum Detected					1.589	

	A	B	C	D	E	F	G	H	I	J	K	L
955	Mean of Detected					1.45	Mean of Detected					-0.263
956	SD of Detected					1.802	SD of Detected					1.192
957	Minimum Non-Detect					0.5	Minimum Non-Detect					-0.693
958	Maximum Non-Detect					0.5	Maximum Non-Detect					-0.693
959												
960												
961	Warning: There are only 7 Detected Values in this data											
962	Note: It should be noted that even though bootstrap may be performed on this data set											
963	the resulting calculations may not be reliable enough tp draw conclusions											
964												
965	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
966												
967												
968	UCL Statistics											
969	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
970	Lilliefors Test Statistic					0.732	Lilliefors Test Statistic					0.885
971	5% Lilliefors Critical Value					0.803	5% Lilliefors Critical Value					0.803
972	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
973												
974	Assuming Normal Distribution					Assuming Lognormal Distribution						
975	DL/2 Substitution Method						DL/2 Substitution Method					
976	Mean					0.415	Mean					-1.232
977	SD					0.751	SD					0.568
978	95% DL/2 (t) UCL					0.591	95% H-Stat (DL/2) UCL					0.38
979												
980	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
981	MLE yields a negative mean					Mean in Log Scale					-1.482	
982							SD in Log Scale					1.006
983							Mean in Original Scale					0.418
984							SD in Original Scale					0.771
985							95% Percentile Bootstrap UCL					0.612
986							95% BCA Bootstrap UCL					0.694
987												
988	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
989	k star (bias corrected)					0.62	Data Follow Appr. Gamma Distribution at 5% Significance Level					
990	Theta Star					2.339						
991	nu star					8.68						
992												
993	A-D Test Statistic					0.619	Nonparametric Statistics					
994	5% A-D Critical Value					0.73	Kaplan-Meier (KM) Method					
995	K-S Test Statistic					0.73	Mean					0.393
996	5% K-S Critical Value					0.321	SD					0.748
997	Data follow Appr. Gamma Distribution at 5% Significance Level					SE of Mean					0.113	
998							95% KM (t) UCL					0.583
999	Assuming Gamma Distribution					95% KM (z) UCL					0.579	
1000	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.571
1001	Minimum					1E-09	95% KM (bootstrap t) UCL					1.485
1002	Maximum					4.9	95% KM (BCA) UCL					0.843
1003	Mean					0.857	95% KM (Percentile Bootstrap) UCL					0.721
1004	Median					0.68	95% KM (Chebyshev) UCL					0.887
1005	SD					0.925	97.5% KM (Chebyshev) UCL					1.1
1006	k star					0.143	99% KM (Chebyshev) UCL					1.52
1007	Theta star					5.984						

	A	B	C	D	E	F	G	H	I	J	K	L	
1008	Nu star					14.61	Potential UCLs to Use						
1009	AppChi2					6.989	95% KM (t) UCL					0.583	
1010	95% Gamma Approximate UCL					1.791							
1011	95% Adjusted Gamma UCL					1.831							
1012	Note: DL/2 is not a recommended method.												
1013													
1014													
1015	Trichloroethene												
1016													
1017	General Statistics												
1018	Number of Valid Data					51	Number of Detected Data					2	
1019	Number of Distinct Detected Data					2	Number of Non-Detect Data					49	
1020							Percent Non-Detects					96.08%	
1021													
1022	Raw Statistics						Log-transformed Statistics						
1023	Minimum Detected					0.55	Minimum Detected					-0.598	
1024	Maximum Detected					1.2	Maximum Detected					0.182	
1025	Mean of Detected					0.875	Mean of Detected					-0.208	
1026	SD of Detected					0.46	SD of Detected					0.552	
1027	Minimum Non-Detect					0.5	Minimum Non-Detect					-0.693	
1028	Maximum Non-Detect					5	Maximum Non-Detect					1.609	
1029													
1030	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					51	
1031	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0	
1032	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%	
1033													
1034	Warning: Data set has only 2 Distinct Detected Values.												
1035	This may not be adequate enough to compute meaningful and reliable test statistics and estimates.												
1036	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).												
1037													
1038	Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.												
1039													
1040	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.												
1041	Those methods will return a 'N/A' value on your output display!												
1042													
1043	It is necessary to have 4 or more Distinct Values for bootstrap methods.												
1044	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.												
1045													
1046													
1047	UCL Statistics												
1048	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
1049	Lilliefors Test Statistic					1	Lilliefors Test Statistic					1	
1050	5% Lilliefors Critical Value					N/A	5% Lilliefors Critical Value					N/A	
1051	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level						
1052													
1053	Assuming Normal Distribution						Assuming Lognormal Distribution						
1054	DL/2 Substitution Method						DL/2 Substitution Method						
1055	Mean					0.319	Mean					-1.295	
1056	SD					0.341	SD					0.399	
1057	95% DL/2 (t) UCL					0.399	95% H-Stat (DL/2) UCL					0.32	
1058													
1059	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
1060	MLE method failed to converge properly						Mean in Log Scale					N/A	

	A	B	C	D	E	F	G	H	I	J	K	L
1061						SD in Log Scale						N/A
1062						Mean in Original Scale						N/A
1063						SD in Original Scale						N/A
1064						95% Percentile Bootstrap UCL						N/A
1065						95% BCA Bootstrap UCL						N/A
1066												
1067	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
1068	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)					
1069	Theta Star					N/A						
1070	nu star					N/A						
1071												
1072	A-D Test Statistic					0.359	Nonparametric Statistics					
1073	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
1074	K-S Test Statistic					N/A	Mean					0.563
1075	5% K-S Critical Value					N/A	SD					0.091
1076	Data not Gamma Distributed at 5% Significance Level					SE of Mean					0.0182	
1077							95% KM (t) UCL					0.594
1078	Assuming Gamma Distribution					95% KM (z) UCL					0.593	
1079	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.986
1080	Minimum					N/A	95% KM (bootstrap t) UCL					0.563
1081	Maximum					N/A	95% KM (BCA) UCL					1.2
1082	Mean					N/A	95% KM (Percentile Bootstrap) UCL					1.2
1083	Median					N/A	95% KM (Chebyshev) UCL					0.642
1084	SD					N/A	97.5% KM (Chebyshev) UCL					0.677
1085	k star					N/A	99% KM (Chebyshev) UCL					0.744
1086	Theta star					N/A						
1087	Nu star					N/A	Potential UCLs to Use					
1088	AppChi2					N/A	95% KM (t) UCL					0.594
1089	95% Gamma Approximate UCL					N/A	95% KM (% Bootstrap) UCL					1.2
1090	95% Adjusted Gamma UCL					N/A						
1091	Note: DL/2 is not a recommended method.											
1092												
1093												
1094	Vinyl Chloride											
1095												
1096	General Statistics											
1097	Number of Valid Data					51	Number of Detected Data					3
1098	Number of Distinct Detected Data					3	Number of Non-Detect Data					48
1099							Percent Non-Detects					94.12%
1100												
1101	Raw Statistics					Log-transformed Statistics						
1102	Minimum Detected					0.59	Minimum Detected					-0.528
1103	Maximum Detected					1.2	Maximum Detected					0.182
1104	Mean of Detected					0.88	Mean of Detected					-0.169
1105	SD of Detected					0.306	SD of Detected					0.355
1106	Minimum Non-Detect					0.5	Minimum Non-Detect					-0.693
1107	Maximum Non-Detect					5	Maximum Non-Detect					1.609
1108												
1109	Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect					51	
1110	For all methods (except KM, DL/2, and ROS Methods),					Number treated as Detected					0	
1111	Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage					100.00%	
1112												
1113	Warning: There are only 3 Distinct Detected Values in this data set											

	A	B	C	D	E	F	G	H	I	J	K	L
1114	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
1115	Those methods will return a 'N/A' value on your output display!											
1116												
1117	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
1118	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
1119												
1120												
1121	UCL Statistics											
1122	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1123	Lilliefors Test Statistic					0.993	Lilliefors Test Statistic					1
1124	5% Lilliefors Critical Value					0.767	5% Lilliefors Critical Value					0.767
1125	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1126												
1127	Assuming Normal Distribution						Assuming Lognormal Distribution					
1128	DL/2 Substitution Method						DL/2 Substitution Method					
1129	Mean					0.331	Mean					-1.27
1130	SD					0.349	SD					0.431
1131	95% DL/2 (t) UCL					0.413	95% H-Stat (DL/2) UCL					0.332
1132												
1133	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
1134	MLE method failed to converge properly						Mean in Log Scale					-2.976
1135							SD in Log Scale					1.39
1136							Mean in Original Scale					0.128
1137							SD in Original Scale					0.218
1138							95% Percentile Bootstrap UCL					0.184
1139							95% BCA Bootstrap UCL					0.197
1140												
1141	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
1142	k star (bias corrected)					N/A	Data appear Normal at 5% Significance Level					
1143	Theta Star					N/A						
1144	nu star					N/A						
1145												
1146	A-D Test Statistic					0.246	Nonparametric Statistics					
1147	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
1148	K-S Test Statistic					N/A	Mean					0.607
1149	5% K-S Critical Value					N/A	SD					0.0921
1150	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.016
1151							95% KM (t) UCL					0.634
1152	Assuming Gamma Distribution						95% KM (z) UCL					0.634
1153	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.774
1154	Minimum					N/A	95% KM (bootstrap t) UCL					0.622
1155	Maximum					N/A	95% KM (BCA) UCL					1.2
1156	Mean					N/A	95% KM (Percentile Bootstrap) UCL					1.2
1157	Median					N/A	95% KM (Chebyshev) UCL					0.677
1158	SD					N/A	97.5% KM (Chebyshev) UCL					0.707
1159	k star					N/A	99% KM (Chebyshev) UCL					0.766
1160	Theta star					N/A						
1161	Nu star					N/A	Potential UCLs to Use					
1162	AppChi2					N/A	95% KM (t) UCL					0.634
1163	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					1.2
1164	95% Adjusted Gamma UCL					N/A						
1165	Note: DL/2 is not a recommended method.											
1166												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Southern Bank SD.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Data				15		Number of Detected Data				14	
13	Number of Distinct Detected Data				14		Number of Non-Detect Data				1	
14							Percent Non-Detects				6.67%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				0.0065		Minimum Detected				-5.036	
18	Maximum Detected				0.84		Maximum Detected				-0.174	
19	Mean of Detected				0.384		Mean of Detected				-1.48	
20	SD of Detected				0.295		SD of Detected				1.374	
21	Minimum Non-Detect				0.0023		Minimum Non-Detect				-6.075	
22	Maximum Non-Detect				0.0023		Maximum Non-Detect				-6.075	
23												
24												
25	UCL Statistics											
26	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
27	Shapiro Wilk Test Statistic				0.911		Shapiro Wilk Test Statistic				0.852	
28	5% Shapiro Wilk Critical Value				0.874		5% Shapiro Wilk Critical Value				0.874	
29	Data appear Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
30												
31	Assuming Normal Distribution					Assuming Lognormal Distribution						
32	DL/2 Substitution Method						DL/2 Substitution Method					
33	Mean				0.359		Mean				-1.833	
34	SD				0.301		SD				1.902	
35	95% DL/2 (t) UCL				0.496		95% H-Stat (DL/2) UCL				4.834	
36												
37	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
38	Mean				0.348		Mean in Log Scale				-1.684	
39	SD				0.307		SD in Log Scale				1.542	
40	95% MLE (t) UCL				0.488		Mean in Original Scale				0.359	
41	95% MLE (Tiku) UCL				0.485		SD in Original Scale				0.3	
42							95% Percentile Bootstrap UCL				0.49	
43							95% BCA Bootstrap UCL				0.493	
44												
45	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
46	k star (bias corrected)				0.905		Data appear Normal at 5% Significance Level					
47	Theta Star				0.424							
48	nu star				25.35							
49												
50	A-D Test Statistic				0.366		Nonparametric Statistics					
51	5% A-D Critical Value				0.758		Kaplan-Meier (KM) Method					
52	K-S Test Statistic				0.758		Mean				0.359	
53	5% K-S Critical Value				0.235		SD				0.29	

	A	B	C	D	E	F	G	H	I	J	K	L
54	Data appear Gamma Distributed at 5% Significance Level						SE of Mean				0.0778	
55						95% KM (t) UCL				0.496		
56	Assuming Gamma Distribution					95% KM (z) UCL				0.487		
57	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL				0.495		
58	Minimum				1E-09	95% KM (bootstrap t) UCL				0.514		
59	Maximum				0.84	95% KM (BCA) UCL				0.501		
60	Mean				0.359	95% KM (Percentile Bootstrap) UCL				0.49		
61	Median				0.31	95% KM (Chebyshev) UCL				0.698		
62	SD				0.301	97.5% KM (Chebyshev) UCL				0.845		
63	k star				0.35	99% KM (Chebyshev) UCL				1.133		
64	Theta star				1.025							
65	Nu star				10.49	Potential UCLs to Use						
66	AppChi2				4.252	95% KM (t) UCL				0.496		
67	95% Gamma Approximate UCL				0.885	95% KM (Percentile Bootstrap) UCL				0.49		
68	95% Adjusted Gamma UCL				0.997							
69	Note: DL/2 is not a recommended method.											
70												
71												
72	Carbazole											
73												
74	General Statistics											
75	Number of Valid Data				15	Number of Detected Data				8		
76	Number of Distinct Detected Data				8	Number of Non-Detect Data				7		
77						Percent Non-Detects				46.67%		
78												
79	Raw Statistics				Log-transformed Statistics							
80	Minimum Detected				0.055	Minimum Detected				-2.9		
81	Maximum Detected				0.88	Maximum Detected				-0.128		
82	Mean of Detected				0.242	Mean of Detected				-1.88		
83	SD of Detected				0.286	SD of Detected				0.956		
84	Minimum Non-Detect				0.33	Minimum Non-Detect				-1.109		
85	Maximum Non-Detect				0.61	Maximum Non-Detect				-0.494		
86												
87	Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect				14		
88	For all methods (except KM, DL/2, and ROS Methods),					Number treated as Detected				1		
89	Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage				93.33%		
90												
91	Warning: There are only 8 Detected Values in this data											
92	Note: It should be noted that even though bootstrap may be performed on this data set											
93	the resulting calculations may not be reliable enough tp draw conclusions											
94												
95	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
96												
97												
98	UCL Statistics											
99	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
100	Shapiro Wilk Test Statistic				0.7	Shapiro Wilk Test Statistic				0.895		
101	5% Shapiro Wilk Critical Value				0.818	5% Shapiro Wilk Critical Value				0.818		
102	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
103												
104	Assuming Normal Distribution					Assuming Lognormal Distribution						
105	DL/2 Substitution Method					DL/2 Substitution Method						
106	Mean				0.229	Mean				-1.728		

	A	B	C	D	E	F	G	H	I	J	K	L
107	SD					0.205	SD					0.708
108	95% DL/2 (t) UCL					0.323	95% H-Stat (DL/2) UCL					0.662
109												
110	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
111	MLE method failed to converge properly						Mean in Log Scale					-2.045
112							SD in Log Scale					0.713
113							Mean in Original Scale					0.18
114							SD in Original Scale					0.214
115							95% Percentile Bootstrap UCL					0.279
116							95% BCA Bootstrap UCL					0.334
117												
118	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
119	k star (bias corrected)					0.847	Data appear Gamma Distributed at 5% Significance Level					
120	Theta Star					0.286						
121	nu star					13.55						
122												
123	A-D Test Statistic					0.68	Nonparametric Statistics					
124	5% A-D Critical Value					0.732	Kaplan-Meier (KM) Method					
125	K-S Test Statistic					0.732	Mean					0.181
126	5% K-S Critical Value					0.3	SD					0.211
127	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0601
128							95% KM (t) UCL					0.287
129	Assuming Gamma Distribution						95% KM (z) UCL					0.28
130	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.284
131	Minimum					0.055	95% KM (bootstrap t) UCL					0.499
132	Maximum					0.88	95% KM (BCA) UCL					0.296
133	Mean					0.242	95% KM (Percentile Bootstrap) UCL					0.282
134	Median					0.241	95% KM (Chebyshev) UCL					0.443
135	SD					0.202	97.5% KM (Chebyshev) UCL					0.556
136	k star					1.785	99% KM (Chebyshev) UCL					0.779
137	Theta star					0.136						
138	Nu star					53.56	Potential UCLs to Use					
139	AppChi2					37.75	95% KM (BCA) UCL					0.296
140	95% Gamma Approximate UCL					0.344						
141	95% Adjusted Gamma UCL					0.36						
142	Note: DL/2 is not a recommended method.											
143												
144												
145	Dibenzofuran											
146												
147	General Statistics											
148	Number of Valid Data					15	Number of Detected Data					4
149	Number of Distinct Detected Data					4	Number of Non-Detect Data					11
150							Percent Non-Detects					73.33%
151												
152	Raw Statistics						Log-transformed Statistics					
153	Minimum Detected					0.044	Minimum Detected					-3.124
154	Maximum Detected					0.22	Maximum Detected					-1.514
155	Mean of Detected					0.127	Mean of Detected					-2.283
156	SD of Detected					0.0867	SD of Detected					0.789
157	Minimum Non-Detect					0.12	Minimum Non-Detect					-2.12
158	Maximum Non-Detect					0.61	Maximum Non-Detect					-0.494
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					15
161	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0
162	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
163												
164	Warning: There are only 4 Distinct Detected Values in this data											
165	Note: It should be noted that even though bootstrap may be performed on this data set											
166	the resulting calculations may not be reliable enough tp draw conclusions											
167												
168	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
169												
170												
171	UCL Statistics											
172	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
173	Shapiro Wilk Test Statistic				0.878	Shapiro Wilk Test Statistic					0.884	
174	5% Shapiro Wilk Critical Value				0.748	5% Shapiro Wilk Critical Value					0.748	
175	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
176												
177	Assuming Normal Distribution					Assuming Lognormal Distribution						
178	DL/2 Substitution Method					DL/2 Substitution Method						
179	Mean				0.173	Mean					-1.893	
180	SD				0.0774	SD					0.607	
181	95% DL/2 (t) UCL				0.208	95% H-Stat (DL/2) UCL					0.338	
182												
183	Maximum Likelihood Estimate(MLE) Method				N/A	Log ROS Method						
184	MLE method failed to converge properly					Mean in Log Scale					-2.507	
185						SD in Log Scale					0.436	
186						Mean in Original Scale					0.0902	
187						SD in Original Scale					0.0485	
188						95% Percentile Bootstrap UCL					0.112	
189						95% BCA Bootstrap UCL					0.118	
190												
191	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
192	k star (bias corrected)				0.784	Data appear Normal at 5% Significance Level						
193	Theta Star				0.161							
194	nu star				6.276							
195												
196	A-D Test Statistic				0.417	Nonparametric Statistics						
197	5% A-D Critical Value				0.66	Kaplan-Meier (KM) Method						
198	K-S Test Statistic				0.66	Mean					0.102	
199	5% K-S Critical Value				0.397	SD					0.0706	
200	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					0.0335	
201						95% KM (t) UCL					0.161	
202	Assuming Gamma Distribution					95% KM (z) UCL					0.157	
203	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL					0.162	
204	Minimum				0.044	95% KM (bootstrap t) UCL					0.166	
205	Maximum				0.22	95% KM (BCA) UCL					0.197	
206	Mean				0.132	95% KM (Percentile Bootstrap) UCL					0.193	
207	Median				0.135	95% KM (Chebyshev) UCL					0.248	
208	SD				0.0405	97.5% KM (Chebyshev) UCL					0.311	
209	k star				7.027	99% KM (Chebyshev) UCL					0.435	
210	Theta star				0.0187							
211	Nu star				210.8	Potential UCLs to Use						
212	AppChi2				178.2	95% KM (t) UCL					0.161	

	A	B	C	D	E	F	G	H	I	J	K	L
213	95% Gamma Approximate UCL					0.156	95% KM (Percentile Bootstrap) UCL					0.193
214	95% Adjusted Gamma UCL					N/A						
215	Note: DL/2 is not a recommended method.											
216												
217												
218	Phenanthrene											
219												
220	General Statistics											
221	Number of Valid Data					15	Number of Detected Data					14
222	Number of Distinct Detected Data					13	Number of Non-Detect Data					1
223							Percent Non-Detects					6.67%
224												
225	Raw Statistics						Log-transformed Statistics					
226	Minimum Detected					0.0098	Minimum Detected					-4.625
227	Maximum Detected					4.6	Maximum Detected					1.526
228	Mean of Detected					1.045	Mean of Detected					-0.805
229	SD of Detected					1.31	SD of Detected					1.654
230	Minimum Non-Detect					0.0023	Minimum Non-Detect					-6.075
231	Maximum Non-Detect					0.0023	Maximum Non-Detect					-6.075
232												
233												
234	UCL Statistics											
235	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
236	Shapiro Wilk Test Statistic					0.736	Shapiro Wilk Test Statistic					0.929
237	5% Shapiro Wilk Critical Value					0.874	5% Shapiro Wilk Critical Value					0.874
238	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
239												
240	Assuming Normal Distribution						Assuming Lognormal Distribution					
241	DL/2 Substitution Method						DL/2 Substitution Method					
242	Mean					0.976	Mean					-1.203
243	SD					1.291	SD					2.216
244	95% DL/2 (t) UCL					1.563	95% H-Stat (DL/2) UCL					31.26
245												
246	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
247	Mean					0.924	Mean in Log Scale					-1.064
248	SD					1.312	SD in Log Scale					1.882
249	95% MLE (t) UCL					1.521	Mean in Original Scale					0.976
250	95% MLE (Tiku) UCL					1.485	SD in Original Scale					1.291
251							95% Percentile Bootstrap UCL					1.538
252							95% BCA Bootstrap UCL					1.664
253												
254	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
255	k star (bias corrected)					0.606	Data appear Gamma Distributed at 5% Significance Level					
256	Theta Star					1.726						
257	nu star					16.95						
258												
259	A-D Test Statistic					0.204	Nonparametric Statistics					
260	5% A-D Critical Value					0.774	Kaplan-Meier (KM) Method					
261	K-S Test Statistic					0.774	Mean					0.976
262	5% K-S Critical Value					0.238	SD					1.247
263	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.334
264							95% KM (t) UCL					1.565
265	Assuming Gamma Distribution						95% KM (z) UCL					1.526

	A	B	C	D	E	F	G	H	I	J	K	L
266	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.562
267	Minimum					1E-09	95% KM (bootstrap t) UCL					2.291
268	Maximum					4.6	95% KM (BCA) UCL					1.534
269	Mean					0.976	95% KM (Percentile Bootstrap) UCL					1.529
270	Median					0.59	95% KM (Chebyshev) UCL					2.433
271	SD					1.291	97.5% KM (Chebyshev) UCL					3.063
272	k star					0.303	99% KM (Chebyshev) UCL					4.3
273	Theta star					3.221						
274	Nu star					9.088	Potential UCLs to Use					
275	AppChi2					3.38	95% KM (Chebyshev) UCL					2.433
276	95% Gamma Approximate UCL					2.623						
277	95% Adjusted Gamma UCL					2.991						
278	Note: DL/2 is not a recommended method.											
279												
280												
281	Cobalt											
282												
283	General Statistics											
284	Number of Valid Data					15	Number of Detected Data					5
285	Number of Distinct Detected Data					5	Number of Non-Detect Data					10
286							Percent Non-Detects					66.67%
287												
288	Raw Statistics						Log-transformed Statistics					
289	Minimum Detected					1.8	Minimum Detected					0.588
290	Maximum Detected					7.7	Maximum Detected					2.041
291	Mean of Detected					3.46	Mean of Detected					1.09
292	SD of Detected					2.424	SD of Detected					0.574
293	Minimum Non-Detect					9.2	Minimum Non-Detect					2.219
294	Maximum Non-Detect					19	Maximum Non-Detect					2.944
295												
296	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					15
297	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0
298	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
299												
300	Warning: There are only 5 Detected Values in this data											
301	Note: It should be noted that even though bootstrap may be performed on this data set											
302	the resulting calculations may not be reliable enough tp draw conclusions											
303												
304	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
305												
306												
307	UCL Statistics											
308	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
309	Shapiro Wilk Test Statistic					0.737	Shapiro Wilk Test Statistic					0.858
310	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
311	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
312												
313	Assuming Normal Distribution						Assuming Lognormal Distribution					
314	DL/2 Substitution Method						DL/2 Substitution Method					
315	Mean					5.19	Mean					1.551
316	SD					2.121	SD					0.484
317	95% DL/2 (t) UCL					6.155	95% H-Stat (DL/2) UCL					9.583
318												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Southern Bank SS.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Observations				8		Number of Distinct Observations				8	
13												
14	Raw Statistics						Log-transformed Statistics					
15	Minimum				0.48		Minimum of Log Data				-0.734	
16	Maximum				1.2		Maximum of Log Data				0.182	
17	Mean				0.87		Mean of log Data				-0.171	
18	Median				0.845		SD of log Data				0.277	
19	SD				0.219							
20	Coefficient of Variation				0.252							
21	Skewness				-0.234							
22												
23												
24	Warning: There are only 8 Values in this data											
25	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
26	the resulting calculations may not be reliable enough to draw conclusions											
27												
28	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
29												
30	Relevant UCL Statistics											
31	Normal Distribution Test						Lognormal Distribution Test					
32	Shapiro Wilk Test Statistic				0.96		Shapiro Wilk Test Statistic				0.915	
33	Shapiro Wilk Critical Value				0.818		Shapiro Wilk Critical Value				0.818	
34	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
35												
36	Assuming Normal Distribution						Assuming Lognormal Distribution					
37	95% Student's-t UCL				1.017		95% H-UCL				1.084	
38	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL				1.246	
39	95% Adjusted-CLT UCL				0.991		97.5% Chebyshev (MVUE) UCL				1.408	
40	95% Modified-t UCL				1.016		99% Chebyshev (MVUE) UCL				1.725	
41												
42	Gamma Distribution Test						Data Distribution					
43	k star (bias corrected)				10.17		Data appear Normal at 5% Significance Level					
44	Theta Star				0.0855							
45	nu star				162.7							
46	Approximate Chi Square Value (.05)				134.3		Nonparametric Statistics					
47	Adjusted Level of Significance				0.0195		95% CLT UCL				0.998	
48	Adjusted Chi Square Value				127.7		95% Jackknife UCL				1.017	
49							95% Standard Bootstrap UCL				0.988	
50	Anderson-Darling Test Statistic				0.321		95% Bootstrap-t UCL				1.019	
51	Anderson-Darling 5% Critical Value				0.716		95% Hall's Bootstrap UCL				1.038	
52	Kolmogorov-Smirnov Test Statistic				0.184		95% Percentile Bootstrap UCL				0.984	
53	Kolmogorov-Smirnov 5% Critical Value				0.294		95% BCA Bootstrap UCL				0.984	

	A	B	C	D	E	F	G	H	I	J	K	L
54	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					1.208
55							97.5% Chebyshev(Mean, Sd) UCL					1.355
56	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					1.642
57	95% Approximate Gamma UCL					1.055						
58	95% Adjusted Gamma UCL					1.109						
59												
60	Potential UCL to Use						Use 95% Student's-t UCL					1.017
61												
62												
63	Carbazole											
64												
65	General Statistics											
66	Number of Valid Observations					8	Number of Distinct Observations					7
67												
68	Raw Statistics						Log-transformed Statistics					
69	Minimum					0.11	Minimum of Log Data					-2.207
70	Maximum					0.33	Maximum of Log Data					-1.109
71	Mean					0.225	Mean of log Data					-1.547
72	Median					0.235	SD of log Data					0.37
73	SD					0.0743						
74	Coefficient of Variation					0.33						
75	Skewness					-0.246						
76												
77												
78	Warning: There are only 8 Values in this data											
79	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
80	the resulting calculations may not be reliable enough to draw conclusions											
81												
82	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
83												
84	Relevant UCL Statistics											
85	Normal Distribution Test						Lognormal Distribution Test					
86	Shapiro Wilk Test Statistic					0.969	Shapiro Wilk Test Statistic					0.937
87	Shapiro Wilk Critical Value					0.818	Shapiro Wilk Critical Value					0.818
88	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
89												
90	Assuming Normal Distribution						Assuming Lognormal Distribution					
91	95% Student's-t UCL					0.275	95% H-UCL					0.308
92	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					0.355
93	95% Adjusted-CLT UCL					0.266	97.5% Chebyshev (MVUE) UCL					0.411
94	95% Modified-t UCL					0.274	99% Chebyshev (MVUE) UCL					0.521
95												
96	Gamma Distribution Test						Data Distribution					
97	k star (bias corrected)					5.855	Data appear Normal at 5% Significance Level					
98	Theta Star					0.0384						
99	nu star					93.68						
100	Approximate Chi Square Value (.05)					72.36	Nonparametric Statistics					
101	Adjusted Level of Significance					0.0195	95% CLT UCL					0.268
102	Adjusted Chi Square Value					67.63	95% Jackknife UCL					0.275
103							95% Standard Bootstrap UCL					0.265
104	Anderson-Darling Test Statistic					0.265	95% Bootstrap-t UCL					0.27
105	Anderson-Darling 5% Critical Value					0.716	95% Hall's Bootstrap UCL					0.264
106	Kolmogorov-Smirnov Test Statistic					0.168	95% Percentile Bootstrap UCL					0.264

	A	B	C	D	E	F	G	H	I	J	K	L
107	Kolmogorov-Smirnov 5% Critical Value					0.294	95% BCA Bootstrap UCL					0.263
108	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					0.339
109							97.5% Chebyshev(Mean, Sd) UCL					0.389
110	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					0.486
111	95% Approximate Gamma UCL				0.291							
112	95% Adjusted Gamma UCL				0.312							
113												
114	Potential UCL to Use						Use 95% Student's-t UCL					0.275
115												
116												
117	Dibenzofuran											
118												
119	General Statistics											
120	Number of Valid Observations				8		Number of Distinct Observations				7	
121												
122	Raw Statistics						Log-transformed Statistics					
123	Minimum				0.069		Minimum of Log Data				-2.674	
124	Maximum				0.095		Maximum of Log Data				-2.354	
125	Mean				0.0828		Mean of log Data				-2.496	
126	Median				0.082		SD of log Data				0.102	
127	SD				0.00835							
128	Coefficient of Variation				0.101							
129	Skewness				0.0347							
130												
131												
132	Warning: There are only 8 Values in this data											
133	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
134	the resulting calculations may not be reliable enough to draw conclusions											
135												
136	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
137												
138	Relevant UCL Statistics											
139	Normal Distribution Test						Lognormal Distribution Test					
140	Shapiro Wilk Test Statistic				0.948		Shapiro Wilk Test Statistic				0.948	
141	Shapiro Wilk Critical Value				0.818		Shapiro Wilk Critical Value				0.818	
142	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
143												
144	Assuming Normal Distribution						Assuming Lognormal Distribution					
145	95% Student's-t UCL				0.0883		95% H-UCL				0.0889	
146	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL				0.0957	
147	95% Adjusted-CLT UCL				0.0876		97.5% Chebyshev (MVUE) UCL				0.101	
148	95% Modified-t UCL				0.0883		99% Chebyshev (MVUE) UCL				0.112	
149												
150	Gamma Distribution Test						Data Distribution					
151	k star (bias corrected)				69.78		Data appear Normal at 5% Significance Level					
152	Theta Star				0.00119							
153	nu star				1117							
154	Approximate Chi Square Value (.05)				1040		Nonparametric Statistics					
155	Adjusted Level of Significance				0.0195		95% CLT UCL				0.0876	
156	Adjusted Chi Square Value				1021		95% Jackknife UCL				0.0883	
157							95% Standard Bootstrap UCL				0.0873	
158	Anderson-Darling Test Statistic				0.303		95% Bootstrap-t UCL				0.0892	
159	Anderson-Darling 5% Critical Value				0.715		95% Hall's Bootstrap UCL				0.0913	

	A	B	C	D	E	F	G	H	I	J	K	L
160	Kolmogorov-Smirnov Test Statistic					0.175	95% Percentile Bootstrap UCL					0.0871
161	Kolmogorov-Smirnov 5% Critical Value					0.294	95% BCA Bootstrap UCL					0.0874
162	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					0.0956
163							97.5% Chebyshev(Mean, Sd) UCL					0.101
164	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					0.112
165	95% Approximate Gamma UCL					0.0888						
166	95% Adjusted Gamma UCL					0.0905						
167												
168	Potential UCL to Use						Use 95% Student's-t UCL					0.0883
169												
170												
171	Cobalt											
172												
173	General Statistics											
174	Number of Valid Data					8	Number of Detected Data					0
175	Number of Distinct Detected Data					0	Number of Non-Detect Data					8
176							Percent Non-Detects					100.00%
177												
178	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
179	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
180	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
181												
182	The data set for variable Cobalt was not processed!											
183												
184												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Southern Bank SW.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	1,4-Dichlorobenzene											
10												
11	General Statistics											
12	Number of Valid Data				14		Number of Detected Data				0	
13	Number of Distinct Detected Data				0		Number of Non-Detect Data				14	
14							Percent Non-Detects				100.00%	
15												
16	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
17	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
18	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
19												
20	The data set for variable 1,4-Dichlorobenzene was not processed!											
21												
22												
23												
24	Benzo(g,h,i)perylene											
25												
26	General Statistics											
27	Number of Valid Data				14		Number of Detected Data				0	
28	Number of Distinct Detected Data				0		Number of Non-Detect Data				14	
29							Percent Non-Detects				100.00%	
30												
31	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
32	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
33	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
34												
35	The data set for variable Benzo(g,h,i)perylene was not processed!											
36												
37												
38												
39	Cobalt											
40												
41	General Statistics											
42	Number of Valid Data				14		Number of Detected Data				3	
43	Number of Distinct Detected Data				3		Number of Non-Detect Data				11	
44							Percent Non-Detects				78.57%	
45												
46	Raw Statistics					Log-transformed Statistics						
47	Minimum Detected				0.56		Minimum Detected				-0.58	
48	Maximum Detected				1.5		Maximum Detected				0.405	
49	Mean of Detected				1.013		Mean of Detected				-0.0649	
50	SD of Detected				0.471		SD of Detected				0.494	
51	Minimum Non-Detect				0.37		Minimum Non-Detect				-0.994	
52	Maximum Non-Detect				2.3		Maximum Non-Detect				0.833	
53												

	A	B	C	D	E	F	G	H	I	J	K	L
54	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					14
55	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0
56	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
57												
58	Warning: There are only 3 Distinct Detected Values in this data set											
59	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
60	Those methods will return a 'N/A' value on your output display!											
61												
62	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
63	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
64												
65												
66	UCL Statistics											
67	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
68	Shapiro Wilk Test Statistic				0.996		Shapiro Wilk Test Statistic				0.994	
69	5% Shapiro Wilk Critical Value				0.767		5% Shapiro Wilk Critical Value				0.767	
70	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
71												
72	Assuming Normal Distribution						Assuming Lognormal Distribution					
73	DL/2 Substitution Method						DL/2 Substitution Method					
74	Mean				0.531		Mean				-0.837	
75	SD				0.396		SD				0.629	
76	95% DL/2 (t) UCL				0.719		95% H-Stat (DL/2) UCL				0.612	
77												
78	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method					
79	MLE method failed to converge properly						Mean in Log Scale				-1.04	
80							SD in Log Scale				0.576	
81							Mean in Original Scale				0.432	
82							SD in Original Scale				0.367	
83							95% Percentile Bootstrap UCL				0.61	
84							95% BCA Bootstrap UCL				0.663	
85												
86	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
87	k star (bias corrected)				N/A		Data appear Normal at 5% Significance Level					
88	Theta Star				N/A							
89	nu star				N/A							
90												
91	A-D Test Statistic				0.247		Nonparametric Statistics					
92	5% A-D Critical Value				N/A		Kaplan-Meier (KM) Method					
93	K-S Test Statistic				N/A		Mean				0.668	
94	5% K-S Critical Value				N/A		SD				0.267	
95	Data not Gamma Distributed at 5% Significance Level						SE of Mean				0.0914	
96							95% KM (t) UCL				0.829	
97	Assuming Gamma Distribution						95% KM (z) UCL				0.818	
98	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				0.948	
99	Minimum				N/A		95% KM (bootstrap t) UCL				0.756	
100	Maximum				N/A		95% KM (BCA) UCL				1.5	
101	Mean				N/A		95% KM (Percentile Bootstrap) UCL				N/A	
102	Median				N/A		95% KM (Chebyshev) UCL				1.066	
103	SD				N/A		97.5% KM (Chebyshev) UCL				1.238	
104	k star				N/A		99% KM (Chebyshev) UCL				1.577	
105	Theta star				N/A							
106	Nu star				N/A		Potential UCLs to Use					

	A	B	C	D	E	F	G	H	I	J	K	L
107	AppChi2					N/A	95% KM (t) UCL					0.829
108	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					N/A
109	95% Adjusted Gamma UCL					N/A						
110	Note: DL/2 is not a recommended method.											
111												
112												
113	Naphthalene											
114												
115	General Statistics											
116	Number of Valid Data					14	Number of Detected Data					0
117	Number of Distinct Detected Data					0	Number of Non-Detect Data					14
118							Percent Non-Detects					100.00%
119												
120	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
121	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
122	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
123												
124	The data set for variable Naphthalene was not processed!											
125												
126												
127												
128	Phenanthrene											
129												
130	General Statistics											
131	Number of Valid Data					14	Number of Detected Data					3
132	Number of Distinct Detected Data					3	Number of Non-Detect Data					11
133							Percent Non-Detects					78.57%
134												
135	Raw Statistics					Log-transformed Statistics						
136	Minimum Detected					0.1	Minimum Detected					-2.303
137	Maximum Detected					0.17	Maximum Detected					-1.772
138	Mean of Detected					0.127	Mean of Detected					-2.094
139	SD of Detected					0.0379	SD of Detected					0.283
140	Minimum Non-Detect					0.1	Minimum Non-Detect					-2.303
141	Maximum Non-Detect					0.1	Maximum Non-Detect					-2.303
142												
143												
144	Warning: There are only 3 Distinct Detected Values in this data set											
145	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
146	Those methods will return a 'N/A' value on your output display!											
147												
148	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
149	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
150												
151												
152	UCL Statistics											
153	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
154	Shapiro Wilk Test Statistic					0.855	Shapiro Wilk Test Statistic					0.88
155	5% Shapiro Wilk Critical Value					0.767	5% Shapiro Wilk Critical Value					0.767
156	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
157												
158	Assuming Normal Distribution					Assuming Lognormal Distribution						
159	DL/2 Substitution Method						DL/2 Substitution Method					

	A	B	C	D	E	F	G	H	I	J	K	L
160	Mean					0.0664	Mean					-2.802
161	SD					0.0359	SD					0.4
162	95% DL/2 (t) UCL					0.0834	95% H-Stat (DL/2) UCL					0.0819
163												
164	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
165	Mean					0.0565	Mean in Log Scale					-3.212
166	SD					0.0532	SD in Log Scale					0.797
167	95% MLE (t) UCL					0.0817	Mean in Original Scale					0.054
168	95% MLE (Tiku) UCL					0.114	SD in Original Scale					0.0449
169							95% Percentile Bootstrap UCL					0.0742
170							95% BCA Bootstrap UCL					0.078
171												
172	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
173	k star (bias corrected)					N/A	Data appear Normal at 5% Significance Level					
174	Theta Star					N/A						
175	nu star					N/A						
176												
177	A-D Test Statistic					0.432	Nonparametric Statistics					
178	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
179	K-S Test Statistic					N/A	Mean					0.106
180	5% K-S Critical Value					N/A	SD					0.018
181	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0059
182							95% KM (t) UCL					0.116
183	Assuming Gamma Distribution						95% KM (z) UCL					0.115
184	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					N/A
185	Minimum					N/A	95% KM (bootstrap t) UCL					N/A
186	Maximum					N/A	95% KM (BCA) UCL					N/A
187	Mean					N/A	95% KM (Percentile Bootstrap) UCL					N/A
188	Median					N/A	95% KM (Chebyshev) UCL					0.131
189	SD					N/A	97.5% KM (Chebyshev) UCL					0.143
190	k star					N/A	99% KM (Chebyshev) UCL					0.164
191	Theta star					N/A						
192	Nu star					N/A	Potential UCLs to Use					
193	AppChi2					N/A	95% KM (t) UCL					0.116
194	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					N/A
195	95% Adjusted Gamma UCL					N/A						
196	Note: DL/2 is not a recommended method.											
197												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Unnamed Island Ponds SD.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Data				17		Number of Detected Data				16	
13	Number of Distinct Detected Data				15		Number of Non-Detect Data				1	
14							Percent Non-Detects				5.88%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				0.147		Minimum Detected				-1.917	
18	Maximum Detected				2.245		Maximum Detected				0.809	
19	Mean of Detected				0.78		Mean of Detected				-0.604	
20	SD of Detected				0.65		SD of Detected				0.902	
21	Minimum Non-Detect				0.0037		Minimum Non-Detect				-5.599	
22	Maximum Non-Detect				0.0037		Maximum Non-Detect				-5.599	
23												
24												
25	UCL Statistics											
26	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
27	Shapiro Wilk Test Statistic				0.865		Shapiro Wilk Test Statistic				0.926	
28	5% Shapiro Wilk Critical Value				0.887		5% Shapiro Wilk Critical Value				0.887	
29	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
30												
31	Assuming Normal Distribution					Assuming Lognormal Distribution						
32	DL/2 Substitution Method						DL/2 Substitution Method					
33	Mean				0.734		Mean				-0.939	
34	SD				0.657		SD				1.633	
35	95% DL/2 (t) UCL				1.013		95% H-Stat (DL/2) UCL				4.167	
36												
37	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
38	Mean				0.714		Mean in Log Scale				-0.734	
39	SD				0.669		SD in Log Scale				1.024	
40	95% MLE (t) UCL				0.998		Mean in Original Scale				0.738	
41	95% MLE (Tiku) UCL				0.989		SD in Original Scale				0.653	
42							95% Percentile Bootstrap UCL				0.999	
43							95% BCA Bootstrap UCL				1.024	
44												
45	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
46	k star (bias corrected)				1.301		Data appear Gamma Distributed at 5% Significance Level					
47	Theta Star				0.6							
48	nu star				41.62							
49												
50	A-D Test Statistic				0.512		Nonparametric Statistics					
51	5% A-D Critical Value				0.754		Kaplan-Meier (KM) Method					
52	K-S Test Statistic				0.754		Mean				0.743	
53	5% K-S Critical Value				0.219		SD				0.629	

	A	B	C	D	E	F	G	H	I	J	K	L	
54	Data appear Gamma Distributed at 5% Significance Level						SE of Mean						0.157
55							95% KM (t) UCL						1.018
56	Assuming Gamma Distribution						95% KM (z) UCL						1.002
57	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL						1.016
58	Minimum				1E-09		95% KM (bootstrap t) UCL						1.079
59	Maximum				2.245		95% KM (BCA) UCL						0.974
60	Mean				0.734		95% KM (Percentile Bootstrap) UCL						1.011
61	Median				0.48		95% KM (Chebyshev) UCL						1.429
62	SD				0.657		97.5% KM (Chebyshev) UCL						1.726
63	k star				0.4		99% KM (Chebyshev) UCL						2.31
64	Theta star				1.834								
65	Nu star				13.61		Potential UCLs to Use						
66	AppChi2				6.305		95% KM (Chebyshev) UCL						1.429
67	95% Gamma Approximate UCL				1.585								
68	95% Adjusted Gamma UCL				1.726								
69	Note: DL/2 is not a recommended method.												
70													
71													
72	Carbazole												
73													
74	General Statistics												
75	Number of Valid Data				17		Number of Detected Data				11		
76	Number of Distinct Detected Data				11		Number of Non-Detect Data				6		
77							Percent Non-Detects				35.29%		
78													
79	Raw Statistics					Log-transformed Statistics							
80	Minimum Detected				0.045		Minimum Detected				-3.101		
81	Maximum Detected				0.2		Maximum Detected				-1.609		
82	Mean of Detected				0.117		Mean of Detected				-2.229		
83	SD of Detected				0.0487		SD of Detected				0.446		
84	Minimum Non-Detect				0.15		Minimum Non-Detect				-1.897		
85	Maximum Non-Detect				0.49		Maximum Non-Detect				-0.713		
86													
87	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				17		
88	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				0		
89	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				100.00%		
90													
91	UCL Statistics												
92	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
93	Shapiro Wilk Test Statistic				0.942		Shapiro Wilk Test Statistic				0.95		
94	5% Shapiro Wilk Critical Value				0.85		5% Shapiro Wilk Critical Value				0.85		
95	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
96													
97	Assuming Normal Distribution						Assuming Lognormal Distribution						
98	DL/2 Substitution Method						DL/2 Substitution Method						
99	Mean				0.141		Mean				-2.059		
100	SD				0.0603		SD				0.486		
101	95% DL/2 (t) UCL				0.167		95% H-Stat (DL/2) UCL				0.27		
102													
103	Maximum Likelihood Estimate(MLE) Method				N/A		Log ROS Method						
104	MLE method failed to converge properly						Mean in Log Scale				-2.251		
105							SD in Log Scale				0.357		
106							Mean in Original Scale				0.112		

	A	B	C	D	E	F	G	H	I	J	K	L	
107						SD in Original Scale							0.0395
108						95% Percentile Bootstrap UCL							0.128
109						95% BCA Bootstrap UCL							0.128
110													
111	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only							
112	k star (bias corrected)					4.458	Data appear Normal at 5% Significance Level						
113	Theta Star					0.0263							
114	nu star					98.07							
115													
116	A-D Test Statistic					0.303	Nonparametric Statistics						
117	5% A-D Critical Value					0.731	Kaplan-Meier (KM) Method						
118	K-S Test Statistic					0.731	Mean						0.115
119	5% K-S Critical Value					0.256	SD						0.0457
120	Data appear Gamma Distributed at 5% Significance Level					SE of Mean						0.014	
121							95% KM (t) UCL						0.139
122	Assuming Gamma Distribution					95% KM (z) UCL						0.138	
123	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL						0.139
124	Minimum					0.045	95% KM (bootstrap t) UCL						0.14
125	Maximum					0.2	95% KM (BCA) UCL						0.135
126	Mean					0.12	95% KM (Percentile Bootstrap) UCL						0.138
127	Median					0.13	95% KM (Chebyshev) UCL						0.175
128	SD					0.0392	97.5% KM (Chebyshev) UCL						0.202
129	k star					7.431	99% KM (Chebyshev) UCL						0.253
130	Theta star					0.0162							
131	Nu star					252.6	Potential UCLs to Use						
132	AppChi2					216.8	95% KM (t) UCL						0.139
133	95% Gamma Approximate UCL					0.14	95% KM (Percentile Bootstrap) UCL						0.138
134	95% Adjusted Gamma UCL					0.142							
135	Note: DL/2 is not a recommended method.												
136													
137													
138	Dibenzofuran												
139													
140	General Statistics												
141	Number of Valid Data					17	Number of Detected Data					6	
142	Number of Distinct Detected Data					6	Number of Non-Detect Data					11	
143							Percent Non-Detects					64.71%	
144													
145	Raw Statistics					Log-transformed Statistics							
146	Minimum Detected					0.045	Minimum Detected					-3.101	
147	Maximum Detected					0.1	Maximum Detected					-2.303	
148	Mean of Detected					0.0755	Mean of Detected					-2.619	
149	SD of Detected					0.0207	SD of Detected					0.299	
150	Minimum Non-Detect					0.15	Minimum Non-Detect					-1.897	
151	Maximum Non-Detect					0.53	Maximum Non-Detect					-0.635	
152													
153	Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect					17		
154	For all methods (except KM, DL/2, and ROS Methods),					Number treated as Detected					0		
155	Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage					100.00%		
156													
157	Warning: There are only 6 Detected Values in this data												
158	Note: It should be noted that even though bootstrap may be performed on this data set												
159	the resulting calculations may not be reliable enough tp draw conclusions												

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
162												
163												
164	UCL Statistics											
165	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
166	Shapiro Wilk Test Statistic					0.949	Shapiro Wilk Test Statistic					0.927
167	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
168	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
169												
170	Assuming Normal Distribution						Assuming Lognormal Distribution					
171	DL/2 Substitution Method						DL/2 Substitution Method					
172	Mean					0.15	Mean					-2.037
173	SD					0.0756	SD					0.577
174	95% DL/2 (t) UCL					0.182	95% H-Stat (DL/2) UCL					0.442
175												
176	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
177	MLE method failed to converge properly						Mean in Log Scale					-2.619
178							SD in Log Scale					0.167
179							Mean in Original Scale					0.0738
180							SD in Original Scale					0.0117
181							95% Percentile Bootstrap UCL					0.0783
182							95% BCA Bootstrap UCL					0.0782
183												
184	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
185	k star (bias corrected)					7.308	Data appear Normal at 5% Significance Level					
186	Theta Star					0.0103						
187	nu star					87.7						
188												
189	A-D Test Statistic					0.299	Nonparametric Statistics					
190	5% A-D Critical Value					0.698	Kaplan-Meier (KM) Method					
191	K-S Test Statistic					0.698	Mean					0.0755
192	5% K-S Critical Value					0.332	SD					0.0189
193	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.00846
194							95% KM (t) UCL					0.0903
195	Assuming Gamma Distribution						95% KM (z) UCL					0.0894
196	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0912
197	Minimum					0.045	95% KM (bootstrap t) UCL					0.0911
198	Maximum					0.1	95% KM (BCA) UCL					0.0879
199	Mean					0.0777	95% KM (Percentile Bootstrap) UCL					0.0895
200	Median					0.0789	95% KM (Chebyshev) UCL					0.112
201	SD					0.0117	97.5% KM (Chebyshev) UCL					0.128
202	k star					32.79	99% KM (Chebyshev) UCL					0.16
203	Theta star					0.00237						
204	Nu star					1115	Potential UCLs to Use					
205	AppChi2					1038	95% KM (t) UCL					0.0903
206	95% Gamma Approximate UCL					0.0834	95% KM (Percentile Bootstrap) UCL					0.0895
207	95% Adjusted Gamma UCL					0.0841						
208	Note: DL/2 is not a recommended method.											
209												
210												
211	Phenanthrene											
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213	General Statistics											
214	Number of Valid Data					17	Number of Detected Data					16
215	Number of Distinct Detected Data					15	Number of Non-Detect Data					1
216							Percent Non-Detects					5.88%
217												
218	Raw Statistics					Log-transformed Statistics						
219	Minimum Detected					0.093	Minimum Detected					-2.375
220	Maximum Detected					2.775	Maximum Detected					1.021
221	Mean of Detected					1.098	Mean of Detected					-0.209
222	SD of Detected					0.789	SD of Detected					0.895
223	Minimum Non-Detect					0.0037	Minimum Non-Detect					-5.599
224	Maximum Non-Detect					0.0037	Maximum Non-Detect					-5.599
225												
226												
227	UCL Statistics											
228	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
229	Shapiro Wilk Test Statistic					0.921	Shapiro Wilk Test Statistic					0.949
230	5% Shapiro Wilk Critical Value					0.887	5% Shapiro Wilk Critical Value					0.887
231	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
232												
233	Assuming Normal Distribution					Assuming Lognormal Distribution						
234	DL/2 Substitution Method						DL/2 Substitution Method					
235	Mean					1.034	Mean					-0.567
236	SD					0.809	SD					1.711
237	95% DL/2 (t) UCL					1.376	95% H-Stat (DL/2) UCL					7.571
238												
239	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
240	Mean					1.01	Mean in Log Scale					-0.335
241	SD					0.824	SD in Log Scale					1.01
242	95% MLE (t) UCL					1.359	Mean in Original Scale					1.039
243	95% MLE (Tiku) UCL					1.353	SD in Original Scale					0.802
244							95% Percentile Bootstrap UCL					1.377
245							95% BCA Bootstrap UCL					1.402
246												
247	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
248	k star (bias corrected)					1.506	Data appear Normal at 5% Significance Level					
249	Theta Star					0.729						
250	nu star					48.2						
251												
252	A-D Test Statistic					0.143	Nonparametric Statistics					
253	5% A-D Critical Value					0.752	Kaplan-Meier (KM) Method					
254	K-S Test Statistic					0.752	Mean					1.039
255	5% K-S Critical Value					0.218	SD					0.778
256	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					0.195	
257							95% KM (t) UCL					1.379
258	Assuming Gamma Distribution					95% KM (z) UCL					1.359	
259	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.374
260	Minimum					1E-09	95% KM (bootstrap t) UCL					1.451
261	Maximum					2.775	95% KM (BCA) UCL					1.378
262	Mean					1.033	95% KM (Percentile Bootstrap) UCL					1.361
263	Median					0.92	95% KM (Chebyshev) UCL					1.888
264	SD					0.809	97.5% KM (Chebyshev) UCL					2.256
265	k star					0.407	99% KM (Chebyshev) UCL					2.978

	A	B	C	D	E	F	G	H	I	J	K	L	
266	Theta star					2.54							
267	Nu star					13.83	Potential UCLs to Use						
268	AppChi2					6.457	95% KM (t) UCL					1.379	
269	95% Gamma Approximate UCL					2.214	95% KM (Percentile Bootstrap) UCL					1.361	
270	95% Adjusted Gamma UCL					2.409							
271	Note: DL/2 is not a recommended method.												
272													
273													
274	Cobalt												
275													
276	General Statistics												
277	Number of Valid Data					17	Number of Detected Data					3	
278	Number of Distinct Detected Data					3	Number of Non-Detect Data					14	
279							Percent Non-Detects					82.35%	
280													
281	Raw Statistics					Log-transformed Statistics							
282	Minimum Detected					4.6	Minimum Detected					1.526	
283	Maximum Detected					14	Maximum Detected					2.639	
284	Mean of Detected					9.233	Mean of Detected					2.124	
285	SD of Detected					4.701	SD of Detected					0.561	
286	Minimum Non-Detect					8.9	Minimum Non-Detect					2.186	
287	Maximum Non-Detect					14	Maximum Non-Detect					2.639	
288													
289	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				16		
290	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				1		
291	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				94.12%		
292													
293	Warning: There are only 3 Distinct Detected Values in this data set												
294	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.												
295	Those methods will return a 'N/A' value on your output display!												
296													
297	It is necessary to have 4 or more Distinct Values for bootstrap methods.												
298	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.												
299													
300													
301	UCL Statistics												
302	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
303	Shapiro Wilk Test Statistic					0.999	Shapiro Wilk Test Statistic					0.983	
304	5% Shapiro Wilk Critical Value					0.767	5% Shapiro Wilk Critical Value					0.767	
305	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
306													
307	Assuming Normal Distribution					Assuming Lognormal Distribution							
308	DL/2 Substitution Method						DL/2 Substitution Method						
309	Mean					6.453	Mean					1.822	
310	SD					2.264	SD					0.28	
311	95% DL/2 (t) UCL					7.411	95% H-Stat (DL/2) UCL					8.656	
312													
313	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
314	MLE method failed to converge properly						Mean in Log Scale					1.798	
315							SD in Log Scale					0.323	
316							Mean in Original Scale					6.377	
317							SD in Original Scale					2.448	
318							95% Percentile Bootstrap UCL					7.357	

	A	B	C	D	E	F	G	H	I	J	K	L
319							95% BCA Bootstrap UCL					7.586
320												
321	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
322	k star (bias corrected)					N/A	Data appear Normal at 5% Significance Level					
323	Theta Star					N/A						
324	nu star					N/A						
325												
326	A-D Test Statistic					0.254	Nonparametric Statistics					
327	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
328	K-S Test Statistic					N/A	Mean					6.565
329	5% K-S Critical Value					N/A	SD					2.773
330	Data not Gamma Distributed at 5% Significance Level						SE of Mean					1.516
331							95% KM (t) UCL					9.211
332	Assuming Gamma Distribution						95% KM (z) UCL					9.058
333	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					10.06
334	Minimum					N/A	95% KM (bootstrap t) UCL					8.97
335	Maximum					N/A	95% KM (BCA) UCL					N/A
336	Mean					N/A	95% KM (Percentile Bootstrap) UCL					14
337	Median					N/A	95% KM (Chebyshev) UCL					13.17
338	SD					N/A	97.5% KM (Chebyshev) UCL					16.03
339	k star					N/A	99% KM (Chebyshev) UCL					21.65
340	Theta star					N/A						
341	Nu star					N/A	Potential UCLs to Use					
342	AppChi2					N/A	95% KM (t) UCL					9.211
343	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					14
344	95% Adjusted Gamma UCL					N/A						
345	Note: DL/2 is not a recommended method.											
346												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Unnamed Island Ponds SW.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	1,4-Dichlorobenzene											
10												
11	General Statistics											
12	Number of Valid Data			15	Number of Detected Data			0				
13	Number of Distinct Detected Data			0	Number of Non-Detect Data			15				
14					Percent Non-Detects			100.00%				
15												
16	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
17	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
18	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
19												
20	The data set for variable 1,4-Dichlorobenzene was not processed!											
21												
22												
23												
24	Benzo(g,h,i)perylene											
25												
26	General Statistics											
27	Number of Valid Data			15	Number of Detected Data			1				
28	Number of Distinct Detected Data			1	Number of Non-Detect Data			14				
29					Percent Non-Detects			93.33%				
30												
31	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
32	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
33												
34	The data set for variable Benzo(g,h,i)perylene was not processed!											
35												
36												
37												
38	Cobalt											
39												
40	General Statistics											
41	Number of Valid Data			15	Number of Detected Data			0				
42	Number of Distinct Detected Data			0	Number of Non-Detect Data			15				
43					Percent Non-Detects			100.00%				
44												
45	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
46	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
47	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
48												
49	The data set for variable Cobalt was not processed!											
50												
51												
52												
53	Naphthalene											

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55	General Statistics											
56	Number of Valid Data					15	Number of Detected Data					1
57	Number of Distinct Detected Data					1	Number of Non-Detect Data					14
58							Percent Non-Detects					93.33%
59												
60	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
61	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
62												
63	The data set for variable Naphthalene was not processed!											
64												
65												
66												
67	Phenanthrene											
68												
69	General Statistics											
70	Number of Valid Data					15	Number of Detected Data					5
71	Number of Distinct Detected Data					4	Number of Non-Detect Data					10
72							Percent Non-Detects					66.67%
73												
74	Raw Statistics					Log-transformed Statistics						
75	Minimum Detected					0.11	Minimum Detected					-2.207
76	Maximum Detected					0.21	Maximum Detected					-1.561
77	Mean of Detected					0.16	Mean of Detected					-1.862
78	SD of Detected					0.043	SD of Detected					0.272
79	Minimum Non-Detect					0.1	Minimum Non-Detect					-2.303
80	Maximum Non-Detect					0.1	Maximum Non-Detect					-2.303
81												
82												
83	Warning: There are only 4 Distinct Detected Values in this data											
84	Note: It should be noted that even though bootstrap may be performed on this data set											
85	the resulting calculations may not be reliable enough tp draw conclusions											
86												
87	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
88												
89												
90	UCL Statistics											
91	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
92	Shapiro Wilk Test Statistic					0.885	Shapiro Wilk Test Statistic					0.9
93	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
94	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
95												
96	Assuming Normal Distribution					Assuming Lognormal Distribution						
97	DL/2 Substitution Method						DL/2 Substitution Method					
98	Mean					0.0867	Mean					-2.618
99	SD					0.0584	SD					0.572
100	95% DL/2 (t) UCL					0.113	95% H-Stat (DL/2) UCL					0.0998
101												
102	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
103	Mean					0.0656	Mean in Log Scale					-2.525
104	SD					0.0845	SD in Log Scale					0.591
105	95% MLE (t) UCL					0.104	Mean in Original Scale					0.094
106	95% MLE (Tiku) UCL					0.127	SD in Original Scale					0.0562

	A	B	C	D	E	F	G	H	I	J	K	L
107							95% Percentile Bootstrap UCL					0.119
108							95% BCA Bootstrap UCL					0.121
109												
110	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
111	k star (bias corrected)					7.017	Data appear Normal at 5% Significance Level					
112	Theta Star					0.0228						
113	nu star					70.17						
114												
115	A-D Test Statistic					0.417	Nonparametric Statistics					
116	5% A-D Critical Value					0.679	Kaplan-Meier (KM) Method					
117	K-S Test Statistic					0.679	Mean					0.127
118	5% K-S Critical Value					0.357	SD					0.0324
119	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.00935
120							95% KM (t) UCL					0.143
121	Assuming Gamma Distribution						95% KM (z) UCL					0.142
122	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.147
123	Minimum					0.102	95% KM (bootstrap t) UCL					0.148
124	Maximum					0.265	95% KM (BCA) UCL					0.2
125	Mean					0.188	95% KM (Percentile Bootstrap) UCL					0.159
126	Median					0.2	95% KM (Chebyshev) UCL					0.167
127	SD					0.052	97.5% KM (Chebyshev) UCL					0.185
128	k star					10.18	99% KM (Chebyshev) UCL					0.22
129	Theta star					0.0184						
130	Nu star					305.4	Potential UCLs to Use					
131	AppChi2					265.9	95% KM (t) UCL					0.143
132	95% Gamma Approximate UCL					0.215	95% KM (Percentile Bootstrap) UCL					0.159
133	95% Adjusted Gamma UCL					0.219						
134	Note: DL/2 is not a recommended method.											
135												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Unnamed Island SS.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Observations				25		Number of Distinct Observations				21	
13												
14	Raw Statistics						Log-transformed Statistics					
15	Minimum				0.036		Minimum of Log Data				-3.324	
16	Maximum				2.3		Maximum of Log Data				0.833	
17	Mean				0.488		Mean of log Data				-1.22	
18	Median				0.26		SD of log Data				1.037	
19	SD				0.536							
20	Coefficient of Variation				1.1							
21	Skewness				2.003							
22												
23	Relevant UCL Statistics											
24	Normal Distribution Test						Lognormal Distribution Test					
25	Shapiro Wilk Test Statistic				0.754		Shapiro Wilk Test Statistic				0.981	
26	Shapiro Wilk Critical Value				0.918		Shapiro Wilk Critical Value				0.918	
27	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
28												
29	Assuming Normal Distribution						Assuming Lognormal Distribution					
30	95% Student's-t UCL				0.671		95% H-UCL				0.866	
31	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL				0.997	
32	95% Adjusted-CLT UCL				0.71		97.5% Chebyshev (MVUE) UCL				1.217	
33	95% Modified-t UCL				0.678		99% Chebyshev (MVUE) UCL				1.648	
34												
35	Gamma Distribution Test						Data Distribution					
36	k star (bias corrected)				1.025		Data appear Gamma Distributed at 5% Significance Level					
37	Theta Star				0.476							
38	nu star				51.25							
39	Approximate Chi Square Value (.05)				35.81		Nonparametric Statistics					
40	Adjusted Level of Significance				0.0395		95% CLT UCL				0.664	
41	Adjusted Chi Square Value				34.93		95% Jackknife UCL				0.671	
42							95% Standard Bootstrap UCL				0.663	
43	Anderson-Darling Test Statistic				0.595		95% Bootstrap-t UCL				0.762	
44	Anderson-Darling 5% Critical Value				0.77		95% Hall's Bootstrap UCL				0.759	
45	Kolmogorov-Smirnov Test Statistic				0.169		95% Percentile Bootstrap UCL				0.673	
46	Kolmogorov-Smirnov 5% Critical Value				0.179		95% BCA Bootstrap UCL				0.704	
47	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL				0.955	
48							97.5% Chebyshev(Mean, Sd) UCL				1.158	
49	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL				1.555	
50	95% Approximate Gamma UCL				0.698							
51	95% Adjusted Gamma UCL				0.716							
52												
53	Potential UCL to Use						Use 95% Approximate Gamma UCL				0.698	

	A	B	C	D	E	F	G	H	I	J	K	L	
54													
55													
56	Carbazole												
57													
58	General Statistics												
59	Number of Valid Data					25	Number of Detected Data					14	
60	Number of Distinct Detected Data					14	Number of Non-Detect Data					11	
61							Percent Non-Detects					44.00%	
62													
63	Raw Statistics					Log-transformed Statistics							
64	Minimum Detected					0.024	Minimum Detected					-3.73	
65	Maximum Detected					0.99	Maximum Detected					-0.0101	
66	Mean of Detected					0.199	Mean of Detected					-2.069	
67	SD of Detected					0.245	SD of Detected					0.95	
68	Minimum Non-Detect					0.34	Minimum Non-Detect					-1.079	
69	Maximum Non-Detect					0.4	Maximum Non-Detect					-0.916	
70													
71	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					24	
72	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1	
73	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					96.00%	
74													
75	UCL Statistics												
76	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
77	Shapiro Wilk Test Statistic					0.634	Shapiro Wilk Test Statistic					0.986	
78	5% Shapiro Wilk Critical Value					0.874	5% Shapiro Wilk Critical Value					0.874	
79	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
80													
81	Assuming Normal Distribution					Assuming Lognormal Distribution							
82	DL/2 Substitution Method						DL/2 Substitution Method						
83	Mean					0.192	Mean					-1.907	
84	SD					0.181	SD					0.724	
85	95% DL/2 (t) UCL					0.254	95% H-Stat (DL/2) UCL					0.355	
86													
87	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
88	MLE method failed to converge properly					Mean in Log Scale							-2.147
89							SD in Log Scale					0.753	
90							Mean in Original Scale					0.162	
91							SD in Original Scale					0.188	
92							95% Percentile Bootstrap UCL					0.226	
93							95% BCA Bootstrap UCL					0.261	
94													
95	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only							
96	k star (bias corrected)					1.025	Data appear Gamma Distributed at 5% Significance Level						
97	Theta Star					0.194							
98	nu star					28.69							
99													
100	A-D Test Statistic					0.444	Nonparametric Statistics						
101	5% A-D Critical Value					0.755	Kaplan-Meier (KM) Method						
102	K-S Test Statistic					0.755	Mean					0.169	
103	5% K-S Critical Value					0.234	SD					0.189	
104	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					0.0421		
105							95% KM (t) UCL					0.241	
106	Assuming Gamma Distribution					95% KM (z) UCL					0.238		

	A	B	C	D	E	F	G	H	I	J	K	L	
107	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.24	
108	Minimum					0.024	95% KM (bootstrap t) UCL					0.297	
109	Maximum					0.99	95% KM (BCA) UCL					0.248	
110	Mean					0.2	95% KM (Percentile Bootstrap) UCL					0.246	
111	Median					0.185	95% KM (Chebyshev) UCL					0.352	
112	SD					0.181	97.5% KM (Chebyshev) UCL					0.431	
113	k star					1.882	99% KM (Chebyshev) UCL					0.587	
114	Theta star					0.107							
115	Nu star					94.09	Potential UCLs to Use						
116	AppChi2					72.72	95% KM (t) UCL					0.241	
117	95% Gamma Approximate UCL					0.259							
118	95% Adjusted Gamma UCL					0.264							
119	Note: DL/2 is not a recommended method.												
120													
121													
122	Dibenzofuran												
123													
124	General Statistics												
125	Number of Valid Data					25	Number of Detected Data					10	
126	Number of Distinct Detected Data					10	Number of Non-Detect Data					15	
127							Percent Non-Detects					60.00%	
128													
129	Raw Statistics						Log-transformed Statistics						
130	Minimum Detected					0.061	Minimum Detected					-2.797	
131	Maximum Detected					1.1	Maximum Detected					0.0953	
132	Mean of Detected					0.215	Mean of Detected					-1.995	
133	SD of Detected					0.315	SD of Detected					0.833	
134	Minimum Non-Detect					0.34	Minimum Non-Detect					-1.079	
135	Maximum Non-Detect					0.4	Maximum Non-Detect					-0.916	
136													
137	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					24	
138	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1	
139	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					96.00%	
140													
141	UCL Statistics												
142	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
143	Shapiro Wilk Test Statistic					0.502	Shapiro Wilk Test Statistic					0.787	
144	5% Shapiro Wilk Critical Value					0.842	5% Shapiro Wilk Critical Value					0.842	
145	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level						
146													
147	Assuming Normal Distribution						Assuming Lognormal Distribution						
148	DL/2 Substitution Method						DL/2 Substitution Method						
149	Mean					0.197	Mean					-1.814	
150	SD					0.194	SD					0.533	
151	95% DL/2 (t) UCL					0.263	95% H-Stat (DL/2) UCL					0.323	
152													
153	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
154	MLE method failed to converge properly						Mean in Log Scale					-2.089	
155							SD in Log Scale					0.594	
156							Mean in Original Scale					0.161	
157							SD in Original Scale					0.201	
158							95% Percentile Bootstrap UCL					0.24	
159							95% BCA Bootstrap UCL					0.282	

	A	B	C	D	E	F	G	H	I	J	K	L	
160													
161	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only						
162	k star (bias corrected)					0.927	Data do not follow a Discernable Distribution (0.05)						
163	Theta Star					0.232							
164	nu star					18.53							
165													
166	A-D Test Statistic					1.43	Nonparametric Statistics						
167	5% A-D Critical Value					0.744	Kaplan-Meier (KM) Method						
168	K-S Test Statistic					0.744	Mean					0.156	
169	5% K-S Critical Value					0.273	SD					0.199	
170	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0441	
171							95% KM (t) UCL					0.232	
172	Assuming Gamma Distribution						95% KM (z) UCL					0.229	
173	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.23	
174	Minimum					0.061	95% KM (bootstrap t) UCL					0.454	
175	Maximum					1.1	95% KM (BCA) UCL					0.242	
176	Mean					0.215	95% KM (Percentile Bootstrap) UCL					0.235	
177	Median					0.198	95% KM (Chebyshev) UCL					0.349	
178	SD					0.194	97.5% KM (Chebyshev) UCL					0.432	
179	k star					2.48	99% KM (Chebyshev) UCL					0.596	
180	Theta star					0.0867							
181	Nu star					124	Potential UCLs to Use						
182	AppChi2					99.26	95% KM (t) UCL					0.232	
183	95% Gamma Approximate UCL					0.269	95% KM (% Bootstrap) UCL					0.235	
184	95% Adjusted Gamma UCL					0.273							
185	Note: DL/2 is not a recommended method.												
186													
187													
188	Dioxin TEQ												
189													
190	General Statistics												
191	Number of Valid Observations					2	Number of Distinct Observations					2	
192													
193													
194	Warning: This data set only has 2 observations!												
195	Data set is too small to compute reliable and meaningful statistics and estimates!												
196	The data set for variable Dioxin TEQ was not processed!												
197													
198	It is suggested to collect at least 8 to 10 observations before using these statistical methods!												
199	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.												
200													
201													
202													
203	Cobalt												
204													
205	General Statistics												
206	Number of Valid Data					25	Number of Detected Data					13	
207	Number of Distinct Detected Data					11	Number of Non-Detect Data					12	
208							Percent Non-Detects					48.00%	
209													
210	Raw Statistics						Log-transformed Statistics						
211	Minimum Detected					2	Minimum Detected					0.693	
212	Maximum Detected					12.8	Maximum Detected					2.549	

	A	B	C	D	E	F	G	H	I	J	K	L
213	Mean of Detected					4.715	Mean of Detected					1.426
214	SD of Detected					2.865	SD of Detected					0.488
215	Minimum Non-Detect					7.2	Minimum Non-Detect					1.974
216	Maximum Non-Detect					11	Maximum Non-Detect					2.398
217												
218	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					24
219	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					1
220	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					96.00%
221												
222	UCL Statistics											
223	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
224	Shapiro Wilk Test Statistic					0.761	Shapiro Wilk Test Statistic					0.94
225	5% Shapiro Wilk Critical Value					0.866	5% Shapiro Wilk Critical Value					0.866
226	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
227												
228	Assuming Normal Distribution						Assuming Lognormal Distribution					
229	DL/2 Substitution Method						DL/2 Substitution Method					
230	Mean					4.746	Mean					1.487
231	SD					2.085	SD					0.367
232	95% DL/2 (t) UCL					5.459	95% H-Stat (DL/2) UCL					6.038
233												
234	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
235	MLE method failed to converge properly						Mean in Log Scale					1.383
236							SD in Log Scale					0.38
237							Mean in Original Scale					4.32
238							SD in Original Scale					2.155
239							95% Percentile Bootstrap UCL					5.051
240							95% BCA Bootstrap UCL					5.346
241												
242	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
243	k star (bias corrected)					3.267	Data appear Gamma Distributed at 5% Significance Level					
244	Theta Star					1.443						
245	nu star					84.94						
246												
247	A-D Test Statistic					0.603	Nonparametric Statistics					
248	5% A-D Critical Value					0.737	Kaplan-Meier (KM) Method					
249	K-S Test Statistic					0.737	Mean					4.344
250	5% K-S Critical Value					0.238	SD					2.244
251	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.543
252							95% KM (t) UCL					5.272
253	Assuming Gamma Distribution						95% KM (z) UCL					5.237
254	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					5.275
255	Minimum					2	95% KM (bootstrap t) UCL					5.702
256	Maximum					12.8	95% KM (BCA) UCL					5.415
257	Mean					4.818	95% KM (Percentile Bootstrap) UCL					5.256
258	Median					4.884	95% KM (Chebyshev) UCL					6.709
259	SD					2.09	97.5% KM (Chebyshev) UCL					7.733
260	k star					6.426	99% KM (Chebyshev) UCL					9.744
261	Theta star					0.75						
262	Nu star					321.3	Potential UCLs to Use					
263	AppChi2					280.8	95% KM (t) UCL					5.272
264	95% Gamma Approximate UCL					5.514						
265	95% Adjusted Gamma UCL					5.565						

	A	B	C	D	E	F	G	H	I	J	K	L
266	Note: DL/2 is not a recommended method.											
267												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Upstream of LF SD.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Observations			3	Number of Distinct Observations			3				
13												
14												
15	Warning: This data set only has 3 observations!											
16	Data set is too small to compute reliable and meaningful statistics and estimates!											
17	The data set for variable Benzo(k)fluoranthene was not processed!											
18												
19	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
20	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
21												
22												
23												
24	Carbazole											
25												
26	General Statistics											
27	Number of Valid Data			3	Number of Detected Data			2				
28	Number of Distinct Detected Data			2	Number of Non-Detect Data			1				
29					Percent Non-Detects			33.33%				
30												
31	Warning: This data set only has 3 observations!											
32	Data set is too small to compute reliable and meaningful statistics and estimates!											
33	The data set for variable Carbazole was not processed!											
34												
35	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
36	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
37												
38												
39												
40	Dibenzofuran											
41												
42	General Statistics											
43	Number of Valid Data			3	Number of Detected Data			1				
44	Number of Distinct Detected Data			1	Number of Non-Detect Data			2				
45					Percent Non-Detects			66.67%				
46												
47	Warning: This data set only has 3 observations!											
48	Data set is too small to compute reliable and meaningful statistics and estimates!											
49	The data set for variable Dibenzofuran was not processed!											
50												
51	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
52	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
53												

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56	Phenanthrene											
57												
58	General Statistics											
59	Number of Valid Observations					3	Number of Distinct Observations					3
60												
61												
62	Warning: This data set only has 3 observations!											
63	Data set is too small to compute reliable and meaningful statistics and estimates!											
64	The data set for variable Phenanthrene was not processed!											
65												
66	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
67	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
68												
69												
70												
71	Cobalt											
72												
73	General Statistics											
74	Number of Valid Data					3	Number of Detected Data					2
75	Number of Distinct Detected Data					2	Number of Non-Detect Data					1
76							Percent Non-Detects					33.33%
77												
78	Warning: This data set only has 3 observations!											
79	Data set is too small to compute reliable and meaningful statistics and estimates!											
80	The data set for variable Cobalt was not processed!											
81												
82	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
83	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
84												
85												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Upstream of LF SS.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Observations				6		Number of Distinct Observations				6	
13												
14	Raw Statistics						Log-transformed Statistics					
15					Minimum	0.36					Minimum of Log Data	-1.022
16					Maximum	1.8					Maximum of Log Data	0.588
17					Mean	0.786					Mean of log Data	-0.388
18					Median	0.648					SD of log Data	0.564
19					SD	0.524						
20					Coefficient of Variation	0.667						
21					Skewness	1.912						
22												
23												
24	Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!											
25												
26	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
27	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
28												
29												
30	Warning: There are only 6 Values in this data											
31	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
32	the resulting calculations may not be reliable enough to draw conclusions											
33												
34	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
35												
36	Relevant UCL Statistics											
37	Normal Distribution Test						Lognormal Distribution Test					
38					Shapiro Wilk Test Statistic	0.788					Shapiro Wilk Test Statistic	0.939
39					Shapiro Wilk Critical Value	0.788					Shapiro Wilk Critical Value	0.788
40	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
41												
42	Assuming Normal Distribution						Assuming Lognormal Distribution					
43					95% Student's-t UCL	1.217					95% H-UCL	1.609
44	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	1.546
45					95% Adjusted-CLT UCL	1.316					97.5% Chebyshev (MVUE) UCL	1.881
46					95% Modified-t UCL	1.245					99% Chebyshev (MVUE) UCL	2.538
47												
48	Gamma Distribution Test						Data Distribution					
49					k star (bias corrected)	1.893	Data appear Normal at 5% Significance Level					
50					Theta Star	0.415						
51					nu star	22.72						
52					Approximate Chi Square Value (.05)	12.88	Nonparametric Statistics					
53					Adjusted Level of Significance	0.0122					95% CLT UCL	1.138

	A	B	C	D	E	F	G	H	I	J	K	L
54	Adjusted Chi Square Value					10.31	95% Jackknife UCL					1.217
55							95% Standard Bootstrap UCL					1.107
56	Anderson-Darling Test Statistic					0.386	95% Bootstrap-t UCL					1.747
57	Anderson-Darling 5% Critical Value					0.701	95% Hall's Bootstrap UCL					2.588
58	Kolmogorov-Smirnov Test Statistic					0.241	95% Percentile Bootstrap UCL					1.15
59	Kolmogorov-Smirnov 5% Critical Value					0.334	95% BCA Bootstrap UCL					1.231
60	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					1.719
61							97.5% Chebyshev(Mean, Sd) UCL					2.122
62	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					2.915
63	95% Approximate Gamma UCL					1.386						
64	95% Adjusted Gamma UCL					1.732						
65												
66	Potential UCL to Use						Use 95% Student's-t UCL					1.217
67												
68												
69	Carbazole											
70												
71	General Statistics											
72	Number of Valid Data					6	Number of Detected Data					5
73	Number of Distinct Detected Data					5	Number of Non-Detect Data					1
74							Percent Non-Detects					16.67%
75												
76	Raw Statistics						Log-transformed Statistics					
77	Minimum Detected					0.07	Minimum Detected					-2.659
78	Maximum Detected					0.23	Maximum Detected					-1.47
79	Mean of Detected					0.153	Mean of Detected					-1.968
80	SD of Detected					0.0665	SD of Detected					0.497
81	Minimum Non-Detect					0.41	Minimum Non-Detect					-0.892
82	Maximum Non-Detect					0.41	Maximum Non-Detect					-0.892
83												
84												
85	Warning: There are only 5 Detected Values in this data											
86	Note: It should be noted that even though bootstrap may be performed on this data set											
87	the resulting calculations may not be reliable enough tp draw conclusions											
88												
89	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
90												
91												
92	UCL Statistics											
93	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
94	Shapiro Wilk Test Statistic					0.945	Shapiro Wilk Test Statistic					0.917
95	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
96	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
97												
98	Assuming Normal Distribution						Assuming Lognormal Distribution					
99	DL/2 Substitution Method						DL/2 Substitution Method					
100	Mean					0.162	Mean					-1.904
101	SD					0.0631	SD					0.471
102	95% DL/2 (t) UCL					0.214	95% H-Stat (DL/2) UCL					0.407
103												
104	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method					
105	MLE method failed to converge properly						Mean in Log Scale					-1.968
106							SD in Log Scale					0.444

	A	B	C	D	E	F	G	H	I	J	K	L		
107						Mean in Original Scale							0.151	
108						SD in Original Scale							0.0597	
109						95% Percentile Bootstrap UCL							0.188	
110						95% BCA Bootstrap UCL							0.188	
111														
112	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only								
113	k star (bias corrected)					2.412	Data appear Normal at 5% Significance Level							
114	Theta Star					0.0634								
115	nu star					24.12								
116														
117	A-D Test Statistic					0.319	Nonparametric Statistics							
118	5% A-D Critical Value					0.68	Kaplan-Meier (KM) Method							
119	K-S Test Statistic					0.68	Mean							0.153
120	5% K-S Critical Value					0.358	SD							0.0595
121	Data appear Gamma Distributed at 5% Significance Level						SE of Mean							0.0297
122							95% KM (t) UCL							0.213
123	Assuming Gamma Distribution						95% KM (z) UCL							0.202
124	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL							0.214
125	Minimum					0.07	95% KM (bootstrap t) UCL							0.213
126	Maximum					0.23	95% KM (BCA) UCL							0.197
127	Mean					0.154	95% KM (Percentile Bootstrap) UCL							0.198
128	Median					0.164	95% KM (Chebyshev) UCL							0.283
129	SD					0.0595	97.5% KM (Chebyshev) UCL							0.339
130	k star					3.509	99% KM (Chebyshev) UCL							0.449
131	Theta star					0.0439								
132	Nu star					42.11	Potential UCLs to Use							
133	AppChi2					28.23	95% KM (t) UCL							0.213
134	95% Gamma Approximate UCL					0.23	95% KM (Percentile Bootstrap) UCL							0.198
135	95% Adjusted Gamma UCL					0.268								
136	Note: DL/2 is not a recommended method.													
137														
138														
139	Dibenzofuran													
140														
141	General Statistics													
142	Number of Valid Data					6	Number of Detected Data					4		
143	Number of Distinct Detected Data					4	Number of Non-Detect Data					2		
144							Percent Non-Detects					33.33%		
145														
146	Raw Statistics					Log-transformed Statistics								
147	Minimum Detected					0.0565	Minimum Detected					-2.874		
148	Maximum Detected					0.098	Maximum Detected					-2.323		
149	Mean of Detected					0.0746	Mean of Detected					-2.622		
150	SD of Detected					0.0198	SD of Detected					0.265		
151	Minimum Non-Detect					0.4	Minimum Non-Detect					-0.916		
152	Maximum Non-Detect					0.41	Maximum Non-Detect					-0.892		
153														
154	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					6		
155	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0		
156	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%		
157														
158	Warning: There are only 4 Distinct Detected Values in this data													
159	Note: It should be noted that even though bootstrap may be performed on this data set													

	A	B	C	D	E	F	G	H	I	J	K	L
160	the resulting calculations may not be reliable enough tp draw conclusions											
161												
162	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
163												
164												
165	UCL Statistics											
166	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
167	Shapiro Wilk Test Statistic				0.9	Shapiro Wilk Test Statistic					0.899	
168	5% Shapiro Wilk Critical Value				0.748	5% Shapiro Wilk Critical Value					0.748	
169	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
170												
171	Assuming Normal Distribution					Assuming Lognormal Distribution						
172	DL/2 Substitution Method					DL/2 Substitution Method						
173	Mean				0.117	Mean					-2.28	
174	SD				0.0678	SD					0.568	
175	95% DL/2 (t) UCL				0.173	95% H-Stat (DL/2) UCL					0.578	
176												
177	Maximum Likelihood Estimate(MLE) Method				N/A	Log ROS Method						
178	MLE method failed to converge properly					Mean in Log Scale					-2.622	
179						SD in Log Scale					0.205	
180						Mean in Original Scale					0.074	
181						SD in Original Scale					0.0154	
182						95% Percentile Bootstrap UCL					0.0844	
183						95% BCA Bootstrap UCL					0.0845	
184												
185	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
186	k star (bias corrected)				4.946	Data appear Normal at 5% Significance Level						
187	Theta Star				0.0151							
188	nu star				39.57							
189												
190	A-D Test Statistic				0.379	Nonparametric Statistics						
191	5% A-D Critical Value				0.657	Kaplan-Meier (KM) Method						
192	K-S Test Statistic				0.657	Mean					0.0746	
193	5% K-S Critical Value				0.394	SD					0.0172	
194	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					0.0099	
195						95% KM (t) UCL					0.0946	
196	Assuming Gamma Distribution					95% KM (z) UCL					0.0909	
197	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL					0.0957	
198	Minimum				0.0565	95% KM (bootstrap t) UCL					0.235	
199	Maximum				0.098	95% KM (BCA) UCL					0.091	
200	Mean				0.0753	95% KM (Percentile Bootstrap) UCL					0.091	
201	Median				0.0767	95% KM (Chebyshev) UCL					0.118	
202	SD				0.0154	97.5% KM (Chebyshev) UCL					0.136	
203	k star				14.34	99% KM (Chebyshev) UCL					0.173	
204	Theta star				0.00525							
205	Nu star				172.1	Potential UCLs to Use						
206	AppChi2				142.7	95% KM (t) UCL					0.0946	
207	95% Gamma Approximate UCL				0.0908	95% KM (Percentile Bootstrap) UCL					0.091	
208	95% Adjusted Gamma UCL				N/A							
209	Note: DL/2 is not a recommended method.											
210												
211												
212	Cobalt											

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	General Statistics											
215	Number of Valid Data					6	Number of Detected Data					0
216	Number of Distinct Detected Data					0	Number of Non-Detect Data					6
217							Percent Non-Detects					100.00%
218												
219	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
220	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
221	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
222												
223	The data set for variable Cobalt was not processed!											
224												
225												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Upstream of LF SW.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	1,4-Dichlorobenzene											
10												
11	General Statistics											
12	Number of Valid Data			3	Number of Detected Data			0				
13	Number of Distinct Detected Data			0	Number of Non-Detect Data			3				
14					Percent Non-Detects			100.00%				
15												
16	Warning: This data set only has 3 observations!											
17	Data set is too small to compute reliable and meaningful statistics and estimates!											
18	The data set for variable 1,4-Dichlorobenzene was not processed!											
19												
20	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
21	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
22												
23												
24												
25	Benzo(g,h,i)perylene											
26												
27	General Statistics											
28	Number of Valid Data			3	Number of Detected Data			1				
29	Number of Distinct Detected Data			1	Number of Non-Detect Data			2				
30					Percent Non-Detects			66.67%				
31												
32	Warning: This data set only has 3 observations!											
33	Data set is too small to compute reliable and meaningful statistics and estimates!											
34	The data set for variable Benzo(g,h,i)perylene was not processed!											
35												
36	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
37	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
38												
39												
40												
41	Cobalt											
42												
43	General Statistics											
44	Number of Valid Data			3	Number of Detected Data			1				
45	Number of Distinct Detected Data			1	Number of Non-Detect Data			2				
46					Percent Non-Detects			66.67%				
47												
48	Warning: This data set only has 3 observations!											
49	Data set is too small to compute reliable and meaningful statistics and estimates!											
50	The data set for variable Cobalt was not processed!											
51												
52	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
53	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56												
57	Naphthalene											
58												
59	General Statistics											
60	Number of Valid Data					3	Number of Detected Data					0
61	Number of Distinct Detected Data					0	Number of Non-Detect Data					3
62							Percent Non-Detects					100.00%
63												
64	Warning: This data set only has 3 observations!											
65	Data set is too small to compute reliable and meaningful statistics and estimates!											
66	The data set for variable Naphthalene was not processed!											
67												
68	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
69	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
70												
71												
72												
73	Phenanthrene											
74												
75	General Statistics											
76	Number of Valid Data					3	Number of Detected Data					1
77	Number of Distinct Detected Data					1	Number of Non-Detect Data					2
78							Percent Non-Detects					66.67%
79												
80	Warning: This data set only has 3 observations!											
81	Data set is too small to compute reliable and meaningful statistics and estimates!											
82	The data set for variable Phenanthrene was not processed!											
83												
84	It is suggested to collect at least 8 to 10 observations before using these statistical methods!											
85	If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
86												
87												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Wetlands SD.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(k)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Observations				22		Number of Distinct Observations				20	
13												
14	Raw Statistics						Log-transformed Statistics					
15	Minimum				0.004		Minimum of Log Data				-5.521	
16	Maximum				1.9		Maximum of Log Data				0.642	
17	Mean				0.385		Mean of log Data				-1.958	
18	Median				0.0735		SD of log Data				1.582	
19	SD				0.514							
20	Coefficient of Variation				1.333							
21	Skewness				1.618							
22												
23	Relevant UCL Statistics											
24	Normal Distribution Test						Lognormal Distribution Test					
25	Shapiro Wilk Test Statistic				0.737		Shapiro Wilk Test Statistic				0.917	
26	Shapiro Wilk Critical Value				0.911		Shapiro Wilk Critical Value				0.911	
27	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
28												
29	Assuming Normal Distribution						Assuming Lognormal Distribution					
30	95% Student's-t UCL				0.574		95% H-UCL				1.602	
31	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL				1.235	
32	95% Adjusted-CLT UCL				0.606		97.5% Chebyshev (MVUE) UCL				1.578	
33	95% Modified-t UCL				0.58		99% Chebyshev (MVUE) UCL				2.253	
34												
35	Gamma Distribution Test						Data Distribution					
36	k star (bias corrected)				0.56		Data appear Lognormal at 5% Significance Level					
37	Theta Star				0.687							
38	nu star				24.65							
39	Approximate Chi Square Value (.05)				14.34		Nonparametric Statistics					
40	Adjusted Level of Significance				0.0386		95% CLT UCL				0.565	
41	Adjusted Chi Square Value				13.76		95% Jackknife UCL				0.574	
42							95% Standard Bootstrap UCL				0.559	
43	Anderson-Darling Test Statistic				1.267		95% Bootstrap-t UCL				0.648	
44	Anderson-Darling 5% Critical Value				0.795		95% Hall's Bootstrap UCL				0.619	
45	Kolmogorov-Smirnov Test Statistic				0.253		95% Percentile Bootstrap UCL				0.576	
46	Kolmogorov-Smirnov 5% Critical Value				0.194		95% BCA Bootstrap UCL				0.614	
47	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL				0.862	
48							97.5% Chebyshev(Mean, Sd) UCL				1.069	
49	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL				1.474	
50	95% Approximate Gamma UCL				0.662							
51	95% Adjusted Gamma UCL				0.69							
52												
53	Potential UCL to Use						Use 95% Chebyshev (MVUE) UCL				1.235	

	A	B	C	D	E	F	G	H	I	J	K	L	
54													
55													
56	Carbazole												
57													
58	General Statistics												
59	Number of Valid Data					22	Number of Detected Data					5	
60	Number of Distinct Detected Data					5	Number of Non-Detect Data					17	
61							Percent Non-Detects					77.27%	
62													
63	Raw Statistics					Log-transformed Statistics							
64	Minimum Detected					0.034	Minimum Detected					-3.381	
65	Maximum Detected					0.46	Maximum Detected					-0.777	
66	Mean of Detected					0.17	Mean of Detected					-2.172	
67	SD of Detected					0.172	SD of Detected					1.013	
68	Minimum Non-Detect					0.1	Minimum Non-Detect					-2.303	
69	Maximum Non-Detect					0.6	Maximum Non-Detect					-0.511	
70													
71	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				22		
72	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				0		
73	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				100.00%		
74													
75	Warning: There are only 5 Detected Values in this data												
76	Note: It should be noted that even though bootstrap may be performed on this data set												
77	the resulting calculations may not be reliable enough tp draw conclusions												
78													
79	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.												
80													
81													
82	UCL Statistics												
83	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
84	Shapiro Wilk Test Statistic					0.829	Shapiro Wilk Test Statistic					0.984	
85	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762	
86	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
87													
88	Assuming Normal Distribution					Assuming Lognormal Distribution							
89	DL/2 Substitution Method						DL/2 Substitution Method						
90	Mean					0.202	Mean					-1.789	
91	SD					0.106	SD					0.707	
92	95% DL/2 (t) UCL					0.241	95% H-Stat (DL/2) UCL					0.377	
93													
94	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
95	MLE method failed to converge properly						Mean in Log Scale					-2.617	
96							SD in Log Scale					0.557	
97							Mean in Original Scale					0.0899	
98							SD in Original Scale					0.0887	
99							95% Percentile Bootstrap UCL					0.124	
100							95% BCA Bootstrap UCL					0.147	
101													
102	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only							
103	k star (bias corrected)					0.69	Data appear Normal at 5% Significance Level						
104	Theta Star					0.247							
105	nu star					6.896							
106													

	A	B	C	D	E	F	G	H	I	J	K	L
107	A-D Test Statistic					0.241	Nonparametric Statistics					
108	5% A-D Critical Value					0.687	Kaplan-Meier (KM) Method					
109	K-S Test Statistic					0.687	Mean					0.107
110	5% K-S Critical Value					0.362	SD					0.113
111	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0379
112							95% KM (t) UCL					0.172
113	Assuming Gamma Distribution						95% KM (z) UCL					0.169
114	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.171
115	Minimum					0.034	95% KM (bootstrap t) UCL					0.203
116	Maximum					0.46	95% KM (BCA) UCL					0.223
117	Mean					0.203	95% KM (Percentile Bootstrap) UCL					0.193
118	Median					0.209	95% KM (Chebyshev) UCL					0.272
119	SD					0.107	97.5% KM (Chebyshev) UCL					0.344
120	k star					2.977	99% KM (Chebyshev) UCL					0.484
121	Theta star					0.0682						
122	Nu star					131	Potential UCLs to Use					
123	AppChi2					105.6	95% KM (t) UCL					0.172
124	95% Gamma Approximate UCL					0.252	95% KM (Percentile Bootstrap) UCL					0.193
125	95% Adjusted Gamma UCL					0.256						
126	Note: DL/2 is not a recommended method.											
127												
128												
129	Cobalt											
130												
131	General Statistics											
132	Number of Valid Data					22	Number of Detected Data					14
133	Number of Distinct Detected Data					14	Number of Non-Detect Data					8
134							Percent Non-Detects					36.36%
135												
136	Raw Statistics						Log-transformed Statistics					
137	Minimum Detected					3.1	Minimum Detected					1.131
138	Maximum Detected					32.5	Maximum Detected					3.481
139	Mean of Detected					12.91	Mean of Detected					2.262
140	SD of Detected					9.739	SD of Detected					0.824
141	Minimum Non-Detect					9.7	Minimum Non-Detect					2.272
142	Maximum Non-Detect					15	Maximum Non-Detect					2.708
143												
144	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					17
145	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					5
146	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					77.27%
147												
148	UCL Statistics											
149	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
150	Shapiro Wilk Test Statistic					0.875	Shapiro Wilk Test Statistic					0.915
151	5% Shapiro Wilk Critical Value					0.874	5% Shapiro Wilk Critical Value					0.874
152	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
153												
154	Assuming Normal Distribution						Assuming Lognormal Distribution					
155	DL/2 Substitution Method						DL/2 Substitution Method					
156	Mean					10.41	Mean					2.088
157	SD					8.399	SD					0.698
158	95% DL/2 (t) UCL					13.49	95% H-Stat (DL/2) UCL					13.52
159												

	A	B	C	D	E	F	G	H	I	J	K	L	
160	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
161	MLE method failed to converge properly						Mean in Log Scale					2.058	
162							SD in Log Scale					0.722	
163							Mean in Original Scale					10.27	
164							SD in Original Scale					8.502	
165							95% Percentile Bootstrap UCL					13.53	
166							95% BCA Bootstrap UCL					13.94	
167													
168	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only						
169	k star (bias corrected)					1.491	Data appear Normal at 5% Significance Level						
170	Theta Star					8.655							
171	nu star					41.76							
172													
173	A-D Test Statistic					0.538	Nonparametric Statistics						
174	5% A-D Critical Value					0.747	Kaplan-Meier (KM) Method						
175	K-S Test Statistic					0.747	Mean					10.23	
176	5% K-S Critical Value					0.232	SD					8.429	
177	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					1.917	
178							95% KM (t) UCL					13.52	
179	Assuming Gamma Distribution						95% KM (z) UCL					13.38	
180	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					13.5	
181	Minimum					3.1	95% KM (bootstrap t) UCL					14.27	
182	Maximum					32.5	95% KM (BCA) UCL					13.43	
183	Mean					12.81	95% KM (Percentile Bootstrap) UCL					13.34	
184	Median					11.6	95% KM (Chebyshev) UCL					18.58	
185	SD					7.805	97.5% KM (Chebyshev) UCL					22.2	
186	k star					2.379	99% KM (Chebyshev) UCL					29.3	
187	Theta star					5.385							
188	Nu star					104.7	Potential UCLs to Use						
189	AppChi2					82.08	95% KM (t) UCL					13.52	
190	95% Gamma Approximate UCL					16.34	95% KM (Percentile Bootstrap) UCL					13.34	
191	95% Adjusted Gamma UCL					16.65							
192	Note: DL/2 is not a recommended method.												
193													
194													
195	Thallium												
196													
197	General Statistics												
198	Number of Valid Data					22	Number of Detected Data					4	
199	Number of Distinct Detected Data					4	Number of Non-Detect Data					18	
200							Percent Non-Detects					81.82%	
201													
202	Raw Statistics						Log-transformed Statistics						
203	Minimum Detected					0.071	Minimum Detected					-2.645	
204	Maximum Detected					0.52	Maximum Detected					-0.654	
205	Mean of Detected					0.32	Mean of Detected					-1.369	
206	SD of Detected					0.195	SD of Detected					0.893	
207	Minimum Non-Detect					0.36	Minimum Non-Detect					-1.022	
208	Maximum Non-Detect					0.76	Maximum Non-Detect					-0.274	
209													
210	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					22	
211	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected					0	
212	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%	

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	Warning: There are only 4 Distinct Detected Values in this data											
215	Note: It should be noted that even though bootstrap may be performed on this data set											
216	the resulting calculations may not be reliable enough tp draw conclusions											
217												
218	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.											
219												
220												
221	UCL Statistics											
222	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
223	Shapiro Wilk Test Statistic				0.973	Shapiro Wilk Test Statistic					0.869	
224	5% Shapiro Wilk Critical Value				0.748	5% Shapiro Wilk Critical Value					0.748	
225	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
226												
227	Assuming Normal Distribution					Assuming Lognormal Distribution						
228	DL/2 Substitution Method					DL/2 Substitution Method						
229	Mean				0.291	Mean					-1.297	
230	SD				0.0921	SD					0.393	
231	95% DL/2 (t) UCL				0.324	95% H-Stat (DL/2) UCL					0.458	
232												
233	Maximum Likelihood Estimate(MLE) Method				N/A	Log ROS Method						
234	MLE method failed to converge properly					Mean in Log Scale					-1.765	
235						SD in Log Scale					0.437	
236						Mean in Original Scale					0.19	
237						SD in Original Scale					0.103	
238						95% Percentile Bootstrap UCL					0.226	
239						95% BCA Bootstrap UCL					0.237	
240												
241	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						
242	k star (bias corrected)				0.748	Data appear Normal at 5% Significance Level						
243	Theta Star				0.428							
244	nu star				5.981							
245												
246	A-D Test Statistic				0.35	Nonparametric Statistics						
247	5% A-D Critical Value				0.66	Kaplan-Meier (KM) Method						
248	K-S Test Statistic				0.66	Mean					0.235	
249	5% K-S Critical Value				0.397	SD					0.151	
250	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					0.0787	
251						95% KM (t) UCL					0.37	
252	Assuming Gamma Distribution					95% KM (z) UCL					0.364	
253	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL					0.428	
254	Minimum				0.071	95% KM (bootstrap t) UCL					0.349	
255	Maximum				0.533	95% KM (BCA) UCL					0.453	
256	Mean				0.367	95% KM (Percentile Bootstrap) UCL					0.44	
257	Median				0.364	95% KM (Chebyshev) UCL					0.578	
258	SD				0.108	97.5% KM (Chebyshev) UCL					0.726	
259	k star				7.19	99% KM (Chebyshev) UCL					1.018	
260	Theta star				0.051							
261	Nu star				316.3	Potential UCLs to Use						
262	AppChi2				276.1	95% KM (t) UCL					0.37	
263	95% Gamma Approximate UCL				0.42	95% KM (Percentile Bootstrap) UCL					0.44	
264	95% Adjusted Gamma UCL				N/A							
265	Note: DL/2 is not a recommended method.											

	A	B	C	D	E	F	G	H	I	J	K	L
266												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Wetlands SS.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(b)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Observations				5		Number of Distinct Observations				5	
13												
14	Raw Statistics						Log-transformed Statistics					
15					Minimum	0.039					Minimum of Log Data	-3.244
16					Maximum	0.18					Maximum of Log Data	-1.715
17					Mean	0.105					Mean of log Data	-2.393
18					Median	0.12					SD of log Data	0.63
19					SD	0.0571						
20					Coefficient of Variation	0.542						
21					Skewness	0.0759						
22												
23												
24	Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!											
25												
26	It is suggested to collect at least 8 to 10 observations using these statistical methods!											
27	If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.											
28												
29												
30	Warning: There are only 5 Values in this data											
31	Note: It should be noted that even though bootstrap methods may be performed on this data set,											
32	the resulting calculations may not be reliable enough to draw conclusions											
33												
34	The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.											
35												
36	Relevant UCL Statistics											
37	Normal Distribution Test						Lognormal Distribution Test					
38					Shapiro Wilk Test Statistic	0.946					Shapiro Wilk Test Statistic	0.923
39					Shapiro Wilk Critical Value	0.762					Shapiro Wilk Critical Value	0.762
40	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
41												
42	Assuming Normal Distribution						Assuming Lognormal Distribution					
43					95% Student's-t UCL	0.16					95% H-UCL	0.325
44	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	0.236
45					95% Adjusted-CLT UCL	0.148					97.5% Chebyshev (MVUE) UCL	0.292
46					95% Modified-t UCL	0.16					99% Chebyshev (MVUE) UCL	0.401
47												
48	Gamma Distribution Test						Data Distribution					
49					k star (bias corrected)	1.592	Data appear Normal at 5% Significance Level					
50					Theta Star	0.0662						
51					nu star	15.92						
52					Approximate Chi Square Value (.05)	7.904	Nonparametric Statistics					
53					Adjusted Level of Significance	0.0086					95% CLT UCL	0.147

	A	B	C	D	E	F	G	H	I	J	K	L
54	Adjusted Chi Square Value					5.61	95% Jackknife UCL					0.16
55							95% Standard Bootstrap UCL					0.143
56	Anderson-Darling Test Statistic					0.318	95% Bootstrap-t UCL					0.167
57	Anderson-Darling 5% Critical Value					0.682	95% Hall's Bootstrap UCL					0.138
58	Kolmogorov-Smirnov Test Statistic					0.265	95% Percentile Bootstrap UCL					0.146
59	Kolmogorov-Smirnov 5% Critical Value					0.359	95% BCA Bootstrap UCL					0.144
60	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					0.217
61							97.5% Chebyshev(Mean, Sd) UCL					0.265
62	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					0.359
63	95% Approximate Gamma UCL					0.212						
64	95% Adjusted Gamma UCL					0.299						
65												
66	Potential UCL to Use						Use 95% Student's-t UCL					0.16
67												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			C:\aa_Projects\Peterson\AECOM HHRA\Database\Wetlands SW.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	beta-BHC											
10												
11	General Statistics											
12	Number of Valid Data				16		Number of Detected Data				3	
13	Number of Distinct Detected Data				3		Number of Non-Detect Data				13	
14							Percent Non-Detects				81.25%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				0.0036		Minimum Detected				-5.627	
18	Maximum Detected				0.01		Maximum Detected				-4.605	
19	Mean of Detected				0.006		Mean of Detected				-5.219	
20	SD of Detected				0.00349		SD of Detected				0.541	
21	Minimum Non-Detect				0.0025		Minimum Non-Detect				-5.991	
22	Maximum Non-Detect				0.0025		Maximum Non-Detect				-5.991	
23												
24												
25	Warning: There are only 3 Distinct Detected Values in this data set											
26	The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.											
27	Those methods will return a 'N/A' value on your output display!											
28												
29	It is necessary to have 4 or more Distinct Values for bootstrap methods.											
30	It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.											
31												
32												
33	UCL Statistics											
34	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
35	Shapiro Wilk Test Statistic				0.842		Shapiro Wilk Test Statistic				0.891	
36	5% Shapiro Wilk Critical Value				0.767		5% Shapiro Wilk Critical Value				0.767	
37	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
38												
39	Assuming Normal Distribution					Assuming Lognormal Distribution						
40	DL/2 Substitution Method						DL/2 Substitution Method					
41	Mean				0.00214		Mean				-6.41	
42	SD				0.0023		SD				0.623	
43	95% DL/2 (t) UCL				0.00315		95% H-Stat (DL/2) UCL				0.00236	
44												
45	Maximum Likelihood Estimate(MLE) Method					Log ROS Method						
46	Mean				0.00677		Mean in Log Scale				-7.578	
47	SD				0.00285		SD in Log Scale				1.597	
48	95% MLE (t) UCL				0.00802		Mean in Original Scale				0.00154	
49	95% MLE (Tiku) UCL				0.00957		SD in Original Scale				0.00259	
50							95% Percentile Bootstrap UCL				0.00274	
51							95% BCA Bootstrap UCL				0.00314	
52												
53	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only						

	A	B	C	D	E	F	G	H	I	J	K	L	
54	k star (bias corrected)					N/A	Data appear Normal at 5% Significance Level						
55	Theta Star					N/A							
56	nu star					N/A							
57													
58	A-D Test Statistic					0.428	Nonparametric Statistics						
59	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method						
60	K-S Test Statistic					N/A	Mean						0.00405
61	5% K-S Critical Value					N/A	SD						0.00155
62	Data not Gamma Distributed at 5% Significance Level						SE of Mean						0.0004741
63							95% KM (t) UCL						0.00488
64	Assuming Gamma Distribution						95% KM (z) UCL						0.00483
65	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL						0.00478
66	Minimum					N/A	95% KM (bootstrap t) UCL						0.00629
67	Maximum					N/A	95% KM (BCA) UCL						0.01
68	Mean					N/A	95% KM (Percentile Bootstrap) UCL						0.01
69	Median					N/A	95% KM (Chebyshev) UCL						0.00612
70	SD					N/A	97.5% KM (Chebyshev) UCL						0.00701
71	k star					N/A	99% KM (Chebyshev) UCL						0.00877
72	Theta star					N/A							
73	Nu star					N/A	Potential UCLs to Use						
74	AppChi2					N/A	95% KM (t) UCL						0.00488
75	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL						0.01
76	95% Adjusted Gamma UCL					N/A							
77	Note: DL/2 is not a recommended method.												
78													
79													
80	bis(2-Ethylhexyl)phthalate												
81													
82	General Statistics												
83	Number of Valid Data					15	Number of Detected Data					1	
84	Number of Distinct Detected Data					1	Number of Non-Detect Data					14	
85							Percent Non-Detects					93.33%	
86													
87	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!												
88	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).												
89													
90	The data set for variable bis(2-Ethylhexyl)phthalate was not processed!												
91													
92													
93													
94	Chrysene												
95													
96	General Statistics												
97	Number of Valid Data					16	Number of Detected Data					1	
98	Number of Distinct Detected Data					1	Number of Non-Detect Data					15	
99							Percent Non-Detects					93.75%	
100													
101	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!												
102	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).												
103													
104	The data set for variable Chrysene was not processed!												
105													
106													

	A	B	C	D	E	F	G	H	I	J	K	L	
107													
108	Cobalt												
109													
110	General Statistics												
111	Number of Valid Data					16	Number of Detected Data					5	
112	Number of Distinct Detected Data					5	Number of Non-Detect Data					11	
113							Percent Non-Detects					68.75%	
114													
115	Raw Statistics					Log-transformed Statistics							
116	Minimum Detected					0.72	Minimum Detected					-0.329	
117	Maximum Detected					6.7	Maximum Detected					1.902	
118	Mean of Detected					2.404	Mean of Detected					0.561	
119	SD of Detected					2.44	SD of Detected					0.831	
120	Minimum Non-Detect					0.4	Minimum Non-Detect					-0.916	
121	Maximum Non-Detect					50	Maximum Non-Detect					3.912	
122													
123	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				16		
124	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected				0		
125	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				100.00%		
126													
127	Warning: There are only 5 Detected Values in this data												
128	Note: It should be noted that even though bootstrap may be performed on this data set												
129	the resulting calculations may not be reliable enough tp draw conclusions												
130													
131	It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.												
132													
133													
134	UCL Statistics												
135	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
136	Shapiro Wilk Test Statistic					0.721	Shapiro Wilk Test Statistic					0.919	
137	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762	
138	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
139													
140	Assuming Normal Distribution					Assuming Lognormal Distribution							
141	DL/2 Substitution Method						DL/2 Substitution Method						
142	Mean					2.563	Mean					-0.278	
143	SD					6.19	SD					1.334	
144	95% DL/2 (t) UCL					5.275	95% H-Stat (DL/2) UCL					3.448	
145													
146	Maximum Likelihood Estimate(MLE) Method					N/A	Log ROS Method						
147	MLE method failed to converge properly						Mean in Log Scale					-1.007	
148							SD in Log Scale					1.22	
149							Mean in Original Scale					0.884	
150							SD in Original Scale					1.647	
151							95% Percentile Bootstrap UCL					1.623	
152							95% BCA Bootstrap UCL					2.029	
153													
154	Gamma Distribution Test with Detected Values Only					Data Distribution Test with Detected Values Only							
155	k star (bias corrected)					0.824	Data appear Gamma Distributed at 5% Significance Level						
156	Theta Star					2.916							
157	nu star					8.244							
158													
159	A-D Test Statistic					0.498	Nonparametric Statistics						

	A	B	C	D	E	F	G	H	I	J	K	L
160	5% A-D Critical Value					0.686	Kaplan-Meier (KM) Method					
161	K-S Test Statistic					0.686	Mean					1.288
162	5% K-S Critical Value					0.361	SD					1.488
163	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.43
164							95% KM (t) UCL					2.042
165	Assuming Gamma Distribution						95% KM (z) UCL					1.996
166	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.908
167	Minimum					0.72	95% KM (bootstrap t) UCL					3.22
168	Maximum					6.7	95% KM (BCA) UCL					2.586
169	Mean					2.446	95% KM (Percentile Bootstrap) UCL					2.294
170	Median					2.401	95% KM (Chebyshev) UCL					3.163
171	SD					1.267	97.5% KM (Chebyshev) UCL					3.974
172	k star					4.224	99% KM (Chebyshev) UCL					5.567
173	Theta star					0.579						
174	Nu star					135.2	Potential UCLs to Use					
175	AppChi2					109.3	95% KM (t) UCL					2.042
176	95% Gamma Approximate UCL					3.025						
177	95% Adjusted Gamma UCL					3.1						
178	Note: DL/2 is not a recommended method.											
179												

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File U:\JCV\Puritan\2006\luc1_data\soils\surface\quinn_ucl_data.wst
Full Precision OFF
Confidence Coefficient 95%
Number of Bootstrap Operations 2000

bis(2-Ethylhexyl)phthalate

General Statistics

Number of Valid Samples	19	Number of Detected Data	4
Number of Unique Samples	4	Number of Non-Detect Data	15
		Percent Non-Detects	78.95%

Raw Statistics

Minimum Detected	220
Maximum Detected	4100
Mean of Detected	1305
SD of Detected	1870
Minimum Non-Detect	160
Maximum Non-Detect	1600

Log-transformed Statistics

Minimum Detected	5.394
Maximum Detected	8.319
Mean of Detected	6.457
SD of Detected	1.307
Minimum Non-Detect	5.075
Maximum Non-Detect	7.378

Note: Data have multiple DLs - Use of KM Method is recommended

For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),
those Observations < Largest ND are treated as NDs

Number treated as Non-Detect	18
Number treated as Detected	1
Single DL Non-Detect Percentage	94.74%

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.702
5% Shapiro Wilk Critical Value	0.748

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.876
5% Shapiro Wilk Critical Value	0.748

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	433.7
SD	906.2
95% DL/2 (t) UCL	794.2

Maximum Likelihood Estimate(MLE) Method	N/A

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	5.377
SD	0.954
95% H-Stat (DL/2) UCL	459

Robust ROS Method	
Mean in Log Scale	3.809
SD in Log Scale	1.575
Mean in Original Scale	294.7
SD in Original Scale	932.9
95% Percentile Bootstrap UCL	716
95% BCA Bootstrap UCL	952.3

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.373
Theta Star	3500
nu star	2.983

A-D Test Statistic	0.538
5% A-D Critical Value	0.669
K-S Test Statistic	0.669
5% K-S Critical Value	0.404

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum	N/A
Maximum	N/A
Mean	N/A
Median	N/A
SD	N/A
k star	N/A
Theta star	N/A
Nu star	N/A
AppChi2	N/A
95% Gamma Approximate UCL	N/A
95% Adjusted Gamma UCL	N/A

Nonparametric Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	453.7
SD	863.8
SE of Mean	229
95% KM (t) UCL	850.8
95% KM (z) UCL	830.4
95% KM (jackknife) UCL	766.3
95% KM (bootstrap t) UCL	2506
95% KM (BCA) UCL	1E+31
95% KM (percentile) UCL	1144
95% KM (Chebyshev) UCL	1452
97.5% KM (Chebyshev) UCL	1884
99% KM (Chebyshev) UCL	2732

Potential UCLs to Use

95% KM (t) UCL	850.8

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			H:\JCV\Puritan\2006\ucl data\fish\BR1_ucl_data.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Arsenic											
10												
11	General Statistics											
12	Number of Valid Samples				16		Number of Unique Samples				15	
13												
14	Raw Statistics						Log-transformed Statistics					
15					Minimum	0.037					Minimum of Log Data	-3.297
16					Maximum	0.13					Maximum of Log Data	-2.04
17					Mean	0.073					Mean of log Data	-2.682
18					Median	0.0715					SD of log Data	0.372
19					SD	0.0272						
20					Coefficient of Variation	0.373						
21					Skewness	0.688						
22												
23	Relevant UCL Statistics											
24	Normal Distribution Test						Lognormal Distribution Test					
25					Shapiro Wilk Test Statistic	0.94					Shapiro Wilk Test Statistic	0.971
26					Shapiro Wilk Critical Value	0.887					Shapiro Wilk Critical Value	0.887
27	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
28												
29	Assuming Normal Distribution						Assuming Lognormal Distribution					
30					95% Student's-t UCL	0.0849					95% H-UCL	0.0883
31	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	0.103
32					95% Adjusted-CLT UCL	0.0854					97.5% Chebyshev (MVUE) UCL	0.116
33					95% Modified-t UCL	0.0851					99% Chebyshev (MVUE) UCL	0.142
34												
35	Gamma Distribution Test						Nonparametric Test					
36					k star (bias corrected)	6.481	Data appear Normal at 5% Significance Level					
37					Theta Star	0.0113						
38					nu star	207.4						
39					Approximate Chi Square Value (.05)	175.1	Nonparametric Statistics					
40					Adjusted Level of Significance	0.0335					95% CLT UCL	0.0842
41					Adjusted Chi Square Value	171.7					95% Jackknife UCL	0.0849
42											95% Standard Bootstrap UCL	0.0841
43					Anderson-Darling Test Statistic	0.211					95% Bootstrap-t UCL	0.0871
44					Anderson-Darling 5% Critical Value	0.74					95% Hall's Bootstrap UCL	0.0862
45					Kolmogorov-Smirnov Test Statistic	0.099					95% Percentile Bootstrap UCL	0.0848
46					Kolmogorov-Smirnov 5% Critical Value	0.215					95% BCA Bootstrap UCL	0.0854
47	Data appear Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	0.103
48											97.5% Chebyshev(Mean, Sd) UCL	0.115
49	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	0.141
50					95% Approximate Gamma UCL	0.0865						
51					95% Adjusted Gamma UCL	0.0882						
52												
53	Potential UCL to Use										Use 95% Student's-t UCL	0.0849

	A	B	C	D	E	F	G	H	I	J	K	L
54												
55												
56	Cadmium											
57												
58	General Statistics											
59	Number of Valid Samples					16	Number of Detected Data					11
60	Number of Unique Samples					10	Number of Non-Detect Data					5
61							Percent Non-Detects					31.25%
62												
63	Raw Statistics					Log-transformed Statistics						
64	Minimum Detected					0.013	Minimum Detected					-4.343
65	Maximum Detected					0.041	Maximum Detected					-3.194
66	Mean of Detected					0.0228	Mean of Detected					-3.856
67	SD of Detected					0.00944	SD of Detected					0.406
68	Minimum Non-Detect					0.01	Minimum Non-Detect					-4.605
69	Maximum Non-Detect					0.013	Maximum Non-Detect					-4.343
70												
71	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				5	
72	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				11	
73	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				31.25%	
74												
75	UCL Statistics											
76	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
77	Shapiro Wilk Test Statistic					0.898	Shapiro Wilk Test Statistic					0.92
78	5% Shapiro Wilk Critical Value					0.85	5% Shapiro Wilk Critical Value					0.85
79	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
80												
81	Assuming Normal Distribution					Assuming Lognormal Distribution						
82	DL/2 Substitution Method						DL/2 Substitution Method					
83	Mean					0.0175	Mean					-4.267
84	SD					0.0113	SD					0.713
85	95% DL/2 (t) UCL					0.0224	95% H-Stat (DL/2) UCL					0.0201
86												
87	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
88	Mean					0.0173	Mean in Log Scale					-4.166
89	SD					0.0116	SD in Log Scale					0.582
90	95% MLE (t) UCL					0.0224	Mean in Original Scale					0.0181
91	95% MLE (Tiku) UCL					0.0227	SD in Original Scale					0.0105
92							95% Percentile Bootstrap UCL					0.0227
93							95% BCA Bootstrap UCL					0.023
94												
95	Gamma Distribution Test with Detected Values Only					Nonparametric Test with Detected Values Only						
96	k star (bias corrected)					4.996	Data appear Normal at 5% Significance Level					
97	Theta Star					0.00457						
98	nu star					109.9						
99												
100	A-D Test Statistic					0.392	Nonparametric Statistics					
101	5% A-D Critical Value					0.731	Kaplan-Meier (KM) Method					
102	K-S Test Statistic					0.731	Mean					0.0198
103	5% K-S Critical Value					0.256	SD					0.00874
104	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					0.00229	
105							95% KM (t) UCL					0.0238
106	Assuming Gamma Distribution					95% KM (z) UCL					0.0235	

	A	B	C	D	E	F	G	H	I	J	K	L
107	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0237
108	Minimum					0.00173	95% KM (bootstrap t) UCL					0.0245
109	Maximum					0.041	95% KM (BCA) UCL					0.0241
110	Mean					0.0178	95% KM (percentile) UCL					0.0238
111	Median					0.0145	95% KM (Chebyshev) UCL					0.0297
112	SD					0.011	97.5% KM (Chebyshev) UCL					0.0341
113	k star					1.886	99% KM (Chebyshev) UCL					0.0426
114	Theta star					0.00944						
115	Nu star					60.35	Potential UCLs to Use					
116	AppChi2					43.48	95% KM (t) UCL					0.0238
117	95% Gamma Approximate UCL					0.0247	95% KM (Percentile Bootstrap) UCL					0.0238
118	95% Adjusted Gamma UCL					0.0257						
119												
120												
121	Chromium											
122												
123	General Statistics											
124	Number of Valid Samples					16	Number of Unique Samples					13
125												
126	Raw Statistics						Log-transformed Statistics					
127	Minimum					0.8	Minimum of Log Data					-0.223
128	Maximum					5.4	Maximum of Log Data					1.686
129	Mean					1.878	Mean of log Data					0.511
130	Median					1.6	SD of log Data					0.481
131	SD					1.099						
132	Coefficient of Variation					0.585						
133	Skewness					2.349						
134												
135	Relevant UCL Statistics											
136	Normal Distribution Test						Lognormal Distribution Test					
137	Shapiro Wilk Test Statistic					0.767	Shapiro Wilk Test Statistic					0.957
138	Shapiro Wilk Critical Value					0.887	Shapiro Wilk Critical Value					0.887
139	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
140												
141	Assuming Normal Distribution						Assuming Lognormal Distribution					
142	95% Student's-t UCL					2.359	95% H-UCL					2.409
143	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					2.857
144	95% Adjusted-CLT UCL					2.502	97.5% Chebyshev (MVUE) UCL					3.29
145	95% Modified-t UCL					2.386	99% Chebyshev (MVUE) UCL					4.141
146												
147	Gamma Distribution Test						Nonparametric Test					
148	k star (bias corrected)					3.583	Data appear Gamma Distributed at 5% Significance Level					
149	Theta Star					0.524						
150	nu star					114.6						
151	Approximate Chi Square Value (.05)					90.93	Nonparametric Statistics					
152	Adjusted Level of Significance					0.0335	95% CLT UCL					2.33
153	Adjusted Chi Square Value					88.53	95% Jackknife UCL					2.359
154							95% Standard Bootstrap UCL					2.311
155	Anderson-Darling Test Statistic					0.405	95% Bootstrap-t UCL					2.689
156	Anderson-Darling 5% Critical Value					0.742	95% Hall's Bootstrap UCL					4.441
157	Kolmogorov-Smirnov Test Statistic					0.127	95% Percentile Bootstrap UCL					2.34
158	Kolmogorov-Smirnov 5% Critical Value					0.216	95% BCA Bootstrap UCL					2.581
159	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					3.075

	A	B	C	D	E	F	G	H	I	J	K	L	
160							97.5% Chebyshev(Mean, Sd) UCL					3.594	
161	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					4.612	
162	95% Approximate Gamma UCL					2.367							
163	95% Adjusted Gamma UCL					2.432							
164													
165	Potential UCL to Use						Use 95% Approximate Gamma UCL					2.367	
166													
167													
168	Cobalt												
169													
170	General Statistics												
171	Number of Valid Samples					16	Number of Detected Data					5	
172	Number of Unique Samples					5	Number of Non-Detect Data					11	
173							Percent Non-Detects					68.75%	
174													
175	Raw Statistics						Log-transformed Statistics						
176	Minimum Detected					0.0098	Minimum Detected					-4.625	
177	Maximum Detected					0.025	Maximum Detected					-3.689	
178	Mean of Detected					0.0172	Mean of Detected					-4.132	
179	SD of Detected					0.00667	SD of Detected					0.417	
180	Minimum Non-Detect					0.0097	Minimum Non-Detect					-4.636	
181	Maximum Non-Detect					0.013	Maximum Non-Detect					-4.343	
182													
183	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					13	
184	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					3	
185	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					81.25%	
186													
187	UCL Statistics												
188	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
189	Shapiro Wilk Test Statistic					0.916	Shapiro Wilk Test Statistic					0.897	
190	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762	
191	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
192													
193	Assuming Normal Distribution						Assuming Lognormal Distribution						
194	DL/2 Substitution Method						DL/2 Substitution Method						
195	Mean					0.0092	Mean					-4.861	
196	SD					0.00654	SD					0.557	
197	95% DL/2 (t) UCL					0.0121	95% H-Stat (DL/2) UCL					0.0106	
198													
199	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method						
200	Mean					0.00142	Mean in Log Scale					-4.756	
201	SD					0.0136	SD in Log Scale					0.544	
202	95% MLE (t) UCL					0.00736	Mean in Original Scale					0.01	
203	95% MLE (Tiku) UCL					0.0163	SD in Original Scale					0.00628	
204							95% Percentile Bootstrap UCL					0.0126	
205							95% BCA Bootstrap UCL					0.0131	
206													
207	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only						
208	k star (bias corrected)					3.207	Data appear Normal at 5% Significance Level						
209	Theta Star					0.00535							
210	nu star					32.07							
211													
212	A-D Test Statistic					0.363	Nonparametric Statistics						

	A	B	C	D	E	F	G	H	I	J	K	L
213	5% A-D Critical Value					0.68	Kaplan-Meier (KM) Method					
214	K-S Test Statistic					0.68	Mean					0.0121
215	5% K-S Critical Value					0.358	SD					0.00476
216	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.00133
217							95% KM (t) UCL					0.0145
218	Assuming Gamma Distribution						95% KM (z) UCL					0.0143
219	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0141
220	Minimum					N/A	95% KM (bootstrap t) UCL					0.0143
221	Maximum					N/A	95% KM (BCA) UCL					0.0224
222	Mean					N/A	95% KM (percentile) UCL					0.0192
223	Median					N/A	95% KM (Chebyshev) UCL					0.0179
224	SD					N/A	97.5% KM (Chebyshev) UCL					0.0204
225	k star					N/A	99% KM (Chebyshev) UCL					0.0254
226	Theta star					N/A						
227	Nu star					N/A	Potential UCLs to Use					
228	AppChi2					N/A	95% KM (t) UCL					0.0145
229	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					0.0192
230	95% Adjusted Gamma UCL					N/A						
231												
232												
233	Iron											
234												
235	General Statistics											
236	Number of Valid Samples					16	Number of Unique Samples					11
237												
238	Raw Statistics					Log-transformed Statistics						
239	Minimum					8	Minimum of Log Data					2.079
240	Maximum					30	Maximum of Log Data					3.401
241	Mean					17.44	Mean of log Data					2.816
242	Median					17	SD of log Data					0.306
243	SD					5.278						
244	Coefficient of Variation					0.303						
245	Skewness					0.828						
246												
247	Relevant UCL Statistics											
248	Normal Distribution Test					Lognormal Distribution Test						
249	Shapiro Wilk Test Statistic					0.936	Shapiro Wilk Test Statistic					0.955
250	Shapiro Wilk Critical Value					0.887	Shapiro Wilk Critical Value					0.887
251	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
252												
253	Assuming Normal Distribution					Assuming Lognormal Distribution						
254	95% Student's-t UCL					19.75	95% H-UCL					20.31
255	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					23.34
256	95% Adjusted-CLT UCL					19.9	97.5% Chebyshev (MVUE) UCL					25.89
257	95% Modified-t UCL					19.8	99% Chebyshev (MVUE) UCL					30.9
258												
259	Gamma Distribution Test					Nonparametric Test						
260	k star (bias corrected)					9.685	Data appear Normal at 5% Significance Level					
261	Theta Star					1.8						
262	nu star					309.9						
263	Approximate Chi Square Value (.05)					270.1	Nonparametric Statistics					
264	Adjusted Level of Significance					0.0335	95% CLT UCL					19.61
265	Adjusted Chi Square Value					265.9	95% Jackknife UCL					19.75

	A	B	C	D	E	F	G	H	I	J	K	L
266							95% Standard Bootstrap UCL					19.54
267	Anderson-Darling Test Statistic					0.337	95% Bootstrap-t UCL					20.16
268	Anderson-Darling 5% Critical Value					0.739	95% Hall's Bootstrap UCL					20.77
269	Kolmogorov-Smirnov Test Statistic					0.158	95% Percentile Bootstrap UCL					19.56
270	Kolmogorov-Smirnov 5% Critical Value					0.215	95% BCA Bootstrap UCL					19.63
271	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					23.19
272							97.5% Chebyshev(Mean, Sd) UCL					25.68
273	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					30.57
274	95% Approximate Gamma UCL					20.01						
275	95% Adjusted Gamma UCL					20.32						
276												
277	Potential UCL to Use						Use 95% Student's-t UCL					19.75
278												
279												
280	Lead											
281												
282	General Statistics											
283	Number of Valid Samples					16	Number of Detected Data					2
284	Number of Unique Samples					2	Number of Non-Detect Data					14
285							Percent Non-Detects					87.50%
286												
287	Raw Statistics						Log-transformed Statistics					
288	Minimum Detected					0.024	Minimum Detected					-3.73
289	Maximum Detected					0.029	Maximum Detected					-3.54
290	Mean of Detected					0.0265	Mean of Detected					-3.635
291	SD of Detected					0.00354	SD of Detected					0.134
292	Minimum Non-Detect					0.018	Minimum Non-Detect					-4.017
293	Maximum Non-Detect					0.025	Maximum Non-Detect					-3.689
294												
295	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					15
296	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1
297	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					93.75%
298												
299	UCL Statistics											
300	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
301	Shapiro Wilk Test Statistic					1	Shapiro Wilk Test Statistic					1
302	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A
303	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
304												
305	Assuming Normal Distribution						Assuming Lognormal Distribution					
306	DL/2 Substitution Method						DL/2 Substitution Method					
307	Mean					0.0129	Mean					-4.405
308	SD					0.00547	SD					0.318
309	95% DL/2 (t) UCL					0.0153	95% H-Stat (DL/2) UCL					0.0145
310												
311	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
312							Mean in Log Scale					-4.122
313							SD in Log Scale					0.229
314							Mean in Original Scale					0.0166
315							SD in Original Scale					0.00438
316							95% Percentile Bootstrap UCL					0.0185
317							95% BCA Bootstrap UCL					0.019
318												

	A	B	C	D	E	F	G	H	I	J	K	L	
319	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only						
320	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)						
321	Theta Star					N/A							
322	nu star					N/A							
323													
324	A-D Test Statistic					0.359	Nonparametric Statistics						
325	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method						
326	K-S Test Statistic					N/A	Mean						0.0243
327	5% K-S Critical Value					N/A	SD						0.00121
328	Data not Gamma Distributed at 5% Significance Level						SE of Mean						0.0004279
329							95% KM (t) UCL						0.0251
330	Assuming Gamma Distribution						95% KM (z) UCL						0.025
331	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL						0.0277
332	Minimum					N/A	95% KM (bootstrap t) UCL						1.8E+308
333	Maximum					N/A	95% KM (BCA) UCL						1E+31
334	Mean					N/A	95% KM (percentile) UCL						1E+31
335	Median					N/A	95% KM (Chebyshev) UCL						0.0262
336	SD					N/A	97.5% KM (Chebyshev) UCL						0.027
337	k star					N/A	99% KM (Chebyshev) UCL						0.0286
338	Theta star					N/A							
339	Nu star					N/A	Potential UCLs to Use						
340	AppChi2					N/A	95% KM (t) UCL						0.0251
341	95% Gamma Approximate UCL					N/A	95% KM (% Bootstrap) UCL						1E+31
342	95% Adjusted Gamma UCL					N/A							
343	Warning: Recommended UCL exceeds the maximum observation												
344													
345													
346	Mercury												
347													
348	General Statistics												
349	Number of Valid Samples					16	Number of Unique Samples					14	
350													
351	Raw Statistics						Log-transformed Statistics						
352	Minimum					0.028	Minimum of Log Data					-3.576	
353	Maximum					0.22	Maximum of Log Data					-1.514	
354	Mean					0.105	Mean of log Data					-2.457	
355	Median					0.087	SD of log Data					0.678	
356	SD					0.0642							
357	Coefficient of Variation					0.614							
358	Skewness					0.538							
359													
360	Relevant UCL Statistics												
361	Normal Distribution Test						Lognormal Distribution Test						
362	Shapiro Wilk Test Statistic					0.903	Shapiro Wilk Test Statistic					0.938	
363	Shapiro Wilk Critical Value					0.887	Shapiro Wilk Critical Value					0.887	
364	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
365													
366	Assuming Normal Distribution						Assuming Lognormal Distribution						
367	95% Student's-t UCL					0.133	95% H-UCL					0.16	
368	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					0.188	
369	95% Adjusted-CLT UCL					0.133	97.5% Chebyshev (MVUE) UCL					0.224	
370	95% Modified-t UCL					0.133	99% Chebyshev (MVUE) UCL					0.294	
371													

	A	B	C	D	E	F	G	H	I	J	K	L	
372	Gamma Distribution Test						Nonparametric Test						
373	k star (bias corrected)					2.209	Data appear Normal at 5% Significance Level						
374	Theta Star					0.0473							
375	nu star					70.69							
376	Approximate Chi Square Value (.05)					52.33	Nonparametric Statistics						
377	Adjusted Level of Significance					0.0335	95% CLT UCL				0.131		
378	Adjusted Chi Square Value					50.54	95% Jackknife UCL				0.133		
379							95% Standard Bootstrap UCL				0.13		
380	Anderson-Darling Test Statistic					0.378	95% Bootstrap-t UCL				0.134		
381	Anderson-Darling 5% Critical Value					0.746	95% Hall's Bootstrap UCL				0.13		
382	Kolmogorov-Smirnov Test Statistic					0.14	95% Percentile Bootstrap UCL				0.132		
383	Kolmogorov-Smirnov 5% Critical Value					0.217	95% BCA Bootstrap UCL				0.134		
384	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL				0.174		
385							97.5% Chebyshev(Mean, Sd) UCL				0.205		
386	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL				0.264		
387	95% Approximate Gamma UCL					0.141							
388	95% Adjusted Gamma UCL					0.146							
389													
390	Potential UCL to Use						Use 95% Student's-t UCL				0.133		
391													
392													
393	Nickel												
394													
395	General Statistics												
396	Number of Valid Samples					16	Number of Unique Samples				14		
397													
398	Raw Statistics						Log-transformed Statistics						
399	Minimum					0.31	Minimum of Log Data				-1.171		
400	Maximum					2.8	Maximum of Log Data				1.03		
401	Mean					0.893	Mean of log Data				-0.268		
402	Median					0.725	SD of log Data				0.548		
403	SD					0.6							
404	Coefficient of Variation					0.671							
405	Skewness					2.347							
406													
407	Relevant UCL Statistics												
408	Normal Distribution Test						Lognormal Distribution Test						
409	Shapiro Wilk Test Statistic					0.762	Shapiro Wilk Test Statistic				0.969		
410	Shapiro Wilk Critical Value					0.887	Shapiro Wilk Critical Value				0.887		
411	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
412													
413	Assuming Normal Distribution						Assuming Lognormal Distribution						
414	95% Student's-t UCL					1.156	95% H-UCL				1.198		
415	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL				1.425		
416	95% Adjusted-CLT UCL					1.234	97.5% Chebyshev (MVUE) UCL				1.661		
417	95% Modified-t UCL					1.171	99% Chebyshev (MVUE) UCL				2.124		
418													
419	Gamma Distribution Test						Nonparametric Test						
420	k star (bias corrected)					2.798	Data appear Gamma Distributed at 5% Significance Level						
421	Theta Star					0.319							
422	nu star					89.55							
423	Approximate Chi Square Value (.05)					68.73	Nonparametric Statistics						
424	Adjusted Level of Significance					0.0335	95% CLT UCL				1.14		

	A	B	C	D	E	F	G	H	I	J	K	L
425	Adjusted Chi Square Value					66.66	95% Jackknife UCL					1.156
426							95% Standard Bootstrap UCL					1.13
427	Anderson-Darling Test Statistic					0.423	95% Bootstrap-t UCL					1.37
428	Anderson-Darling 5% Critical Value					0.743	95% Hall's Bootstrap UCL					2.313
429	Kolmogorov-Smirnov Test Statistic					0.185	95% Percentile Bootstrap UCL					1.157
430	Kolmogorov-Smirnov 5% Critical Value					0.216	95% BCA Bootstrap UCL					1.251
431	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					1.547
432							97.5% Chebyshev(Mean, Sd) UCL					1.829
433	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					2.385
434	95% Approximate Gamma UCL					1.164						
435	95% Adjusted Gamma UCL					1.2						
436												
437	Potential UCL to Use						Use 95% Approximate Gamma UCL					1.164
438												
439												
440	Selenium											
441												
442	General Statistics											
443	Number of Valid Samples					16	Number of Unique Samples					11
444												
445	Raw Statistics						Log-transformed Statistics					
446	Minimum					0.42	Minimum of Log Data					-0.868
447	Maximum					1.1	Maximum of Log Data					0.0953
448	Mean					0.582	Mean of log Data					-0.568
449	Median					0.56	SD of log Data					0.225
450	SD					0.157						
451	Coefficient of Variation					0.27						
452	Skewness					2.542						
453												
454	Relevant UCL Statistics											
455	Normal Distribution Test						Lognormal Distribution Test					
456	Shapiro Wilk Test Statistic					0.734	Shapiro Wilk Test Statistic					0.862
457	Shapiro Wilk Critical Value					0.887	Shapiro Wilk Critical Value					0.887
458	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
459												
460	Assuming Normal Distribution						Assuming Lognormal Distribution					
461	95% Student's-t UCL					0.651	95% H-UCL					0.646
462	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					0.724
463	95% Adjusted-CLT UCL					0.673	97.5% Chebyshev (MVUE) UCL					0.786
464	95% Modified-t UCL					0.655	99% Chebyshev (MVUE) UCL					0.907
465												
466	Gamma Distribution Test						Nonparametric Test					
467	k star (bias corrected)					15.49	Data Follow Appr. Gamma Distribution at 5% Significance Level					
468	Theta Star					0.0376						
469	nu star					495.7						
470	Approximate Chi Square Value (.05)					445.1	Nonparametric Statistics					
471	Adjusted Level of Significance					0.0335	95% CLT UCL					0.646
472	Adjusted Chi Square Value					439.6	95% Jackknife UCL					0.651
473							95% Standard Bootstrap UCL					0.644
474	Anderson-Darling Test Statistic					0.808	95% Bootstrap-t UCL					0.701
475	Anderson-Darling 5% Critical Value					0.737	95% Hall's Bootstrap UCL					0.946
476	Kolmogorov-Smirnov Test Statistic					0.184	95% Percentile Bootstrap UCL					0.649
477	Kolmogorov-Smirnov 5% Critical Value					0.215	95% BCA Bootstrap UCL					0.681

	A	B	C	D	E	F	G	H	I	J	K	L
478	Data follow Appr. Gamma Distribution at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					0.753
479							97.5% Chebyshev(Mean, Sd) UCL					0.827
480	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					0.973
481	95% Approximate Gamma UCL				0.648							
482	95% Adjusted Gamma UCL				0.656							
483												
484	Potential UCL to Use						Use 95% Approximate Gamma UCL					0.648
485												
486												
487	Vanadium											
488												
489	General Statistics											
490	Number of Valid Samples				16		Number of Detected Data				9	
491	Number of Unique Samples				8		Number of Non-Detect Data				7	
492							Percent Non-Detects				43.75%	
493												
494	Raw Statistics						Log-transformed Statistics					
495	Minimum Detected				0.052		Minimum Detected				-2.957	
496	Maximum Detected				0.076		Maximum Detected				-2.577	
497	Mean of Detected				0.0653		Mean of Detected				-2.737	
498	SD of Detected				0.0089		SD of Detected				0.14	
499	Minimum Non-Detect				0.052		Minimum Non-Detect				-2.957	
500	Maximum Non-Detect				0.062		Maximum Non-Detect				-2.781	
501												
502	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				11	
503	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				5	
504	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				68.75%	
505												
506	UCL Statistics											
507	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
508	Shapiro Wilk Test Statistic				0.902		Shapiro Wilk Test Statistic				0.896	
509	5% Shapiro Wilk Critical Value				0.829		5% Shapiro Wilk Critical Value				0.829	
510	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
511												
512	Assuming Normal Distribution						Assuming Lognormal Distribution					
513	DL/2 Substitution Method						DL/2 Substitution Method					
514	Mean				0.0491		Mean				-3.1	
515	SD				0.0201		SD				0.44	
516	95% DL/2 (t) UCL				0.0579		95% H-Stat (DL/2) UCL				0.0568	
517												
518	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
519	Mean				0.0724		Mean in Log Scale				-2.856	
520	SD				0.00233		SD in Log Scale				0.177	
521	95% MLE (t) UCL				0.0734		Mean in Original Scale				0.0584	
522	95% MLE (Tiku) UCL				0.0742		SD in Original Scale				0.0106	
523							95% Percentile Bootstrap UCL				0.0626	
524							95% BCA Bootstrap UCL				0.0627	
525												
526	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
527	k star (bias corrected)				39.06		Data appear Normal at 5% Significance Level					
528	Theta Star				0.00167							
529	nu star				703.1							
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531	A-D Test Statistic					0.499	Nonparametric Statistics					
532	5% A-D Critical Value					0.72	Kaplan-Meier (KM) Method					
533	K-S Test Statistic					0.72	Mean					0.0598
534	5% K-S Critical Value					0.279	SD					0.00898
535	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0024
536							95% KM (t) UCL					0.064
537	Assuming Gamma Distribution						95% KM (z) UCL					0.0637
538	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0636
539	Minimum					0.0578	95% KM (bootstrap t) UCL					0.0643
540	Maximum					0.076	95% KM (BCA) UCL					0.0661
541	Mean					0.0669	95% KM (percentile) UCL					0.0651
542	Median					0.0668	95% KM (Chebyshev) UCL					0.0703
543	SD					0.00493	97.5% KM (Chebyshev) UCL					0.0748
544	k star					159.3	99% KM (Chebyshev) UCL					0.0837
545	Theta star					0.0004196						
546	Nu star					5099	Potential UCLs to Use					
547	AppChi2					4934	95% KM (t) UCL					0.064
548	95% Gamma Approximate UCL					0.0691	95% KM (Percentile Bootstrap) UCL					0.0651
549	95% Adjusted Gamma UCL					0.0694						
550												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			U:\JCV\Puritan\2006\ucl data\fish\BR1_ucl_data.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	bis(2-Ethylhexyl)phthalate											
10												
11	General Statistics											
12	Number of Valid Samples				16		Number of Detected Data				15	
13	Number of Unique Samples				10		Number of Non-Detect Data				1	
14							Percent Non-Detects				6.25%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				84		Minimum Detected				4.431	
18	Maximum Detected				230		Maximum Detected				5.438	
19	Mean of Detected				132.5		Mean of Detected				4.848	
20	SD of Detected				40.3		SD of Detected				0.28	
21	Minimum Non-Detect				160		Minimum Non-Detect				5.075	
22	Maximum Non-Detect				160		Maximum Non-Detect				5.075	
23												
24												
25	UCL Statistics											
26	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
27	Shapiro Wilk Test Statistic				0.883		Shapiro Wilk Test Statistic				0.949	
28	5% Shapiro Wilk Critical Value				0.881		5% Shapiro Wilk Critical Value				0.881	
29	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
30												
31	Assuming Normal Distribution					Assuming Lognormal Distribution						
32	DL/2 Substitution Method						DL/2 Substitution Method					
33	Mean				129.3		Mean				4.819	
34	SD				41.09		SD				0.295	
35	95% DL/2 (t) UCL				147.3		95% H-Stat (DL/2) UCL				153.2	
36												
37	Maximum Likelihood Estimate(MLE) Method					Robust ROS Method						
38	Mean				204		Mean in Log Scale				4.843	
39	SD				24.49		SD in Log Scale				0.271	
40	95% MLE (t) UCL				214.8		Mean in Original Scale				131.6	
41	95% MLE (Tiku) UCL				228.4		SD in Original Scale				39.11	
42							95% Percentile Bootstrap UCL				147.1	
43							95% BCA Bootstrap UCL				150.7	
44												

	A	B	C	D	E	F	G	H	I	J	K	L
45	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only					
46	k star (bias corrected)					10.59	Data appear Normal at 5% Significance Level					
47	Theta Star					12.51						
48	nu star					317.8						
49												
50	A-D Test Statistic					0.452	Nonparametric Statistics					
51	5% A-D Critical Value					0.737	Kaplan-Meier (KM) Method					
52	K-S Test Statistic					0.737	Mean					131.5
53	5% K-S Critical Value					0.221	SD					38.18
54	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					9.955
55							95% KM (t) UCL					148.9
56	Assuming Gamma Distribution						95% KM (z) UCL					147.9
57	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					148.9
58	Minimum					N/A	95% KM (bootstrap t) UCL					156.8
59	Maximum					N/A	95% KM (BCA) UCL					148.8
60	Mean					N/A	95% KM (percentile) UCL					148.2
61	Median					N/A	95% KM (Chebyshev) UCL					174.9
62	SD					N/A	97.5% KM (Chebyshev) UCL					193.6
63	k star					N/A	99% KM (Chebyshev) UCL					230.5
64	Theta star					N/A						
65	Nu star					N/A	Potential UCLs to Use					
66	AppChi2					N/A	95% KM (t) UCL					148.9
67	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					148.2
68	95% Adjusted Gamma UCL					N/A						
69												
70												
71	Benzo(a)pyrene											
72												
73	General Statistics											
74	Number of Valid Samples					16	Number of Detected Data					1
75	Number of Unique Samples					1	Number of Non-Detect Data					15
76							Percent Non-Detects					93.75%
77												
78	Raw Statistics						Log-transformed Statistics					
79	Minimum Detected					8.6	Minimum Detected					2.152
80	Maximum Detected					8.6	Maximum Detected					2.152
81	Mean of Detected					8.6	Mean of Detected					2.152
82	SD of Detected					N/A	SD of Detected					N/A
83	Minimum Non-Detect					7.6	Minimum Non-Detect					2.028
84	Maximum Non-Detect					8	Maximum Non-Detect					2.079
85												
86	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					15
87	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1
88	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					93.75%
89												

	A	B	C	D	E	F	G	H	I	J	K	L
90	UCL Statistics											
91	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
92	Shapiro Wilk Test Statistic					N/A	Shapiro Wilk Test Statistic					N/A
93	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A
94	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
95												
96	Assuming Normal Distribution						Assuming Lognormal Distribution					
97	DL/2 Substitution Method						DL/2 Substitution Method					
98	Mean					4.194	Mean					1.41
99	SD					1.177	SD					0.198
100	95% DL/2 (t) UCL					4.709	95% H-Stat (DL/2) UCL					4.487
101												
102	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
103							Mean in Log Scale					N/A
104							SD in Log Scale					N/A
105							Mean in Original Scale					N/A
106							SD in Original Scale					N/A
107							95% Percentile Bootstrap UCL					N/A
108							95% BCA Bootstrap UCL					N/A
109												
110	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
111	Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)					
112												
113												
114	Potential UCLs to Use						Nonparametric Statistics					
115	99% KM (Chebyshev) UCL					8.6	Kaplan-Meier (KM) Method					
116							Mean					8.6
117							SD					0
118							SE of Mean					0
119							95% KM (t) UCL					8.6
120							95% KM (z) UCL					8.6
121							95% KM (jackknife) UCL					7060
122							95% KM (bootstrap t) UCL					N/A
123							95% KM (BCA) UCL					1E+31
124							95% KM (percentile) UCL					1E+31
125							95% KM (Chebyshev) UCL					8.6
126							97.5% KM (Chebyshev) UCL					8.6
127							99% KM (Chebyshev) UCL					8.6
128												
129												

	A	B	C	D	E	F	G	H	I	J	K	L
130	Dibenz[a,h]anthracene											
131												
132	General Statistics											
133	Number of Valid Samples					16	Number of Detected Data					1
134	Number of Unique Samples					1	Number of Non-Detect Data					15
135							Percent Non-Detects					93.75%
136												
137	Raw Statistics					Log-transformed Statistics						
138	Minimum Detected					9.8	Minimum Detected					2.282
139	Maximum Detected					9.8	Maximum Detected					2.282
140	Mean of Detected					9.8	Mean of Detected					2.282
141	SD of Detected					N/A	SD of Detected					N/A
142	Minimum Non-Detect					7.6	Minimum Non-Detect					2.028
143	Maximum Non-Detect					8	Maximum Non-Detect					2.079
144												
145	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					15
146	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1
147	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					93.75%
148												
149	UCL Statistics											
150	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
151	Shapiro Wilk Test Statistic					N/A	Shapiro Wilk Test Statistic					N/A
152	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A
153	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
154												
155	Assuming Normal Distribution					Assuming Lognormal Distribution						
156	DL/2 Substitution Method						DL/2 Substitution Method					
157	Mean					4.269	Mean					1.418
158	SD					1.476	SD					0.231
159	95% DL/2 (t) UCL					4.916	95% H-Stat (DL/2) UCL					4.54
160												
161	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
162							Mean in Log Scale					N/A
163							SD in Log Scale					N/A
164							Mean in Original Scale					N/A
165							SD in Original Scale					N/A
166							95% Percentile Bootstrap UCL					N/A
167							95% BCA Bootstrap UCL					N/A
168												
169	Gamma Distribution Test with Detected Values Only					Nonparametric Test with Detected Values Only						
170	Gamma Statistics Not Available					Data do not follow a Discernable Distribution (0.05)						
171												
172												
173	Potential UCLs to Use					Nonparametric Statistics						
174	99% KM (Chebyshev) UCL					9.8	Kaplan-Meier (KM) Method					
175							Mean					9.8
176							SD					0
177							SE of Mean					0
178							95% KM (t) UCL					9.8
179							95% KM (z) UCL					9.8
180							95% KM (jackknife) UCL					7060
181							95% KM (bootstrap t) UCL					N/A

	A	B	C	D	E	F	G	H	I	J	K	L	
182						95% KM (BCA) UCL							1E+31
183						95% KM (percentile) UCL							1E+31
184						95% KM (Chebyshev) UCL							9.8
185						97.5% KM (Chebyshev) UCL							9.8
186						99% KM (Chebyshev) UCL							9.8
187													
188													
189	Indeno(1,2,3-cd)pyrene												
190													
191	General Statistics												
192	Number of Valid Samples					16	Number of Detected Data					1	
193	Number of Unique Samples					1	Number of Non-Detect Data					15	
194							Percent Non-Detects					93.75%	
195													
196	Raw Statistics					Log-transformed Statistics							
197	Minimum Detected					8.6	Minimum Detected					2.152	
198	Maximum Detected					8.6	Maximum Detected					2.152	
199	Mean of Detected					8.6	Mean of Detected					2.152	
200	SD of Detected					N/A	SD of Detected					N/A	
201	Minimum Non-Detect					7.6	Minimum Non-Detect					2.028	
202	Maximum Non-Detect					8	Maximum Non-Detect					2.079	
203													
204	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					15	
205	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1	
206	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					93.75%	
207													
208	UCL Statistics												
209	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
210	Shapiro Wilk Test Statistic					N/A	Shapiro Wilk Test Statistic					N/A	
211	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A	
212	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
213													
214	Assuming Normal Distribution					Assuming Lognormal Distribution							
215	DL/2 Substitution Method						DL/2 Substitution Method						
216	Mean					4.194	Mean					1.41	
217	SD					1.177	SD					0.198	
218	95% DL/2 (t) UCL					4.709	95% H-Stat (DL/2) UCL					4.487	
219													
220	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method						
221							Mean in Log Scale					N/A	
222							SD in Log Scale					N/A	
223							Mean in Original Scale					N/A	
224							SD in Original Scale					N/A	
225							95% Percentile Bootstrap UCL					N/A	
226							95% BCA Bootstrap UCL					N/A	
227													
228	Gamma Distribution Test with Detected Values Only					Nonparametric Test with Detected Values Only							
229	Gamma Statistics Not Available					Data do not follow a Discernable Distribution (0.05)							
230													
231													
232	Potential UCLs to Use					Nonparametric Statistics							
233	99% KM (Chebyshev) UCL					8.6	Kaplan-Meier (KM) Method						

	A	B	C	D	E	F	G	H	I	J	K	L
234							Mean					8.6
235							SD					0
236							SE of Mean					0
237							95% KM (t) UCL					8.6
238							95% KM (z) UCL					8.6
239							95% KM (jackknife) UCL					7060
240							95% KM (bootstrap t) UCL					N/A
241							95% KM (BCA) UCL					1E+31
242							95% KM (percentile) UCL					1E+31
243							95% KM (Chebyshev) UCL					8.6
244							97.5% KM (Chebyshev) UCL					8.6
245							99% KM (Chebyshev) UCL					8.6
246												
247												
248	Total Homologs											
249												
250	General Statistics											
251	Number of Valid Samples					16	Number of Unique Samples					14
252												
253	Raw Statistics					Log-transformed Statistics						
254					Minimum	70					Minimum of Log Data	4.248
255					Maximum	1300					Maximum of Log Data	7.17
256					Mean	291.9					Mean of log Data	5.322
257					Median	195					SD of log Data	0.796
258					SD	322.3						
259					Coefficient of Variation	1.104						
260					Skewness	2.56						
261												
262	Relevant UCL Statistics											
263	Normal Distribution Test					Lognormal Distribution Test						
264	Shapiro Wilk Test Statistic					0.64	Shapiro Wilk Test Statistic					0.927
265	Shapiro Wilk Critical Value					0.887	Shapiro Wilk Critical Value					0.887
266	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
267												
268	Assuming Normal Distribution					Assuming Lognormal Distribution						
269	95% Student's-t UCL					433.1	95% H-UCL					461.9
270	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					529	
271	95% Adjusted-CLT UCL					479.5	97.5% Chebyshev (MVUE) UCL					639.2
272	95% Modified-t UCL					441.7	99% Chebyshev (MVUE) UCL					855.7
273												
274	Gamma Distribution Test					Nonparametric Test						
275	k star (bias corrected)					1.307	Data appear Lognormal at 5% Significance Level					
276	Theta Star					223.3						
277	nu star					41.82						
278	Approximate Chi Square Value (.05)					28	Nonparametric Statistics					
279	Adjusted Level of Significance					0.0335	95% CLT UCL					424.4
280	Adjusted Chi Square Value					26.72	95% Jackknife UCL					433.1
281							95% Standard Bootstrap UCL					423.7
282	Anderson-Darling Test Statistic					0.924	95% Bootstrap-t UCL					744.2
283	Anderson-Darling 5% Critical Value					0.754	95% Hall's Bootstrap UCL					1143
284	Kolmogorov-Smirnov Test Statistic					0.225	95% Percentile Bootstrap UCL					433.8
285	Kolmogorov-Smirnov 5% Critical Value					0.219	95% BCA Bootstrap UCL					495.6

	A	B	C	D	E	F	G	H	I	J	K	L
286	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					643.1
287							97.5% Chebyshev(Mean, Sd) UCL					795
288	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					1094
289	95% Approximate Gamma UCL				436							
290	95% Adjusted Gamma UCL				456.9							
291												
292	Potential UCL to Use						Use 95% H-UCL					461.9
293												
294												
295	4,4'-DDD											
296												
297	General Statistics											
298	Number of Valid Samples				16		Number of Unique Samples				15	
299												
300	Raw Statistics						Log-transformed Statistics					
301	Minimum				1.6		Minimum of Log Data				0.47	
302	Maximum				13		Maximum of Log Data				2.565	
303	Mean				4.2		Mean of log Data				1.241	
304	Median				3.1		SD of log Data				0.607	
305	SD				3.118							
306	Coefficient of Variation				0.742							
307	Skewness				1.88							
308												
309	Relevant UCL Statistics											
310	Normal Distribution Test						Lognormal Distribution Test					
311	Shapiro Wilk Test Statistic				0.768		Shapiro Wilk Test Statistic				0.924	
312	Shapiro Wilk Critical Value				0.887		Shapiro Wilk Critical Value				0.887	
313	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
314												
315	Assuming Normal Distribution						Assuming Lognormal Distribution					
316	95% Student's-t UCL				5.567		95% H-UCL				5.841	
317	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL				6.935	
318	95% Adjusted-CLT UCL				5.874		97.5% Chebyshev (MVUE) UCL				8.16	
319	95% Modified-t UCL				5.628		99% Chebyshev (MVUE) UCL				10.57	
320												
321	Gamma Distribution Test						Nonparametric Test					
322	k star (bias corrected)				2.259		Data appear Gamma Distributed at 5% Significance Level					
323	Theta Star				1.859							
324	nu star				72.29							
325	Approximate Chi Square Value (.05)				53.71		Nonparametric Statistics					
326	Adjusted Level of Significance				0.0335		95% CLT UCL				5.482	
327	Adjusted Chi Square Value				51.89		95% Jackknife UCL				5.567	
328							95% Standard Bootstrap UCL				5.473	
329	Anderson-Darling Test Statistic				0.739		95% Bootstrap-t UCL				6.434	
330	Anderson-Darling 5% Critical Value				0.746		95% Hall's Bootstrap UCL				6.875	
331	Kolmogorov-Smirnov Test Statistic				0.187		95% Percentile Bootstrap UCL				5.55	
332	Kolmogorov-Smirnov 5% Critical Value				0.217		95% BCA Bootstrap UCL				5.8	
333	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					7.598
334							97.5% Chebyshev(Mean, Sd) UCL					9.068
335	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					11.96
336	95% Approximate Gamma UCL				5.653							
337	95% Adjusted Gamma UCL				5.851							

338	A	B	C	D	E	F	G	H	I	J	K	L
339	Potential UCL to Use					Use 95% Approximate Gamma UCL						5.653
340												
341												
342	4,4'-DDE											
343												
344	General Statistics											
345	Number of Valid Samples				16	Number of Unique Samples					15	
346												
347	Raw Statistics					Log-transformed Statistics						
348	Minimum				2.8	Minimum of Log Data					1.03	
349	Maximum				56	Maximum of Log Data					4.025	
350	Mean				12.23	Mean of log Data					2.135	
351	Median				7.75	SD of log Data					0.806	
352	SD				13.87							
353	Coefficient of Variation				1.134							
354	Skewness				2.587							
355												
356	Relevant UCL Statistics											
357	Normal Distribution Test					Lognormal Distribution Test						
358	Shapiro Wilk Test Statistic				0.638	Shapiro Wilk Test Statistic					0.926	
359	Shapiro Wilk Critical Value				0.887	Shapiro Wilk Critical Value					0.887	
360	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
361												
362	Assuming Normal Distribution					Assuming Lognormal Distribution						
363	95% Student's-t UCL				18.3	95% H-UCL					19.4	
364	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					22.15	
365	95% Adjusted-CLT UCL				20.32	97.5% Chebyshev (MVUE) UCL					26.8	
366	95% Modified-t UCL				18.68	99% Chebyshev (MVUE) UCL					35.93	
367												
368	Gamma Distribution Test					Nonparametric Test						
369	k star (bias corrected)				1.261	Data appear Lognormal at 5% Significance Level						
370	Theta Star				9.698							
371	nu star				40.34							
372	Approximate Chi Square Value (.05)				26.79	Nonparametric Statistics						
373	Adjusted Level of Significance				0.0335	95% CLT UCL					17.93	
374	Adjusted Chi Square Value				25.53	95% Jackknife UCL					18.3	
375						95% Standard Bootstrap UCL					17.78	
376	Anderson-Darling Test Statistic				0.971	95% Bootstrap-t UCL					31.02	
377	Anderson-Darling 5% Critical Value				0.755	95% Hall's Bootstrap UCL					46.28	
378	Kolmogorov-Smirnov Test Statistic				0.232	95% Percentile Bootstrap UCL					18.22	
379	Kolmogorov-Smirnov 5% Critical Value				0.219	95% BCA Bootstrap UCL					20.83	
380	Data not Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					27.34	
381						97.5% Chebyshev(Mean, Sd) UCL					33.88	
382	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL						
383	95% Approximate Gamma UCL				18.41							
384	95% Adjusted Gamma UCL				19.31							
385												
386	Potential UCL to Use					Use 95% H-UCL					19.4	
387												
388												
389	4,4'-DDT											

	A	B	C	D	E	F	G	H	I	J	K	L	
390													
391	General Statistics												
392	Number of Valid Samples					16	Number of Detected Data					15	
393	Number of Unique Samples					15	Number of Non-Detect Data					1	
394							Percent Non-Detects					6.25%	
395													
396	Raw Statistics					Log-transformed Statistics							
397	Minimum Detected					0.42	Minimum Detected					-0.868	
398	Maximum Detected					15	Maximum Detected					2.708	
399	Mean of Detected					2.889	Mean of Detected					0.447	
400	SD of Detected					3.868	SD of Detected					1.098	
401	Minimum Non-Detect					0.32	Minimum Non-Detect					-1.139	
402	Maximum Non-Detect					0.32	Maximum Non-Detect					-1.139	
403													
404													
405	UCL Statistics												
406	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
407	Shapiro Wilk Test Statistic					0.666	Shapiro Wilk Test Statistic					0.925	
408	5% Shapiro Wilk Critical Value					0.881	5% Shapiro Wilk Critical Value					0.881	
409	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
410													
411	Assuming Normal Distribution					Assuming Lognormal Distribution							
412	DL/2 Substitution Method						DL/2 Substitution Method						
413	Mean					2.718	Mean					0.304	
414	SD					3.799	SD					1.205	
415	95% DL/2 (t) UCL					4.383	95% H-Stat (DL/2) UCL					4.978	
416													
417	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method						
418	Mean					2.58	Mean in Log Scale					0.279	
419	SD					3.842	SD in Log Scale					1.255	
420	95% MLE (t) UCL					4.263	Mean in Original Scale					2.715	
421	95% MLE (Tiku) UCL					4.142	SD in Original Scale					3.801	
422							95% Percentile Bootstrap UCL					4.379	
423							95% BCA Bootstrap UCL					5.12	
424													
425	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only							
426	k star (bias corrected)					0.802	Data appear Lognormal at 5% Significance Level						
427	Theta Star					3.604							
428	nu star					24.05							
429													
430	A-D Test Statistic					0.773	Nonparametric Statistics						
431	5% A-D Critical Value					0.766	Kaplan-Meier (KM) Method						
432	K-S Test Statistic					0.766	Mean					2.734	
433	5% K-S Critical Value					0.228	SD					3.667	
434	Data not Gamma Distributed at 5% Significance Level					SE of Mean							0.949
435							95% KM (t) UCL					4.398	
436	Assuming Gamma Distribution					95% KM (z) UCL							4.295
437	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4.394	
438	Minimum					0	95% KM (bootstrap t) UCL					6.278	
439	Maximum					15	95% KM (BCA) UCL					4.492	
440	Mean					2.708	95% KM (percentile) UCL					4.435	
441	Median					1.05	95% KM (Chebyshev) UCL					6.871	

	A	B	C	D	E	F	G	H	I	J	K	L	
442	SD					3.806	97.5% KM (Chebyshev) UCL					8.661	
443	k star					0.332	99% KM (Chebyshev) UCL					12.18	
444	Theta star					8.147							
445	Nu star					10.64	Potential UCLs to Use						
446	AppChi2					4.344	97.5% KM (Chebyshev) UCL					8.661	
447	95% Gamma Approximate UCL					6.632							
448	95% Adjusted Gamma UCL					7.395							
449													
450													
451	alpha-Chlordane												
452													
453	General Statistics												
454	Number of Valid Samples					16	Number of Unique Samples					13	
455													
456	Raw Statistics					Log-transformed Statistics							
457	Minimum					0.69	Minimum of Log Data					-0.371	
458	Maximum					9.4	Maximum of Log Data					2.241	
459	Mean					3.244	Mean of log Data					0.829	
460	Median					2.45	SD of log Data					0.885	
461	SD					2.674							
462	Coefficient of Variation					0.824							
463	Skewness					0.967							
464													
465	Relevant UCL Statistics												
466	Normal Distribution Test					Lognormal Distribution Test							
467	Shapiro Wilk Test Statistic					0.861	Shapiro Wilk Test Statistic					0.908	
468	Shapiro Wilk Critical Value					0.887	Shapiro Wilk Critical Value					0.887	
469	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
470													
471	Assuming Normal Distribution					Assuming Lognormal Distribution							
472	95% Student's-t UCL					4.415	95% H-UCL					6.057	
473	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					6.711		
474	95% Adjusted-CLT UCL					4.516	97.5% Chebyshev (MVUE) UCL					8.194	
475	95% Modified-t UCL					4.442	99% Chebyshev (MVUE) UCL					11.11	
476													
477	Gamma Distribution Test					Nonparametric Test							
478	k star (bias corrected)					1.33	Data appear Gamma Distributed at 5% Significance Level						
479	Theta Star					2.439							
480	nu star					42.55							
481	Approximate Chi Square Value (.05)					28.6	Nonparametric Statistics						
482	Adjusted Level of Significance					0.0335	95% CLT UCL					4.343	
483	Adjusted Chi Square Value					27.3	95% Jackknife UCL					4.415	
484							95% Standard Bootstrap UCL					4.297	
485	Anderson-Darling Test Statistic					0.648	95% Bootstrap-t UCL					4.658	
486	Anderson-Darling 5% Critical Value					0.754	95% Hall's Bootstrap UCL					4.584	
487	Kolmogorov-Smirnov Test Statistic					0.201	95% Percentile Bootstrap UCL					4.384	
488	Kolmogorov-Smirnov 5% Critical Value					0.219	95% BCA Bootstrap UCL					4.465	
489	Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					6.157		
490							97.5% Chebyshev(Mean, Sd) UCL					7.418	
491	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					9.894		
492	95% Approximate Gamma UCL					4.827							
493	95% Adjusted Gamma UCL					5.056							

	A	B	C	D	E	F	G	H	I	J	K	L
494												
495	Potential UCL to Use					Use 95% Approximate Gamma UCL					4.827	
496												
497												
498	Dieldrin											
499												
500	General Statistics											
501	Number of Valid Samples				16	Number of Unique Samples					14	
502												
503	Raw Statistics					Log-transformed Statistics						
504	Minimum				3.9	Minimum of Log Data					1.361	
505	Maximum				16	Maximum of Log Data					2.773	
506	Mean				8.381	Mean of log Data					2.066	
507	Median				7.9	SD of log Data					0.359	
508	SD				3.065							
509	Coefficient of Variation				0.366							
510	Skewness				0.963							
511												
512	Relevant UCL Statistics											
513	Normal Distribution Test					Lognormal Distribution Test						
514	Shapiro Wilk Test Statistic				0.941	Shapiro Wilk Test Statistic					0.989	
515	Shapiro Wilk Critical Value				0.887	Shapiro Wilk Critical Value					0.887	
516	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
517												
518	Assuming Normal Distribution					Assuming Lognormal Distribution						
519	95% Student's-t UCL				9.725	95% H-UCL					10.06	
520	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					11.72	
521	95% Adjusted-CLT UCL				9.839	97.5% Chebyshev (MVUE) UCL					13.16	
522	95% Modified-t UCL				9.755	99% Chebyshev (MVUE) UCL					16	
523												
524	Gamma Distribution Test					Nonparametric Test						
525	k star (bias corrected)				6.913	Data appear Normal at 5% Significance Level						
526	Theta Star				1.212							
527	nu star				221.2							
528	Approximate Chi Square Value (.05)				187.8	Nonparametric Statistics						
529	Adjusted Level of Significance				0.0335	95% CLT UCL					9.642	
530	Adjusted Chi Square Value				184.3	95% Jackknife UCL					9.725	
531						95% Standard Bootstrap UCL					9.608	
532	Anderson-Darling Test Statistic				0.165	95% Bootstrap-t UCL					10.1	
533	Anderson-Darling 5% Critical Value				0.74	95% Hall's Bootstrap UCL					10.37	
534	Kolmogorov-Smirnov Test Statistic				0.0932	95% Percentile Bootstrap UCL					9.619	
535	Kolmogorov-Smirnov 5% Critical Value				0.215	95% BCA Bootstrap UCL					9.781	
536	Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					11.72	
537						97.5% Chebyshev(Mean, Sd) UCL					13.17	
538	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL						
539	95% Approximate Gamma UCL				9.873							
540	95% Adjusted Gamma UCL				10.06							
541												
542	Potential UCL to Use					Use 95% Student's-t UCL					9.725	
543												
544												
545	Gamma-Chlordane											

	A	B	C	D	E	F	G	H	I	J	K	L
546												
547	General Statistics											
548	Number of Valid Samples					16	Number of Detected Data					10
549	Number of Unique Samples					10	Number of Non-Detect Data					6
550							Percent Non-Detects					37.50%
551												
552	Raw Statistics					Log-transformed Statistics						
553	Minimum Detected					1.4	Minimum Detected					0.336
554	Maximum Detected					5.6	Maximum Detected					1.723
555	Mean of Detected					3.62	Mean of Detected					1.209
556	SD of Detected					1.329	SD of Detected					0.442
557	Minimum Non-Detect					0.32	Minimum Non-Detect					-1.139
558	Maximum Non-Detect					0.33	Maximum Non-Detect					-1.109
559												
560	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				6	
561	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				10	
562	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				37.50%	
563												
564	UCL Statistics											
565	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
566	Shapiro Wilk Test Statistic					0.963	Shapiro Wilk Test Statistic					0.894
567	5% Shapiro Wilk Critical Value					0.842	5% Shapiro Wilk Critical Value					0.842
568	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
569												
570	Assuming Normal Distribution					Assuming Lognormal Distribution						
571	DL/2 Substitution Method						DL/2 Substitution Method					
572	Mean					2.324	Mean					0.0764
573	SD					2.012	SD					1.549
574	95% DL/2 (t) UCL					3.205	95% H-Stat (DL/2) UCL					3.445
575												
576	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
577	Mean					1.709	Mean in Log Scale					0.816
578	SD					2.806	SD in Log Scale					0.642
579	95% MLE (t) UCL					2.939	Mean in Original Scale					2.713
580	95% MLE (Tiku) UCL					3.094	SD in Original Scale					1.597
581							95% Percentile Bootstrap UCL					3.371
582							95% BCA Bootstrap UCL					3.373
583												
584	Gamma Distribution Test with Detected Values Only					Nonparametric Test with Detected Values Only						
585	k star (bias corrected)					4.726	Data appear Normal at 5% Significance Level					
586	Theta Star					0.766						
587	nu star					94.52						
588												
589	A-D Test Statistic					0.395	Nonparametric Statistics					
590	5% A-D Critical Value					0.728	Kaplan-Meier (KM) Method					
591	K-S Test Statistic					0.728	Mean					2.788
592	5% K-S Critical Value					0.267	SD					1.466
593	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					0.386	
594							95% KM (t) UCL					3.465
595	Assuming Gamma Distribution					95% KM (z) UCL					3.423	
596	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					3.409
597	Minimum					0.566	95% KM (bootstrap t) UCL					3.505

	A	B	C	D	E	F	G	H	I	J	K	L
598	Maximum					5.6	95% KM (BCA) UCL					3.881
599	Mean					2.777	95% KM (percentile) UCL					3.731
600	Median					2.504	95% KM (Chebyshev) UCL					4.471
601	SD					1.554	97.5% KM (Chebyshev) UCL					5.2
602	k star					2.473	99% KM (Chebyshev) UCL					6.631
603	Theta star					1.123						
604	Nu star					79.14	Potential UCLs to Use					
605	AppChi2					59.64	95% KM (t) UCL					3.465
606	95% Gamma Approximate UCL					3.685	95% KM (Percentile Bootstrap) UCL					3.731
607	95% Adjusted Gamma UCL					3.808						
608												
609												
610	Heptachlor Epoxide											
611												
612	General Statistics											
613	Number of Valid Samples					16	Number of Detected Data					13
614	Number of Unique Samples					13	Number of Non-Detect Data					3
615							Percent Non-Detects					18.75%
616												
617	Raw Statistics						Log-transformed Statistics					
618	Minimum Detected					0.33	Minimum Detected					-1.109
619	Maximum Detected					2.9	Maximum Detected					1.065
620	Mean of Detected					0.992	Mean of Detected					-0.357
621	SD of Detected					0.96	SD of Detected					0.813
622	Minimum Non-Detect					0.32	Minimum Non-Detect					-1.139
623	Maximum Non-Detect					0.33	Maximum Non-Detect					-1.109
624												
625	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					3
626	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					13
627	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					18.75%
628												
629	UCL Statistics											
630	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
631	Shapiro Wilk Test Statistic					0.693	Shapiro Wilk Test Statistic					0.807
632	5% Shapiro Wilk Critical Value					0.866	5% Shapiro Wilk Critical Value					0.866
633	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
634												
635	Assuming Normal Distribution						Assuming Lognormal Distribution					
636	DL/2 Substitution Method						DL/2 Substitution Method					
637	Mean					0.837	Mean					-0.632
638	SD					0.922	SD					0.937
639	95% DL/2 (t) UCL					1.24	95% H-Stat (DL/2) UCL					1.396
640												
641	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
642	Mean					0.742	Mean in Log Scale					-0.701
643	SD					1.008	SD in Log Scale					1.04
644	95% MLE (t) UCL					1.184	Mean in Original Scale					0.828
645	95% MLE (Tiku) UCL					1.175	SD in Original Scale					0.929
646							95% Percentile Bootstrap UCL					1.21
647							95% BCA Bootstrap UCL					1.323
648												
649	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					

	A	B	C	D	E	F	G	H	I	J	K	L	
650	k star (bias corrected)					1.264	Data do not follow a Discernable Distribution (0.05)						
651	Theta Star					0.785							
652	nu star					32.87							
653													
654	A-D Test Statistic					1.373	Nonparametric Statistics						
655	5% A-D Critical Value					0.749	Kaplan-Meier (KM) Method						
656	K-S Test Statistic					0.749	Mean						0.868
657	5% K-S Critical Value					0.241	SD						0.871
658	Data not Gamma Distributed at 5% Significance Level						SE of Mean						0.227
659							95% KM (t) UCL						1.265
660	Assuming Gamma Distribution						95% KM (z) UCL						1.241
661	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL						1.26
662	Minimum					0	95% KM (bootstrap t) UCL						1.457
663	Maximum					2.9	95% KM (BCA) UCL						1.287
664	Mean					0.806	95% KM (percentile) UCL						1.238
665	Median					0.42	95% KM (Chebyshev) UCL						1.856
666	SD					0.947	97.5% KM (Chebyshev) UCL						2.283
667	k star					0.194	99% KM (Chebyshev) UCL						3.122
668	Theta star					4.153							
669	Nu star					6.213	Potential UCLs to Use						
670	AppChi2					1.749	95% KM (Chebyshev) UCL						1.856
671	95% Gamma Approximate UCL					2.863							
672	95% Adjusted Gamma UCL					3.352							
673													

1	A	B	C	D	E	F	G	H	I	J	K	L
2	User Selected Options			General UCL Statistics for Data Sets with Non-Detects								
3	From File			H:\JCV\Puritan\2007\EPCs\Surface Water\down_land_sw_ucl_data.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(b)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Samples				8		Number of Detected Data				2	
13	Number of Unique Samples				2		Number of Non-Detect Data				6	
14							Percent Non-Detects				75.00%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				0.12		Minimum Detected				-2.12	
18	Maximum Detected				0.18		Maximum Detected				-1.715	
19	Mean of Detected				0.15		Mean of Detected				-1.918	
20	SD of Detected				0.0424		SD of Detected				0.287	
21	Minimum Non-Detect				0.057		Minimum Non-Detect				-2.865	
22	Maximum Non-Detect				0.1		Maximum Non-Detect				-2.303	
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				6	
25	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				2	
26	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				75.00%	
27												
28	UCL Statistics											
29	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
30	Shapiro Wilk Test Statistic				1		Shapiro Wilk Test Statistic				1	
31	5% Shapiro Wilk Critical Value				N/A		5% Shapiro Wilk Critical Value				N/A	
32	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
33												
34	Assuming Normal Distribution					Assuming Lognormal Distribution						
35	DL/2 Substitution Method						DL/2 Substitution Method					
36	Mean				0.0716		Mean				-2.812	
37	SD				0.0515		SD				0.594	
38	95% DL/2 (t) UCL				0.106		95% H-Stat (DL/2) UCL				0.0794	
39												
40	Maximum Likelihood Estimate(MLE) Method				N/A		Robust ROS Method					
41							Mean in Log Scale				-3.03	
42							SD in Log Scale				0.78	
43							Mean in Original Scale				0.0643	
44							SD in Original Scale				0.0566	
45							95% Percentile Bootstrap UCL				0.0962	
46							95% BCA Bootstrap UCL				0.104	
47												
48	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
49	k star (bias corrected)				N/A		Data do not follow a Discernable Distribution (0.05)					
50	Theta Star				N/A							
51	nu star				N/A							
52												
53	A-D Test Statistic				0.359		Nonparametric Statistics					

	A	B	C	D	E	F	G	H	I	J	K	L
54	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
55	K-S Test Statistic					N/A	Mean					0.128
56	5% K-S Critical Value					N/A	SD					0.0198
57	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.00992
58							95% KM (t) UCL					0.146
59	Assuming Gamma Distribution						95% KM (z) UCL					0.144
60	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.171
61	Minimum					N/A	95% KM (bootstrap t) UCL					0.128
62	Maximum					N/A	95% KM (BCA) UCL					1E+31
63	Mean					N/A	95% KM (percentile) UCL					1E+31
64	Median					N/A	95% KM (Chebyshev) UCL					0.171
65	SD					N/A	97.5% KM (Chebyshev) UCL					0.189
66	k star					N/A	99% KM (Chebyshev) UCL					0.226
67	Theta star					N/A						
68	Nu star					N/A	Potential UCLs to Use					
69	AppChi2					N/A	95% KM (t) UCL					0.146
70	95% Gamma Approximate UCL					N/A	95% KM (% Bootstrap) UCL					1E+31
71	95% Adjusted Gamma UCL					N/A						
72	Warning: Recommended UCL exceeds the maximum observation											
73												
74												
75	Chrysene											
76												
77	General Statistics											
78	Number of Valid Samples					8	Number of Detected Data					2
79	Number of Unique Samples					2	Number of Non-Detect Data					6
80							Percent Non-Detects					75.00%
81												
82	Raw Statistics						Log-transformed Statistics					
83	Minimum Detected					0.072	Minimum Detected					-2.631
84	Maximum Detected					0.15	Maximum Detected					-1.897
85	Mean of Detected					0.111	Mean of Detected					-2.264
86	SD of Detected					0.0552	SD of Detected					0.519
87	Minimum Non-Detect					0.051	Minimum Non-Detect					-2.976
88	Maximum Non-Detect					0.1	Maximum Non-Detect					-2.303
89												
90	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					7
91	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1
92	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					87.50%
93												
94	UCL Statistics											
95	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
96	Shapiro Wilk Test Statistic					1	Shapiro Wilk Test Statistic					1
97	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A
98	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
99												
100	Assuming Normal Distribution						Assuming Lognormal Distribution					
101	DL/2 Substitution Method						DL/2 Substitution Method					
102	Mean					0.0622	Mean					-2.897
103	SD					0.0376	SD					0.495
104	95% DL/2 (t) UCL					0.0874	95% H-Stat (DL/2) UCL					0.0862
105												
106	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					

	A	B	C	D	E	F	G	H	I	J	K	L	
107						Mean in Log Scale							-2.874
108						SD in Log Scale							0.546
109						Mean in Original Scale							0.0648
110						SD in Original Scale							0.0394
111						95% Percentile Bootstrap UCL							0.0871
112						95% BCA Bootstrap UCL							0.0958
113													
114	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only						
115	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)						
116	Theta Star					N/A							
117	nu star					N/A							
118													
119	A-D Test Statistic					0.359	Nonparametric Statistics						
120	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method						
121	K-S Test Statistic					N/A	Mean						0.0818
122	5% K-S Critical Value					N/A	SD						0.0258
123	Data not Gamma Distributed at 5% Significance Level						SE of Mean						0.0129
124							95% KM (t) UCL						0.106
125	Assuming Gamma Distribution						95% KM (z) UCL						0.103
126	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL						0.138
127	Minimum					N/A	95% KM (bootstrap t) UCL						1.8E+308
128	Maximum					N/A	95% KM (BCA) UCL						0.15
129	Mean					N/A	95% KM (percentile) UCL						1E+31
130	Median					N/A	95% KM (Chebyshev) UCL						0.138
131	SD					N/A	97.5% KM (Chebyshev) UCL						0.162
132	k star					N/A	99% KM (Chebyshev) UCL						0.21
133	Theta star					N/A							
134	Nu star					N/A	Potential UCLs to Use						
135	AppChi2					N/A	95% KM (t) UCL						0.106
136	95% Gamma Approximate UCL					N/A	95% KM (% Bootstrap) UCL						1E+31
137	95% Adjusted Gamma UCL					N/A							
138	Warning: Recommended UCL exceeds the maximum observation												
139													
140													
141	Dieldrin												
142													
143	General Statistics												
144	Number of Valid Samples					8	Number of Detected Data					3	
145	Number of Unique Samples					2	Number of Non-Detect Data					5	
146							Percent Non-Detects					62.50%	
147													
148	Raw Statistics					Log-transformed Statistics							
149	Minimum Detected					0.0013	Minimum Detected					-6.645	
150	Maximum Detected					0.012	Maximum Detected					-4.423	
151	Mean of Detected					0.00487	Mean of Detected					-5.905	
152	SD of Detected					0.00618	SD of Detected					1.283	
153	Minimum Non-Detect					0.005	Minimum Non-Detect					-5.298	
154	Maximum Non-Detect					0.0056	Maximum Non-Detect					-5.185	
155													
156	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					7	
157	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1	
158	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					87.50%	
159													

	A	B	C	D	E	F	G	H	I	J	K	L	
160	UCL Statistics												
161	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
162	Shapiro Wilk Test Statistic					0.75	Shapiro Wilk Test Statistic					0.75	
163	5% Shapiro Wilk Critical Value					0.767	5% Shapiro Wilk Critical Value					0.767	
164	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
165													
166	Assuming Normal Distribution					Assuming Lognormal Distribution							
167	DL/2 Substitution Method						DL/2 Substitution Method						
168	Mean					0.00346	Mean					-5.931	
169	SD					0.0035	SD					0.688	
170	95% DL/2 (t) UCL					0.00581	95% H-Stat (DL/2) UCL					0.0111	
171													
172	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method						
173							Mean in Log Scale					-6.311	
174							SD in Log Scale					0.875	
175							Mean in Original Scale					0.00283	
176							SD in Original Scale					0.00376	
177							95% Percentile Bootstrap UCL					0.00535	
178							95% BCA Bootstrap UCL					0.0066	
179													
180	Gamma Distribution Test with Detected Values Only					Nonparametric Test with Detected Values Only							
181	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)						
182	Theta Star					N/A							
183	nu star					N/A							
184													
185	A-D Test Statistic					0.615	Nonparametric Statistics						
186	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method						
187	K-S Test Statistic					N/A	Mean					0.00264	
188	5% K-S Critical Value					N/A	SD					0.00354	
189	Data not Gamma Distributed at 5% Significance Level					SE of Mean					0.00153		
190							95% KM (t) UCL					0.00554	
191	Assuming Gamma Distribution						95% KM (z) UCL					0.00516	
192	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.00517	
193	Minimum					N/A	95% KM (bootstrap t) UCL					1.8E+308	
194	Maximum					N/A	95% KM (BCA) UCL					0.00398	
195	Mean					N/A	95% KM (percentile) UCL					0.012	
196	Median					N/A	95% KM (Chebyshev) UCL					0.00932	
197	SD					N/A	97.5% KM (Chebyshev) UCL					0.0122	
198	k star					N/A	99% KM (Chebyshev) UCL					0.0179	
199	Theta star					N/A							
200	Nu star					N/A	Potential UCLs to Use						
201	AppChi2					N/A	95% KM (BCA) UCL					0.00398	
202	95% Gamma Approximate UCL					N/A							
203	95% Adjusted Gamma UCL					N/A							
204													
205													
206	Aluminum												
207													
208	General Statistics												
209	Number of Valid Samples					8	Number of Detected Data					6	
210	Number of Unique Samples					6	Number of Non-Detect Data					2	
211							Percent Non-Detects					25.00%	
212													

	A	B	C	D	E	F	G	H	I	J	K	L
213	Raw Statistics						Log-transformed Statistics					
214	Minimum Detected				40.5		Minimum Detected				3.701	
215	Maximum Detected				350		Maximum Detected				5.858	
216	Mean of Detected				221.4		Mean of Detected				5.067	
217	SD of Detected				143.2		SD of Detected				1.038	
218	Minimum Non-Detect				200		Minimum Non-Detect				5.298	
219	Maximum Non-Detect				200		Maximum Non-Detect				5.298	
220												
221												
222	UCL Statistics											
223	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
224	Shapiro Wilk Test Statistic				0.794		Shapiro Wilk Test Statistic				0.724	
225	5% Shapiro Wilk Critical Value				0.788		5% Shapiro Wilk Critical Value				0.788	
226	Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
227												
228	Assuming Normal Distribution						Assuming Lognormal Distribution					
229	DL/2 Substitution Method						DL/2 Substitution Method					
230	Mean				191		Mean				4.951	
231	SD				133.4		SD				0.903	
232	95% DL/2 (t) UCL				280.4		95% H-Stat (DL/2) UCL				1062	
233												
234	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
235	Mean				213.7		Mean in Log Scale				4.791	
236	SD				110.9		SD in Log Scale				1.028	
237	95% MLE (t) UCL				288		Mean in Original Scale				179.9	
238	95% MLE (Tiku) UCL				305.1		SD in Original Scale				143.7	
239							95% Percentile Bootstrap UCL				257.2	
240							95% BCA Bootstrap UCL				262.6	
241												
242	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
243	k star (bias corrected)				0.935		Data appear Normal at 5% Significance Level					
244	Theta Star				236.9							
245	nu star				11.22							
246												
247	A-D Test Statistic				0.872		Nonparametric Statistics					
248	5% A-D Critical Value				0.707		Kaplan-Meier (KM) Method					
249	K-S Test Statistic				0.707		Mean				176.5	
250	5% K-S Critical Value				0.337		SD				137.3	
251	Data not Gamma Distributed at 5% Significance Level						SE of Mean				53.19	
252							95% KM (t) UCL				277.3	
253	Assuming Gamma Distribution						95% KM (z) UCL				264	
254	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				274.9	
255	Minimum				186.9		95% KM (bootstrap t) UCL				278.1	
256	Maximum				350		95% KM (BCA) UCL				300.6	
257	Mean				267.4		95% KM (percentile) UCL				294	
258	Median				262.3		95% KM (Chebyshev) UCL				408.4	
259	SD				58.21		97.5% KM (Chebyshev) UCL				508.7	
260	k star				15.32		99% KM (Chebyshev) UCL				705.7	
261	Theta star				17.46							
262	Nu star				245.1		Potential UCLs to Use					
263	AppChi2				209.9		95% KM (t) UCL				277.3	
264	95% Gamma Approximate UCL				312.3		95% KM (Percentile Bootstrap) UCL				294	
265	95% Adjusted Gamma UCL				325.1							

	A	B	C	D	E	F	G	H	I	J	K	L
266												
267												
268	Arsenic											
269												
270	General Statistics											
271	Number of Valid Samples					8	Number of Unique Samples					8
272												
273	Raw Statistics						Log-transformed Statistics					
274	Minimum					1.63	Minimum of Log Data					0.489
275	Maximum					4.08	Maximum of Log Data					1.406
276	Mean					2.353	Mean of log Data					0.798
277	Median					1.925	SD of log Data					0.347
278	SD					0.936						
279	Coefficient of Variation					0.398						
280	Skewness					1.421						
281												
282	Relevant UCL Statistics											
283	Normal Distribution Test						Lognormal Distribution Test					
284	Shapiro Wilk Test Statistic					0.736	Shapiro Wilk Test Statistic					0.786
285	Shapiro Wilk Critical Value					0.818	Shapiro Wilk Critical Value					0.818
286	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
287												
288	Assuming Normal Distribution						Assuming Lognormal Distribution					
289	95% Student's-t UCL					2.979	95% H-UCL					3.121
290	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					3.596
291	95% Adjusted-CLT UCL					3.074	97.5% Chebyshev (MVUE) UCL					4.14
292	95% Modified-t UCL					3.007	99% Chebyshev (MVUE) UCL					5.208
293												
294	Gamma Distribution Test						Nonparametric Test					
295	k star (bias corrected)					5.587	Data do not follow a Discernable Distribution (0.05)					
296	Theta Star					0.421						
297	nu star					89.4						
298	Approximate Chi Square Value (.05)					68.6	Nonparametric Statistics					
299	Adjusted Level of Significance					0.0195	95% CLT UCL					2.897
300	Adjusted Chi Square Value					64	95% Jackknife UCL					2.979
301							95% Standard Bootstrap UCL					2.864
302	Anderson-Darling Test Statistic					0.983	95% Bootstrap-t UCL					5.31
303	Anderson-Darling 5% Critical Value					0.716	95% Hall's Bootstrap UCL					7.428
304	Kolmogorov-Smirnov Test Statistic					0.336	95% Percentile Bootstrap UCL					2.883
305	Kolmogorov-Smirnov 5% Critical Value					0.295	95% BCA Bootstrap UCL					3.018
306	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					3.794
307							97.5% Chebyshev(Mean, Sd) UCL					4.418
308	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					5.644
309	95% Approximate Gamma UCL					3.066						
310	95% Adjusted Gamma UCL					3.286						
311												
312	Potential UCL to Use						Use 95% Student's-t UCL					2.979
313							or 95% Modified-t UCL					3.007
314												
315												
316	Barium											
317												
318	General Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
319	Number of Valid Samples					8	Number of Detected Data					4
320	Number of Unique Samples					4	Number of Non-Detect Data					4
321							Percent Non-Detects					50.00%
322												
323	Raw Statistics						Log-transformed Statistics					
324	Minimum Detected					23	Minimum Detected					3.135
325	Maximum Detected					74.7	Maximum Detected					4.313
326	Mean of Detected					43.3	Mean of Detected					3.642
327	SD of Detected					24.75	SD of Detected					0.581
328	Minimum Non-Detect					28.8	Minimum Non-Detect					3.36
329	Maximum Non-Detect					200	Maximum Non-Detect					5.298
330												
331	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					8
332	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					0
333	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
334												
335	UCL Statistics											
336	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
337	Shapiro Wilk Test Statistic					0.877	Shapiro Wilk Test Statistic					0.868
338	5% Shapiro Wilk Critical Value					0.748	5% Shapiro Wilk Critical Value					0.748
339	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
340												
341	Assuming Normal Distribution						Assuming Lognormal Distribution					
342	DL/2 Substitution Method						DL/2 Substitution Method					
343	Mean					50.31	Mean					3.643
344	SD					36.88	SD					0.82
345	95% DL/2 (t) UCL					75.01	95% H-Stat (DL/2) UCL					428.4
346												
347	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
348							Mean in Log Scale					3.49
349							SD in Log Scale					0.45
350							Mean in Original Scale					36.14
351							SD in Original Scale					18.83
352							95% Percentile Bootstrap UCL					46.93
353							95% BCA Bootstrap UCL					49.41
354												
355	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
356	k star (bias corrected)					1.199	Data appear Normal at 5% Significance Level					
357	Theta Star					36.13						
358	nu star					9.588						
359												
360	A-D Test Statistic					0.422	Nonparametric Statistics					
361	5% A-D Critical Value					0.659	Kaplan-Meier (KM) Method					
362	K-S Test Statistic					0.659	Mean					36.7
363	5% K-S Critical Value					0.396	SD					19.84
364	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					9.353
365							95% KM (t) UCL					54.42
366	Assuming Gamma Distribution						95% KM (z) UCL					52.08
367	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					53.94
368	Minimum					N/A	95% KM (bootstrap t) UCL					58.26
369	Maximum					N/A	95% KM (BCA) UCL					59.23
370	Mean					N/A	95% KM (percentile) UCL					59.23
371	Median					N/A	95% KM (Chebyshev) UCL					77.47

	A	B	C	D	E	F	G	H	I	J	K	L
372	SD					N/A	97.5% KM (Chebyshev) UCL					95.11
373	k star					N/A	99% KM (Chebyshev) UCL					129.8
374	Theta star					N/A						
375	Nu star					N/A	Potential UCLs to Use					
376	AppChi2					N/A	95% KM (t) UCL					54.42
377	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					59.23
378	95% Adjusted Gamma UCL					N/A						
379												
380												
381	Cadmium											
382												
383	General Statistics											
384	Number of Valid Samples					8	Number of Detected Data					7
385	Number of Unique Samples					7	Number of Non-Detect Data					1
386							Percent Non-Detects					12.50%
387												
388	Raw Statistics						Log-transformed Statistics					
389	Minimum Detected					0.25	Minimum Detected					-1.386
390	Maximum Detected					0.74	Maximum Detected					-0.301
391	Mean of Detected					0.462	Mean of Detected					-0.88
392	SD of Detected					0.228	SD of Detected					0.502
393	Minimum Non-Detect					0.46	Minimum Non-Detect					-0.777
394	Maximum Non-Detect					0.46	Maximum Non-Detect					-0.777
395												
396												
397	UCL Statistics											
398	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
399	Shapiro Wilk Test Statistic					0.783	Shapiro Wilk Test Statistic					0.801
400	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
401	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
402												
403	Assuming Normal Distribution						Assuming Lognormal Distribution					
404	DL/2 Substitution Method						DL/2 Substitution Method					
405	Mean					0.433	Mean					-0.954
406	SD					0.227	SD					0.51
407	95% DL/2 (t) UCL					0.585	95% H-Stat (DL/2) UCL					0.615
408												
409	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
410	Mean					0.4	Mean in Log Scale					-0.919
411	SD					0.273	SD in Log Scale					0.478
412	95% MLE (t) UCL					0.584	Mean in Original Scale					0.442
413	95% MLE (Tiku) UCL					0.666	SD in Original Scale					0.219
414							95% Percentile Bootstrap UCL					0.56
415							95% BCA Bootstrap UCL					0.586
416												
417	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
418	k star (bias corrected)					2.833	Data Follow Appr. Gamma Distribution at 5% Significance Level					
419	Theta Star					0.163						
420	nu star					39.66						
421												
422	A-D Test Statistic					0.772	Nonparametric Statistics					
423	5% A-D Critical Value					0.71	Kaplan-Meier (KM) Method					
424	K-S Test Statistic					0.71	Mean					0.44

	A	B	C	D	E	F	G	H	I	J	K	L
425	5% K-S Critical Value					0.313	SD					0.207
426	Data follow approximate Gamma Distribution at 5% Significance Level						SE of Mean					0.0792
427							95% KM (t) UCL					0.59
428	Assuming Gamma Distribution						95% KM (z) UCL					0.57
429	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.588
430	Minimum				N/A		95% KM (bootstrap t) UCL					0.619
431	Maximum				N/A		95% KM (BCA) UCL					0.558
432	Mean				N/A		95% KM (percentile) UCL					0.564
433	Median				N/A		95% KM (Chebyshev) UCL					0.785
434	SD				N/A		97.5% KM (Chebyshev) UCL					0.934
435	k star				N/A		99% KM (Chebyshev) UCL					1.228
436	Theta star				N/A							
437	Nu star				N/A		Potential UCLs to Use					
438	AppChi2				N/A		95% KM (BCA) UCL					0.558
439	95% Gamma Approximate UCL				N/A							
440	95% Adjusted Gamma UCL				N/A							
441												
442												
443	Chromium											
444												
445	General Statistics											
446	Number of Valid Samples				8		Number of Detected Data				6	
447	Number of Unique Samples				6		Number of Non-Detect Data				2	
448							Percent Non-Detects				25.00%	
449												
450	Raw Statistics						Log-transformed Statistics					
451	Minimum Detected				0.9		Minimum Detected				-0.105	
452	Maximum Detected				4.95		Maximum Detected				1.599	
453	Mean of Detected				2.669		Mean of Detected				0.789	
454	SD of Detected				1.622		SD of Detected				0.721	
455	Minimum Non-Detect				0.66		Minimum Non-Detect				-0.416	
456	Maximum Non-Detect				0.73		Maximum Non-Detect				-0.315	
457												
458	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				2	
459	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				6	
460	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				25.00%	
461												
462	UCL Statistics											
463	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
464	Shapiro Wilk Test Statistic				0.923		Shapiro Wilk Test Statistic				0.884	
465	5% Shapiro Wilk Critical Value				0.788		5% Shapiro Wilk Critical Value				0.788	
466	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
467												
468	Assuming Normal Distribution						Assuming Lognormal Distribution					
469	DL/2 Substitution Method						DL/2 Substitution Method					
470	Mean				2.089		Mean				0.327	
471	SD				1.742		SD				1.05	
472	95% DL/2 (t) UCL				3.256		95% H-Stat (DL/2) UCL				6.508	
473												
474	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
475	Mean				1.889		Mean in Log Scale				0.348	
476	SD				1.925		SD in Log Scale				1.018	
477	95% MLE (t) UCL				3.178		Mean in Original Scale				2.096	

	A	B	C	D	E	F	G	H	I	J	K	L
478	95% MLE (Tiku) UCL					3.228	SD in Original Scale					1.733
479							95% Percentile Bootstrap UCL					3.098
480							95% BCA Bootstrap UCL					3.144
481												
482	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
483	k star (bias corrected)					1.484	Data appear Normal at 5% Significance Level					
484	Theta Star					1.799						
485	nu star					17.81						
486												
487	A-D Test Statistic					0.377	Nonparametric Statistics					
488	5% A-D Critical Value					0.702	Kaplan-Meier (KM) Method					
489	K-S Test Statistic					0.702	Mean					2.227
490	5% K-S Critical Value					0.335	SD					1.494
491	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.579
492							95% KM (t) UCL					3.323
493	Assuming Gamma Distribution						95% KM (z) UCL					3.179
494	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					3.291
495	Minimum					0.333	95% KM (bootstrap t) UCL					3.488
496	Maximum					4.95	95% KM (BCA) UCL					3.402
497	Mean					2.133	95% KM (percentile) UCL					3.269
498	Median					1.533	95% KM (Chebyshev) UCL					4.749
499	SD					1.695	97.5% KM (Chebyshev) UCL					5.84
500	k star					1.081	99% KM (Chebyshev) UCL					7.983
501	Theta star					1.974						
502	Nu star					17.29	Potential UCLs to Use					
503	AppChi2					8.882	95% KM (t) UCL					3.323
504	95% Gamma Approximate UCL					4.154	95% KM (Percentile Bootstrap) UCL					3.269
505	95% Adjusted Gamma UCL					4.98						
506												
507												
508	Copper											
509												
510	General Statistics											
511	Number of Valid Samples					8	Number of Detected Data					2
512	Number of Unique Samples					2	Number of Non-Detect Data					6
513							Percent Non-Detects					75.00%
514												
515	Raw Statistics						Log-transformed Statistics					
516	Minimum Detected					7.7	Minimum Detected					2.041
517	Maximum Detected					9.6	Maximum Detected					2.262
518	Mean of Detected					8.65	Mean of Detected					2.151
519	SD of Detected					1.344	SD of Detected					0.156
520	Minimum Non-Detect					5.7	Minimum Non-Detect					1.74
521	Maximum Non-Detect					25	Maximum Non-Detect					3.219
522												
523	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					8
524	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					0
525	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
526												
527	UCL Statistics											
528	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
529	Shapiro Wilk Test Statistic					1	Shapiro Wilk Test Statistic					1
530	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A

	A	B	C	D	E	F	G	H	I	J	K	L
531	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
532												
533	Assuming Normal Distribution						Assuming Lognormal Distribution					
534	DL/2 Substitution Method						DL/2 Substitution Method					
535	Mean				8.331		Mean				1.99	
536	SD				4.036		SD				0.578	
537	95% DL/2 (t) UCL				11.03		95% H-Stat (DL/2) UCL				30.31	
538												
539	Maximum Likelihood Estimate(MLE) Method				N/A		Robust ROS Method					
540							Mean in Log Scale				2.009	
541							SD in Log Scale				0.149	
542							Mean in Original Scale				7.53	
543							SD in Original Scale				1.148	
544							95% Percentile Bootstrap UCL				8.205	
545							95% BCA Bootstrap UCL				8.217	
546												
547	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
548	k star (bias corrected)				N/A		Data do not follow a Discernable Distribution (0.05)					
549	Theta Star				N/A							
550	nu star				N/A							
551												
552	A-D Test Statistic				0.359		Nonparametric Statistics					
553	5% A-D Critical Value				N/A		Kaplan-Meier (KM) Method					
554	K-S Test Statistic				N/A		Mean				8.175	
555	5% K-S Critical Value				N/A		SD				0.823	
556	Data not Gamma Distributed at 5% Significance Level						SE of Mean				0.582	
557							95% KM (t) UCL				9.277	
558	Assuming Gamma Distribution						95% KM (z) UCL				9.132	
559	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				9.638	
560	Minimum				N/A		95% KM (bootstrap t) UCL				1.8E+308	
561	Maximum				N/A		95% KM (BCA) UCL				1E+31	
562	Mean				N/A		95% KM (percentile) UCL				1E+31	
563	Median				N/A		95% KM (Chebyshev) UCL				10.71	
564	SD				N/A		97.5% KM (Chebyshev) UCL				11.81	
565	k star				N/A		99% KM (Chebyshev) UCL				13.96	
566	Theta star				N/A							
567	Nu star				N/A		Potential UCLs to Use					
568	AppChi2				N/A		95% KM (t) UCL				9.277	
569	95% Gamma Approximate UCL				N/A		95% KM (% Bootstrap) UCL				1E+31	
570	95% Adjusted Gamma UCL				N/A							
571	Warning: Recommended UCL exceeds the maximum observation											
572												
573												
574	Iron											
575												
576	General Statistics											
577	Number of Valid Samples				8		Number of Detected Data				6	
578	Number of Unique Samples				6		Number of Non-Detect Data				2	
579							Percent Non-Detects				25.00%	
580												
581	Raw Statistics						Log-transformed Statistics					
582	Minimum Detected				596		Minimum Detected				6.39	
583	Maximum Detected				8600		Maximum Detected				9.06	

	A	B	C	D	E	F	G	H	I	J	K	L
584	Mean of Detected					2959	Mean of Detected					7.318
585	SD of Detected					3593	SD of Detected					1.244
586	Minimum Non-Detect					368	Minimum Non-Detect					5.908
587	Maximum Non-Detect					423	Maximum Non-Detect					6.047
588												
589	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					2
590	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					6
591	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					25.00%
592												
593	UCL Statistics											
594	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
595	Shapiro Wilk Test Statistic					0.713	Shapiro Wilk Test Statistic					0.734
596	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
597	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
598												
599	Assuming Normal Distribution						Assuming Lognormal Distribution					
600	DL/2 Substitution Method						DL/2 Substitution Method					
601	Mean					2269	Mean					6.81
602	SD					3294	SD					1.412
603	95% DL/2 (t) UCL					4476	95% H-Stat (DL/2) UCL					20931
604												
605	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
606	Mean					1683	Mean in Log Scale					6.594
607	SD					3741	SD in Log Scale					1.703
608	95% MLE (t) UCL					4188	Mean in Original Scale					2240
609	95% MLE (Tiku) UCL					4224	SD in Original Scale					3315
610							95% Percentile Bootstrap UCL					4069
611							95% BCA Bootstrap UCL					4626
612												
613	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only					
614	k star (bias corrected)					0.546	Data do not follow a Discernable Distribution (0.05)					
615	Theta Star					5418						
616	nu star					6.554						
617												
618	A-D Test Statistic					0.947	Nonparametric Statistics					
619	5% A-D Critical Value					0.718	Kaplan-Meier (KM) Method					
620	K-S Test Statistic					0.718	Mean					2368
621	5% K-S Critical Value					0.342	SD					3019
622	Data not Gamma Distributed at 5% Significance Level						SE of Mean					1169
623							95% KM (t) UCL					4584
624	Assuming Gamma Distribution						95% KM (z) UCL					4292
625	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4525
626	Minimum					0	95% KM (bootstrap t) UCL					73656
627	Maximum					8600	95% KM (BCA) UCL					4354
628	Mean					2219	95% KM (percentile) UCL					4337
629	Median					659.8	95% KM (Chebyshev) UCL					7465
630	SD					3331	97.5% KM (Chebyshev) UCL					9670
631	k star					0.151	99% KM (Chebyshev) UCL					14002
632	Theta star					14676						
633	Nu star					2.42	Potential UCLs to Use					
634	AppChi2					0.224	97.5% KM (Chebyshev) UCL					9670
635	95% Gamma Approximate UCL					24025						
636	95% Adjusted Gamma UCL					40309						

	A	B	C	D	E	F	G	H	I	J	K	L	
637	Warning: Recommended UCL exceeds the maximum observation												
638													
639													
640	Lead												
641													
642	General Statistics												
643	Number of Valid Samples					8	Number of Detected Data					6	
644	Number of Unique Samples					6	Number of Non-Detect Data					2	
645							Percent Non-Detects					25.00%	
646													
647	Raw Statistics					Log-transformed Statistics							
648	Minimum Detected					1.6	Minimum Detected					0.47	
649	Maximum Detected					8.5	Maximum Detected					2.14	
650	Mean of Detected					5.575	Mean of Detected					1.531	
651	SD of Detected					3.053	SD of Detected					0.736	
652	Minimum Non-Detect					2	Minimum Non-Detect					0.693	
653	Maximum Non-Detect					2	Maximum Non-Detect					0.693	
654													
655													
656	UCL Statistics												
657	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
658	Shapiro Wilk Test Statistic					0.844	Shapiro Wilk Test Statistic					0.804	
659	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788	
660	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
661													
662	Assuming Normal Distribution					Assuming Lognormal Distribution							
663	DL/2 Substitution Method						DL/2 Substitution Method						
664	Mean					4.431	Mean					1.149	
665	SD					3.338	SD					0.943	
666	95% DL/2 (t) UCL					6.667	95% H-Stat (DL/2) UCL					11.63	
667													
668	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method						
669	Mean					3.694	Mean in Log Scale					1.258	
670	SD					4.15	SD in Log Scale					0.811	
671	95% MLE (t) UCL					6.474	Mean in Original Scale					4.577	
672	95% MLE (Tiku) UCL					6.8	SD in Original Scale					3.179	
673							95% Percentile Bootstrap UCL					6.338	
674							95% BCA Bootstrap UCL					6.262	
675													
676	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only							
677	k star (bias corrected)					1.527	Data appear Normal at 5% Significance Level						
678	Theta Star					3.65							
679	nu star					18.33							
680													
681	A-D Test Statistic					0.631	Nonparametric Statistics						
682	5% A-D Critical Value					0.702	Kaplan-Meier (KM) Method						
683	K-S Test Statistic					0.702	Mean					4.581	
684	5% K-S Critical Value					0.335	SD					2.965	
685	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					1.148		
686							95% KM (t) UCL					6.757	
687	Assuming Gamma Distribution					95% KM (z) UCL					6.47		
688	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					6.68	
689	Minimum					2.1	95% KM (bootstrap t) UCL					6.701	

	A	B	C	D	E	F	G	H	I	J	K	L	
690	Maximum					8.5	95% KM (BCA) UCL					7.075	
691	Mean					5.106	95% KM (percentile) UCL					7.075	
692	Median					4.621	95% KM (Chebyshev) UCL					9.586	
693	SD					2.668	97.5% KM (Chebyshev) UCL					11.75	
694	k star					2.499	99% KM (Chebyshev) UCL					16.01	
695	Theta star					2.043							
696	Nu star					39.99	Potential UCLs to Use						
697	AppChi2					26.5	95% KM (t) UCL					6.757	
698	95% Gamma Approximate UCL					7.705	95% KM (Percentile Bootstrap) UCL					7.075	
699	95% Adjusted Gamma UCL					8.594							
700													
701													
702	Manganese												
703													
704	General Statistics												
705	Number of Valid Samples					8	Number of Unique Samples					8	
706													
707	Raw Statistics					Log-transformed Statistics							
708	Minimum					80.3	Minimum of Log Data					4.386	
709	Maximum					418	Maximum of Log Data					6.035	
710	Mean					145.1	Mean of log Data					4.795	
711	Median					93.8	SD of log Data					0.575	
712	SD					116.6							
713	Coefficient of Variation					0.804							
714	Skewness					2.341							
715													
716	Relevant UCL Statistics												
717	Normal Distribution Test					Lognormal Distribution Test							
718	Shapiro Wilk Test Statistic					0.619	Shapiro Wilk Test Statistic					0.722	
719	Shapiro Wilk Critical Value					0.818	Shapiro Wilk Critical Value					0.818	
720	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
721													
722	Assuming Normal Distribution					Assuming Lognormal Distribution							
723	95% Student's-t UCL					223.1	95% H-UCL					246.9	
724	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					264.5		
725	95% Adjusted-CLT UCL					249.3	97.5% Chebyshev (MVUE) UCL					318.7	
726	95% Modified-t UCL					228.8	99% Chebyshev (MVUE) UCL					425	
727													
728	Gamma Distribution Test					Nonparametric Test							
729	k star (bias corrected)					1.893	Data do not follow a Discernable Distribution (0.05)						
730	Theta Star					76.61							
731	nu star					30.29							
732	Approximate Chi Square Value (.05)					18.72	Nonparametric Statistics						
733	Adjusted Level of Significance					0.0195	95% CLT UCL					212.8	
734	Adjusted Chi Square Value					16.47	95% Jackknife UCL					223.1	
735							95% Standard Bootstrap UCL					206.8	
736	Anderson-Darling Test Statistic					1.244	95% Bootstrap-t UCL					1010	
737	Anderson-Darling 5% Critical Value					0.722	95% Hall's Bootstrap UCL					665.4	
738	Kolmogorov-Smirnov Test Statistic					0.384	95% Percentile Bootstrap UCL					214.4	
739	Kolmogorov-Smirnov 5% Critical Value					0.296	95% BCA Bootstrap UCL					253.8	
740	Data not Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					324.7		
741							97.5% Chebyshev(Mean, Sd) UCL					402.4	
742	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					555.1		

	A	B	C	D	E	F	G	H	I	J	K	L
743	95% Approximate Gamma UCL					234.7						
744	95% Adjusted Gamma UCL					266.9						
745												
746	Potential UCL to Use						Use 95% Chebyshev (Mean, Sd) UCL					324.7
747												
748												
749	Mercury											
750												
751	General Statistics											
752	Number of Valid Samples				8	Number of Detected Data				2		
753	Number of Unique Samples				2	Number of Non-Detect Data				6		
754						Percent Non-Detects				75.00%		
755												
756	Raw Statistics					Log-transformed Statistics						
757	Minimum Detected				0.014	Minimum Detected				-4.269		
758	Maximum Detected				0.016	Maximum Detected				-4.135		
759	Mean of Detected				0.015	Mean of Detected				-4.202		
760	SD of Detected				0.00141	SD of Detected				0.0944		
761	Minimum Non-Detect				0.13	Minimum Non-Detect				-2.04		
762	Maximum Non-Detect				0.15	Maximum Non-Detect				-1.897		
763												
764	Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect				8		
765	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),					Number treated as Detected				0		
766	those Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage				100.00%		
767												
768	UCL Statistics											
769	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
770	Shapiro Wilk Test Statistic				1	Shapiro Wilk Test Statistic				1		
771	5% Shapiro Wilk Critical Value				N/A	5% Shapiro Wilk Critical Value				N/A		
772	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
773												
774	Assuming Normal Distribution					Assuming Lognormal Distribution						
775	DL/2 Substitution Method					DL/2 Substitution Method						
776	Mean				0.0569	Mean				-3.037		
777	SD				0.026	SD				0.721		
778	95% DL/2 (t) UCL				0.0743	95% H-Stat (DL/2) UCL				0.606		
779												
780	Maximum Likelihood Estimate(MLE) Method				N/A	Robust ROS Method						
781						Mean in Log Scale				-4.202		
782						SD in Log Scale				0.0753		
783						Mean in Original Scale				0.015		
784						SD in Original Scale				0.00113		
785						95% Percentile Bootstrap UCL				0.0156		
786						95% BCA Bootstrap UCL				0.0156		
787												
788	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
789	k star (bias corrected)				N/A	Data do not follow a Discernable Distribution (0.05)						
790	Theta Star				N/A							
791	nu star				N/A							
792												
793	A-D Test Statistic				0.359	Nonparametric Statistics						
794	5% A-D Critical Value				N/A	Kaplan-Meier (KM) Method						
795	K-S Test Statistic				N/A	Mean					0.015	

	A	B	C	D	E	F	G	H	I	J	K	L
796	5% K-S Critical Value					N/A	SD					0.001
797	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.001
798							95% KM (t) UCL					0.0169
799	Assuming Gamma Distribution						95% KM (z) UCL					0.0166
800	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0175
801	Minimum				N/A		95% KM (bootstrap t) UCL					1.8E+308
802	Maximum				N/A		95% KM (BCA) UCL					1E+31
803	Mean				N/A		95% KM (percentile) UCL					1E+31
804	Median				N/A		95% KM (Chebyshev) UCL					0.0199
805	SD				N/A		97.5% KM (Chebyshev) UCL					0.0212
806	k star				N/A		99% KM (Chebyshev) UCL					0.0249
807	Theta star				N/A							
808	Nu star				N/A		Potential UCLs to Use					
809	AppChi2				N/A		95% KM (t) UCL					0.0169
810	95% Gamma Approximate UCL				N/A		95% KM (% Bootstrap) UCL					1E+31
811	95% Adjusted Gamma UCL				N/A							
812	Warning: Recommended UCL exceeds the maximum observation											
813												
814												
815	Vanadium											
816												
817	General Statistics											
818	Number of Valid Samples				8		Number of Detected Data					7
819	Number of Unique Samples				7		Number of Non-Detect Data					1
820							Percent Non-Detects					12.50%
821												
822	Raw Statistics						Log-transformed Statistics					
823	Minimum Detected				0.47		Minimum Detected					-0.755
824	Maximum Detected				2.7		Maximum Detected					0.993
825	Mean of Detected				1.341		Mean of Detected					0.0712
826	SD of Detected				0.926		SD of Detected					0.729
827	Minimum Non-Detect				0.72		Minimum Non-Detect					-0.329
828	Maximum Non-Detect				0.72		Maximum Non-Detect					-0.329
829												
830												
831	UCL Statistics											
832	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
833	Shapiro Wilk Test Statistic				0.838		Shapiro Wilk Test Statistic					0.867
834	5% Shapiro Wilk Critical Value				0.803		5% Shapiro Wilk Critical Value					0.803
835	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
836												
837	Assuming Normal Distribution						Assuming Lognormal Distribution					
838	DL/2 Substitution Method						DL/2 Substitution Method					
839	Mean				1.219		Mean					-0.0654
840	SD				0.925		SD					0.778
841	95% DL/2 (t) UCL				1.838		95% H-Stat (DL/2) UCL					2.92
842												
843	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
844	Mean				0.793		Mean in Log Scale					-0.00705
845	SD				1.361		SD in Log Scale					0.71
846	95% MLE (t) UCL				1.704		Mean in Original Scale					1.246
847	95% MLE (Tiku) UCL				1.914		SD in Original Scale					0.899
848							95% Percentile Bootstrap UCL					1.747

	A	B	C	D	E	F	G	H	I	J	K	L	
849							95% BCA Bootstrap UCL					1.834	
850													
851	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only						
852	k star (bias corrected)					1.467	Data appear Normal at 5% Significance Level						
853	Theta Star					0.915							
854	nu star					20.54							
855													
856	A-D Test Statistic					0.577	Nonparametric Statistics						
857	5% A-D Critical Value					0.714	Kaplan-Meier (KM) Method						
858	K-S Test Statistic					0.714	Mean					1.244	
859	5% K-S Critical Value					0.315	SD					0.843	
860	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.322	
861							95% KM (t) UCL					1.854	
862	Assuming Gamma Distribution						95% KM (z) UCL					1.774	
863	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.849	
864	Minimum					0.444	95% KM (bootstrap t) UCL					2.035	
865	Maximum					2.7	95% KM (BCA) UCL					1.775	
866	Mean					1.33	95% KM (percentile) UCL					1.775	
867	Median					0.929	95% KM (Chebyshev) UCL					2.648	
868	SD					0.842	97.5% KM (Chebyshev) UCL					3.256	
869	k star					1.907	99% KM (Chebyshev) UCL					4.449	
870	Theta star					0.698							
871	Nu star					30.51	Potential UCLs to Use						
872	AppChi2					18.89	95% KM (t) UCL					1.854	
873	95% Gamma Approximate UCL					2.148	95% KM (Percentile Bootstrap) UCL					1.775	
874	95% Adjusted Gamma UCL					2.442							
875													

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File H:\JCV\Puritan\2007\EPCs\Groundwater\shallow_gw_ucl_data.wst
Full Precision OFF
Confidence Coefficient 95%
Number of Bootstrap Operations 2000

Isopropylbenzene

General Statistics

Number of Valid Samples	98	Number of Detected Data	12
Number of Unique Samples	12	Number of Non-Detect Data	86
		Percent Non-Detects	87.76%

Raw Statistics

Minimum Detected	0.24
Maximum Detected	160
Mean of Detected	16.57
SD of Detected	45.3
Minimum Non-Detect	0.5
Maximum Non-Detect	0.5

Log-transformed Statistics

Minimum Detected	-1.427
Maximum Detected	5.075
Mean of Detected	0.968
SD of Detected	1.792
Minimum Non-Detect	-0.693
Maximum Non-Detect	-0.693

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.389
5% Lilliefors Critical Value	0.859

Data not Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	2.249
SD	16.18
95% DL/2 (t) UCL	4.962
Maximum Likelihood Estimate(MLE) Method	
Mean	-76.85
SD	60.76
95% MLE (t) UCL	-66.65
95% MLE (Tiku) UCL	-36.44

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.901
5% Lilliefors Critical Value	0.859

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-1.098
SD	0.983
95% H-Stat (DL/2) UCL	0.592
Robust ROS Method	
Mean in Log Scale	-2.628
SD in Log Scale	2.331
Mean in Original Scale	2.171
SD in Original Scale	16.19
95% Percentile Bootstrap UCL	5.327
95% BCA Bootstrap UCL	8.612

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.328
Theta Star	50.52
nu star	7.873

A-D Test Statistic	1.423
5% A-D Critical Value	0.812
K-S Test Statistic	0.812
5% K-S Critical Value	0.263

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0
Maximum	160
Mean	2.027
Median	0
SD	16.2
k star	0.0518
Theta star	39.12
Nu star	10.16
AppChi2	4.039
95% Gamma Approximate UCL	5.096
95% Adjusted Gamma UCL	5.17

Nonparametric Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	2.24
SD	16.09
SE of Mean	1.698
95% KM (t) UCL	5.06
95% KM (z) UCL	5.033
95% KM (jackknife) UCL	4.75
95% KM (bootstrap t) UCL	27.26
95% KM (BCA) UCL	6.877
95% KM (percentile) UCL	5.584
95% KM (Chebyshev) UCL	9.641
97.5% KM (Chebyshev) UCL	12.84
99% KM (Chebyshev) UCL	19.13

Potential UCLs to Use

95% KM (Chebyshev) UCL	9.641

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			H:\JCV\Puritan\2007\EPCs\Groundwater\rev_leachate_ucl_data.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Methyl tert butyl ether											
10												
11	General Statistics											
12	Number of Valid Samples				23		Number of Detected Data				4	
13	Number of Unique Samples				4		Number of Non-Detect Data				19	
14							Percent Non-Detects				82.61%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				0.23		Minimum Detected				-1.47	
18	Maximum Detected				0.505		Maximum Detected				-0.683	
19	Mean of Detected				0.359		Mean of Detected				-1.068	
20	SD of Detected				0.12		SD of Detected				0.342	
21	Minimum Non-Detect				0.5		Minimum Non-Detect				-0.693	
22	Maximum Non-Detect				0.5		Maximum Non-Detect				-0.693	
23												
24												
25	UCL Statistics											
26	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
27	Shapiro Wilk Test Statistic				0.982		Shapiro Wilk Test Statistic				0.988	
28	5% Shapiro Wilk Critical Value				0.748		5% Shapiro Wilk Critical Value				0.748	
29	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
30												
31	Assuming Normal Distribution					Assuming Lognormal Distribution						
32	DL/2 Substitution Method						DL/2 Substitution Method					
33	Mean				0.269		Mean				-1.331	
34	SD				0.0611		SD				0.176	
35	95% DL/2 (t) UCL				0.291		95% H-Stat (DL/2) UCL				0.293	
36												
37	Maximum Likelihood Estimate(MLE) Method				N/A		Robust ROS Method					
38							Mean in Log Scale				-1.195	
39							SD in Log Scale				0.254	
40							Mean in Original Scale				0.312	
41							SD in Original Scale				0.0802	
42							95% Percentile Bootstrap UCL				0.339	
43							95% BCA Bootstrap UCL				0.341	
44												
45	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
46	k star (bias corrected)				3.104		Data appear Normal at 5% Significance Level					
47	Theta Star				0.116							
48	nu star				24.83							
49												
50	A-D Test Statistic				0.211		Nonparametric Statistics					
51	5% A-D Critical Value				0.657		Kaplan-Meier (KM) Method					
52	K-S Test Statistic				0.657		Mean				0.318	
53	5% K-S Critical Value				0.395		SD				0.079	

	A	B	C	D	E	F	G	H	I	J	K	L
54	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0455
55						95% KM (t) UCL					0.397	
56	Assuming Gamma Distribution						95% KM (z) UCL					0.393
57	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL					0.416	
58	Minimum				N/A	95% KM (bootstrap t) UCL					0.447	
59	Maximum				N/A	95% KM (BCA) UCL					0.405	
60	Mean				N/A	95% KM (percentile) UCL					0.409	
61	Median				N/A	95% KM (Chebyshev) UCL					0.517	
62	SD				N/A	97.5% KM (Chebyshev) UCL					0.603	
63	k star				N/A	99% KM (Chebyshev) UCL					0.771	
64	Theta star				N/A							
65	Nu star				N/A	Potential UCLs to Use						
66	AppChi2				N/A	95% KM (t) UCL					0.397	
67	95% Gamma Approximate UCL				N/A	95% KM (Percentile Bootstrap) UCL					0.409	
68	95% Adjusted Gamma UCL				N/A							
69												
70												
71	Xylene (Total)											
72												
73	General Statistics											
74	Number of Valid Samples				23	Number of Detected Data					6	
75	Number of Unique Samples				6	Number of Non-Detect Data					17	
76						Percent Non-Detects					73.91%	
77												
78	Raw Statistics				Log-transformed Statistics							
79	Minimum Detected				0.2	Minimum Detected					-1.609	
80	Maximum Detected				16.5	Maximum Detected					2.803	
81	Mean of Detected				5.339	Mean of Detected					0.66	
82	SD of Detected				6.581	SD of Detected					1.77	
83	Minimum Non-Detect				0.5	Minimum Non-Detect					-0.693	
84	Maximum Non-Detect				1.5	Maximum Non-Detect					0.405	
85												
86	Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect					20	
87	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),					Number treated as Detected					3	
88	those Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage					86.96%	
89												
90	UCL Statistics											
91	Normal Distribution Test with Detected Values Only				Lognormal Distribution Test with Detected Values Only							
92	Shapiro Wilk Test Statistic				0.828	Shapiro Wilk Test Statistic					0.924	
93	5% Shapiro Wilk Critical Value				0.788	5% Shapiro Wilk Critical Value					0.788	
94	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
95												
96	Assuming Normal Distribution				Assuming Lognormal Distribution							
97	DL/2 Substitution Method					DL/2 Substitution Method						
98	Mean				1.643	Mean					-0.709	
99	SD				3.862	SD					1.241	
100	95% DL/2 (t) UCL				3.026	95% H-Stat (DL/2) UCL					1.695	
101												
102	Maximum Likelihood Estimate(MLE) Method					Robust ROS Method						
103	Mean				N/A	Mean in Log Scale					-1.544	
104	SD				N/A	SD in Log Scale					1.973	
105	95% MLE (t) UCL				N/A	Mean in Original Scale					1.538	
106	95% MLE (Tiku) UCL				N/A	SD in Original Scale					3.899	

	A	B	C	D	E	F	G	H	I	J	K	L
107							95% Percentile Bootstrap UCL					2.965
108							95% BCA Bootstrap UCL					3.502
109												
110	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only					
111	k star (bias corrected)					0.415	Data appear Normal at 5% Significance Level					
112	Theta Star					12.87						
113	nu star					4.979						
114												
115	A-D Test Statistic					0.349	Nonparametric Statistics					
116	5% A-D Critical Value					0.729	Kaplan-Meier (KM) Method					
117	K-S Test Statistic					0.729	Mean					1.547
118	5% K-S Critical Value					0.346	SD					3.807
119	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.87
120							95% KM (t) UCL					3.04
121	Assuming Gamma Distribution						95% KM (z) UCL					2.978
122	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					2.784
123	Minimum					N/A	95% KM (bootstrap t) UCL					5.584
124	Maximum					N/A	95% KM (BCA) UCL					5.07
125	Mean					N/A	95% KM (percentile) UCL					3.985
126	Median					N/A	95% KM (Chebyshev) UCL					5.338
127	SD					N/A	97.5% KM (Chebyshev) UCL					6.978
128	k star					N/A	99% KM (Chebyshev) UCL					10.2
129	Theta star					N/A						
130	Nu star					N/A	Potential UCLs to Use					
131	AppChi2					N/A	95% KM (t) UCL					3.04
132	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					3.985
133	95% Adjusted Gamma UCL					N/A						
134												
135												
136	1,4-Dioxane											
137												
138	General Statistics											
139	Number of Valid Samples					7	Number of Detected Data					4
140	Number of Unique Samples					4	Number of Non-Detect Data					3
141							Percent Non-Detects					42.86%
142												
143	Raw Statistics						Log-transformed Statistics					
144	Minimum Detected					6.7	Minimum Detected					1.902
145	Maximum Detected					53	Maximum Detected					3.97
146	Mean of Detected					22.18	Mean of Detected					2.79
147	SD of Detected					21.07	SD of Detected					0.884
148	Minimum Non-Detect					0.5	Minimum Non-Detect					-0.693
149	Maximum Non-Detect					0.56	Maximum Non-Detect					-0.58
150												
151	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					3
152	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					4
153	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					42.86%
154												
155	UCL Statistics											
156	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
157	Shapiro Wilk Test Statistic					0.817	Shapiro Wilk Test Statistic					0.964
158	5% Shapiro Wilk Critical Value					0.748	5% Shapiro Wilk Critical Value					0.748
159	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L		
160														
161	Assuming Normal Distribution						Assuming Lognormal Distribution							
162	DL/2 Substitution Method						DL/2 Substitution Method							
163	Mean				12.78		Mean				1.022			
164	SD				18.95		SD				2.292			
165	95% DL/2 (t) UCL				26.7		95% H-Stat (DL/2) UCL				7020			
166														
167	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method							
168	Mean				4.298		Mean in Log Scale				1.665			
169	SD				26.82		SD in Log Scale				1.536			
170	95% MLE (t) UCL				24		Mean in Original Scale				13.18			
171	95% MLE (Tiku) UCL				26.97		SD in Original Scale				18.65			
172							95% Percentile Bootstrap UCL				25.79			
173							95% BCA Bootstrap UCL				29.6			
174														
175	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only							
176	k star (bias corrected)				0.609		Data appear Normal at 5% Significance Level							
177	Theta Star				36.44									
178	nu star				4.868									
179														
180	A-D Test Statistic				0.33		Nonparametric Statistics							
181	5% A-D Critical Value				0.661		Kaplan-Meier (KM) Method							
182	K-S Test Statistic				0.661		Mean				15.54			
183	5% K-S Critical Value				0.399		SD				15.78			
184	Data appear Gamma Distributed at 5% Significance Level						SE of Mean				6.886			
185							95% KM (t) UCL				28.92			
186	Assuming Gamma Distribution						95% KM (z) UCL				26.87			
187	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				27.48			
188	Minimum				0		95% KM (bootstrap t) UCL				42.56			
189	Maximum				53		95% KM (BCA) UCL				33.16			
190	Mean				12.67		95% KM (percentile) UCL				29			
191	Median				6.7		95% KM (Chebyshev) UCL				45.56			
192	SD				19.04		97.5% KM (Chebyshev) UCL				58.54			
193	k star				0.143		99% KM (Chebyshev) UCL				84.06			
194	Theta star				88.33									
195	Nu star				2.008		Potential UCLs to Use							
196	AppChi2				0.152		95% KM (t) UCL				28.92			
197	95% Gamma Approximate UCL				167.6		95% KM (Percentile Bootstrap) UCL				29			
198	95% Adjusted Gamma UCL				N/A									
199														
200														
201	2-Methylnaphthalene													
202														
203	General Statistics													
204	Number of Valid Samples				23		Number of Detected Data				5			
205	Number of Unique Samples				5		Number of Non-Detect Data				18			
206							Percent Non-Detects				78.26%			
207														
208	Raw Statistics						Log-transformed Statistics							
209	Minimum Detected				0.027		Minimum Detected				-3.612			
210	Maximum Detected				1.9		Maximum Detected				0.642			
211	Mean of Detected				0.835		Mean of Detected				-0.958			
212	SD of Detected				0.774		SD of Detected				1.769			

	A	B	C	D	E	F	G	H	I	J	K	L
213	Minimum Non-Detect					0.01	Minimum Non-Detect					-4.605
214	Maximum Non-Detect					0.1	Maximum Non-Detect					-2.303
215												
216	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					19
217	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					4
218	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					82.61%
219												
220	UCL Statistics											
221	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
222	Shapiro Wilk Test Statistic					0.938	Shapiro Wilk Test Statistic					0.886
223	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
224	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
225												
226	Assuming Normal Distribution					Assuming Lognormal Distribution						
227	DL/2 Substitution Method						DL/2 Substitution Method					
228	Mean					0.211	Mean					-3.041
229	SD					0.472	SD					1.63
230	95% DL/2 (t) UCL					0.38	95% H-Stat (DL/2) UCL					0.412
231												
232	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
233	Mean					-1.424	Mean in Log Scale					-5.896
234	SD					1.644	SD in Log Scale					3.509
235	95% MLE (t) UCL					-0.836	Mean in Original Scale					0.186
236	95% MLE (Tiku) UCL					0.154	SD in Original Scale					0.481
237							95% Percentile Bootstrap UCL					0.352
238							95% BCA Bootstrap UCL					0.426
239												
240	Gamma Distribution Test with Detected Values Only					Nonparametric Test with Detected Values Only						
241	k star (bias corrected)					0.44	Data appear Normal at 5% Significance Level					
242	Theta Star					1.898						
243	nu star					4.401						
244												
245	A-D Test Statistic					0.333	Nonparametric Statistics					
246	5% A-D Critical Value					0.698	Kaplan-Meier (KM) Method					
247	K-S Test Statistic					0.698	Mean					0.203
248	5% K-S Critical Value					0.367	SD					0.464
249	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.108
250							95% KM (t) UCL					0.388
251	Assuming Gamma Distribution						95% KM (z) UCL					0.381
252	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.353
253	Minimum					0	95% KM (bootstrap t) UCL					0.417
254	Maximum					1.9	95% KM (BCA) UCL					1.261
255	Mean					0.193	95% KM (percentile) UCL					1
256	Median					0	95% KM (Chebyshev) UCL					0.674
257	SD					0.48	97.5% KM (Chebyshev) UCL					0.878
258	k star					0.0826	99% KM (Chebyshev) UCL					1.279
259	Theta star					2.34						
260	Nu star					3.801	Potential UCLs to Use					
261	AppChi2					0.645	95% KM (t) UCL					0.388
262	95% Gamma Approximate UCL					1.14	95% KM (Percentile Bootstrap) UCL					1
263	95% Adjusted Gamma UCL					1.31						
264												
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266	cis-1,2-Dichloroethene											
267												
268	General Statistics											
269	Number of Valid Samples					23	Number of Detected Data					4
270	Number of Unique Samples					4	Number of Non-Detect Data					19
271							Percent Non-Detects					82.61%
272												
273	Raw Statistics						Log-transformed Statistics					
274	Minimum Detected					0.43	Minimum Detected					-0.844
275	Maximum Detected					0.89	Maximum Detected					-0.117
276	Mean of Detected					0.685	Mean of Detected					-0.411
277	SD of Detected					0.19	SD of Detected					0.308
278	Minimum Non-Detect					0.5	Minimum Non-Detect					-0.693
279	Maximum Non-Detect					0.5	Maximum Non-Detect					-0.693
280												
281												
282	UCL Statistics											
283	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
284	Shapiro Wilk Test Statistic					0.941	Shapiro Wilk Test Statistic					0.897
285	5% Shapiro Wilk Critical Value					0.748	5% Shapiro Wilk Critical Value					0.748
286	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
287												
288	Assuming Normal Distribution						Assuming Lognormal Distribution					
289	DL/2 Substitution Method						DL/2 Substitution Method					
290	Mean					0.326	Mean					-1.217
291	SD					0.183	SD					0.395
292	95% DL/2 (t) UCL					0.391	95% H-Stat (DL/2) UCL					0.356
293												
294	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
295	Mean					0.33	Mean in Log Scale					-0.793
296	SD					0.355	SD in Log Scale					0.314
297	95% MLE (t) UCL					0.457	Mean in Original Scale					0.475
298	95% MLE (Tiku) UCL					0.661	SD in Original Scale					0.155
299							95% Percentile Bootstrap UCL					0.53
300							95% BCA Bootstrap UCL					0.531
301												
302	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
303	k star (bias corrected)					3.986	Data appear Normal at 5% Significance Level					
304	Theta Star					0.172						
305	nu star					31.89						
306												
307	A-D Test Statistic					0.375	Nonparametric Statistics					
308	5% A-D Critical Value					0.657	Kaplan-Meier (KM) Method					
309	K-S Test Statistic					0.657	Mean					0.474
310	5% K-S Critical Value					0.395	SD					0.119
311	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0285
312							95% KM (t) UCL					0.523
313	Assuming Gamma Distribution						95% KM (z) UCL					0.521
314	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.64
315	Minimum					N/A	95% KM (bootstrap t) UCL					0.504
316	Maximum					N/A	95% KM (BCA) UCL					0.89
317	Mean					N/A	95% KM (percentile) UCL					0.735
318	Median					N/A	95% KM (Chebyshev) UCL					0.599

	A	B	C	D	E	F	G	H	I	J	K	L
319	SD					N/A	97.5% KM (Chebyshev) UCL					0.653
320	k star					N/A	99% KM (Chebyshev) UCL					0.758
321	Theta star					N/A						
322	Nu star					N/A	Potential UCLs to Use					
323	AppChi2					N/A	95% KM (t) UCL					0.523
324	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					0.735
325	95% Adjusted Gamma UCL					N/A						
326												
327												
328	Isopropylbenzene											
329												
330	General Statistics											
331	Number of Valid Samples					23	Number of Detected Data					9
332	Number of Unique Samples					9	Number of Non-Detect Data					14
333							Percent Non-Detects					60.87%
334												
335	Raw Statistics						Log-transformed Statistics					
336	Minimum Detected					0.24	Minimum Detected					-1.427
337	Maximum Detected					8.5	Maximum Detected					2.14
338	Mean of Detected					3.31	Mean of Detected					0.497
339	SD of Detected					3.606	SD of Detected					1.333
340	Minimum Non-Detect					0.5	Minimum Non-Detect					-0.693
341	Maximum Non-Detect					0.5	Maximum Non-Detect					-0.693
342												
343												
344	UCL Statistics											
345	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
346	Shapiro Wilk Test Statistic					0.749	Shapiro Wilk Test Statistic					0.891
347	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
348	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
349												
350	Assuming Normal Distribution						Assuming Lognormal Distribution					
351	DL/2 Substitution Method						DL/2 Substitution Method					
352	Mean					1.447	Mean					-0.649
353	SD					2.657	SD					1.237
354	95% DL/2 (t) UCL					2.399	95% H-Stat (DL/2) UCL					1.541
355												
356	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
357	Mean					-1.84	Mean in Log Scale					-1.131
358	SD					5.418	SD in Log Scale					1.791
359	95% MLE (t) UCL					0.0996	Mean in Original Scale					1.407
360	95% MLE (Tiku) UCL					1.209	SD in Original Scale					2.679
361							95% Percentile Bootstrap UCL					2.375
362							95% BCA Bootstrap UCL					2.614
363												
364	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
365	k star (bias corrected)					0.635	Data appear Gamma Distributed at 5% Significance Level					
366	Theta Star					5.21						
367	nu star					11.44						
368												
369	A-D Test Statistic					0.685	Nonparametric Statistics					
370	5% A-D Critical Value					0.749	Kaplan-Meier (KM) Method					
371	K-S Test Statistic					0.749	Mean					1.441

	A	B	C	D	E	F	G	H	I	J	K	L
372	5% K-S Critical Value					0.288	SD					2.602
373	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.575
374							95% KM (t) UCL					2.429
375	Assuming Gamma Distribution						95% KM (z) UCL					2.388
376	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					2.297
377	Minimum					0	95% KM (bootstrap t) UCL					2.813
378	Maximum					8.5	95% KM (BCA) UCL					2.8
379	Mean					1.291	95% KM (percentile) UCL					2.482
380	Median					0	95% KM (Chebyshev) UCL					3.949
381	SD					2.733	97.5% KM (Chebyshev) UCL					5.035
382	k star					0.0872	99% KM (Chebyshev) UCL					7.166
383	Theta star					14.8						
384	Nu star					4.013	Potential UCLs to Use					
385	AppChi2					0.727	95% KM (t) UCL					2.429
386	95% Gamma Approximate UCL					7.129						
387	95% Adjusted Gamma UCL					8.154						
388												
389												
390	Aroclor-1242											
391												
392	General Statistics											
393	Number of Valid Samples					23	Number of Detected Data					1
394	Number of Unique Samples					1	Number of Non-Detect Data					22
395							Percent Non-Detects					95.65%
396												
397	Raw Statistics						Log-transformed Statistics					
398	Minimum Detected					0.33	Minimum Detected					-1.109
399	Maximum Detected					0.33	Maximum Detected					-1.109
400	Mean of Detected					0.33	Mean of Detected					-1.109
401	SD of Detected					N/A	SD of Detected					N/A
402	Minimum Non-Detect					0.05	Minimum Non-Detect					-2.996
403	Maximum Non-Detect					0.22	Maximum Non-Detect					-1.514
404												
405	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					22
406	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1
407	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					95.65%
408												
409	UCL Statistics											
410	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
411	Shapiro Wilk Test Statistic					N/A	Shapiro Wilk Test Statistic					N/A
412	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A
413	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
414												
415	Assuming Normal Distribution						Assuming Lognormal Distribution					
416	DL/2 Substitution Method						DL/2 Substitution Method					
417	Mean					0.0589	Mean					-3.205
418	SD					0.0689	SD					0.783
419	95% DL/2 (t) UCL					0.0836	95% H-Stat (DL/2) UCL					0.0781
420												
421	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
422							Mean in Log Scale					N/A
423							SD in Log Scale					N/A
424							Mean in Original Scale					N/A

	A	B	C	D	E	F	G	H	I	J	K	L
425							SD in Original Scale					N/A
426							95% Percentile Bootstrap UCL					N/A
427							95% BCA Bootstrap UCL					N/A
428												
429	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only					
430	Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)					
431												
432												
433	Potential UCLs to Use						Nonparametric Statistics					
434	99% KM (Chebyshev) UCL					0.33	Kaplan-Meier (KM) Method					
435							Mean					0.33
436							SD					0
437							SE of Mean					0
438							95% KM (t) UCL					0.33
439							95% KM (z) UCL					0.33
440							95% KM (jackknife) UCL					6860
441							95% KM (bootstrap t) UCL					N/A
442							95% KM (BCA) UCL					1E+31
443							95% KM (percentile) UCL					1E+31
444							95% KM (Chebyshev) UCL					0.33
445							97.5% KM (Chebyshev) UCL					0.33
446							99% KM (Chebyshev) UCL					0.33
447												
448												
449	Aroclor-1248											
450												
451	General Statistics											
452	Number of Valid Samples					23	Number of Detected Data					1
453	Number of Unique Samples					1	Number of Non-Detect Data					22
454							Percent Non-Detects					95.65%
455												
456	Raw Statistics						Log-transformed Statistics					
457	Minimum Detected					0.18	Minimum Detected					-1.715
458	Maximum Detected					0.18	Maximum Detected					-1.715
459	Mean of Detected					0.18	Mean of Detected					-1.715
460	SD of Detected					N/A	SD of Detected					N/A
461	Minimum Non-Detect					0.05	Minimum Non-Detect					-2.996
462	Maximum Non-Detect					0.22	Maximum Non-Detect					-1.514
463												
464	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					23
465	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					0
466	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
467												
468	UCL Statistics											
469	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
470	Shapiro Wilk Test Statistic					N/A	Shapiro Wilk Test Statistic					N/A
471	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A
472	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
473												
474	Assuming Normal Distribution						Assuming Lognormal Distribution					
475	DL/2 Substitution Method						DL/2 Substitution Method					
476	Mean					0.0557	Mean					-3.171
477	SD					0.0456	SD					0.734

	A	B	C	D	E	F	G	H	I	J	K	L
478	95% DL/2 (t) UCL					0.072	95% H-Stat (DL/2) UCL					0.0782
479												
480	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
481							Mean in Log Scale					N/A
482							SD in Log Scale					N/A
483							Mean in Original Scale					N/A
484							SD in Original Scale					N/A
485							95% Percentile Bootstrap UCL					N/A
486							95% BCA Bootstrap UCL					N/A
487												
488	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only					
489	Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)					
490												
491												
492	Potential UCLs to Use						Nonparametric Statistics					
493	99% KM (Chebyshev) UCL					0.18	Kaplan-Meier (KM) Method					
494							Mean					0.18
495							SD					0
496							SE of Mean					0
497							95% KM (t) UCL					0.18
498							95% KM (z) UCL					0.18
499							95% KM (jackknife) UCL					6860
500							95% KM (bootstrap t) UCL					N/A
501							95% KM (BCA) UCL					1E+31
502							95% KM (percentile) UCL					1E+31
503							95% KM (Chebyshev) UCL					0.18
504							97.5% KM (Chebyshev) UCL					0.18
505							99% KM (Chebyshev) UCL					0.18
506												
507												
508	Lead											
509												
510	General Statistics											
511	Number of Valid Samples					23	Number of Detected Data					9
512	Number of Unique Samples					9	Number of Non-Detect Data					14
513							Percent Non-Detects					60.87%
514												
515	Raw Statistics						Log-transformed Statistics					
516	Minimum Detected					0.27	Minimum Detected					-1.309
517	Maximum Detected					1.5	Maximum Detected					0.405
518	Mean of Detected					0.803	Mean of Detected					-0.383
519	SD of Detected					0.437	SD of Detected					0.644
520	Minimum Non-Detect					0.7	Minimum Non-Detect					-0.357
521	Maximum Non-Detect					3	Maximum Non-Detect					1.099
522												
523	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					23
524	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					0
525	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
526												
527	UCL Statistics											
528	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
529	Shapiro Wilk Test Statistic					0.938	Shapiro Wilk Test Statistic					0.9
530	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829

	A	B	C	D	E	F	G	H	I	J	K	L	
531	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
532													
533	Assuming Normal Distribution						Assuming Lognormal Distribution						
534	DL/2 Substitution Method						DL/2 Substitution Method						
535	Mean				0.927		Mean				-0.283		
536	SD				0.535		SD				0.698		
537	95% DL/2 (t) UCL				1.119		95% H-Stat (DL/2) UCL				1.421		
538													
539	Maximum Likelihood Estimate(MLE) Method				N/A		Robust ROS Method						
540							Mean in Log Scale				-0.628		
541							SD in Log Scale				0.589		
542							Mean in Original Scale				0.629		
543							SD in Original Scale				0.373		
544							95% Percentile Bootstrap UCL				0.761		
545							95% BCA Bootstrap UCL				0.775		
546													
547	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only						
548	k star (bias corrected)				2.215		Data appear Normal at 5% Significance Level						
549	Theta Star				0.363								
550	nu star				39.87								
551													
552	A-D Test Statistic				0.375		Nonparametric Statistics						
553	5% A-D Critical Value				0.726		Kaplan-Meier (KM) Method						
554	K-S Test Statistic				0.726		Mean				0.639		
555	5% K-S Critical Value				0.281		SD				0.388		
556	Data appear Gamma Distributed at 5% Significance Level						SE of Mean				0.113		
557							95% KM (t) UCL				0.833		
558	Assuming Gamma Distribution						95% KM (z) UCL				0.825		
559	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				0.839		
560	Minimum				N/A		95% KM (bootstrap t) UCL				0.853		
561	Maximum				N/A		95% KM (BCA) UCL				0.843		
562	Mean				N/A		95% KM (percentile) UCL				0.845		
563	Median				N/A		95% KM (Chebyshev) UCL				1.131		
564	SD				N/A		97.5% KM (Chebyshev) UCL				1.344		
565	k star				N/A		99% KM (Chebyshev) UCL				1.763		
566	Theta star				N/A								
567	Nu star				N/A		Potential UCLs to Use						
568	AppChi2				N/A		95% KM (t) UCL				0.833		
569	95% Gamma Approximate UCL				N/A		95% KM (Percentile Bootstrap) UCL				0.845		
570	95% Adjusted Gamma UCL				N/A								
571													

Data File					Variable:	Benzene		
Raw Statistics				Normal Distribution Test				
Number of Valid Samples		18		Shapiro-Wilk Test Statistic				0.286859
Number of Unique Samples		4		Shapiro-Wilk 5% Critical Value				0.897
Minimum		0.25		Data not normal at 5% significance level				
Maximum		19						
Mean		1.392778		95% UCL (Assuming Normal Distribution)				
Median		0.25		Student's-t UCL				3.201524
Standard Deviation		4.411262						
Variance		19.45923		Gamma Distribution Test				
Coefficient of Variation		3.16724		A-D Test Statistic				5.584441
Skewness		4.190248		A-D 5% Critical Value				0.804569
				K-S Test Statistic				0.494149
Gamma Statistics				K-S 5% Critical Value				0.215703
k hat		0.47883		Data do not follow gamma distribution				
k star (bias corrected)		0.436062		at 5% significance level				
Theta hat		2.908709						
Theta star		3.193989		95% UCLs (Assuming Gamma Distribution)				
nu hat		17.23789		Approximate Gamma UCL				2.821735
nu star		15.69824		Adjusted Gamma UCL				3.029719
Approx.Chi Square Value (.05)		7.748481						
Adjusted Level of Significance		0.03574		Lognormal Distribution Test				
Adjusted Chi Square Value		7.216564		Shapiro-Wilk Test Statistic				0.412369
				Shapiro-Wilk 5% Critical Value				0.897
Log-transformed Statistics				Data not lognormal at 5% significance level				
Minimum of log data		-1.386294						
Maximum of log data		2.944439		95% UCLs (Assuming Lognormal Distribution)				
Mean of log data		-1.004201		95% H-UCL				1.412645
Standard Deviation of log data		1.098391		95% Chebyshev (MVUE) UCL				1.446447
Variance of log data		1.206463		97.5% Chebyshev (MVUE) UCL				1.796543
				99% Chebyshev (MVUE) UCL				2.484241
				95% Non-parametric UCLs				
				CLT UCL				3.103005
				Adj-CLT UCL (Adjusted for skewness)				4.200267
				Mod-t UCL (Adjusted for skewness)				3.372675
				Jackknife UCL				3.201524
				Standard Bootstrap UCL				N/R
				Bootstrap-t UCL				N/R
RECOMMENDATION				Hall's Bootstrap UCL				N/R
Data are Non-parametric (0.05)				Percentile Bootstrap UCL				N/R
				BCA Bootstrap UCL				N/R
Use 99% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL				5.924919
				97.5% Chebyshev (Mean, Sd) UCL				7.88598
				99% Chebyshev (Mean, Sd) UCL				11.7381

Data File					Variable:	Chloroform	
Raw Statistics					Normal Distribution Test		
Number of Valid Samples		18		Shapiro-Wilk Test Statistic		0.375806	
Number of Unique Samples		3		Shapiro-Wilk 5% Critical Value		0.897	
Minimum		0.25		Data not normal at 5% significance level			
Maximum		2.5					
Mean		0.494444		95% UCL (Assuming Normal Distribution)			
Median		0.25		Student's-t UCL		0.786239	
Standard Deviation		0.711645					
Variance		0.506438		Gamma Distribution Test			
Coefficient of Variation		1.439281		A-D Test Statistic		5.907086	
Skewness		2.708817		A-D 5% Critical Value		0.76021	
				K-S Test Statistic		0.541919	
Gamma Statistics				K-S 5% Critical Value		0.208076	
k hat		1.308709		Data do not follow gamma distribution			
k star (bias corrected)		1.127628		at 5% significance level			
Theta hat		0.377811					
Theta star		0.438482		95% UCLs (Assuming Gamma Distribution)			
nu hat		47.11353		Approximate Gamma UCL		0.74362	
nu star		40.59461		Adjusted Gamma UCL		0.774118	
Approx.Chi Square Value (.05)		26.992					
Adjusted Level of Significance		0.03574		Lognormal Distribution Test			
Adjusted Chi Square Value		25.92858		Shapiro-Wilk Test Statistic		0.373924	
				Shapiro-Wilk 5% Critical Value		0.897	
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data		-1.386294					
Maximum of log data		0.916291		95% UCLs (Assuming Lognormal Distribution)			
Mean of log data		-1.132719		95% H-UCL		0.63795	
Standard Deviation of log data		0.738045		95% Chebyshev (MVUE) UCL		0.751652	
Variance of log data		0.54471		97.5% Chebyshev (MVUE) UCL		0.897212	
				99% Chebyshev (MVUE) UCL		1.183137	
				95% Non-parametric UCLs			
				CLT UCL		0.770346	
				Adj-CLT UCL (Adjusted for skewness)		0.884779	
				Mod-t UCL (Adjusted for skewness)		0.804089	
				Jackknife UCL		0.786239	
				Standard Bootstrap UCL		N/R	
				Bootstrap-t UCL		N/R	
RECOMMENDATION				Hall's Bootstrap UCL		N/R	
Data are Non-parametric (0.05)				Percentile Bootstrap UCL		N/R	
				BCA Bootstrap UCL		N/R	
Use 95% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL		1.22559	
				97.5% Chebyshev (Mean, Sd) UCL		1.541957	
				99% Chebyshev (Mean, Sd) UCL		2.163399	

Data File					Variable:	Vinyl Chloride	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples		18		Shapiro-Wilk Test Statistic		0.383706	
Number of Unique Samples		4		Shapiro-Wilk 5% Critical Value		0.897	
Minimum		0.25		Data not normal at 5% significance level			
Maximum		2.5					
Mean		0.427222		95% UCL (Assuming Normal Distribution)			
Median		0.25		Student's-t UCL		0.648985	
Standard Deviation		0.540847					
Variance		0.292515		Gamma Distribution Test			
Coefficient of Variation		1.265962		A-D Test Statistic		4.6972	
Skewness		3.723597		A-D 5% Critical Value		0.753641	
				K-S Test Statistic		0.494397	
Gamma Statistics				K-S 5% Critical Value		0.206574	
k hat		1.860315		Data do not follow gamma distribution			
k star (bias corrected)		1.5873		at 5% significance level			
Theta hat		0.22965					
Theta star		0.26915		95% UCLs (Assuming Gamma Distribution)			
nu hat		66.97134		Approximate Gamma UCL		0.598883	
nu star		57.14278		Adjusted Gamma UCL		0.619036	
Approx.Chi Square Value (.05)		40.76364					
Adjusted Level of Significance		0.03574		Lognormal Distribution Test			
Adjusted Chi Square Value		39.43659		Shapiro-Wilk Test Statistic		0.469314	
				Shapiro-Wilk 5% Critical Value		0.897	
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data		-1.386294					
Maximum of log data		0.916291		95% UCLs (Assuming Lognormal Distribution)			
Mean of log data		-1.142682		95% H-UCL		0.532316	
Standard Deviation of log data		0.616851		95% Chebyshev (MVUE) UCL		0.634774	
Variance of log data		0.380505		97.5% Chebyshev (MVUE) UCL		0.744534	
				99% Chebyshev (MVUE) UCL		0.960136	
				95% Non-parametric UCLs			
				CLT UCL		0.636906	
				Adj-CLT UCL (Adjusted for skewness)		0.756455	
				Mod-t UCL (Adjusted for skewness)		0.667632	
				Jackknife UCL		0.648985	
				Standard Bootstrap UCL		N/R	
				Bootstrap-t UCL		N/R	
RECOMMENDATION				Hall's Bootstrap UCL		N/R	
Data are Non-parametric (0.05)				Percentile Bootstrap UCL		N/R	
				BCA Bootstrap UCL		N/R	
Use 95% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL		0.98289	
				97.5% Chebyshev (Mean, Sd) UCL		1.223327	
				99% Chebyshev (Mean, Sd) UCL		1.695621	

soil - 2-methylnaphthalene

Data File				Variable:	2-Methylnaphthalene	
Raw Statistics				Normal Distribution Test		
Number of Valid Samples			24	Shapiro-Wilk Test Statistic		0.559093
Number of Unique Samples			18	Shapiro-Wilk 5% Critical Value		0.916
Minimum			58	Data not normal at 5% significance level		
Maximum			900			
Mean			164.0417	95% UCL (Assuming Normal Distribution)		
Median			100	Student's-t UCL		226.6783
Standard Deviation			179.0423			
Variance			32056.13	Gamma Distribution Test		
Coefficient of Variation			1.091444	A-D Test Statistic		1.508131
Skewness			3.433813	A-D 5% Critical Value		0.756297
				K-S Test Statistic		0.19279
Gamma Statistics				K-S 5% Critical Value		0.180387
k hat			1.904542	Data do not follow gamma distribution		
k star (bias corrected)			1.694252	at 5% significance level		
Theta hat			86.13181			
Theta star			96.82246	95% UCLs (Assuming Gamma Distribution)		
nu hat			91.41803	Approximate Gamma UCL		216.7789
nu star			81.32411	Adjusted Gamma UCL		221.1276
Approx.Chi Square Value (.05)			61.53986			
Adjusted Level of Significance			0.0392	Lognormal Distribution Test		
Adjusted Chi Square Value			60.3296	Shapiro-Wilk Test Statistic		0.879245
				Shapiro-Wilk 5% Critical Value		0.916
Log-transformed Statistics				Data not lognormal at 5% significance level		
Minimum of log data			4.060443			
Maximum of log data			6.802395	95% UCLs (Assuming Lognormal Distribution)		
Mean of log data			4.815183	95% H-UCL		209.489
Standard Deviation of log data			0.675608	95% Chebyshev (MVUE) UCL		251.7769
Variance of log data			0.456446	97.5% Chebyshev (MVUE) UCL		294.4128
				99% Chebyshev (MVUE) UCL		378.1626
				95% Non-parametric UCLs		
				CLT UCL		224.1559
				Adj-CLT UCL (Adjusted for skewness)		251.5276
				Mod-t UCL (Adjusted for skewness)		230.9477
				Jackknife UCL		226.6783
				Standard Bootstrap UCL		223.0367
				Bootstrap-t UCL		340.8053
RECOMMENDATION				Hall's Bootstrap UCL		506.7256
Data are Non-parametric (0.05)				Percentile Bootstrap UCL		230.75
				BCA Bootstrap UCL		276.125
Use 95% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL		323.3457
				97.5% Chebyshev (Mean, Sd) UCL		392.2767
				99% Chebyshev (Mean, Sd) UCL		527.6782

Data File					Variable:	Acetophenone	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples		36		Shapiro-Wilk Test Statistic		0.313797	
Number of Unique Samples		17		Shapiro-Wilk 5% Critical Value		0.935	
Minimum		70		Data not normal at 5% significance level			
Maximum		2100					
Mean		211.875		95% UCL (Assuming Normal Distribution)			
Median		190		Student's-t UCL		304.6884	
Standard Deviation		329.5984					
Variance		108635.1		Gamma Distribution Test			
Coefficient of Variation		1.555627		A-D Test Statistic		4.065456	
Skewness		5.661146		A-D 5% Critical Value		0.763452	
				K-S Test Statistic		0.291611	
Gamma Statistics				K-S 5% Critical Value		0.14923	
k hat		1.716607		Data do not follow gamma distribution			
k star (bias corrected)		1.592075		at 5% significance level			
Theta hat		123.4266					
Theta star		133.0811		95% UCLs (Assuming Gamma Distribution)			
nu hat		123.5957		Approximate Gamma UCL		267.1635	
nu star		114.6294		Adjusted Gamma UCL		270.0112	
Approx.Chi Square Value (.05)		90.90725					
Adjusted Level of Significance		0.0428		Lognormal Distribution Test			
Adjusted Chi Square Value		89.94848		Shapiro-Wilk Test Statistic		0.750457	
				Shapiro-Wilk 5% Critical Value		0.935	
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data		4.248495					
Maximum of log data		7.649693		95% UCLs (Assuming Lognormal Distribution)			
Mean of log data		5.037285		95% H-UCL		238.4434	
Standard Deviation of log data		0.651623		95% Chebyshev (MVUE) UCL		285.5217	
Variance of log data		0.424613		97.5% Chebyshev (MVUE) UCL		327.2203	
				99% Chebyshev (MVUE) UCL		409.1292	
				95% Non-parametric UCLs			
				CLT UCL		302.2319	
				Adj-CLT UCL (Adjusted for skewness)		357.6137	
				Mod-t UCL (Adjusted for skewness)		313.3268	
				Jackknife UCL		304.6884	
				Standard Bootstrap UCL		301.2629	
				Bootstrap-t UCL		549.7804	
RECOMMENDATION				Hall's Bootstrap UCL		695.2339	
Data are Non-parametric (0.05)				Percentile Bootstrap UCL		319.1667	
				BCA Bootstrap UCL		413.3333	
Use 95% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL		451.3227	
				97.5% Chebyshev (Mean, Sd) UCL		554.9319	
				99% Chebyshev (Mean, Sd) UCL		758.4522	

Data File				Variable:	Aroclor-1254	
Raw Statistics			Normal Distribution Test			
Number of Valid Samples	36	Shapiro-Wilk Test Statistic		0.436299		
Number of Unique Samples	25	Shapiro-Wilk 5% Critical Value		0.935		
Minimum	7	Data not normal at 5% significance level				
Maximum	1000					
Mean	82.91667	95% UCL (Assuming Normal Distribution)				
Median	21	Student's-t UCL		133.2886		
Standard Deviation	178.8806					
Variance	31998.28	Gamma Distribution Test				
Coefficient of Variation	2.157354	A-D Test Statistic		3.041431		
Skewness	4.335918	A-D 5% Critical Value		0.796287		
		K-S Test Statistic		0.271764		
Gamma Statistics		K-S 5% Critical Value		0.153512		
k hat	0.664908	Data do not follow gamma distribution				
k star (bias corrected)	0.628017	at 5% significance level				
Theta hat	124.7041					
Theta star	132.0293	95% UCLs (Assuming Gamma Distribution)				
nu hat	47.87334	Approximate Gamma UCL		121.7723		
nu star	45.21723	Adjusted Gamma UCL		123.9525		
Approx.Chi Square Value (.05)	30.78912					
Adjusted Level of Significance	0.0428	Lognormal Distribution Test				
Adjusted Chi Square Value	30.24756	Shapiro-Wilk Test Statistic		0.892471		
		Shapiro-Wilk 5% Critical Value		0.935		
Log-transformed Statistics		Data not lognormal at 5% significance level				
Minimum of log data	1.94591					
Maximum of log data	6.907755	95% UCLs (Assuming Lognormal Distribution)				
Mean of log data	3.502308	95% H-UCL		115.6038		
Standard Deviation of log data	1.196671	95% Chebyshev (MVUE) UCL		134.9878		
Variance of log data	1.432022	97.5% Chebyshev (MVUE) UCL		164.9454		
		99% Chebyshev (MVUE) UCL		223.7913		
		95% Non-parametric UCLs				
		CLT UCL		131.9554		
		Adj-CLT UCL (Adjusted for skewness)		154.9763		
		Mod-t UCL (Adjusted for skewness)		136.8794		
		Jackknife UCL		133.2886		
		Standard Bootstrap UCL		133.4321		
		Bootstrap-t UCL		238.504		
		Hall's Bootstrap UCL		299.6958		
RECOMMENDATION		Percentile Bootstrap UCL		138.4861		
Data are Non-parametric (0.05)		BCA Bootstrap UCL		132.3472		
Use 99% Chebyshev (Mean, Sd) UCL		95% Chebyshev (Mean, Sd) UCL		212.8704		
		97.5% Chebyshev (Mean, Sd) UCL		269.1015		
		99% Chebyshev (Mean, Sd) UCL		379.5566		

Data File					Variable:	Aroclor-1260	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples		36		Shapiro-Wilk Test Statistic		0.810177	
Number of Unique Samples		24		Shapiro-Wilk 5% Critical Value		0.935	
Minimum		7		Data not normal at 5% significance level			
Maximum		550					
Mean		171.3889		95% UCL (Assuming Normal Distribution)			
Median		92.5		Student's-t UCL		221.984	
Standard Deviation		179.673					
Variance		32282.4		Gamma Distribution Test			
Coefficient of Variation		1.048335		A-D Test Statistic		1.712361	
Skewness		0.728877		A-D 5% Critical Value		0.792653	
				K-S Test Statistic		0.226914	
Gamma Statistics				K-S 5% Critical Value		0.153126	
k hat		0.702061		Data do not follow gamma distribution			
k star (bias corrected)		0.662075		at 5% significance level			
Theta hat		244.1223					
Theta star		258.8663		95% UCLs (Assuming Gamma Distribution)			
nu hat		50.54843		Approximate Gamma UCL		248.9287	
nu star		47.66939		Adjusted Gamma UCL		253.2528	
Approx.Chi Square Value (.05)		32.82066					
Adjusted Level of Significance		0.0428		Lognormal Distribution Test			
Adjusted Chi Square Value		32.26028		Shapiro-Wilk Test Statistic		0.866497	
				Shapiro-Wilk 5% Critical Value		0.935	
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data		1.94591					
Maximum of log data		6.309918		95% UCLs (Assuming Lognormal Distribution)			
Mean of log data		4.283475		95% H-UCL		493.2437	
Standard Deviation of log data		1.510484		95% Chebyshev (MVUE) UCL		514.7043	
Variance of log data		2.28156		97.5% Chebyshev (MVUE) UCL		645.2226	
				99% Chebyshev (MVUE) UCL		901.6005	
				95% Non-parametric UCLs			
				CLT UCL		220.6449	
				Adj-CLT UCL (Adjusted for skewness)		224.5319	
				Mod-t UCL (Adjusted for skewness)		222.5903	
				Jackknife UCL		221.984	
				Standard Bootstrap UCL		218.1004	
				Bootstrap-t UCL		224.9549	
RECOMMENDATION				Hall's Bootstrap UCL		223.9212	
Data are Non-parametric (0.05)				Percentile Bootstrap UCL		218.9306	
				BCA Bootstrap UCL		244	
Use 99% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL		301.9183	
				97.5% Chebyshev (Mean, Sd) UCL		358.3985	
				99% Chebyshev (Mean, Sd) UCL		469.3429	

soil - carbon disulfide

Data File					Variable:	Carbon disulfide	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples		36		Shapiro-Wilk Test Statistic		0.226842	
Number of Unique Samples		19		Shapiro-Wilk 5% Critical Value		0.935	
Minimum		0.55		Data not normal at 5% significance level			
Maximum		650					
Mean		25.37778		95% UCL (Assuming Normal Distribution)			
Median		5		Student's-t UCL		55.71865	
Standard Deviation		107.7464					
Variance		11609.28		Gamma Distribution Test			
Coefficient of Variation		4.245697		A-D Test Statistic		5.363731	
Skewness		5.887074		A-D 5% Critical Value		0.841251	
				K-S Test Statistic		0.396439	
Gamma Statistics				K-S 5% Critical Value		0.157907	
k hat		0.369762		Data do not follow gamma distribution			
k star (bias corrected)		0.357467		at 5% significance level			
Theta hat		68.63279					
Theta star		70.99339		95% UCLs (Assuming Gamma Distribution)			
nu hat		26.62284		Approximate Gamma UCL		43.0402	
nu star		25.73761		Adjusted Gamma UCL		44.11341	
Approx.Chi Square Value (.05)		15.17566					
Adjusted Level of Significance		0.0428		Lognormal Distribution Test			
Adjusted Chi Square Value		14.80646		Shapiro-Wilk Test Statistic		0.854075	
				Shapiro-Wilk 5% Critical Value		0.935	
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data		-0.597837					
Maximum of log data		6.476972		95% UCLs (Assuming Lognormal Distribution)			
Mean of log data		1.431476		95% H-UCL		26.38925	
Standard Deviation of log data		1.478122		95% Chebyshev (MVUE) UCL		27.96461	
Variance of log data		2.184846		97.5% Chebyshev (MVUE) UCL		34.97442	
				99% Chebyshev (MVUE) UCL		48.74383	
				95% Non-parametric UCLs			
				CLT UCL		54.91561	
				Adj-CLT UCL (Adjusted for skewness)		73.74257	
				Mod-t UCL (Adjusted for skewness)		58.65528	
				Jackknife UCL		55.71865	
				Standard Bootstrap UCL		53.81662	
				Bootstrap-t UCL		326.8685	
				Hall's Bootstrap UCL		246.6846	
RECOMMENDATION				Percentile Bootstrap UCL		60.73472	
Data are Non-parametric (0.05)				BCA Bootstrap UCL		80.24028	
				95% Chebyshev (Mean, Sd) UCL		103.6537	
Use 99% Chebyshev (Mean, Sd) UCL				97.5% Chebyshev (Mean, Sd) UCL		137.5238	
				99% Chebyshev (Mean, Sd) UCL		204.0549	

Data File					Variable:	Naphthalene	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples		24		Shapiro-Wilk Test Statistic		0.647275	
Number of Unique Samples		20		Shapiro-Wilk 5% Critical Value		0.916	
Minimum		49		Data not normal at 5% significance level			
Maximum		780					
Mean		202.7083		95% UCL (Assuming Normal Distribution)			
Median		145		Student's-t UCL		269.9712	
Standard Deviation		192.266					
Variance		36966.22		Gamma Distribution Test			
Coefficient of Variation		0.948486		A-D Test Statistic		1.55318	
Skewness		2.268004		A-D 5% Critical Value		0.755622	
				K-S Test Statistic		0.259041	
Gamma Statistics				K-S 5% Critical Value		0.180285	
k hat		1.956662		Data do not follow gamma distribution			
k star (bias corrected)		1.739857		at 5% significance level			
Theta hat		103.599					
Theta star		116.5086		95% UCLs (Assuming Gamma Distribution)			
nu hat		93.91979		Approximate Gamma UCL		266.8155	
nu star		83.51315		Adjusted Gamma UCL		272.0897	
Approx.Chi Square Value (.05)		63.44762					
Adjusted Level of Significance		0.0392		Lognormal Distribution Test			
Adjusted Chi Square Value		62.21775		Shapiro-Wilk Test Statistic		0.909017	
				Shapiro-Wilk 5% Critical Value		0.916	
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data		3.89182					
Maximum of log data		6.659294		95% UCLs (Assuming Lognormal Distribution)			
Mean of log data		5.034976		95% H-UCL		268.3794	
Standard Deviation of log data		0.697337		95% Chebyshev (MVUE) UCL		322.5876	
Variance of log data		0.486278		97.5% Chebyshev (MVUE) UCL		378.395	
				99% Chebyshev (MVUE) UCL		488.0178	
				95% Non-parametric UCLs			
				CLT UCL		267.2625	
				Adj-CLT UCL (Adjusted for skewness)		286.6765	
				Mod-t UCL (Adjusted for skewness)		272.9993	
				Jackknife UCL		269.9712	
				Standard Bootstrap UCL		264.6943	
				Bootstrap-t UCL		330.7563	
				Hall's Bootstrap UCL		281.3266	
RECOMMENDATION				Percentile Bootstrap UCL		272.9167	
Data are Non-parametric (0.05)				BCA Bootstrap UCL		260.4167	
Use 95% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL		373.7783	
				97.5% Chebyshev (Mean, Sd) UCL		447.8004	
				99% Chebyshev (Mean, Sd) UCL		593.2024	

Data File					Variable:	Tetrachloroethene	
Raw Statistics			Normal Distribution Test				
Number of Valid Samples	36	Shapiro-Wilk Test Statistic		0.221839			
Number of Unique Samples	18	Shapiro-Wilk 5% Critical Value		0.935			
Minimum	0.55	Data not normal at 5% significance level					
Maximum	650						
Mean	25.14167	95% UCL (Assuming Normal Distribution)					
Median	5	Student's-t UCL		55.47971			
Standard Deviation	107.7363						
Variance	11607.11	Gamma Distribution Test					
Coefficient of Variation	4.285169	A-D Test Statistic		5.902806			
Skewness	5.895821	A-D 5% Critical Value		0.838822			
		K-S Test Statistic		0.401252			
Gamma Statistics		K-S 5% Critical Value		0.157681			
k hat	0.380731	Data do not follow gamma distribution					
k star (bias corrected)	0.367522	at 5% significance level					
Theta hat	66.03531						
Theta star	68.40868	95% UCLs (Assuming Gamma Distribution)					
nu hat	27.41261	Approximate Gamma UCL		42.28506			
nu star	26.46155	Adjusted Gamma UCL		43.32197			
Approx.Chi Square Value (.05)	15.7334						
Adjusted Level of Significance	0.0428	Lognormal Distribution Test					
Adjusted Chi Square Value	15.35682	Shapiro-Wilk Test Statistic		0.837955			
		Shapiro-Wilk 5% Critical Value		0.935			
Log-transformed Statistics		Data not lognormal at 5% significance level					
Minimum of log data	-0.597837						
Maximum of log data	6.476972	95% UCLs (Assuming Lognormal Distribution)					
Mean of log data	1.482332	95% H-UCL		23.88623			
Standard Deviation of log data	1.411937	95% Chebyshev (MVUE) UCL		26.04861			
Variance of log data	1.993566	97.5% Chebyshev (MVUE) UCL		32.41669			
		99% Chebyshev (MVUE) UCL		44.92557			
		95% Non-parametric UCLs					
		CLT UCL		54.67674			
		Adj-CLT UCL (Adjusted for skewness)		73.5299			
		Mod-t UCL (Adjusted for skewness)		58.42042			
		Jackknife UCL		55.47971			
		Standard Bootstrap UCL		54.5468			
		Bootstrap-t UCL		288.7998			
RECOMMENDATION		Hall's Bootstrap UCL		247.7782			
Data are Non-parametric (0.05)		Percentile Bootstrap UCL		60.37917			
		BCA Bootstrap UCL		80.86389			
Use 99% Chebyshev (Mean, Sd) UCL		95% Chebyshev (Mean, Sd) UCL		103.4103			
		97.5% Chebyshev (Mean, Sd) UCL		137.2772			
		99% Chebyshev (Mean, Sd) UCL		203.8021			

Data File					Variable:	Toluene		
Raw Statistics			Normal Distribution Test					
Number of Valid Samples	36	Shapiro-Wilk Test Statistic		0.184658				
Number of Unique Samples	21	Shapiro-Wilk 5% Critical Value		0.935				
Minimum	0.5	Data not normal at 5% significance level						
Maximum	13000							
Mean	385.35	95% UCL (Assuming Normal Distribution)						
Median	3.75	Student's-t UCL		995.0624				
Standard Deviation	2165.208							
Variance	4688124	Gamma Distribution Test						
Coefficient of Variation	5.618808	A-D Test Statistic		9.000145				
Skewness	5.977025	A-D 5% Critical Value		0.919519				
		K-S Test Statistic		0.467682				
Gamma Statistics		K-S 5% Critical Value		0.163879				
k hat	0.165458	Data do not follow gamma distribution						
k star (bias corrected)	0.170188	at 5% significance level						
Theta hat	2328.992							
Theta star	2264.258	95% UCLs (Assuming Gamma Distribution)						
nu hat	11.91297	Approximate Gamma UCL		875.485				
nu star	12.25355	Adjusted Gamma UCL		910.3304				
Approx.Chi Square Value (.05)	5.393475							
Adjusted Level of Significance	0.0428	Lognormal Distribution Test						
Adjusted Chi Square Value	5.187025	Shapiro-Wilk Test Statistic		0.764222				
		Shapiro-Wilk 5% Critical Value		0.935				
Log-transformed Statistics		Data not lognormal at 5% significance level						
Minimum of log data	-0.693147							
Maximum of log data	9.472705	95% UCLs (Assuming Lognormal Distribution)						
Mean of log data	1.375634	95% H-UCL		116.1844				
Standard Deviation of log data	2.036219	95% Chebyshev (MVUE) UCL		82.52369				
Variance of log data	4.146187	97.5% Chebyshev (MVUE) UCL		106.5685				
		99% Chebyshev (MVUE) UCL		153.7998				
		95% Non-parametric UCLs						
		CLT UCL		978.9249				
		Adj-CLT UCL (Adjusted for skewness)		1363.041				
		Mod-t UCL (Adjusted for skewness)		1054.977				
		Jackknife UCL		995.0624				
		Standard Bootstrap UCL		958.1634				
		Bootstrap-t UCL		78727.41				
RECOMMENDATION		Hall's Bootstrap UCL		50016.63				
Data are Non-parametric (0.05)		Percentile Bootstrap UCL		1092.879				
		BCA Bootstrap UCL		1505.304				
Use 99% Chebyshev (Mean, Sd) UCL		95% Chebyshev (Mean, Sd) UCL		1958.337				
		97.5% Chebyshev (Mean, Sd) UCL		2638.97				
		99% Chebyshev (Mean, Sd) UCL		3975.941				

Data File					Variable:	Xylene (Total)	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples			36	Shapiro-Wilk Test Statistic			0.363204
Number of Unique Samples			19	Shapiro-Wilk 5% Critical Value			0.935
Minimum			1.7	Data not normal at 5% significance level			
Maximum			650				
Mean			43.98472	95% UCL (Assuming Normal Distribution)			
Median			5	Student's-t UCL			81.1144
Standard Deviation			131.8547				
Variance			17385.66	Gamma Distribution Test			
Coefficient of Variation			2.997739	A-D Test Statistic			8.155926
Skewness			3.790133	A-D 5% Critical Value			0.84488
				K-S Test Statistic			0.4703
Gamma Statistics				K-S 5% Critical Value			0.158245
k hat			0.353369	Data do not follow gamma distribution			
k star (bias corrected)			0.34244	at 5% significance level			
Theta hat			124.4726				
Theta star			128.4451	95% UCLs (Assuming Gamma Distribution)			
nu hat			25.44254	Approximate Gamma UCL			75.59089
nu star			24.65567	Adjusted Gamma UCL			77.52534
Approx.Chi Square Value (.05)			14.3466				
Adjusted Level of Significance			0.0428	Lognormal Distribution Test			
Adjusted Chi Square Value			13.98862	Shapiro-Wilk Test Statistic			0.662909
				Shapiro-Wilk 5% Critical Value			0.935
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data			0.530628				
Maximum of log data			6.476972	95% UCLs (Assuming Lognormal Distribution)			
Mean of log data			1.883875	95% H-UCL			39.65407
Standard Deviation of log data			1.458576	95% Chebyshev (MVUE) UCL			42.39565
Variance of log data			2.127443	97.5% Chebyshev (MVUE) UCL			52.94669
				99% Chebyshev (MVUE) UCL			73.67216
				95% Non-parametric UCLs			
				CLT UCL			80.13167
				Adj-CLT UCL (Adjusted for skewness)			94.96464
				Mod-t UCL (Adjusted for skewness)			83.42804
				Jackknife UCL			81.1144
				Standard Bootstrap UCL			80.74501
				Bootstrap-t UCL			147.7227
RECOMMENDATION				Hall's Bootstrap UCL			199.0945
Data are Non-parametric (0.05)				Percentile Bootstrap UCL			84.89583
				BCA Bootstrap UCL			109.4556
Use 99% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL			139.7749
				97.5% Chebyshev (Mean, Sd) UCL			181.2235
				99% Chebyshev (Mean, Sd) UCL			262.641

Data File				Variable:	1,4-Dichlorobenzene	
Raw Statistics				Normal Distribution Test		
Number of Valid Samples			36	Shapiro-Wilk Test Statistic		0.219743
Number of Unique Samples			16	Shapiro-Wilk 5% Critical Value		0.935
Minimum			0.55	Data not normal at 5% significance level		
Maximum			650			
Mean			24.90556	95% UCL (Assuming Normal Distribution)		
Median			5	Student's-t UCL		55.25329
Standard Deviation			107.7707			
Variance			11614.53	Gamma Distribution Test		
Coefficient of Variation			4.327177	A-D Test Statistic		6.105917
Skewness			5.896973	A-D 5% Critical Value		0.840347
				K-S Test Statistic		0.423453
Gamma Statistics				K-S 5% Critical Value		0.157823
k hat			0.373842	Data do not follow gamma distribution		
k star (bias corrected)			0.361207	at 5% significance level		
Theta hat			66.62054			
Theta star			68.95092	95% UCLs (Assuming Gamma Distribution)		
nu hat			26.91662	Approximate Gamma UCL		42.10639
nu star			26.0069	Adjusted Gamma UCL		43.14974
Approx.Chi Square Value (.05)			15.38285			
Adjusted Level of Significance			0.0428	Lognormal Distribution Test		
Adjusted Chi Square Value			15.0109	Shapiro-Wilk Test Statistic		0.818759
				Shapiro-Wilk 5% Critical Value		0.935
Log-transformed Statistics				Data not lognormal at 5% significance level		
Minimum of log data			-0.597837			
Maximum of log data			6.476972	95% UCLs (Assuming Lognormal Distribution)		
Mean of log data			1.435536	95% H-UCL		23.45042
Standard Deviation of log data			1.424651	95% Chebyshev (MVUE) UCL		25.44037
Variance of log data			2.029629	97.5% Chebyshev (MVUE) UCL		31.6907
				99% Chebyshev (MVUE) UCL		43.96826
				95% Non-parametric UCLs		
				CLT UCL		54.45007
				Adj-CLT UCL (Adjusted for skewness)		73.31295
				Mod-t UCL (Adjusted for skewness)		58.19552
				Jackknife UCL		55.25329
				Standard Bootstrap UCL		53.74363
				Bootstrap-t UCL		288.6132
RECOMMENDATION				Hall's Bootstrap UCL		264.0176
Data are Non-parametric (0.05)				Percentile Bootstrap UCL		60.75278
				BCA Bootstrap UCL		96.17083
Use 99% Chebyshev (Mean, Sd) UCL				95% Chebyshev (Mean, Sd) UCL		103.1992
				97.5% Chebyshev (Mean, Sd) UCL		137.0769
				99% Chebyshev (Mean, Sd) UCL		203.6231

soil-methylcyclohexane

Data File					Variable:	Cyclohexane, methyl-	
Raw Statistics				Normal Distribution Test			
Number of Valid Samples		36		Shapiro-Wilk Test Statistic		0.29349	
Number of Unique Samples		17		Shapiro-Wilk 5% Critical Value		0.935	
Minimum		1.4		Data not normal at 5% significance level			
Maximum		650					
Mean		31.70764		95% UCL (Assuming Normal Distribution)			
Median		5		Student's-t UCL		62.87459	
Standard Deviation		110.6799					
Variance		12250.05		Gamma Distribution Test			
Coefficient of Variation		3.490639		A-D Test Statistic		6.889181	
Skewness		5.308319		A-D 5% Critical Value		0.835138	
				K-S Test Statistic		0.449597	
Gamma Statistics				K-S 5% Critical Value		0.157338	
k hat		0.397369		Data do not follow gamma distribution			
k star (bias corrected)		0.382774		at 5% significance level			
Theta hat		79.79385					
Theta star		82.83648		95% UCLs (Assuming Gamma Distribution)			
nu hat		28.6106		Approximate Gamma UCL		52.69327	
nu star		27.55972		Adjusted Gamma UCL		53.95424	
Approx.Chi Square Value (.05)		16.58378					
Adjusted Level of Significance		0.0428		Lognormal Distribution Test			
Adjusted Chi Square Value		16.1962		Shapiro-Wilk Test Statistic		0.750385	
				Shapiro-Wilk 5% Critical Value		0.935	
Log-transformed Statistics				Data not lognormal at 5% significance level			
Minimum of log data		0.336472					
Maximum of log data		6.476972		95% UCLs (Assuming Lognormal Distribution)			
Mean of log data		1.798812		95% H-UCL		28.50215	
Standard Deviation of log data		1.347595		95% Chebyshev (MVUE) UCL		31.84638	
Variance of log data		1.816011		97.5% Chebyshev (MVUE) UCL		39.42974	
				99% Chebyshev (MVUE) UCL		54.32578	
				95% Non-parametric UCLs			
				CLT UCL		62.04969	
				Adj-CLT UCL (Adjusted for skewness)		79.48797	
				Mod-t UCL (Adjusted for skewness)		65.59462	
				Jackknife UCL		62.87459	
				Standard Bootstrap UCL		62.30052	
				Bootstrap-t UCL		160.8634	
				Hall's Bootstrap UCL		155.2112	
RECOMMENDATION				Percentile Bootstrap UCL		66.175	
Data are Non-parametric (0.05)				BCA Bootstrap UCL		94.07639	
				95% Chebyshev (Mean, Sd) UCL		112.1147	
Use 99% Chebyshev (Mean, Sd) UCL				97.5% Chebyshev (Mean, Sd) UCL		146.907	
				99% Chebyshev (Mean, Sd) UCL		215.2495	

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			H:\JCV\Puritan\2007\EPCs\Subsurface Soil\nunes_subsoil_ucl_data.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(a)pyrene											
10												
11	General Statistics											
12	Number of Valid Samples				14		Number of Detected Data				10	
13	Number of Unique Samples				10		Number of Non-Detect Data				4	
14							Percent Non-Detects				28.57%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				89		Minimum Detected				4.489	
18	Maximum Detected				21000		Maximum Detected				9.952	
19	Mean of Detected				3367		Mean of Detected				6.74	
20	SD of Detected				6445		SD of Detected				1.772	
21	Minimum Non-Detect				140		Minimum Non-Detect				4.942	
22	Maximum Non-Detect				170		Maximum Non-Detect				5.136	
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				6	
25	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				8	
26	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				42.86%	
27												
28	UCL Statistics											
29	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
30	Shapiro Wilk Test Statistic				0.568		Shapiro Wilk Test Statistic				0.948	
31	5% Shapiro Wilk Critical Value				0.842		5% Shapiro Wilk Critical Value				0.842	
32	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
33												
34	Assuming Normal Distribution					Assuming Lognormal Distribution						
35	DL/2 Substitution Method						DL/2 Substitution Method					
36	Mean				2426		Mean				6.047	
37	SD				5580		SD				1.862	
38	95% DL/2 (t) UCL				5068		95% H-Stat (DL/2) UCL				13137	
39												
40	Maximum Likelihood Estimate(MLE) Method					Robust ROS Method						
41	Mean				-288		Mean in Log Scale				6.023	
42	SD				7832		SD in Log Scale				1.898	
43	95% MLE (t) UCL				3419		Mean in Original Scale				2426	
44	95% MLE (Tiku) UCL				3995		SD in Original Scale				5581	
45							95% Percentile Bootstrap UCL				5178	
46							95% BCA Bootstrap UCL				6976	
47												
48	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
49	k star (bias corrected)				0.392		Data appear Gamma Distributed at 5% Significance Level					
50	Theta Star				8586							
51	nu star				7.842							
52												
53	A-D Test Statistic				0.62		Nonparametric Statistics					

	A	B	C	D	E	F	G	H	I	J	K	L	
54	5% A-D Critical Value					0.783	Kaplan-Meier (KM) Method						
55	K-S Test Statistic					0.783	Mean					2435	
56	5% K-S Critical Value					0.282	SD					5374	
57	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					1514	
58							95% KM (t) UCL					5116	
59	Assuming Gamma Distribution						95% KM (z) UCL					4925	
60	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					5074	
61	Minimum					0	95% KM (bootstrap t) UCL					10980	
62	Maximum					21000	95% KM (BCA) UCL					5421	
63	Mean					2390	95% KM (percentile) UCL					5189	
64	Median					315	95% KM (Chebyshev) UCL					9034	
65	SD					5597	97.5% KM (Chebyshev) UCL					11889	
66	k star					0.101	99% KM (Chebyshev) UCL					17498	
67	Theta star					23671							
68	Nu star					2.827	Potential UCLs to Use						
69	AppChi2					0.323	95% KM (Chebyshev) UCL					9034	
70	95% Gamma Approximate UCL					20913							
71	95% Adjusted Gamma UCL					27950							
72													
73													
74	Benzo(b)fluoranthene												
75													
76	General Statistics												
77	Number of Valid Samples					14	Number of Detected Data					11	
78	Number of Unique Samples					11	Number of Non-Detect Data					3	
79							Percent Non-Detects					21.43%	
80													
81	Raw Statistics						Log-transformed Statistics						
82	Minimum Detected					120	Minimum Detected					4.787	
83	Maximum Detected					24000	Maximum Detected					10.09	
84	Mean of Detected					3670	Mean of Detected					6.834	
85	SD of Detected					7076	SD of Detected					1.735	
86	Minimum Non-Detect					140	Minimum Non-Detect					4.942	
87	Maximum Non-Detect					150	Maximum Non-Detect					5.011	
88													
89	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					5	
90	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					9	
91	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					35.71%	
92													
93	UCL Statistics												
94	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
95	Shapiro Wilk Test Statistic					0.563	Shapiro Wilk Test Statistic					0.932	
96	5% Shapiro Wilk Critical Value					0.85	5% Shapiro Wilk Critical Value					0.85	
97	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
98													
99	Assuming Normal Distribution						Assuming Lognormal Distribution						
100	DL/2 Substitution Method						DL/2 Substitution Method						
101	Mean					2899	Mean					6.285	
102	SD					6392	SD					1.873	
103	95% DL/2 (t) UCL					5925	95% H-Stat (DL/2) UCL					15683	
104													
105	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method						
106	Mean					615	Mean in Log Scale					6.193	

	A	B	C	D	E	F	G	H	I	J	K	L
107	SD					8293	SD in Log Scale					1.996
108	95% MLE (t) UCL					4540	Mean in Original Scale					2895
109	95% MLE (Tiku) UCL					4873	SD in Original Scale					6395
110							95% Percentile Bootstrap UCL					5887
111							95% BCA Bootstrap UCL					7854
112												
113	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
114	k star (bias corrected)					0.4	Data appear Gamma Distributed at 5% Significance Level					
115	Theta Star					9167						
116	nu star					8.809						
117												
118	A-D Test Statistic					0.707	Nonparametric Statistics					
119	5% A-D Critical Value					0.787	Kaplan-Meier (KM) Method					
120	K-S Test Statistic					0.787	Mean					2910
121	5% K-S Critical Value					0.27	SD					6155
122	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					1725
123							95% KM (t) UCL					5965
124	Assuming Gamma Distribution						95% KM (z) UCL					5748
125	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					5930
126	Minimum					0	95% KM (bootstrap t) UCL					11928
127	Maximum					24000	95% KM (BCA) UCL					5962
128	Mean					2865	95% KM (percentile) UCL					6011
129	Median					415	95% KM (Chebyshev) UCL					10430
130	SD					6409	97.5% KM (Chebyshev) UCL					13684
131	k star					0.109	99% KM (Chebyshev) UCL					20076
132	Theta star					26263						
133	Nu star					3.055	Potential UCLs to Use					
134	AppChi2					0.389	95% KM (Chebyshev) UCL					10430
135	95% Gamma Approximate UCL					22510						
136	95% Adjusted Gamma UCL					29962						
137												
138												
139	Benzo(g,h,i)perylene											
140												
141	General Statistics											
142	Number of Valid Samples					14	Number of Detected Data					9
143	Number of Unique Samples					9	Number of Non-Detect Data					5
144							Percent Non-Detects					35.71%
145												
146	Raw Statistics						Log-transformed Statistics					
147	Minimum Detected					83	Minimum Detected					4.419
148	Maximum Detected					13000	Maximum Detected					9.473
149	Mean of Detected					2458	Mean of Detected					6.588
150	SD of Detected					4164	SD of Detected					1.729
151	Minimum Non-Detect					140	Minimum Non-Detect					4.942
152	Maximum Non-Detect					4200	Maximum Non-Detect					8.343
153												
154	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					13
155	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1
156	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					92.86%
157												
158	UCL Statistics											
159	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					

	A	B	C	D	E	F	G	H	I	J	K	L
160	Shapiro Wilk Test Statistic					0.633	Shapiro Wilk Test Statistic					0.951
161	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
162	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
163												
164	Assuming Normal Distribution						Assuming Lognormal Distribution					
165	DL/2 Substitution Method						DL/2 Substitution Method					
166	Mean					1751	Mean					6.014
167	SD					3448	SD					1.779
168	95% DL/2 (t) UCL					3383	95% H-Stat (DL/2) UCL					13492
169												
170	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
171							Mean in Log Scale					5.872
172							SD in Log Scale					1.726
173							Mean in Original Scale					1623
174							SD in Original Scale					3467
175							95% Percentile Bootstrap UCL					3293
176							95% BCA Bootstrap UCL					4326
177												
178	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
179	k star (bias corrected)					0.419	Data appear Gamma Distributed at 5% Significance Level					
180	Theta Star					5859						
181	nu star					7.55						
182												
183	A-D Test Statistic					0.434	Nonparametric Statistics					
184	5% A-D Critical Value					0.769	Kaplan-Meier (KM) Method					
185	K-S Test Statistic					0.769	Mean					1666
186	5% K-S Critical Value					0.294	SD					3341
187	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					951.6
188							95% KM (t) UCL					3351
189	Assuming Gamma Distribution						95% KM (z) UCL					3231
190	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					3316
191	Minimum					N/A	95% KM (bootstrap t) UCL					6631
192	Maximum					N/A	95% KM (BCA) UCL					3373
193	Mean					N/A	95% KM (percentile) UCL					3219
194	Median					N/A	95% KM (Chebyshev) UCL					5813
195	SD					N/A	97.5% KM (Chebyshev) UCL					7608
196	k star					N/A	99% KM (Chebyshev) UCL					11133
197	Theta star					N/A						
198	Nu star					N/A	Potential UCLs to Use					
199	AppChi2					N/A	95% KM (BCA) UCL					3373
200	95% Gamma Approximate UCL					N/A						
201	95% Adjusted Gamma UCL					N/A						
202												
203												
204	Benzo[a]anthracene											
205												
206	General Statistics											
207	Number of Valid Samples					14	Number of Detected Data					10
208	Number of Unique Samples					10	Number of Non-Detect Data					4
209							Percent Non-Detects					28.57%
210												
211	Raw Statistics						Log-transformed Statistics					
212	Minimum Detected					83	Minimum Detected					4.419

	A	B	C	D	E	F	G	H	I	J	K	L
213	Maximum Detected					22000	Maximum Detected					9.999
214	Mean of Detected					3430	Mean of Detected					6.697
215	SD of Detected					6769	SD of Detected					1.797
216	Minimum Non-Detect					140	Minimum Non-Detect					4.942
217	Maximum Non-Detect					170	Maximum Non-Detect					5.136
218												
219	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					6
220	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					8
221	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					42.86%
222												
223	UCL Statistics											
224	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
225	Shapiro Wilk Test Statistic					0.558	Shapiro Wilk Test Statistic					0.947
226	5% Shapiro Wilk Critical Value					0.842	5% Shapiro Wilk Critical Value					0.842
227	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
228												
229	Assuming Normal Distribution						Assuming Lognormal Distribution					
230	DL/2 Substitution Method						DL/2 Substitution Method					
231	Mean					2472	Mean					6.016
232	SD					5847	SD					1.867
233	95% DL/2 (t) UCL					5239	95% H-Stat (DL/2) UCL					12121
234												
235	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
236	Mean					-377.3	Mean in Log Scale					5.968
237	SD					8189	SD in Log Scale					1.928
238	95% MLE (t) UCL					3499	Mean in Original Scale					2470
239	95% MLE (Tiku) UCL					4103	SD in Original Scale					5848
240							95% Percentile Bootstrap UCL					5214
241							95% BCA Bootstrap UCL					7274
242												
243	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
244	k star (bias corrected)					0.38	Data Follow Appr. Gamma Distribution at 5% Significance Level					
245	Theta Star					9025						
246	nu star					7.602						
247												
248	A-D Test Statistic					0.665	Nonparametric Statistics					
249	5% A-D Critical Value					0.787	Kaplan-Meier (KM) Method					
250	K-S Test Statistic					0.787	Mean					2476
251	5% K-S Critical Value					0.283	SD					5633
252	Data follow approximate Gamma Distribution at 5% Significance Level						SE of Mean					1587
253							95% KM (t) UCL					5286
254	Assuming Gamma Distribution						95% KM (z) UCL					5086
255	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					5243
256	Minimum					0	95% KM (bootstrap t) UCL					13397
257	Maximum					22000	95% KM (BCA) UCL					5201
258	Mean					2437	95% KM (percentile) UCL					5429
259	Median					285	95% KM (Chebyshev) UCL					9393
260	SD					5863	97.5% KM (Chebyshev) UCL					12386
261	k star					0.101	99% KM (Chebyshev) UCL					18265
262	Theta star					24167						
263	Nu star					2.824	Potential UCLs to Use					
264	AppChi2					0.322	95% KM (Chebyshev) UCL					9393
265	95% Gamma Approximate UCL					21362						

	A	B	C	D	E	F	G	H	I	J	K	L	
266	95% Adjusted Gamma UCL					28551							
267													
268													
269	Dibenz[a,h]anthracene												
270													
271	General Statistics												
272	Number of Valid Samples					14	Number of Detected Data					6	
273	Number of Unique Samples					6	Number of Non-Detect Data					8	
274							Percent Non-Detects					57.14%	
275													
276	Raw Statistics						Log-transformed Statistics						
277	Minimum Detected					68.5	Minimum Detected					4.227	
278	Maximum Detected					4400	Maximum Detected					8.389	
279	Mean of Detected					1102	Mean of Detected					6.136	
280	SD of Detected					1652	SD of Detected					1.473	
281	Minimum Non-Detect					140	Minimum Non-Detect					4.942	
282	Maximum Non-Detect					4200	Maximum Non-Detect					8.343	
283													
284	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					13	
285	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1	
286	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					92.86%	
287													
288	UCL Statistics												
289	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
290	Shapiro Wilk Test Statistic					0.678	Shapiro Wilk Test Statistic					0.976	
291	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788	
292	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
293													
294	Assuming Normal Distribution						Assuming Lognormal Distribution						
295	DL/2 Substitution Method						DL/2 Substitution Method						
296	Mean					660.3	Mean					5.339	
297	SD					1218	SD					1.447	
298	95% DL/2 (t) UCL					1237	95% H-Stat (DL/2) UCL					1865	
299													
300	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method						
301							Mean in Log Scale					4.876	
302							SD in Log Scale					1.524	
303							Mean in Original Scale					506.1	
304							SD in Original Scale					1156	
305							95% Percentile Bootstrap UCL					1079	
306							95% BCA Bootstrap UCL					1457	
307													
308	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only						
309	k star (bias corrected)					0.459	Data appear Gamma Distributed at 5% Significance Level						
310	Theta Star					2400							
311	nu star					5.511							
312													
313	A-D Test Statistic					0.352	Nonparametric Statistics						
314	5% A-D Critical Value					0.724	Kaplan-Meier (KM) Method						
315	K-S Test Statistic					0.724	Mean					523.6	
316	5% K-S Critical Value					0.345	SD					1110	
317	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					325.9	
318							95% KM (t) UCL					1101	

	A	B	C	D	E	F	G	H	I	J	K	L
319	Assuming Gamma Distribution						95% KM (z) UCL					1060
320	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1038
321	Minimum					N/A	95% KM (bootstrap t) UCL					2333
322	Maximum					N/A	95% KM (BCA) UCL					1282
323	Mean					N/A	95% KM (percentile) UCL					1124
324	Median					N/A	95% KM (Chebyshev) UCL					1944
325	SD					N/A	97.5% KM (Chebyshev) UCL					2559
326	k star					N/A	99% KM (Chebyshev) UCL					3766
327	Theta star					N/A						
328	Nu star					N/A	Potential UCLs to Use					
329	AppChi2					N/A	95% KM (t) UCL					1101
330	95% Gamma Approximate UCL					N/A						
331	95% Adjusted Gamma UCL					N/A						
332												
333												
334	Indeno(1,2,3-cd)pyrene											
335												
336	General Statistics											
337	Number of Valid Samples					14	Number of Detected Data					8
338	Number of Unique Samples					8	Number of Non-Detect Data					6
339							Percent Non-Detects					42.86%
340												
341	Raw Statistics						Log-transformed Statistics					
342	Minimum Detected					88	Minimum Detected					4.477
343	Maximum Detected					12000	Maximum Detected					9.393
344	Mean of Detected					2465	Mean of Detected					6.651
345	SD of Detected					4031	SD of Detected					1.714
346	Minimum Non-Detect					140	Minimum Non-Detect					4.942
347	Maximum Non-Detect					4200	Maximum Non-Detect					8.343
348												
349	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					13
350	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1
351	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					92.86%
352												
353	UCL Statistics											
354	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
355	Shapiro Wilk Test Statistic					0.653	Shapiro Wilk Test Statistic					0.959
356	5% Shapiro Wilk Critical Value					0.818	5% Shapiro Wilk Critical Value					0.818
357	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
358												
359	Assuming Normal Distribution						Assuming Lognormal Distribution					
360	DL/2 Substitution Method						DL/2 Substitution Method					
361	Mean					1586	Mean					5.888
362	SD					3182	SD					1.77
363	95% DL/2 (t) UCL					3092	95% H-Stat (DL/2) UCL					8320
364												
365	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
366							Mean in Log Scale					5.797
367							SD in Log Scale					1.672
368							Mean in Original Scale					1462
369							SD in Original Scale					3193
370							95% Percentile Bootstrap UCL					3009
371							95% BCA Bootstrap UCL					3991

	A	B	C	D	E	F	G	H	I	J	K	L
372												
373	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only					
374	k star (bias corrected)					0.422	Data appear Gamma Distributed at 5% Significance Level					
375	Theta Star					5846						
376	nu star					6.748						
377												
378	A-D Test Statistic					0.372	Nonparametric Statistics					
379	5% A-D Critical Value					0.76	Kaplan-Meier (KM) Method					
380	K-S Test Statistic					0.76	Mean					1497
381	5% K-S Critical Value					0.308	SD					3078
382	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					883.1
383							95% KM (t) UCL					3061
384	Assuming Gamma Distribution						95% KM (z) UCL					2950
385	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					3016
386	Minimum					N/A	95% KM (bootstrap t) UCL					5946
387	Maximum					N/A	95% KM (BCA) UCL					3364
388	Mean					N/A	95% KM (percentile) UCL					3118
389	Median					N/A	95% KM (Chebyshev) UCL					5346
390	SD					N/A	97.5% KM (Chebyshev) UCL					7012
391	k star					N/A	99% KM (Chebyshev) UCL					10284
392	Theta star					N/A						
393	Nu star					N/A	Potential UCLs to Use					
394	AppChi2					N/A	95% KM (BCA) UCL					3364
395	95% Gamma Approximate UCL					N/A						
396	95% Adjusted Gamma UCL					N/A						
397												
398												
399	Phenanthrene											
400												
401	General Statistics											
402	Number of Valid Samples					14	Number of Detected Data					10
403	Number of Unique Samples					10	Number of Non-Detect Data					4
404							Percent Non-Detects					28.57%
405												
406	Raw Statistics						Log-transformed Statistics					
407	Minimum Detected					92	Minimum Detected					4.522
408	Maximum Detected					21000	Maximum Detected					9.952
409	Mean of Detected					4333	Mean of Detected					7.012
410	SD of Detected					6820	SD of Detected					1.891
411	Minimum Non-Detect					140	Minimum Non-Detect					4.942
412	Maximum Non-Detect					170	Maximum Non-Detect					5.136
413												
414	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					6
415	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					8
416	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					42.86%
417												
418	UCL Statistics											
419	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
420	Shapiro Wilk Test Statistic					0.686	Shapiro Wilk Test Statistic					0.933
421	5% Shapiro Wilk Critical Value					0.842	5% Shapiro Wilk Critical Value					0.842
422	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
423												
424	Assuming Normal Distribution						Assuming Lognormal Distribution					

	A	B	C	D	E	F	G	H	I	J	K	L
425	DL/2 Substitution Method						DL/2 Substitution Method					
426	Mean					3117	Mean					6.241
427	SD					6015	SD					2.019
428	95% DL/2 (t) UCL					5964	95% H-Stat (DL/2) UCL					24865
429												
430	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
431	Mean					227	Mean in Log Scale					6.243
432	SD					8584	SD in Log Scale					2.03
433	95% MLE (t) UCL					4290	Mean in Original Scale					3119
434	95% MLE (Tiku) UCL					4907	SD in Original Scale					6014
435							95% Percentile Bootstrap UCL					5790
436							95% BCA Bootstrap UCL					6921
437												
438	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
439	k star (bias corrected)				0.396	Data appear Gamma Distributed at 5% Significance Level						
440	Theta Star				10939							
441	nu star				7.923							
442												
443	A-D Test Statistic				0.553	Nonparametric Statistics						
444	5% A-D Critical Value				0.782	Kaplan-Meier (KM) Method						
445	K-S Test Statistic				0.782	Mean					3124	
446	5% K-S Critical Value				0.282	SD					5793	
447	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					1632
448						95% KM (t) UCL					6014	
449	Assuming Gamma Distribution						95% KM (z) UCL					5808
450	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL					5969	
451	Minimum				0	95% KM (bootstrap t) UCL					9109	
452	Maximum				21000	95% KM (BCA) UCL					6162	
453	Mean				3081	95% KM (percentile) UCL					6025	
454	Median				315	95% KM (Chebyshev) UCL					10237	
455	SD				6035	97.5% KM (Chebyshev) UCL					13315	
456	k star				0.101	99% KM (Chebyshev) UCL					19361	
457	Theta star				30577							
458	Nu star				2.821	Potential UCLs to Use						
459	AppChi2				0.321	95% KM (Chebyshev) UCL					10237	
460	95% Gamma Approximate UCL				27037							
461	95% Adjusted Gamma UCL				36137							
462												
463												
464	Acetophenone											
465												
466	General Statistics											
467	Number of Valid Samples				14	Number of Detected Data					1	
468	Number of Unique Samples				1	Number of Non-Detect Data					13	
469						Percent Non-Detects					92.86%	
470												
471	Raw Statistics						Log-transformed Statistics					
472	Minimum Detected				80	Minimum Detected					4.382	
473	Maximum Detected				80	Maximum Detected					4.382	
474	Mean of Detected				80	Mean of Detected					4.382	
475	SD of Detected				N/A	SD of Detected					N/A	
476	Minimum Non-Detect				140	Minimum Non-Detect					4.942	
477	Maximum Non-Detect				4200	Maximum Non-Detect					8.343	

	A	B	C	D	E	F	G	H	I	J	K	L
478												
479	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					14
480	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					0
481	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
482												
483	UCL Statistics											
484	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
485	Shapiro Wilk Test Statistic					N/A	Shapiro Wilk Test Statistic					N/A
486	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A
487	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
488												
489	Assuming Normal Distribution						Assuming Lognormal Distribution					
490	DL/2 Substitution Method						DL/2 Substitution Method					
491	Mean					253.6	Mean					4.834
492	SD					534	SD					0.914
493	95% DL/2 (t) UCL					506.3	95% H-Stat (DL/2) UCL					453.1
494												
495	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
496							Mean in Log Scale					N/A
497							SD in Log Scale					N/A
498							Mean in Original Scale					N/A
499							SD in Original Scale					N/A
500							95% Percentile Bootstrap UCL					N/A
501							95% BCA Bootstrap UCL					N/A
502												
503	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
504	Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)					
505												
506												
507	Potential UCLs to Use						Nonparametric Statistics					
508	99% KM (Chebyshev) UCL					80	Kaplan-Meier (KM) Method					
509							Mean					80
510							SD					0
511							SE of Mean					0
512							95% KM (t) UCL					80
513							95% KM (z) UCL					80
514							95% KM (jackknife) UCL					7159
515							95% KM (bootstrap t) UCL					N/A
516							95% KM (BCA) UCL					1E+31
517							95% KM (percentile) UCL					1E+31
518							95% KM (Chebyshev) UCL					80
519							97.5% KM (Chebyshev) UCL					80
520							99% KM (Chebyshev) UCL					80
521												
522												
523	bis(2-Ethylhexyl)phthalate											
524												
525	General Statistics											
526	Number of Valid Samples					14	Number of Detected Data					9
527	Number of Unique Samples					9	Number of Non-Detect Data					5
528							Percent Non-Detects					35.71%
529												
530	Raw Statistics						Log-transformed Statistics					

	A	B	C	D	E	F	G	H	I	J	K	L	
531	Minimum Detected					85	Minimum Detected					4.443	
532	Maximum Detected					1300000	Maximum Detected					14.08	
533	Mean of Detected					144996	Mean of Detected					7.013	
534	SD of Detected					433127	SD of Detected					2.778	
535	Minimum Non-Detect					140	Minimum Non-Detect					4.942	
536	Maximum Non-Detect					170	Maximum Non-Detect					5.136	
537													
538	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					6	
539	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					8	
540	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					42.86%	
541													
542	UCL Statistics												
543	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
544	Shapiro Wilk Test Statistic					0.391	Shapiro Wilk Test Statistic					0.686	
545	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829	
546	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level						
547													
548	Assuming Normal Distribution						Assuming Lognormal Distribution						
549	DL/2 Substitution Method						DL/2 Substitution Method						
550	Mean					93239	Mean					6.054	
551	SD					347330	SD					2.556	
552	95% DL/2 (t) UCL					257631	95% H-Stat (DL/2) UCL					320119	
553													
554	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method						
555	Mean					-82332	Mean in Log Scale					5.522	
556	SD					473960	SD in Log Scale					3.051	
557	95% MLE (t) UCL					141994	Mean in Original Scale					93220	
558	95% MLE (Tiku) UCL					179548	SD in Original Scale					347336	
559							95% Percentile Bootstrap UCL					278839	
560							95% BCA Bootstrap UCL					371984	
561													
562	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only						
563	k star (bias corrected)					0.179	Data do not follow a Discernable Distribution (0.05)						
564	Theta Star					811947							
565	nu star					3.214							
566													
567	A-D Test Statistic					2.244	Nonparametric Statistics						
568	5% A-D Critical Value					0.861	Kaplan-Meier (KM) Method						
569	K-S Test Statistic					0.861	Mean					93242	
570	5% K-S Critical Value					0.31	SD					334695	
571	Data not Gamma Distributed at 5% Significance Level						SE of Mean					94877	
572							95% KM (t) UCL					261263	
573	Assuming Gamma Distribution						95% KM (z) UCL					249301	
574	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					257583	
575	Minimum					0	95% KM (bootstrap t) UCL					134880000	
576	Maximum					1300000	95% KM (BCA) UCL					279132	
577	Mean					93206	95% KM (percentile) UCL					278885	
578	Median					300	95% KM (Chebyshev) UCL					506802	
579	SD					347340	97.5% KM (Chebyshev) UCL					685749	
580	k star					0.0899	99% KM (Chebyshev) UCL					1037257	
581	Theta star					1036220							
582	Nu star					2.519	Potential UCLs to Use						
583	AppChi2					0.245	99% KM (Chebyshev) UCL					1037257	

	A	B	C	D	E	F	G	H	I	J	K	L	
584	95% Gamma Approximate UCL					956774							
585	95% Adjusted Gamma UCL					1271574							
586													
587													
588	Di-N-Octyl phthalate												
589													
590	General Statistics												
591	Number of Valid Samples					14	Number of Detected Data					2	
592	Number of Unique Samples					2	Number of Non-Detect Data					12	
593							Percent Non-Detects					85.71%	
594													
595	Raw Statistics					Log-transformed Statistics							
596	Minimum Detected					100	Minimum Detected					4.605	
597	Maximum Detected					270000	Maximum Detected					12.51	
598	Mean of Detected					135050	Mean of Detected					8.556	
599	SD of Detected					190848	SD of Detected					5.587	
600	Minimum Non-Detect					140	Minimum Non-Detect					4.942	
601	Maximum Non-Detect					390	Maximum Non-Detect					5.966	
602													
603	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				13		
604	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				1		
605	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				92.86%		
606													
607	UCL Statistics												
608	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
609	Shapiro Wilk Test Statistic					1	Shapiro Wilk Test Statistic					1	
610	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A	
611	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
612													
613	Assuming Normal Distribution					Assuming Lognormal Distribution							
614	DL/2 Substitution Method						DL/2 Substitution Method						
615	Mean					19382	Mean					5.128	
616	SD					72133	SD					2.157	
617	95% DL/2 (t) UCL					53523	95% H-Stat (DL/2) UCL					14260	
618													
619	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method						
620							Mean in Log Scale					5.136	
621							SD in Log Scale					2.746	
622							Mean in Original Scale					19601	
623							SD in Original Scale					72072	
624							95% Percentile Bootstrap UCL					58101	
625							95% BCA Bootstrap UCL					77437	
626													
627	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only							
628	k star (bias corrected)					N/A	Data do not follow a Discernable Distribution (0.05)						
629	Theta Star					N/A							
630	nu star					N/A							
631													
632	A-D Test Statistic					0.372	Nonparametric Statistics						
633	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method						
634	K-S Test Statistic					N/A	Mean					19379	
635	5% K-S Critical Value					N/A	SD					69510	
636	Data not Gamma Distributed at 5% Significance Level					SE of Mean					26272		

	A	B	C	D	E	F	G	H	I	J	K	L		
637						95% KM (t) UCL							65905	
638	Assuming Gamma Distribution					95% KM (z) UCL							62593	
639	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL							201757
640	Minimum					N/A	95% KM (bootstrap t) UCL							1.8E+308
641	Maximum					N/A	95% KM (BCA) UCL							1E+31
642	Mean					N/A	95% KM (percentile) UCL							1E+31
643	Median					N/A	95% KM (Chebyshev) UCL							133897
644	SD					N/A	97.5% KM (Chebyshev) UCL							183449
645	k star					N/A	99% KM (Chebyshev) UCL							280784
646	Theta star					N/A								
647	Nu star					N/A	Potential UCLs to Use							
648	AppChi2					N/A	99% KM (Chebyshev) UCL							280784
649	95% Gamma Approximate UCL					N/A								
650	95% Adjusted Gamma UCL					N/A								
651	Warning: Recommended UCL exceeds the maximum observation													
652														
653														
654	Aroclor-1248													
655														
656	General Statistics													
657	Number of Valid Samples					14	Number of Detected Data					1		
658	Number of Unique Samples					1	Number of Non-Detect Data					13		
659							Percent Non-Detects					92.86%		
660														
661	Raw Statistics					Log-transformed Statistics								
662	Minimum Detected					360	Minimum Detected					5.886		
663	Maximum Detected					360	Maximum Detected					5.886		
664	Mean of Detected					360	Mean of Detected					5.886		
665	SD of Detected					N/A	SD of Detected					N/A		
666	Minimum Non-Detect					14	Minimum Non-Detect					2.639		
667	Maximum Non-Detect					42	Maximum Non-Detect					3.738		
668														
669	Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect					13			
670	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),					Number treated as Detected					1			
671	those Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage					92.86%			
672														
673	UCL Statistics													
674	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only								
675	Shapiro Wilk Test Statistic					N/A	Shapiro Wilk Test Statistic					N/A		
676	5% Shapiro Wilk Critical Value					N/A	5% Shapiro Wilk Critical Value					N/A		
677	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level								
678														
679	Assuming Normal Distribution					Assuming Lognormal Distribution								
680	DL/2 Substitution Method						DL/2 Substitution Method							
681	Mean					36.89	Mean					2.625		
682	SD					93.18	SD					1.049		
683	95% DL/2 (t) UCL					81	95% H-Stat (DL/2) UCL					38.16		
684														
685	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method							
686							Mean in Log Scale					N/A		
687							SD in Log Scale					N/A		
688							Mean in Original Scale					N/A		
689							SD in Original Scale					N/A		

	A	B	C	D	E	F	G	H	I	J	K	L
690							95% Percentile Bootstrap UCL					N/A
691							95% BCA Bootstrap UCL					N/A
692												
693	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
694	Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)					
695												
696												
697	Potential UCLs to Use						Nonparametric Statistics					
698	99% KM (Chebyshev) UCL					360	Kaplan-Meier (KM) Method					
699							Mean					360
700							SD					0
701							SE of Mean					0
702							95% KM (t) UCL					360
703							95% KM (z) UCL					360
704							95% KM (jackknife) UCL					7159
705							95% KM (bootstrap t) UCL					N/A
706							95% KM (BCA) UCL					1E+31
707							95% KM (percentile) UCL					1E+31
708							95% KM (Chebyshev) UCL					360
709							97.5% KM (Chebyshev) UCL					360
710							99% KM (Chebyshev) UCL					360
711												
712												
713	Aroclor-1254											
714												
715	General Statistics											
716	Number of Valid Samples					14	Number of Detected Data					9
717	Number of Unique Samples					9	Number of Non-Detect Data					5
718							Percent Non-Detects					35.71%
719												
720	Raw Statistics						Log-transformed Statistics					
721	Minimum Detected					60	Minimum Detected					4.094
722	Maximum Detected					1000	Maximum Detected					6.908
723	Mean of Detected					250.3	Mean of Detected					5.024
724	SD of Detected					309.5	SD of Detected					0.98
725	Minimum Non-Detect					14	Minimum Non-Detect					2.639
726	Maximum Non-Detect					39	Maximum Non-Detect					3.664
727												
728	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					5
729	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					9
730	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					35.71%
731												
732	UCL Statistics											
733	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
734	Shapiro Wilk Test Statistic					0.679	Shapiro Wilk Test Statistic					0.852
735	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
736	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
737												
738	Assuming Normal Distribution						Assuming Lognormal Distribution					
739	DL/2 Substitution Method						DL/2 Substitution Method					
740	Mean					165.1	Mean					4.073
741	SD					270.2	SD					1.556
742	95% DL/2 (t) UCL					293	95% H-Stat (DL/2) UCL					488.4

	A	B	C	D	E	F	G	H	I	J	K	L	
743													
744	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method						
745	Mean					81.04	Mean in Log Scale					4.145	
746	SD					347.7	SD in Log Scale					1.453	
747	95% MLE (t) UCL					245.6	Mean in Original Scale					165.7	
748	95% MLE (Tiku) UCL					259.6	SD in Original Scale					269.8	
749							95% Percentile Bootstrap UCL					294.4	
750							95% BCA Bootstrap UCL					357.7	
751													
752	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only						
753	k star (bias corrected)					0.834	Data appear Lognormal at 5% Significance Level						
754	Theta Star					300.2							
755	nu star					15.01							
756													
757	A-D Test Statistic					0.843	Nonparametric Statistics						
758	5% A-D Critical Value					0.741	Kaplan-Meier (KM) Method						
759	K-S Test Statistic					0.741	Mean						182.4
760	5% K-S Critical Value					0.286	SD						251.1
761	Data not Gamma Distributed at 5% Significance Level						SE of Mean						71.17
762							95% KM (t) UCL						308.4
763	Assuming Gamma Distribution						95% KM (z) UCL						299.4
764	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL						302.6
765	Minimum					0	95% KM (bootstrap t) UCL						561.7
766	Maximum					1000	95% KM (BCA) UCL						317.2
767	Mean					160.9	95% KM (percentile) UCL						300.4
768	Median					73	95% KM (Chebyshev) UCL						492.6
769	SD					272.8	97.5% KM (Chebyshev) UCL						626.8
770	k star					0.118	99% KM (Chebyshev) UCL						890.5
771	Theta star					1369							
772	Nu star					3.292	Potential UCLs to Use						
773	AppChi2					0.464	95% KM (BCA) UCL						317.2
774	95% Gamma Approximate UCL					1142							
775	95% Adjusted Gamma UCL					1508							
776													
777													
778	Aroclor-1260												
779													
780	General Statistics												
781	Number of Valid Samples					14	Number of Detected Data					7	
782	Number of Unique Samples					7	Number of Non-Detect Data					7	
783							Percent Non-Detects					50.00%	
784													
785	Raw Statistics						Log-transformed Statistics						
786	Minimum Detected					36	Minimum Detected					3.584	
787	Maximum Detected					290	Maximum Detected					5.67	
788	Mean of Detected					123.1	Mean of Detected					4.631	
789	SD of Detected					83.38	SD of Detected					0.658	
790	Minimum Non-Detect					14	Minimum Non-Detect					2.639	
791	Maximum Non-Detect					42	Maximum Non-Detect					3.738	
792													
793	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					8	
794	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					6	
795	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					57.14%	

	A	B	C	D	E	F	G	H	I	J	K	L
796												
797	UCL Statistics											
798	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
799	Shapiro Wilk Test Statistic					0.874	Shapiro Wilk Test Statistic					0.99
800	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
801	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
802												
803	Assuming Normal Distribution						Assuming Lognormal Distribution					
804	DL/2 Substitution Method						DL/2 Substitution Method					
805	Mean					69.54	Mean					3.657
806	SD					79.5	SD					1.153
807	95% DL/2 (t) UCL					107.2	95% H-Stat (DL/2) UCL					160.8
808												
809	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
810	Mean					18.7	Mean in Log Scale					3.744
811	SD					129.8	SD in Log Scale					1.05
812	95% MLE (t) UCL					80.15	Mean in Original Scale					70.76
813	95% MLE (Tiku) UCL					101.6	SD in Original Scale					78.65
814							95% Percentile Bootstrap UCL					106.9
815							95% BCA Bootstrap UCL					115.1
816												
817	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
818	k star (bias corrected)					1.748	Data appear Normal at 5% Significance Level					
819	Theta Star					70.43						
820	nu star					24.48						
821												
822	A-D Test Statistic					0.202	Nonparametric Statistics					
823	5% A-D Critical Value					0.712	Kaplan-Meier (KM) Method					
824	K-S Test Statistic					0.712	Mean					79.57
825	5% K-S Critical Value					0.314	SD					69.84
826	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					20.16
827							95% KM (t) UCL					115.3
828	Assuming Gamma Distribution						95% KM (z) UCL					112.7
829	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					112.1
830	Minimum					0	95% KM (bootstrap t) UCL					136.3
831	Maximum					290	95% KM (BCA) UCL					139.7
832	Mean					63.84	95% KM (percentile) UCL					128.4
833	Median					30.43	95% KM (Chebyshev) UCL					167.5
834	SD					83.92	97.5% KM (Chebyshev) UCL					205.5
835	k star					0.12	99% KM (Chebyshev) UCL					280.2
836	Theta star					531.1						
837	Nu star					3.366	Potential UCLs to Use					
838	AppChi2					0.489	95% KM (t) UCL					115.3
839	95% Gamma Approximate UCL					439.8	95% KM (Percentile Bootstrap) UCL					128.4
840	95% Adjusted Gamma UCL					579.3						
841												
842												
843	Dieldrin											
844												
845	General Statistics											
846	Number of Valid Samples					14	Number of Detected Data					9
847	Number of Unique Samples					7	Number of Non-Detect Data					5
848							Percent Non-Detects					35.71%

	A	B	C	D	E	F	G	H	I	J	K	L
849												
850	Raw Statistics						Log-transformed Statistics					
851	Minimum Detected				0		Log Statistics Not Available					
852	Maximum Detected				250							
853	Mean of Detected				44.79							
854	Mean of Detected				44.79							
855	Mean of Detected				44.79							
856	Maximum Non-Detect				4.2							
857	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					8
858	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					6
859	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					57.14%
860												
861	UCL Statistics											
862	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
863	Shapiro Wilk Test Statistic				0.622		Not Available					
864	5% Shapiro Wilk Critical Value				0.829							
865	Data not Normal at 5% Significance Level											
866												
867	Assuming Normal Distribution						Assuming Lognormal Distribution					
868	DL/2 Substitution Method						DL/2 Substitution Method					N/A
869	Mean				29.38							
870	SD				67.81							
871	95% DL/2 (t) UCL				61.47							
872												
873	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					N/A
874	Mean				-29.52							
875	SD				116.4							
876	95% MLE (t) UCL				25.58							
877	95% MLE (Tiku) UCL				46.06							
878												
879	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only					
880	Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)					
881												
882												
883	Potential UCLs to Use						Nonparametric Statistics					
884	99% KM (Chebyshev) UCL				213.8		Kaplan-Meier (KM) Method					
885							Mean					28.8
886							SD					65.59
887							SE of Mean					18.59
888							95% KM (t) UCL					61.73
889							95% KM (z) UCL					59.38
890							95% KM (jackknife) UCL					61.01
891							95% KM (bootstrap t) UCL					216
892							95% KM (BCA) UCL					69.39
893							95% KM (percentile) UCL					61
894							95% KM (Chebyshev) UCL					109.8
895							97.5% KM (Chebyshev) UCL					144.9
896							99% KM (Chebyshev) UCL					213.8
897												
898												
899	Aluminum											
900												
901	General Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
902	Number of Valid Samples					14	Number of Unique Samples					13
903												
904	Raw Statistics					Log-transformed Statistics						
905	Minimum					3900	Minimum of Log Data					8.269
906	Maximum					9800	Maximum of Log Data					9.19
907	Mean					5692	Mean of log Data					8.617
908	Median					5400	SD of log Data					0.248
909	SD					1547						
910	Coefficient of Variation					0.272						
911	Skewness					1.483						
912												
913	Relevant UCL Statistics											
914	Normal Distribution Test					Lognormal Distribution Test						
915	Shapiro Wilk Test Statistic					0.876	Shapiro Wilk Test Statistic					0.947
916	Shapiro Wilk Critical Value					0.874	Shapiro Wilk Critical Value					0.874
917	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
918												
919	Assuming Normal Distribution					Assuming Lognormal Distribution						
920	95% Student's-t UCL					6424	95% H-UCL					6471
921	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					7338	
922	95% Adjusted-CLT UCL					6547	97.5% Chebyshev (MVUE) UCL					8054
923	95% Modified-t UCL					6451	99% Chebyshev (MVUE) UCL					9460
924												
925	Gamma Distribution Test					Nonparametric Test						
926	k star (bias corrected)					13.21	Data appear Normal at 5% Significance Level					
927	Theta Star					430.9						
928	nu star					369.8						
929	Approximate Chi Square Value (.05)					326.3	Nonparametric Statistics					
930	Adjusted Level of Significance					0.0312	95% CLT UCL					6372
931	Adjusted Chi Square Value					320.8	95% Jackknife UCL					6424
932							95% Standard Bootstrap UCL					6340
933	Anderson-Darling Test Statistic					0.373	95% Bootstrap-t UCL					6719
934	Anderson-Darling 5% Critical Value					0.734	95% Hall's Bootstrap UCL					7177
935	Kolmogorov-Smirnov Test Statistic					0.168	95% Percentile Bootstrap UCL					6391
936	Kolmogorov-Smirnov 5% Critical Value					0.228	95% BCA Bootstrap UCL					6554
937	Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					7494	
938							97.5% Chebyshev(Mean, Sd) UCL					8274
939	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					9806	
940	95% Approximate Gamma UCL					6452						
941	95% Adjusted Gamma UCL					6561						
942												
943	Potential UCL to Use					Use 95% Student's-t UCL					6424	
944												
945												
946	Arsenic											
947												
948	General Statistics											
949	Number of Valid Samples					14	Number of Unique Samples					14
950												
951	Raw Statistics					Log-transformed Statistics						
952	Minimum					2.8	Minimum of Log Data					1.03
953	Maximum					11.65	Maximum of Log Data					2.455
954	Mean					6.482	Mean of log Data					1.787

	A	B	C	D	E	F	G	H	I	J	K	L
955	Median					5.95	SD of log Data					0.429
956	SD					2.674						
957	Coefficient of Variation					0.413						
958	Skewness					0.617						
959												
960	Relevant UCL Statistics											
961	Normal Distribution Test						Lognormal Distribution Test					
962	Shapiro Wilk Test Statistic					0.941	Shapiro Wilk Test Statistic					0.957
963	Shapiro Wilk Critical Value					0.874	Shapiro Wilk Critical Value					0.874
964	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
965												
966	Assuming Normal Distribution						Assuming Lognormal Distribution					
967	95% Student's-t UCL					7.748	95% H-UCL					8.322
968	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					9.819
969	95% Adjusted-CLT UCL					7.784	97.5% Chebyshev (MVUE) UCL					11.25
970	95% Modified-t UCL					7.768	99% Chebyshev (MVUE) UCL					14.07
971												
972	Gamma Distribution Test						Nonparametric Test					
973	k star (bias corrected)					4.97	Data appear Normal at 5% Significance Level					
974	Theta Star					1.304						
975	nu star					139.2						
976	Approximate Chi Square Value (.05)					112.9	Nonparametric Statistics					
977	Adjusted Level of Significance					0.0312	95% CLT UCL					7.658
978	Adjusted Chi Square Value					109.8	95% Jackknife UCL					7.748
979							95% Standard Bootstrap UCL					7.613
980	Anderson-Darling Test Statistic					0.233	95% Bootstrap-t UCL					8.033
981	Anderson-Darling 5% Critical Value					0.737	95% Hall's Bootstrap UCL					8.105
982	Kolmogorov-Smirnov Test Statistic					0.129	95% Percentile Bootstrap UCL					7.561
983	Kolmogorov-Smirnov 5% Critical Value					0.229	95% BCA Bootstrap UCL					7.586
984	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					9.598
985							97.5% Chebyshev(Mean, Sd) UCL					10.95
986	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					13.59
987	95% Approximate Gamma UCL					7.99						
988	95% Adjusted Gamma UCL					8.218						
989												
990	Potential UCL to Use						Use 95% Student's-t UCL					7.748
991												
992												
993	Barium											
994												
995	General Statistics											
996	Number of Valid Samples					14	Number of Detected Data					12
997	Number of Unique Samples					11	Number of Non-Detect Data					2
998							Percent Non-Detects					14.29%
999												
1000	Raw Statistics						Log-transformed Statistics					
1001	Minimum Detected					12	Minimum Detected					2.485
1002	Maximum Detected					1050	Maximum Detected					6.957
1003	Mean of Detected					192.6	Mean of Detected					4.238
1004	SD of Detected					298.9	SD of Detected					1.538
1005	Minimum Non-Detect					43	Minimum Non-Detect					3.761
1006	Maximum Non-Detect					47	Maximum Non-Detect					3.85
1007												

	A	B	C	D	E	F	G	H	I	J	K	L
1008	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					8
1009	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					6
1010	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					57.14%
1011												
1012	UCL Statistics											
1013	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1014	Shapiro Wilk Test Statistic					0.657	Shapiro Wilk Test Statistic					0.892
1015	5% Shapiro Wilk Critical Value					0.859	5% Shapiro Wilk Critical Value					0.859
1016	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1017												
1018	Assuming Normal Distribution						Assuming Lognormal Distribution					
1019	DL/2 Substitution Method						DL/2 Substitution Method					
1020	Mean					168.3	Mean					4.077
1021	SD					281.8	SD					1.473
1022	95% DL/2 (t) UCL					301.7	95% H-Stat (DL/2) UCL					940.5
1023												
1024	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
1025	Mean					-64.7	Mean in Log Scale					4.078
1026	SD					491	SD in Log Scale					1.472
1027	95% MLE (t) UCL					167.7	Mean in Original Scale					168.3
1028	95% MLE (Tiku) UCL					250.8	SD in Original Scale					281.8
1029							95% Percentile Bootstrap UCL					296.9
1030							95% BCA Bootstrap UCL					345.9
1031												
1032	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only					
1033	k star (bias corrected)					0.508	Data appear Gamma Distributed at 5% Significance Level					
1034	Theta Star					378.8						
1035	nu star					12.2						
1036												
1037	A-D Test Statistic					0.686	Nonparametric Statistics					
1038	5% A-D Critical Value					0.777	Kaplan-Meier (KM) Method					
1039	K-S Test Statistic					0.777	Mean					167.7
1040	5% K-S Critical Value					0.257	SD					271.9
1041	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					75.9
1042							95% KM (t) UCL					302.1
1043	Assuming Gamma Distribution						95% KM (z) UCL					292.6
1044	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					301.3
1045	Minimum					0	95% KM (bootstrap t) UCL					484.2
1046	Maximum					1050	95% KM (BCA) UCL					305.2
1047	Mean					157.1	95% KM (percentile) UCL					300.8
1048	Median					0	95% KM (Chebyshev) UCL					498.6
1049	SD					288.2	97.5% KM (Chebyshev) UCL					641.7
1050	k star					0.0943	99% KM (Chebyshev) UCL					922.9
1051	Theta star					1667						
1052	Nu star					2.64	Potential UCLs to Use					
1053	AppChi2					0.274	95% KM (Chebyshev) UCL					498.6
1054	95% Gamma Approximate UCL					1513						
1055	95% Adjusted Gamma UCL					2019						
1056												
1057												
1058	Cadmium											
1059												
1060	General Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
1061	Number of Valid Samples					14	Number of Detected Data					13
1062	Number of Unique Samples					12	Number of Non-Detect Data					1
1063							Percent Non-Detects					7.14%
1064												
1065	Raw Statistics						Log-transformed Statistics					
1066	Minimum Detected					0.057	Minimum Detected					-2.865
1067	Maximum Detected					6	Maximum Detected					1.792
1068	Mean of Detected					1.932	Mean of Detected					0.049
1069	SD of Detected					1.876	SD of Detected					1.381
1070	Minimum Non-Detect					0.036	Minimum Non-Detect					-3.324
1071	Maximum Non-Detect					0.036	Maximum Non-Detect					-3.324
1072												
1073												
1074	UCL Statistics											
1075	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1076	Shapiro Wilk Test Statistic					0.829	Shapiro Wilk Test Statistic					0.902
1077	5% Shapiro Wilk Critical Value					0.866	5% Shapiro Wilk Critical Value					0.866
1078	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1079												
1080	Assuming Normal Distribution						Assuming Lognormal Distribution					
1081	DL/2 Substitution Method						DL/2 Substitution Method					
1082	Mean					1.795	Mean					-0.241
1083	SD					1.873	SD					1.715
1084	95% DL/2 (t) UCL					2.682	95% H-Stat (DL/2) UCL					13.66
1085												
1086	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
1087	Mean					1.722	Mean in Log Scale					-0.18
1088	SD					1.91	SD in Log Scale					1.58
1089	95% MLE (t) UCL					2.626	Mean in Original Scale					1.797
1090	95% MLE (Tiku) UCL					2.59	SD in Original Scale					1.871
1091							95% Percentile Bootstrap UCL					2.656
1092							95% BCA Bootstrap UCL					2.781
1093												
1094	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
1095	k star (bias corrected)					0.784	Data appear Gamma Distributed at 5% Significance Level					
1096	Theta Star					2.465						
1097	nu star					20.38						
1098												
1099	A-D Test Statistic					0.369	Nonparametric Statistics					
1100	5% A-D Critical Value					0.76	Kaplan-Meier (KM) Method					
1101	K-S Test Statistic					0.76	Mean					1.798
1102	5% K-S Critical Value					0.244	SD					1.802
1103	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.501
1104							95% KM (t) UCL					2.686
1105	Assuming Gamma Distribution						95% KM (z) UCL					2.623
1106	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					2.681
1107	Minimum					0.057	95% KM (bootstrap t) UCL					3.057
1108	Maximum					6	95% KM (BCA) UCL					2.665
1109	Mean					1.804	95% KM (percentile) UCL					2.628
1110	Median					1.35	95% KM (Chebyshev) UCL					3.984
1111	SD					1.864	97.5% KM (Chebyshev) UCL					4.929
1112	k star					0.724	99% KM (Chebyshev) UCL					6.787
1113	Theta star					2.492						

	A	B	C	D	E	F	G	H	I	J	K	L	
1114	Nu star					20.28	Potential UCLs to Use						
1115	AppChi2					11.05	95% KM (Chebyshev) UCL						3.984
1116	95% Gamma Approximate UCL					3.31							
1117	95% Adjusted Gamma UCL					3.601							
1118													
1119													
1120	Chromium												
1121													
1122	General Statistics												
1123	Number of Valid Samples					14	Number of Unique Samples					14	
1124													
1125	Raw Statistics					Log-transformed Statistics							
1126	Minimum					5.3	Minimum of Log Data					1.668	
1127	Maximum					209	Maximum of Log Data					5.342	
1128	Mean					41.34	Mean of log Data					3.267	
1129	Median					28.5	SD of log Data					0.977	
1130	SD					50.92							
1131	Coefficient of Variation					1.232							
1132	Skewness					3.095							
1133													
1134	Relevant UCL Statistics												
1135	Normal Distribution Test					Lognormal Distribution Test							
1136	Shapiro Wilk Test Statistic					0.601	Shapiro Wilk Test Statistic					0.944	
1137	Shapiro Wilk Critical Value					0.874	Shapiro Wilk Critical Value					0.874	
1138	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
1139													
1140	Assuming Normal Distribution					Assuming Lognormal Distribution							
1141	95% Student's-t UCL					65.44	95% H-UCL					89.4	
1142	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					90.14		
1143	95% Adjusted-CLT UCL					75.75	97.5% Chebyshev (MVUE) UCL					111.7	
1144	95% Modified-t UCL					67.31	99% Chebyshev (MVUE) UCL					154	
1145													
1146	Gamma Distribution Test					Nonparametric Test							
1147	k star (bias corrected)					1.022	Data appear Gamma Distributed at 5% Significance Level						
1148	Theta Star					40.43							
1149	nu star					28.62							
1150	Approximate Chi Square Value (.05)					17.41	Nonparametric Statistics						
1151	Adjusted Level of Significance					0.0312	95% CLT UCL					63.72	
1152	Adjusted Chi Square Value					16.26	95% Jackknife UCL					65.44	
1153							95% Standard Bootstrap UCL					62.11	
1154	Anderson-Darling Test Statistic					0.549	95% Bootstrap-t UCL					98.67	
1155	Anderson-Darling 5% Critical Value					0.755	95% Hall's Bootstrap UCL					154.3	
1156	Kolmogorov-Smirnov Test Statistic					0.189	95% Percentile Bootstrap UCL					66.77	
1157	Kolmogorov-Smirnov 5% Critical Value					0.234	95% BCA Bootstrap UCL					75.63	
1158	Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					100.7		
1159							97.5% Chebyshev(Mean, Sd) UCL					126.3	
1160	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					176.8		
1161	95% Approximate Gamma UCL					67.94							
1162	95% Adjusted Gamma UCL					72.76							
1163													
1164	Potential UCL to Use					Use 95% Approximate Gamma UCL					67.94		
1165													
1166													

	A	B	C	D	E	F	G	H	I	J	K	L
1167	Copper											
1168												
1169	General Statistics											
1170	Number of Valid Samples					14	Number of Unique Samples					14
1171												
1172	Raw Statistics					Log-transformed Statistics						
1173	Minimum					5.7	Minimum of Log Data					1.74
1174	Maximum					644	Maximum of Log Data					6.468
1175	Mean					120	Mean of log Data					3.963
1176	Median					47.65	SD of log Data					1.242
1177	SD					196.2						
1178	Coefficient of Variation					1.634						
1179	Skewness					2.312						
1180												
1181	Relevant UCL Statistics											
1182	Normal Distribution Test					Lognormal Distribution Test						
1183	Shapiro Wilk Test Statistic					0.563	Shapiro Wilk Test Statistic					0.926
1184	Shapiro Wilk Critical Value					0.874	Shapiro Wilk Critical Value					0.874
1185	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
1186												
1187	Assuming Normal Distribution					Assuming Lognormal Distribution						
1188	95% Student's-t UCL					212.9	95% H-UCL					345.2
1189	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					272	
1190	95% Adjusted-CLT UCL					240.9	97.5% Chebyshev (MVUE) UCL					344.6
1191	95% Modified-t UCL					218.3	99% Chebyshev (MVUE) UCL					487.1
1192												
1193	Gamma Distribution Test					Nonparametric Test						
1194	k star (bias corrected)					0.62	Data appear Lognormal at 5% Significance Level					
1195	Theta Star					193.5						
1196	nu star					17.37						
1197	Approximate Chi Square Value (.05)					8.937	Nonparametric Statistics					
1198	Adjusted Level of Significance					0.0312	95% CLT UCL					206.3
1199	Adjusted Chi Square Value					8.145	95% Jackknife UCL					212.9
1200							95% Standard Bootstrap UCL					202.4
1201	Anderson-Darling Test Statistic					1.264	95% Bootstrap-t UCL					728.5
1202	Anderson-Darling 5% Critical Value					0.773	95% Hall's Bootstrap UCL					783.9
1203	Kolmogorov-Smirnov Test Statistic					0.294	95% Percentile Bootstrap UCL					208.8
1204	Kolmogorov-Smirnov 5% Critical Value					0.238	95% BCA Bootstrap UCL					243.6
1205	Data not Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					348.6	
1206							97.5% Chebyshev(Mean, Sd) UCL					447.4
1207	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					641.7	
1208	95% Approximate Gamma UCL					233.3						
1209	95% Adjusted Gamma UCL					256						
1210												
1211	Potential UCL to Use					Use 95% Chebyshev (MVUE) UCL					272	
1212												
1213												
1214	Iron											
1215												
1216	General Statistics											
1217	Number of Valid Samples					14	Number of Unique Samples					10
1218												
1219	Raw Statistics					Log-transformed Statistics						

	A	B	C	D	E	F	G	H	I	J	K	L
1220	Minimum					6200	Minimum of Log Data					8.732
1221	Maximum					54500	Maximum of Log Data					10.91
1222	Mean					16962	Mean of log Data					9.466
1223	Median					11000	SD of log Data					0.689
1224	SD					15942						
1225	Coefficient of Variation					0.94						
1226	Skewness					1.956						
1227												
1228	Relevant UCL Statistics											
1229	Normal Distribution Test						Lognormal Distribution Test					
1230	Shapiro Wilk Test Statistic					0.637	Shapiro Wilk Test Statistic					0.807
1231	Shapiro Wilk Critical Value					0.874	Shapiro Wilk Critical Value					0.874
1232	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
1233												
1234	Assuming Normal Distribution						Assuming Lognormal Distribution					
1235	95% Student's-t UCL					24507	95% H-UCL					25532
1236	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					29549
1237	95% Adjusted-CLT UCL					26350	97.5% Chebyshev (MVUE) UCL					35394
1238	95% Modified-t UCL					24878	99% Chebyshev (MVUE) UCL					46875
1239												
1240	Gamma Distribution Test						Nonparametric Test					
1241	k star (bias corrected)					1.604	Data do not follow a Discernable Distribution (0.05)					
1242	Theta Star					10575						
1243	nu star					44.91						
1244	Approximate Chi Square Value (.05)					30.54	Nonparametric Statistics					
1245	Adjusted Level of Significance					0.0312	95% CLT UCL					23970
1246	Adjusted Chi Square Value					28.97	95% Jackknife UCL					24507
1247							95% Standard Bootstrap UCL					23659
1248	Anderson-Darling Test Statistic					1.619	95% Bootstrap-t UCL					37366
1249	Anderson-Darling 5% Critical Value					0.746	95% Hall's Bootstrap UCL					30997
1250	Kolmogorov-Smirnov Test Statistic					0.331	95% Percentile Bootstrap UCL					24083
1251	Kolmogorov-Smirnov 5% Critical Value					0.232	95% BCA Bootstrap UCL					26580
1252	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					35533
1253							97.5% Chebyshev(Mean, Sd) UCL					43569
1254	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					59354
1255	95% Approximate Gamma UCL					24945						
1256	95% Adjusted Gamma UCL					26294						
1257												
1258	Potential UCL to Use						Use 95% Chebyshev (Mean, Sd) UCL					35533
1259												
1260												
1261	Lead											
1262												
1263	General Statistics											
1264	Number of Valid Samples					14	Number of Unique Samples					12
1265												
1266	Raw Statistics						Log-transformed Statistics					
1267	Minimum					10	Minimum of Log Data					2.303
1268	Maximum					5460	Maximum of Log Data					8.605
1269	Mean					728.3	Mean of log Data					4.724
1270	Median					50.88	SD of log Data					2.07
1271	SD					1503						
1272	Coefficient of Variation					2.064						

	A	B	C	D	E	F	G	H	I	J	K	L	
1273	Skewness					2.819							
1274													
1275	Relevant UCL Statistics												
1276	Normal Distribution Test					Lognormal Distribution Test							
1277	Shapiro Wilk Test Statistic					0.554	Shapiro Wilk Test Statistic					0.91	
1278	Shapiro Wilk Critical Value					0.874	Shapiro Wilk Critical Value					0.874	
1279	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
1280													
1281	Assuming Normal Distribution					Assuming Lognormal Distribution							
1282	95% Student's-t UCL					1440	95% H-UCL					15465	
1283	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					2496		
1284	95% Adjusted-CLT UCL					1713	97.5% Chebyshev (MVUE) UCL					3286	
1285	95% Modified-t UCL					1490	99% Chebyshev (MVUE) UCL					4837	
1286													
1287	Gamma Distribution Test					Nonparametric Test							
1288	k star (bias corrected)					0.33	Data appear Lognormal at 5% Significance Level						
1289	Theta Star					2210							
1290	nu star					9.227							
1291	Approximate Chi Square Value (.05)					3.465	Nonparametric Statistics						
1292	Adjusted Level of Significance					0.0312	95% CLT UCL					1389	
1293	Adjusted Chi Square Value					3.012	95% Jackknife UCL					1440	
1294							95% Standard Bootstrap UCL					1367	
1295	Anderson-Darling Test Statistic					0.987	95% Bootstrap-t UCL					3280	
1296	Anderson-Darling 5% Critical Value					0.821	95% Hall's Bootstrap UCL					3692	
1297	Kolmogorov-Smirnov Test Statistic					0.274	95% Percentile Bootstrap UCL					1448	
1298	Kolmogorov-Smirnov 5% Critical Value					0.246	95% BCA Bootstrap UCL					1763	
1299	Data not Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					2480		
1300							97.5% Chebyshev(Mean, Sd) UCL					3238	
1301	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					4726		
1302	95% Approximate Gamma UCL					1940							
1303	95% Adjusted Gamma UCL					2231							
1304													
1305	Potential UCL to Use					Use 99% Chebyshev (MVUE) UCL					4837		
1306													
1307													
1308	Manganese												
1309													
1310	General Statistics												
1311	Number of Valid Samples					14	Number of Unique Samples					14	
1312													
1313	Raw Statistics					Log-transformed Statistics							
1314	Minimum					89	Minimum of Log Data					4.489	
1315	Maximum					666	Maximum of Log Data					6.501	
1316	Mean					220.6	Mean of log Data					5.219	
1317	Median					170	SD of log Data					0.587	
1318	SD					156.1							
1319	Coefficient of Variation					0.708							
1320	Skewness					2.014							
1321													
1322	Relevant UCL Statistics												
1323	Normal Distribution Test					Lognormal Distribution Test							
1324	Shapiro Wilk Test Statistic					0.782	Shapiro Wilk Test Statistic					0.943	
1325	Shapiro Wilk Critical Value					0.874	Shapiro Wilk Critical Value					0.874	

	A	B	C	D	E	F	G	H	I	J	K	L
1326	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1327												
1328	Assuming Normal Distribution						Assuming Lognormal Distribution					
1329	95% Student's-t UCL				294.5		95% H-UCL				314	
1330	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL				370.3	
1331	95% Adjusted-CLT UCL				313.2		97.5% Chebyshev (MVUE) UCL				436.8	
1332	95% Modified-t UCL				298.2		99% Chebyshev (MVUE) UCL				567.4	
1333												
1334	Gamma Distribution Test						Nonparametric Test					
1335	k star (bias corrected)				2.39		Data appear Gamma Distributed at 5% Significance Level					
1336	Theta Star				92.29							
1337	nu star				66.92							
1338	Approximate Chi Square Value (.05)				49.09		Nonparametric Statistics					
1339	Adjusted Level of Significance				0.0312		95% CLT UCL				289.2	
1340	Adjusted Chi Square Value				47.07		95% Jackknife UCL				294.5	
1341							95% Standard Bootstrap UCL				286.4	
1342	Anderson-Darling Test Statistic				0.462		95% Bootstrap-t UCL				336.3	
1343	Anderson-Darling 5% Critical Value				0.743		95% Hall's Bootstrap UCL				572.6	
1344	Kolmogorov-Smirnov Test Statistic				0.145		95% Percentile Bootstrap UCL				293.6	
1345	Kolmogorov-Smirnov 5% Critical Value				0.231		95% BCA Bootstrap UCL				312.5	
1346	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL				402.4	
1347							97.5% Chebyshev(Mean, Sd) UCL				481.1	
1348	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL				635.7	
1349	95% Approximate Gamma UCL				300.7							
1350	95% Adjusted Gamma UCL				313.6							
1351												
1352	Potential UCL to Use						Use 95% Approximate Gamma UCL				300.7	
1353												
1354												
1355	Mercury											
1356												
1357	General Statistics											
1358	Number of Valid Samples				14		Number of Detected Data				13	
1359	Number of Unique Samples				12		Number of Non-Detect Data				1	
1360							Percent Non-Detects				7.14%	
1361												
1362	Raw Statistics						Log-transformed Statistics					
1363	Minimum Detected				0.011		Minimum Detected				-4.51	
1364	Maximum Detected				1.7		Maximum Detected				0.531	
1365	Mean of Detected				0.253		Mean of Detected				-2.213	
1366	SD of Detected				0.449		SD of Detected				1.283	
1367	Minimum Non-Detect				0.012		Minimum Non-Detect				-4.423	
1368	Maximum Non-Detect				0.012		Maximum Non-Detect				-4.423	
1369												
1370												
1371	UCL Statistics											
1372	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1373	Shapiro Wilk Test Statistic				0.518		Shapiro Wilk Test Statistic				0.953	
1374	5% Shapiro Wilk Critical Value				0.866		5% Shapiro Wilk Critical Value				0.866	
1375	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1376												
1377	Assuming Normal Distribution						Assuming Lognormal Distribution					
1378	DL/2 Substitution Method						DL/2 Substitution Method					

	A	B	C	D	E	F	G	H	I	J	K	L
1379	Mean					0.235	Mean					-2.42
1380	SD					0.436	SD					1.457
1381	95% DL/2 (t) UCL					0.441	95% H-Stat (DL/2) UCL					0.975
1382												
1383	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
1384	Mean					0.191	Mean in Log Scale					-2.381
1385	SD					0.466	SD in Log Scale					1.385
1386	95% MLE (t) UCL					0.411	Mean in Original Scale					0.235
1387	95% MLE (Tiku) UCL					0.401	SD in Original Scale					0.436
1388							95% Percentile Bootstrap UCL					0.45
1389							95% BCA Bootstrap UCL					0.575
1390												
1391	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
1392	k star (bias corrected)					0.604	Data Follow Appr. Gamma Distribution at 5% Significance Level					
1393	Theta Star					0.418						
1394	nu star					15.72						
1395												
1396	A-D Test Statistic					0.826	Nonparametric Statistics					
1397	5% A-D Critical Value					0.773	Kaplan-Meier (KM) Method					
1398	K-S Test Statistic					0.773	Mean					0.236
1399	5% K-S Critical Value					0.246	SD					0.42
1400	Data follow approximate Gamma Distribution at 5% Significance Level						SE of Mean					0.117
1401							95% KM (t) UCL					0.442
1402	Assuming Gamma Distribution						95% KM (z) UCL					0.428
1403	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.44
1404	Minimum					0	95% KM (bootstrap t) UCL					0.895
1405	Maximum					1.7	95% KM (BCA) UCL					0.459
1406	Mean					0.234	95% KM (percentile) UCL					0.458
1407	Median					0.08	95% KM (Chebyshev) UCL					0.745
1408	SD					0.437	97.5% KM (Chebyshev) UCL					0.965
1409	k star					0.223	99% KM (Chebyshev) UCL					1.398
1410	Theta star					1.049						
1411	Nu star					6.244	Potential UCLs to Use					
1412	AppChi2					1.766	95% KM (Chebyshev) UCL					0.745
1413	95% Gamma Approximate UCL					0.827						
1414	95% Adjusted Gamma UCL					0.994						
1415												
1416												
1417	Thallium											
1418												
1419	General Statistics											
1420	Number of Valid Samples					14	Number of Detected Data					5
1421	Number of Unique Samples					5	Number of Non-Detect Data					9
1422							Percent Non-Detects					64.29%
1423												
1424	Raw Statistics						Log-transformed Statistics					
1425	Minimum Detected					1.1	Minimum Detected					0.0953
1426	Maximum Detected					7	Maximum Detected					1.946
1427	Mean of Detected					4.11	Mean of Detected					1.135
1428	SD of Detected					2.83	SD of Detected					0.907
1429	Minimum Non-Detect					0.087	Minimum Non-Detect					-2.442
1430	Maximum Non-Detect					0.1	Maximum Non-Detect					-2.303
1431												

	A	B	C	D	E	F	G	H	I	J	K	L	
1432	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					9	
1433	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					5	
1434	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					64.29%	
1435													
1436	UCL Statistics												
1437	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
1438	Shapiro Wilk Test Statistic						0.848	Shapiro Wilk Test Statistic					0.809
1439	5% Shapiro Wilk Critical Value						0.762	5% Shapiro Wilk Critical Value					0.762
1440	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
1441													
1442	Assuming Normal Distribution						Assuming Lognormal Distribution						
1443	DL/2 Substitution Method							DL/2 Substitution Method					
1444	Mean						1.498	Mean					-1.568
1445	SD						2.559	SD					2.151
1446	95% DL/2 (t) UCL						2.709	95% H-Stat (DL/2) UCL					5.142
1447													
1448	Maximum Likelihood Estimate(MLE) Method							Robust ROS Method					
1449	Mean						-1.753	Mean in Log Scale					-0.734
1450	SD						5.47	SD in Log Scale					1.55
1451	95% MLE (t) UCL						0.836	Mean in Original Scale					1.582
1452	95% MLE (Tiku) UCL						2.175	SD in Original Scale					2.508
1453								95% Percentile Bootstrap UCL					2.707
1454								95% BCA Bootstrap UCL					2.898
1455													
1456	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only						
1457	k star (bias corrected)						0.913	Data appear Normal at 5% Significance Level					
1458	Theta Star						4.502						
1459	nu star						9.13						
1460													
1461	A-D Test Statistic						0.552	Nonparametric Statistics					
1462	5% A-D Critical Value						0.685	Kaplan-Meier (KM) Method					
1463	K-S Test Statistic						0.685	Mean					2.175
1464	5% K-S Critical Value						0.361	SD					2.09
1465	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.625	
1466								95% KM (t) UCL					3.281
1467	Assuming Gamma Distribution						95% KM (z) UCL					3.202	
1468	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					3.143	
1469	Minimum						0	95% KM (bootstrap t) UCL					3.145
1470	Maximum						7	95% KM (BCA) UCL					6.629
1471	Mean						1.63	95% KM (percentile) UCL					5.229
1472	Median						0.538	95% KM (Chebyshev) UCL					4.897
1473	SD						2.502	97.5% KM (Chebyshev) UCL					6.075
1474	k star						0.127	99% KM (Chebyshev) UCL					8.389
1475	Theta star						12.87						
1476	Nu star						3.546	Potential UCLs to Use					
1477	AppChi2						0.551	95% KM (t) UCL					3.281
1478	95% Gamma Approximate UCL						10.49	95% KM (Percentile Bootstrap) UCL					5.229
1479	95% Adjusted Gamma UCL						13.72						
1480													
1481													
1482	Vanadium												
1483													
1484	General Statistics												

	A	B	C	D	E	F	G	H	I	J	K	L
1485	Number of Valid Samples					14	Number of Detected Data					13
1486	Number of Unique Samples					13	Number of Non-Detect Data					1
1487							Percent Non-Detects					7.14%
1488												
1489	Raw Statistics						Log-transformed Statistics					
1490	Minimum Detected					6.5	Minimum Detected					1.872
1491	Maximum Detected					101	Maximum Detected					4.615
1492	Mean of Detected					21.02	Mean of Detected					2.748
1493	SD of Detected					24.69	SD of Detected					0.677
1494	Minimum Non-Detect					11	Minimum Non-Detect					2.398
1495	Maximum Non-Detect					11	Maximum Non-Detect					2.398
1496												
1497												
1498	UCL Statistics											
1499	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1500	Shapiro Wilk Test Statistic					0.514	Shapiro Wilk Test Statistic					0.841
1501	5% Shapiro Wilk Critical Value					0.866	5% Shapiro Wilk Critical Value					0.866
1502	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
1503												
1504	Assuming Normal Distribution						Assuming Lognormal Distribution					
1505	DL/2 Substitution Method						DL/2 Substitution Method					
1506	Mean					19.91	Mean					2.673
1507	SD					24.08	SD					0.707
1508	95% DL/2 (t) UCL					31.31	95% H-Stat (DL/2) UCL					29.52
1509												
1510	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
1511	Mean					12.39	Mean in Log Scale					2.7
1512	SD					30.55	SD in Log Scale					0.675
1513	95% MLE (t) UCL					26.85	Mean in Original Scale					20.09
1514	95% MLE (Tiku) UCL					28.08	SD in Original Scale					23.97
1515							95% Percentile Bootstrap UCL					32.16
1516							95% BCA Bootstrap UCL					39.08
1517												
1518	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
1519	k star (bias corrected)					1.458	Data do not follow a Discernable Distribution (0.05)					
1520	Theta Star					14.42						
1521	nu star					37.9						
1522												
1523	A-D Test Statistic					1.367	Nonparametric Statistics					
1524	5% A-D Critical Value					0.746	Kaplan-Meier (KM) Method					
1525	K-S Test Statistic					0.746	Mean					20.15
1526	5% K-S Critical Value					0.24	SD					23.07
1527	Data not Gamma Distributed at 5% Significance Level						SE of Mean					6.419
1528							95% KM (t) UCL					31.52
1529	Assuming Gamma Distribution						95% KM (z) UCL					30.71
1530	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					31.49
1531	Minimum					0	95% KM (bootstrap t) UCL					67.24
1532	Maximum					101	95% KM (BCA) UCL					33.28
1533	Mean					16.99	95% KM (percentile) UCL					32.9
1534	Median					13.8	95% KM (Chebyshev) UCL					48.13
1535	SD					25.86	97.5% KM (Chebyshev) UCL					60.24
1536	k star					0.125	99% KM (Chebyshev) UCL					84.02
1537	Theta star					136.3						

	A	B	C	D	E	F	G	H	I	J	K	L	
1538	Nu star					3.491	Potential UCLs to Use						
1539	AppChi2					0.532	95% KM (Chebyshev) UCL					48.13	
1540	95% Gamma Approximate UCL					111.6							
1541	95% Adjusted Gamma UCL					146.3							
1542													
1543													
1544	Zinc												
1545													
1546	General Statistics												
1547	Number of Valid Samples					14	Number of Unique Samples					14	
1548													
1549	Raw Statistics					Log-transformed Statistics							
1550	Minimum					20	Minimum of Log Data					2.996	
1551	Maximum					2470	Maximum of Log Data					7.812	
1552	Mean					549.5	Mean of log Data					5.389	
1553	Median					164.3	SD of log Data					1.515	
1554	SD					718.4							
1555	Coefficient of Variation					1.307							
1556	Skewness					1.782							
1557													
1558	Relevant UCL Statistics												
1559	Normal Distribution Test					Lognormal Distribution Test							
1560	Shapiro Wilk Test Statistic					0.757	Shapiro Wilk Test Statistic					0.942	
1561	Shapiro Wilk Critical Value					0.874	Shapiro Wilk Critical Value					0.874	
1562	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
1563													
1564	Assuming Normal Distribution					Assuming Lognormal Distribution							
1565	95% Student's-t UCL					889.5	95% H-UCL					3312	
1566	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					1780		
1567	95% Adjusted-CLT UCL					963	97.5% Chebyshev (MVUE) UCL					2292	
1568	95% Modified-t UCL					904.7	99% Chebyshev (MVUE) UCL					3299	
1569													
1570	Gamma Distribution Test					Nonparametric Test							
1571	k star (bias corrected)					0.568	Data appear Gamma Distributed at 5% Significance Level						
1572	Theta Star					967.9							
1573	nu star					15.89							
1574	Approximate Chi Square Value (.05)					7.888	Nonparametric Statistics						
1575	Adjusted Level of Significance					0.0312	95% CLT UCL					865.3	
1576	Adjusted Chi Square Value					7.151	95% Jackknife UCL					889.5	
1577							95% Standard Bootstrap UCL					855.2	
1578	Anderson-Darling Test Statistic					0.534	95% Bootstrap-t UCL					1164	
1579	Anderson-Darling 5% Critical Value					0.779	95% Hall's Bootstrap UCL					1336	
1580	Kolmogorov-Smirnov Test Statistic					0.188	95% Percentile Bootstrap UCL					872	
1581	Kolmogorov-Smirnov 5% Critical Value					0.239	95% BCA Bootstrap UCL					965	
1582	Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					1386		
1583							97.5% Chebyshev(Mean, Sd) UCL					1748	
1584	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					2460		
1585	95% Approximate Gamma UCL					1107							
1586	95% Adjusted Gamma UCL					1221							
1587													
1588	Potential UCL to Use					Use 95% Approximate Gamma UCL					1107		
1589													

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			H:\JCV\Puritan\2007\EPCs\Surface Soil\nunes_ssoil_ucl_data.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(a)pyrene											
10												
11	General Statistics											
12	Number of Valid Samples				17		Number of Unique Samples				13	
13												
14	Raw Statistics						Log-transformed Statistics					
15					Minimum	210					Minimum of Log Data	5.347
16					Maximum	5400					Maximum of Log Data	8.594
17					Mean	2072					Mean of log Data	7.419
18					Median	1900					SD of log Data	0.767
19					SD	1291						
20					Coefficient of Variation	0.623						
21					Skewness	1.249						
22												
23	Relevant UCL Statistics											
24	Normal Distribution Test						Lognormal Distribution Test					
25					Shapiro Wilk Test Statistic	0.867					Shapiro Wilk Test Statistic	0.868
26					Shapiro Wilk Critical Value	0.892					Shapiro Wilk Critical Value	0.892
27	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
28												
29	Assuming Normal Distribution						Assuming Lognormal Distribution					
30					95% Student's-t UCL	2619					95% H-UCL	3514
31	95% UCLs (Adjusted for Skewness)										95% Chebyshev (MVUE) UCL	4090
32					95% Adjusted-CLT UCL	2688					97.5% Chebyshev (MVUE) UCL	4913
33					95% Modified-t UCL	2634					99% Chebyshev (MVUE) UCL	6528
34												
35	Gamma Distribution Test						Nonparametric Test					
36					k star (bias corrected)	2.059	Data do not follow a Discernable Distribution (0.05)					
37					Theta Star	1006						
38					nu star	70.02						
39					Approximate Chi Square Value (.05)	51.75	Nonparametric Statistics					
40					Adjusted Level of Significance	0.0346					95% CLT UCL	2587
41					Adjusted Chi Square Value	50.11					95% Jackknife UCL	2619
42											95% Standard Bootstrap UCL	2576
43					Anderson-Darling Test Statistic	0.755					95% Bootstrap-t UCL	2848
44					Anderson-Darling 5% Critical Value	0.748					95% Hall's Bootstrap UCL	3210
45					Kolmogorov-Smirnov Test Statistic	0.221					95% Percentile Bootstrap UCL	2607
46					Kolmogorov-Smirnov 5% Critical Value	0.211					95% BCA Bootstrap UCL	2714
47	Data not Gamma Distributed at 5% Significance Level										95% Chebyshev(Mean, Sd) UCL	3437
48											97.5% Chebyshev(Mean, Sd) UCL	4028
49	Assuming Gamma Distribution										99% Chebyshev(Mean, Sd) UCL	5188
50					95% Approximate Gamma UCL	2803						
51					95% Adjusted Gamma UCL	2895						
52												
53	Potential UCL to Use										Use 95% Chebyshev (Mean, Sd) UCL	3437

	A	B	C	D	E	F	G	H	I	J	K	L	
54													
55													
56	Benzo(b)fluoranthene												
57													
58	General Statistics												
59	Number of Valid Samples					17	Number of Unique Samples					14	
60													
61	Raw Statistics					Log-transformed Statistics							
62	Minimum					370	Minimum of Log Data					5.914	
63	Maximum					6900	Maximum of Log Data					8.839	
64	Mean					2785	Mean of log Data					7.738	
65	Median					2300	SD of log Data					0.711	
66	SD					1645							
67	Coefficient of Variation					0.591							
68	Skewness					1.087							
69													
70	Relevant UCL Statistics												
71	Normal Distribution Test					Lognormal Distribution Test							
72	Shapiro Wilk Test Statistic					0.917	Shapiro Wilk Test Statistic					0.913	
73	Shapiro Wilk Critical Value					0.892	Shapiro Wilk Critical Value					0.892	
74	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
75													
76	Assuming Normal Distribution					Assuming Lognormal Distribution							
77	95% Student's-t UCL					3482	95% H-UCL					4431	
78	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					5217		
79	95% Adjusted-CLT UCL					3554	97.5% Chebyshev (MVUE) UCL					6219	
80	95% Modified-t UCL					3499	99% Chebyshev (MVUE) UCL					8186	
81													
82	Gamma Distribution Test					Nonparametric Test							
83	k star (bias corrected)					2.292	Data appear Normal at 5% Significance Level						
84	Theta Star					1215							
85	nu star					77.91							
86	Approximate Chi Square Value (.05)					58.58	Nonparametric Statistics						
87	Adjusted Level of Significance					0.0346	95% CLT UCL					3442	
88	Adjusted Chi Square Value					56.82	95% Jackknife UCL					3482	
89							95% Standard Bootstrap UCL					3406	
90	Anderson-Darling Test Statistic					0.364	95% Bootstrap-t UCL					3621	
91	Anderson-Darling 5% Critical Value					0.746	95% Hall's Bootstrap UCL					4088	
92	Kolmogorov-Smirnov Test Statistic					0.145	95% Percentile Bootstrap UCL					3444	
93	Kolmogorov-Smirnov 5% Critical Value					0.211	95% BCA Bootstrap UCL					3518	
94	Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					4525		
95							97.5% Chebyshev(Mean, Sd) UCL					5277	
96	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					6755		
97	95% Approximate Gamma UCL					3705							
98	95% Adjusted Gamma UCL					3819							
99													
100	Potential UCL to Use					Use 95% Student's-t UCL					3482		
101													
102													
103	Benzo[a]anthracene												
104													
105	General Statistics												
106	Number of Valid Samples					17	Number of Unique Samples					13	

	A	B	C	D	E	F	G	H	I	J	K	L		
107														
108	Raw Statistics						Log-transformed Statistics							
109						Minimum	190						Minimum of Log Data	5.247
110						Maximum	5800						Maximum of Log Data	8.666
111						Mean	1980						Mean of log Data	7.349
112						Median	1800						SD of log Data	0.812
113						SD	1312							
114						Coefficient of Variation	0.663							
115						Skewness	1.537							
116														
117	Relevant UCL Statistics													
118	Normal Distribution Test						Lognormal Distribution Test							
119						Shapiro Wilk Test Statistic	0.862						Shapiro Wilk Test Statistic	0.882
120						Shapiro Wilk Critical Value	0.892						Shapiro Wilk Critical Value	0.892
121	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level							
122														
123	Assuming Normal Distribution						Assuming Lognormal Distribution							
124						95% Student's-t UCL	2536						95% H-UCL	3529
125	95% UCLs (Adjusted for Skewness)											95% Chebyshev (MVUE) UCL	4059	
126						95% Adjusted-CLT UCL	2630						97.5% Chebyshev (MVUE) UCL	4902
127						95% Modified-t UCL	2555						99% Chebyshev (MVUE) UCL	6559
128														
129	Gamma Distribution Test						Nonparametric Test							
130						k star (bias corrected)	1.864	Data Follow Appr. Gamma Distribution at 5% Significance Level						
131						Theta Star	1062							
132						nu star	63.38							
133						Approximate Chi Square Value (.05)	46.07	Nonparametric Statistics						
134						Adjusted Level of Significance	0.0346						95% CLT UCL	2503
135						Adjusted Chi Square Value	44.52						95% Jackknife UCL	2536
136													95% Standard Bootstrap UCL	2488
137						Anderson-Darling Test Statistic	0.638						95% Bootstrap-t UCL	2759
138						Anderson-Darling 5% Critical Value	0.749						95% Hall's Bootstrap UCL	3426
139						Kolmogorov-Smirnov Test Statistic	0.234						95% Percentile Bootstrap UCL	2522
140						Kolmogorov-Smirnov 5% Critical Value	0.211						95% BCA Bootstrap UCL	2634
141	Data follow Appr. Gamma Distribution at 5% Significance Level											95% Chebyshev(Mean, Sd) UCL	3367	
142													97.5% Chebyshev(Mean, Sd) UCL	3967
143	Assuming Gamma Distribution											99% Chebyshev(Mean, Sd) UCL	5146	
144						95% Approximate Gamma UCL	2724							
145						95% Adjusted Gamma UCL	2819							
146														
147	Potential UCL to Use											Use 95% Approximate Gamma UCL	2724	
148														
149														
150	Dibenz[a,h]anthracene													
151														
152	General Statistics													
153						Number of Valid Samples	17						Number of Unique Samples	15
154														
155	Raw Statistics						Log-transformed Statistics							
156						Minimum	40						Minimum of Log Data	3.689
157						Maximum	810						Maximum of Log Data	6.697
158						Mean	441.6						Mean of log Data	5.893
159						Median	450						SD of log Data	0.776

	A	B	C	D	E	F	G	H	I	J	K	L	
160	SD					220							
161	Coefficient of Variation					0.498							
162	Skewness					-0.153							
163													
164	Relevant UCL Statistics												
165	Normal Distribution Test					Lognormal Distribution Test							
166	Shapiro Wilk Test Statistic					0.974	Shapiro Wilk Test Statistic					0.826	
167	Shapiro Wilk Critical Value					0.892	Shapiro Wilk Critical Value					0.892	
168	Data appear Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
169													
170	Assuming Normal Distribution					Assuming Lognormal Distribution							
171	95% Student's-t UCL					534.8	95% H-UCL					774.7	
172	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					899.9		
173	95% Adjusted-CLT UCL					527.3	97.5% Chebyshev (MVUE) UCL					1082	
174	95% Modified-t UCL					534.5	99% Chebyshev (MVUE) UCL					1440	
175													
176	Gamma Distribution Test					Nonparametric Test							
177	k star (bias corrected)					2.253	Data appear Normal at 5% Significance Level						
178	Theta Star					196							
179	nu star					76.62							
180	Approximate Chi Square Value (.05)					57.46	Nonparametric Statistics						
181	Adjusted Level of Significance					0.0346	95% CLT UCL					529.4	
182	Adjusted Chi Square Value					55.72	95% Jackknife UCL					534.8	
183							95% Standard Bootstrap UCL					526.4	
184	Anderson-Darling Test Statistic					0.584	95% Bootstrap-t UCL					530.9	
185	Anderson-Darling 5% Critical Value					0.747	95% Hall's Bootstrap UCL					525.7	
186	Kolmogorov-Smirnov Test Statistic					0.143	95% Percentile Bootstrap UCL					525.8	
187	Kolmogorov-Smirnov 5% Critical Value					0.211	95% BCA Bootstrap UCL					521.8	
188	Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					674.2		
189							97.5% Chebyshev(Mean, Sd) UCL					774.8	
190	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					972.5		
191	95% Approximate Gamma UCL					588.9							
192	95% Adjusted Gamma UCL					607.3							
193													
194	Potential UCL to Use					Use 95% Student's-t UCL					534.8		
195													
196													
197	Indeno(1,2,3-cd)pyrene												
198													
199	General Statistics												
200	Number of Valid Samples					17	Number of Unique Samples					13	
201													
202	Raw Statistics					Log-transformed Statistics							
203	Minimum					150	Minimum of Log Data					5.011	
204	Maximum					2800	Maximum of Log Data					7.937	
205	Mean					1305	Mean of log Data					6.988	
206	Median					1300	SD of log Data					0.72	
207	SD					696.5							
208	Coefficient of Variation					0.534							
209	Skewness					0.513							
210													
211	Relevant UCL Statistics												
212	Normal Distribution Test					Lognormal Distribution Test							

	A	B	C	D	E	F	G	H	I	J	K	L
213	Shapiro Wilk Test Statistic					0.961	Shapiro Wilk Test Statistic					0.879
214	Shapiro Wilk Critical Value					0.892	Shapiro Wilk Critical Value					0.892
215	Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
216												
217	Assuming Normal Distribution						Assuming Lognormal Distribution					
218	95% Student's-t UCL					1600	95% H-UCL					2121
219	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					2493
220	95% Adjusted-CLT UCL					1605	97.5% Chebyshev (MVUE) UCL					2976
221	95% Modified-t UCL					1603	99% Chebyshev (MVUE) UCL					3923
222												
223	Gamma Distribution Test						Nonparametric Test					
224	k star (bias corrected)					2.39	Data appear Normal at 5% Significance Level					
225	Theta Star					545.9						
226	nu star					81.26						
227	Approximate Chi Square Value (.05)					61.49	Nonparametric Statistics					
228	Adjusted Level of Significance					0.0346	95% CLT UCL					1583
229	Adjusted Chi Square Value					59.69	95% Jackknife UCL					1600
230							95% Standard Bootstrap UCL					1569
231	Anderson-Darling Test Statistic					0.394	95% Bootstrap-t UCL					1618
232	Anderson-Darling 5% Critical Value					0.746	95% Hall's Bootstrap UCL					1645
233	Kolmogorov-Smirnov Test Statistic					0.175	95% Percentile Bootstrap UCL					1572
234	Kolmogorov-Smirnov 5% Critical Value					0.211	95% BCA Bootstrap UCL					1589
235	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					2041
236							97.5% Chebyshev(Mean, Sd) UCL					2360
237	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					2986
238	95% Approximate Gamma UCL					1724						
239	95% Adjusted Gamma UCL					1776						
240												
241	Potential UCL to Use						Use 95% Student's-t UCL					1600
242												
243												
244	Phenanthrene											
245												
246	General Statistics											
247	Number of Valid Samples					17	Number of Unique Samples					14
248												
249	Raw Statistics						Log-transformed Statistics					
250	Minimum					150	Minimum of Log Data					5.011
251	Maximum					15000	Maximum of Log Data					9.616
252	Mean					2958	Mean of log Data					7.46
253	Median					1800	SD of log Data					1.083
254	SD					3769						
255	Coefficient of Variation					1.274						
256	Skewness					2.592						
257												
258	Relevant UCL Statistics											
259	Normal Distribution Test						Lognormal Distribution Test					
260	Shapiro Wilk Test Statistic					0.621	Shapiro Wilk Test Statistic					0.918
261	Shapiro Wilk Critical Value					0.892	Shapiro Wilk Critical Value					0.892
262	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
263												
264	Assuming Normal Distribution						Assuming Lognormal Distribution					
265	95% Student's-t UCL					4554	95% H-UCL					6676

	A	B	C	D	E	F	G	H	I	J	K	L
266	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					6758
267	95% Adjusted-CLT UCL					5076	97.5% Chebyshev (MVUE) UCL					8398
268	95% Modified-t UCL					4650	99% Chebyshev (MVUE) UCL					11621
269												
270	Gamma Distribution Test						Nonparametric Test					
271	k star (bias corrected)					0.924	Data appear Lognormal at 5% Significance Level					
272	Theta Star					3201						
273	nu star					31.42						
274	Approximate Chi Square Value (.05)					19.61	Nonparametric Statistics					
275	Adjusted Level of Significance					0.0346	95% CLT UCL					4462
276	Adjusted Chi Square Value					18.64	95% Jackknife UCL					4554
277							95% Standard Bootstrap UCL					4418
278	Anderson-Darling Test Statistic					1.082	95% Bootstrap-t UCL					7662
279	Anderson-Darling 5% Critical Value					0.764	95% Hall's Bootstrap UCL					11688
280	Kolmogorov-Smirnov Test Statistic					0.253	95% Percentile Bootstrap UCL					4402
281	Kolmogorov-Smirnov 5% Critical Value					0.215	95% BCA Bootstrap UCL					5304
282	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					6942
283							97.5% Chebyshev(Mean, Sd) UCL					8666
284	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					12053
285	95% Approximate Gamma UCL					4739						
286	95% Adjusted Gamma UCL					4987						
287												
288	Potential UCL to Use						Use 95% Chebyshev (MVUE) UCL					6758
289												
290												
291	Aroclor-1260											
292												
293	General Statistics											
294	Number of Valid Samples					17	Number of Detected Data					12
295	Number of Unique Samples					11	Number of Non-Detect Data					5
296							Percent Non-Detects					29.41%
297												
298	Raw Statistics						Log-transformed Statistics					
299	Minimum Detected					140	Minimum Detected					4.942
300	Maximum Detected					550	Maximum Detected					6.31
301	Mean of Detected					371.3	Mean of Detected					5.862
302	SD of Detected					113.9	SD of Detected					0.373
303	Minimum Non-Detect					35	Minimum Non-Detect					3.555
304	Maximum Non-Detect					39	Maximum Non-Detect					3.664
305												
306	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					5
307	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					12
308	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					29.41%
309												
310	UCL Statistics											
311	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
312	Shapiro Wilk Test Statistic					0.969	Shapiro Wilk Test Statistic					0.883
313	5% Shapiro Wilk Critical Value					0.859	5% Shapiro Wilk Critical Value					0.859
314	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
315												
316	Assuming Normal Distribution						Assuming Lognormal Distribution					
317	DL/2 Substitution Method						DL/2 Substitution Method					
318	Mean					267.5	Mean					4.997

	A	B	C	D	E	F	G	H	I	J	K	L
319	SD					190.6	SD					1.415
320	95% DL/2 (t) UCL					348.3	95% H-Stat (DL/2) UCL					829.1
321												
322	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
323	Mean					233.7	Mean in Log Scale					5.626
324	SD					240	SD in Log Scale					0.489
325	95% MLE (t) UCL					335.3	Mean in Original Scale					308.6
326	95% MLE (Tiku) UCL					344.8	SD in Original Scale					137.7
327							95% Percentile Bootstrap UCL					361.7
328							95% BCA Bootstrap UCL					366
329												
330	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
331	k star (bias corrected)					6.983	Data appear Normal at 5% Significance Level					
332	Theta Star					53.17						
333	nu star					167.6						
334												
335	A-D Test Statistic					0.416	Nonparametric Statistics					
336	5% A-D Critical Value					0.731	Kaplan-Meier (KM) Method					
337	K-S Test Statistic					0.731	Mean					303.2
338	5% K-S Critical Value					0.245	SD					139.6
339	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					35.37
340							95% KM (t) UCL					365
341	Assuming Gamma Distribution						95% KM (z) UCL					361.4
342	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					364.3
343	Minimum					116.8	95% KM (bootstrap t) UCL					356.5
344	Maximum					550	95% KM (BCA) UCL					396.8
345	Mean					314.7	95% KM (percentile) UCL					384.4
346	Median					300	95% KM (Chebyshev) UCL					457.4
347	SD					132.4	97.5% KM (Chebyshev) UCL					524.1
348	k star					4.471	99% KM (Chebyshev) UCL					655.1
349	Theta star					70.4						
350	Nu star					152	Potential UCLs to Use					
351	AppChi2					124.5	95% KM (t) UCL					365
352	95% Gamma Approximate UCL					384.2	95% KM (Percentile Bootstrap) UCL					384.4
353	95% Adjusted Gamma UCL					392.5						
354												
355												
356	Diieldrin											
357												
358	General Statistics											
359	Number of Valid Samples					17	Number of Detected Data					16
360	Number of Unique Samples					16	Number of Non-Detect Data					1
361							Percent Non-Detects					5.88%
362												
363	Raw Statistics						Log-transformed Statistics					
364	Minimum Detected					3.1	Minimum Detected					1.131
365	Maximum Detected					310	Maximum Detected					5.737
366	Mean of Detected					55.09	Mean of Detected					3.253
367	SD of Detected					79.21	SD of Detected					1.3
368	Minimum Non-Detect					3.5	Minimum Non-Detect					1.253
369	Maximum Non-Detect					3.5	Maximum Non-Detect					1.253
370												
371												

	A	B	C	D	E	F	G	H	I	J	K	L	
372	UCL Statistics												
373	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
374	Shapiro Wilk Test Statistic					0.656	Shapiro Wilk Test Statistic					0.98	
375	5% Shapiro Wilk Critical Value					0.887	5% Shapiro Wilk Critical Value					0.887	
376	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
377													
378	Assuming Normal Distribution						Assuming Lognormal Distribution						
379	DL/2 Substitution Method						DL/2 Substitution Method						
380	Mean					51.96	Mean					3.094	
381	SD					77.78	SD					1.418	
382	95% DL/2 (t) UCL					84.89	95% H-Stat (DL/2) UCL					174.4	
383													
384	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method						
385	Mean					42.09	Mean in Log Scale					3.127	
386	SD					86.53	SD in Log Scale					1.362	
387	95% MLE (t) UCL					78.73	Mean in Original Scale					52.03	
388	95% MLE (Tiku) UCL					77.86	SD in Original Scale					77.73	
389							95% Percentile Bootstrap UCL					83.95	
390							95% BCA Bootstrap UCL					94.96	
391													
392	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only						
393	k star (bias corrected)					0.681	Data appear Gamma Distributed at 5% Significance Level						
394	Theta Star					80.93							
395	nu star					21.78							
396													
397	A-D Test Statistic					0.402	Nonparametric Statistics						
398	5% A-D Critical Value					0.773	Kaplan-Meier (KM) Method						
399	K-S Test Statistic					0.773	Mean					52.04	
400	5% K-S Critical Value					0.223	SD					75.4	
401	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					18.89	
402							95% KM (t) UCL					85.01	
403	Assuming Gamma Distribution						95% KM (z) UCL					83.11	
404	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					84.95	
405	Minimum					0	95% KM (bootstrap t) UCL					137.3	
406	Maximum					310	95% KM (BCA) UCL					88.29	
407	Mean					51.48	95% KM (percentile) UCL					84.98	
408	Median					21	95% KM (Chebyshev) UCL					134.4	
409	SD					78.1	97.5% KM (Chebyshev) UCL					170	
410	k star					0.173	99% KM (Chebyshev) UCL					240	
411	Theta star					297.4							
412	Nu star					5.886	Potential UCLs to Use						
413	AppChi2					1.582	95% KM (Chebyshev) UCL					134.4	
414	95% Gamma Approximate UCL					191.6							
415	95% Adjusted Gamma UCL					222.7							
416													
417													
418	Aluminum												
419													
420	General Statistics												
421	Number of Valid Samples					20	Number of Unique Samples					18	
422													
423	Raw Statistics						Log-transformed Statistics						
424	Minimum					3380	Minimum of Log Data					8.126	

	A	B	C	D	E	F	G	H	I	J	K	L
425	Maximum					16300	Maximum of Log Data					9.699
426	Mean					8969	Mean of log Data					8.98
427	Median					9490	SD of log Data					0.525
428	SD					4242						
429	Coefficient of Variation					0.473						
430	Skewness					0.19						
431												
432	Relevant UCL Statistics											
433	Normal Distribution Test					Lognormal Distribution Test						
434	Shapiro Wilk Test Statistic					0.918	Shapiro Wilk Test Statistic					0.91
435	Shapiro Wilk Critical Value					0.905	Shapiro Wilk Critical Value					0.905
436	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
437												
438	Assuming Normal Distribution					Assuming Lognormal Distribution						
439	95% Student's-t UCL					10609	95% H-UCL					11628
440	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					13852	
441	95% Adjusted-CLT UCL					10572	97.5% Chebyshev (MVUE) UCL					15933
442	95% Modified-t UCL					10615	99% Chebyshev (MVUE) UCL					20020
443												
444	Gamma Distribution Test					Nonparametric Test						
445	k star (bias corrected)					3.664	Data appear Normal at 5% Significance Level					
446	Theta Star					2448						
447	nu star					146.6						
448	Approximate Chi Square Value (.05)					119.6	Nonparametric Statistics					
449	Adjusted Level of Significance					0.038	95% CLT UCL					10529
450	Adjusted Chi Square Value					117.7	95% Jackknife UCL					10609
451							95% Standard Bootstrap UCL					10490
452	Anderson-Darling Test Statistic					0.683	95% Bootstrap-t UCL					10556
453	Anderson-Darling 5% Critical Value					0.745	95% Hall's Bootstrap UCL					10441
454	Kolmogorov-Smirnov Test Statistic					0.211	95% Percentile Bootstrap UCL					10531
455	Kolmogorov-Smirnov 5% Critical Value					0.195	95% BCA Bootstrap UCL					10496
456	Data follow Appr. Gamma Distribution at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					13103	
457							97.5% Chebyshev(Mean, Sd) UCL					14892
458	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					18406	
459	95% Approximate Gamma UCL					10992						
460	95% Adjusted Gamma UCL					11172						
461												
462	Potential UCL to Use					Use 95% Student's-t UCL					10609	
463												
464												
465	Arsenic											
466												
467	General Statistics											
468	Number of Valid Samples					20	Number of Unique Samples					20
469												
470	Raw Statistics					Log-transformed Statistics						
471	Minimum					3.3	Minimum of Log Data					1.194
472	Maximum					27.7	Maximum of Log Data					3.321
473	Mean					13.73	Mean of log Data					2.445
474	Median					14.55	SD of log Data					0.652
475	SD					7.318						
476	Coefficient of Variation					0.533						
477	Skewness					0.142						

	A	B	C	D	E	F	G	H	I	J	K	L
478												
479	Relevant UCL Statistics											
480	Normal Distribution Test						Lognormal Distribution Test					
481	Shapiro Wilk Test Statistic					0.946	Shapiro Wilk Test Statistic					0.912
482	Shapiro Wilk Critical Value					0.905	Shapiro Wilk Critical Value					0.905
483	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
484												
485	Assuming Normal Distribution						Assuming Lognormal Distribution					
486	95% Student's-t UCL					16.55	95% H-UCL					19.69
487	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					23.57
488	95% Adjusted-CLT UCL					16.47	97.5% Chebyshev (MVUE) UCL					27.67
489	95% Modified-t UCL					16.56	99% Chebyshev (MVUE) UCL					35.73
490												
491	Gamma Distribution Test						Nonparametric Test					
492	k star (bias corrected)					2.605	Data appear Normal at 5% Significance Level					
493	Theta Star					5.268						
494	nu star					104.2						
495	Approximate Chi Square Value (.05)					81.65	Nonparametric Statistics					
496	Adjusted Level of Significance					0.038	95% CLT UCL					16.42
497	Adjusted Chi Square Value					80.08	95% Jackknife UCL					16.55
498							95% Standard Bootstrap UCL					16.33
499	Anderson-Darling Test Statistic					0.587	95% Bootstrap-t UCL					16.67
500	Anderson-Darling 5% Critical Value					0.747	95% Hall's Bootstrap UCL					16.52
501	Kolmogorov-Smirnov Test Statistic					0.145	95% Percentile Bootstrap UCL					16.18
502	Kolmogorov-Smirnov 5% Critical Value					0.195	95% BCA Bootstrap UCL					16.36
503	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					20.86
504							97.5% Chebyshev(Mean, Sd) UCL					23.94
505	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					30.01
506	95% Approximate Gamma UCL					17.52						
507	95% Adjusted Gamma UCL					17.86						
508												
509	Potential UCL to Use						Use 95% Student's-t UCL					16.55
510												
511												
512	Barium											
513												
514	General Statistics											
515	Number of Valid Samples					20	Number of Detected Data					19
516	Number of Unique Samples					19	Number of Non-Detect Data					1
517							Percent Non-Detects					5.00%
518												
519	Raw Statistics						Log-transformed Statistics					
520	Minimum Detected					21	Minimum Detected					3.045
521	Maximum Detected					546	Maximum Detected					6.303
522	Mean of Detected					166.3	Mean of Detected					4.855
523	SD of Detected					118.4	SD of Detected					0.807
524	Minimum Non-Detect					43	Minimum Non-Detect					3.761
525	Maximum Non-Detect					43	Maximum Non-Detect					3.761
526												
527												
528	UCL Statistics											
529	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
530	Shapiro Wilk Test Statistic					0.85	Shapiro Wilk Test Statistic					0.937

	A	B	C	D	E	F	G	H	I	J	K	L
531	5% Shapiro Wilk Critical Value					0.901	5% Shapiro Wilk Critical Value					0.901
532	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
533												
534	Assuming Normal Distribution						Assuming Lognormal Distribution					
535	DL/2 Substitution Method						DL/2 Substitution Method					
536	Mean				159.1		Mean				4.765	
537	SD				119.7		SD				0.881	
538	95% DL/2 (t) UCL				205.4		95% H-Stat (DL/2) UCL				266.1	
539												
540	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
541	Mean				151		Mean in Log Scale				4.787	
542	SD				129.2		SD in Log Scale				0.841	
543	95% MLE (t) UCL				201		Mean in Original Scale				159.7	
544	95% MLE (Tiku) UCL				200.9		SD in Original Scale				119	
545							95% Percentile Bootstrap UCL				203.5	
546							95% BCA Bootstrap UCL				213	
547												
548	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
549	k star (bias corrected)				1.788		Data appear Gamma Distributed at 5% Significance Level					
550	Theta Star				93.03							
551	nu star				67.94							
552												
553	A-D Test Statistic				0.365		Nonparametric Statistics					
554	5% A-D Critical Value				0.752		Kaplan-Meier (KM) Method					
555	K-S Test Statistic				0.752		Mean				159.3	
556	5% K-S Critical Value				0.201		SD				116.4	
557	Data appear Gamma Distributed at 5% Significance Level						SE of Mean				26.75	
558							95% KM (t) UCL				205.6	
559	Assuming Gamma Distribution						95% KM (z) UCL				203.3	
560	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				205.5	
561	Minimum				0.724		95% KM (bootstrap t) UCL				222.7	
562	Maximum				546		95% KM (BCA) UCL				206.3	
563	Mean				158.5		95% KM (percentile) UCL				203.4	
564	Median				152		95% KM (Chebyshev) UCL				275.9	
565	SD				120.5		97.5% KM (Chebyshev) UCL				326.4	
566	k star				1.089		99% KM (Chebyshev) UCL				425.5	
567	Theta star				145.6							
568	Nu star				43.57		Potential UCLs to Use					
569	AppChi2				29.43		95% KM (Chebyshev) UCL				275.9	
570	95% Gamma Approximate UCL				234.7							
571	95% Adjusted Gamma UCL				242.3							
572												
573												
574	Cadmium											
575												
576	General Statistics											
577	Number of Valid Samples				20		Number of Unique Samples				19	
578												
579	Raw Statistics						Log-transformed Statistics					
580	Minimum				0.13		Minimum of Log Data				-2.04	
581	Maximum				18.7		Maximum of Log Data				2.929	
582	Mean				7.014		Mean of log Data				1.244	
583	Median				6.45		SD of log Data				1.504	

	A	B	C	D	E	F	G	H	I	J	K	L
584	SD					6.117						
585	Coefficient of Variation					0.872						
586	Skewness					0.412						
587												
588	Relevant UCL Statistics											
589	Normal Distribution Test						Lognormal Distribution Test					
590	Shapiro Wilk Test Statistic					0.895	Shapiro Wilk Test Statistic					0.882
591	Shapiro Wilk Critical Value					0.905	Shapiro Wilk Critical Value					0.905
592	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
593												
594	Assuming Normal Distribution						Assuming Lognormal Distribution					
595	95% Student's-t UCL					9.379	95% H-UCL					34.33
596	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					26.61
597	95% Adjusted-CLT UCL					9.398	97.5% Chebyshev (MVUE) UCL					33.95
598	95% Modified-t UCL					9.4	99% Chebyshev (MVUE) UCL					48.35
599												
600	Gamma Distribution Test						Nonparametric Test					
601	k star (bias corrected)					0.745	Data appear Gamma Distributed at 5% Significance Level					
602	Theta Star					9.409						
603	nu star					29.82						
604	Approximate Chi Square Value (.05)					18.35	Nonparametric Statistics					
605	Adjusted Level of Significance					0.038	95% CLT UCL					9.264
606	Adjusted Chi Square Value					17.64	95% Jackknife UCL					9.379
607							95% Standard Bootstrap UCL					9.171
608	Anderson-Darling Test Statistic					0.743	95% Bootstrap-t UCL					9.518
609	Anderson-Darling 5% Critical Value					0.775	95% Hall's Bootstrap UCL					9.342
610	Kolmogorov-Smirnov Test Statistic					0.186	95% Percentile Bootstrap UCL					9.175
611	Kolmogorov-Smirnov 5% Critical Value					0.201	95% BCA Bootstrap UCL					9.227
612	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					12.98
613							97.5% Chebyshev(Mean, Sd) UCL					15.56
614	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					20.62
615	95% Approximate Gamma UCL					11.4						
616	95% Adjusted Gamma UCL					11.86						
617												
618	Potential UCL to Use						Use 95% Approximate Gamma UCL					11.4
619												
620												
621	Chromium											
622												
623	General Statistics											
624	Number of Valid Samples					20	Number of Unique Samples					20
625												
626	Raw Statistics						Log-transformed Statistics					
627	Minimum					11	Minimum of Log Data					2.398
628	Maximum					349	Maximum of Log Data					5.855
629	Mean					144.5	Mean of log Data					4.424
630	Median					157	SD of log Data					1.24
631	SD					118.3						
632	Coefficient of Variation					0.818						
633	Skewness					0.253						
634												
635	Relevant UCL Statistics											
636	Normal Distribution Test						Lognormal Distribution Test					

	A	B	C	D	E	F	G	H	I	J	K	L
637	Shapiro Wilk Test Statistic					0.879	Shapiro Wilk Test Statistic					0.861
638	Shapiro Wilk Critical Value					0.905	Shapiro Wilk Critical Value					0.905
639	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
640												
641	Assuming Normal Distribution						Assuming Lognormal Distribution					
642	95% Student's-t UCL					190.3	95% H-UCL					415.8
643	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					405.8
644	95% Adjusted-CLT UCL					189.6	97.5% Chebyshev (MVUE) UCL					508.2
645	95% Modified-t UCL					190.5	99% Chebyshev (MVUE) UCL					709.4
646												
647	Gamma Distribution Test						Nonparametric Test					
648	k star (bias corrected)					0.921	Data Follow Appr. Gamma Distribution at 5% Significance Level					
649	Theta Star					156.9						
650	nu star					36.85						
651	Approximate Chi Square Value (.05)					23.95	Nonparametric Statistics					
652	Adjusted Level of Significance					0.038	95% CLT UCL					188
653	Adjusted Chi Square Value					23.13	95% Jackknife UCL					190.3
654							95% Standard Bootstrap UCL					187.2
655	Anderson-Darling Test Statistic					1.017	95% Bootstrap-t UCL					193.2
656	Anderson-Darling 5% Critical Value					0.767	95% Hall's Bootstrap UCL					187.9
657	Kolmogorov-Smirnov Test Statistic					0.19	95% Percentile Bootstrap UCL					187.5
658	Kolmogorov-Smirnov 5% Critical Value					0.199	95% BCA Bootstrap UCL					188.6
659	Data follow Appr. Gamma Distribution at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					259.8
660							97.5% Chebyshev(Mean, Sd) UCL					309.7
661	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					407.6
662	95% Approximate Gamma UCL					222.4						
663	95% Adjusted Gamma UCL					230.2						
664												
665	Potential UCL to Use						Use 95% Approximate Gamma UCL					222.4
666												
667												
668	Copper											
669												
670	General Statistics											
671	Number of Valid Samples					20	Number of Unique Samples					18
672												
673	Raw Statistics						Log-transformed Statistics					
674	Minimum					22	Minimum of Log Data					3.091
675	Maximum					831	Maximum of Log Data					6.723
676	Mean					227.1	Mean of log Data					4.979
677	Median					233.5	SD of log Data					1.101
678	SD					194.2						
679	Coefficient of Variation					0.855						
680	Skewness					1.547						
681												
682	Relevant UCL Statistics											
683	Normal Distribution Test						Lognormal Distribution Test					
684	Shapiro Wilk Test Statistic					0.854	Shapiro Wilk Test Statistic					0.895
685	Shapiro Wilk Critical Value					0.905	Shapiro Wilk Critical Value					0.905
686	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
687												
688	Assuming Normal Distribution						Assuming Lognormal Distribution					
689	95% Student's-t UCL					302.2	95% H-UCL					532.3

	A	B	C	D	E	F	G	H	I	J	K	L
690	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL						565.5
691	95% Adjusted-CLT UCL				314.6	97.5% Chebyshev (MVUE) UCL						699.9
692	95% Modified-t UCL				304.7	99% Chebyshev (MVUE) UCL						964
693												
694	Gamma Distribution Test					Nonparametric Test						
695	k star (bias corrected)				1.106	Data appear Gamma Distributed at 5% Significance Level						
696	Theta Star				205.3							
697	nu star				44.24							
698	Approximate Chi Square Value (.05)				29.99	Nonparametric Statistics						
699	Adjusted Level of Significance				0.038	95% CLT UCL						298.5
700	Adjusted Chi Square Value				29.06	95% Jackknife UCL						302.2
701						95% Standard Bootstrap UCL						298
702	Anderson-Darling Test Statistic				0.564	95% Bootstrap-t UCL						321.3
703	Anderson-Darling 5% Critical Value				0.763	95% Hall's Bootstrap UCL						354.2
704	Kolmogorov-Smirnov Test Statistic				0.177	95% Percentile Bootstrap UCL						303.9
705	Kolmogorov-Smirnov 5% Critical Value				0.198	95% BCA Bootstrap UCL						321
706	Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL						416.4
707						97.5% Chebyshev(Mean, Sd) UCL						498.3
708	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL						659.2
709	95% Approximate Gamma UCL				335							
710	95% Adjusted Gamma UCL				345.7							
711												
712	Potential UCL to Use					Use 95% Approximate Gamma UCL						335
713												
714												
715	Iron											
716												
717	General Statistics											
718	Number of Valid Samples				20	Number of Unique Samples						20
719												
720	Raw Statistics					Log-transformed Statistics						
721	Minimum				7600	Minimum of Log Data						8.936
722	Maximum				38800	Maximum of Log Data						10.57
723	Mean				20644	Mean of log Data						9.805
724	Median				21350	SD of log Data						0.544
725	SD				10106							
726	Coefficient of Variation				0.49							
727	Skewness				0.238							
728												
729	Relevant UCL Statistics											
730	Normal Distribution Test					Lognormal Distribution Test						
731	Shapiro Wilk Test Statistic				0.918	Shapiro Wilk Test Statistic						0.904
732	Shapiro Wilk Critical Value				0.905	Shapiro Wilk Critical Value						0.905
733	Data appear Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
734												
735	Assuming Normal Distribution					Assuming Lognormal Distribution						
736	95% Student's-t UCL				24551	95% H-UCL						27109
737	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL						32349
738	95% Adjusted-CLT UCL				24490	97.5% Chebyshev (MVUE) UCL						37332
739	95% Modified-t UCL				24572	99% Chebyshev (MVUE) UCL						47120
740												
741	Gamma Distribution Test					Nonparametric Test						
742	k star (bias corrected)				3.426	Data appear Normal at 5% Significance Level						

	A	B	C	D	E	F	G	H	I	J	K	L	
743	Theta Star					6026							
744	nu star					137							
745	Approximate Chi Square Value (.05)					111	Nonparametric Statistics						
746	Adjusted Level of Significance					0.038	95% CLT UCL					24361	
747	Adjusted Chi Square Value					109.1	95% Jackknife UCL					24551	
748							95% Standard Bootstrap UCL					24225	
749	Anderson-Darling Test Statistic					0.704	95% Bootstrap-t UCL					24554	
750	Anderson-Darling 5% Critical Value					0.746	95% Hall's Bootstrap UCL					24286	
751	Kolmogorov-Smirnov Test Statistic					0.171	95% Percentile Bootstrap UCL					24391	
752	Kolmogorov-Smirnov 5% Critical Value					0.195	95% BCA Bootstrap UCL					24320	
753	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					30494	
754							97.5% Chebyshev(Mean, Sd) UCL					34756	
755	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					43128	
756	95% Approximate Gamma UCL					25489							
757	95% Adjusted Gamma UCL					25921							
758													
759	Potential UCL to Use						Use 95% Student's-t UCL					24551	
760													
761													
762	Lead												
763													
764	General Statistics												
765	Number of Valid Samples					20	Number of Unique Samples					20	
766													
767	Raw Statistics						Log-transformed Statistics						
768	Minimum					28	Minimum of Log Data					3.332	
769	Maximum					2380	Maximum of Log Data					7.775	
770	Mean					393.8	Mean of log Data					5.463	
771	Median					261	SD of log Data					1.036	
772	SD					528.6							
773	Coefficient of Variation					1.342							
774	Skewness					3.229							
775													
776	Relevant UCL Statistics												
777	Normal Distribution Test						Lognormal Distribution Test						
778	Shapiro Wilk Test Statistic					0.569	Shapiro Wilk Test Statistic					0.936	
779	Shapiro Wilk Critical Value					0.905	Shapiro Wilk Critical Value					0.905	
780	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
781													
782	Assuming Normal Distribution						Assuming Lognormal Distribution						
783	95% Student's-t UCL					598.2	95% H-UCL					755.2	
784	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					828.1	
785	95% Adjusted-CLT UCL					679.4	97.5% Chebyshev (MVUE) UCL					1019	
786	95% Modified-t UCL					612.4	99% Chebyshev (MVUE) UCL					1393	
787													
788	Gamma Distribution Test						Nonparametric Test						
789	k star (bias corrected)					0.978	Data appear Lognormal at 5% Significance Level						
790	Theta Star					402.6							
791	nu star					39.12							
792	Approximate Chi Square Value (.05)					25.8	Nonparametric Statistics						
793	Adjusted Level of Significance					0.038	95% CLT UCL					588.2	
794	Adjusted Chi Square Value					24.94	95% Jackknife UCL					598.2	
795							95% Standard Bootstrap UCL					578.2	

	A	B	C	D	E	F	G	H	I	J	K	L
796	Anderson-Darling Test Statistic					0.96	95% Bootstrap-t UCL					1075
797	Anderson-Darling 5% Critical Value					0.766	95% Hall's Bootstrap UCL					1617
798	Kolmogorov-Smirnov Test Statistic					0.225	95% Percentile Bootstrap UCL					605.9
799	Kolmogorov-Smirnov 5% Critical Value					0.199	95% BCA Bootstrap UCL					692.7
800	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					909
801							97.5% Chebyshev(Mean, Sd) UCL					1132
802	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					1570
803	95% Approximate Gamma UCL					597.3						
804	95% Adjusted Gamma UCL					617.7						
805												
806	Potential UCL to Use						Use 95% Chebyshev (MVUE) UCL					828.1
807												
808												
809	Manganese											
810												
811	General Statistics											
812	Number of Valid Samples					20	Number of Unique Samples					19
813												
814	Raw Statistics						Log-transformed Statistics					
815	Minimum					80	Minimum of Log Data					4.382
816	Maximum					1940	Maximum of Log Data					7.57
817	Mean					652.1	Mean of log Data					6.059
818	Median					438	SD of log Data					0.995
819	SD					565.3						
820	Coefficient of Variation					0.867						
821	Skewness					0.904						
822												
823	Relevant UCL Statistics											
824	Normal Distribution Test						Lognormal Distribution Test					
825	Shapiro Wilk Test Statistic					0.871	Shapiro Wilk Test Statistic					0.943
826	Shapiro Wilk Critical Value					0.905	Shapiro Wilk Critical Value					0.905
827	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
828												
829	Assuming Normal Distribution						Assuming Lognormal Distribution					
830	95% Student's-t UCL					870.6	95% H-UCL					1268
831	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					1414
832	95% Adjusted-CLT UCL					887.3	97.5% Chebyshev (MVUE) UCL					1732
833	95% Modified-t UCL					874.9	99% Chebyshev (MVUE) UCL					2358
834												
835	Gamma Distribution Test						Nonparametric Test					
836	k star (bias corrected)					1.164	Data appear Gamma Distributed at 5% Significance Level					
837	Theta Star					560.3						
838	nu star					46.55						
839	Approximate Chi Square Value (.05)					31.89	Nonparametric Statistics					
840	Adjusted Level of Significance					0.038	95% CLT UCL					860
841	Adjusted Chi Square Value					30.94	95% Jackknife UCL					870.6
842							95% Standard Bootstrap UCL					855.9
843	Anderson-Darling Test Statistic					0.483	95% Bootstrap-t UCL					905.3
844	Anderson-Darling 5% Critical Value					0.761	95% Hall's Bootstrap UCL					877.4
845	Kolmogorov-Smirnov Test Statistic					0.136	95% Percentile Bootstrap UCL					868.2
846	Kolmogorov-Smirnov 5% Critical Value					0.198	95% BCA Bootstrap UCL					895.1
847	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					1203
848							97.5% Chebyshev(Mean, Sd) UCL					1441

	A	B	C	D	E	F	G	H	I	J	K	L	
849	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL						1910
850	95% Approximate Gamma UCL					951.7							
851	95% Adjusted Gamma UCL					981.2							
852													
853	Potential UCL to Use						Use 95% Approximate Gamma UCL						951.7
854													
855													
856	Mercury												
857													
858	General Statistics												
859	Number of Valid Samples					20	Number of Unique Samples					19	
860													
861	Raw Statistics						Log-transformed Statistics						
862	Minimum					0.03	Minimum of Log Data					-3.507	
863	Maximum					1	Maximum of Log Data					0	
864	Mean					0.493	Mean of log Data					-1.057	
865	Median					0.52	SD of log Data					1.004	
866	SD					0.33							
867	Coefficient of Variation					0.669							
868	Skewness					0.103							
869													
870	Relevant UCL Statistics												
871	Normal Distribution Test						Lognormal Distribution Test						
872	Shapiro Wilk Test Statistic					0.921	Shapiro Wilk Test Statistic					0.886	
873	Shapiro Wilk Critical Value					0.905	Shapiro Wilk Critical Value					0.905	
874	Data appear Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level						
875													
876	Assuming Normal Distribution						Assuming Lognormal Distribution						
877	95% Student's-t UCL					0.621	95% H-UCL					1.047	
878	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					1.163	
879	95% Adjusted-CLT UCL					0.616	97.5% Chebyshev (MVUE) UCL					1.426	
880	95% Modified-t UCL					0.621	99% Chebyshev (MVUE) UCL					1.943	
881													
882	Gamma Distribution Test						Nonparametric Test						
883	k star (bias corrected)					1.372	Data appear Normal at 5% Significance Level						
884	Theta Star					0.359							
885	nu star					54.88							
886	Approximate Chi Square Value (.05)					38.86	Nonparametric Statistics						
887	Adjusted Level of Significance					0.038	95% CLT UCL					0.614	
888	Adjusted Chi Square Value					37.8	95% Jackknife UCL					0.621	
889							95% Standard Bootstrap UCL					0.609	
890	Anderson-Darling Test Statistic					0.628	95% Bootstrap-t UCL					0.621	
891	Anderson-Darling 5% Critical Value					0.757	95% Hall's Bootstrap UCL					0.611	
892	Kolmogorov-Smirnov Test Statistic					0.174	95% Percentile Bootstrap UCL					0.612	
893	Kolmogorov-Smirnov 5% Critical Value					0.197	95% BCA Bootstrap UCL					0.607	
894	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					0.815	
895							97.5% Chebyshev(Mean, Sd) UCL					0.954	
896	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL						1.227
897	95% Approximate Gamma UCL					0.696							
898	95% Adjusted Gamma UCL					0.716							
899													
900	Potential UCL to Use						Use 95% Student's-t UCL					0.621	
901													

	A	B	C	D	E	F	G	H	I	J	K	L
902												
903	Thallium											
904												
905	General Statistics											
906	Number of Valid Samples					20	Number of Detected Data					14
907	Number of Unique Samples					11	Number of Non-Detect Data					6
908							Percent Non-Detects					30.00%
909												
910	Raw Statistics					Log-transformed Statistics						
911	Minimum Detected					1.1	Minimum Detected					0.0953
912	Maximum Detected					3.3	Maximum Detected					1.194
913	Mean of Detected					1.886	Mean of Detected					0.588
914	SD of Detected					0.606	SD of Detected					0.316
915	Minimum Non-Detect					0.086	Minimum Non-Detect					-2.453
916	Maximum Non-Detect					1.1	Maximum Non-Detect					0.0953
917												
918	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				6	
919	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				14	
920	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				30.00%	
921												
922	UCL Statistics											
923	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
924	Shapiro Wilk Test Statistic					0.931	Shapiro Wilk Test Statistic					0.962
925	5% Shapiro Wilk Critical Value					0.874	5% Shapiro Wilk Critical Value					0.874
926	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
927												
928	Assuming Normal Distribution					Assuming Lognormal Distribution						
929	DL/2 Substitution Method						DL/2 Substitution Method					
930	Mean					1.402	Mean					-0.159
931	SD					0.918	SD					1.379
932	95% DL/2 (t) UCL					1.757	95% H-Stat (DL/2) UCL					4.906
933												
934	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
935	Mean					1.494	Mean in Log Scale					0.364
936	SD					0.805	SD in Log Scale					0.438
937	95% MLE (t) UCL					1.806	Mean in Original Scale					1.576
938	95% MLE (Tiku) UCL					1.826	SD in Original Scale					0.698
939							95% Percentile Bootstrap UCL					1.84
940							95% BCA Bootstrap UCL					1.85
941												
942	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
943	k star (bias corrected)					8.634	Data appear Normal at 5% Significance Level					
944	Theta Star					0.218						
945	nu star					241.7						
946												
947	A-D Test Statistic					0.298	Nonparametric Statistics					
948	5% A-D Critical Value					0.734	Kaplan-Meier (KM) Method					
949	K-S Test Statistic					0.734	Mean					1.65
950	5% K-S Critical Value					0.229	SD					0.607
951	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					0.141	
952							95% KM (t) UCL					1.894
953	Assuming Gamma Distribution					95% KM (z) UCL					1.882	
954	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.877

[illegible]

	A	B	C	D	E	F	G	H	I	J	K	L	
1				General UCL Statistics for Data Sets with Non-Detects									
2	User Selected Options												
3	From File			H:\JCV\Puritan\2006\ucl data\fish\OU2_ucl_data.wst									
4	Full Precision			OFF									
5	Confidence Coefficient			95%									
6	Number of Bootstrap Operations			2000									
7													
8													
9	Aluminum												
10													
11	General Statistics												
12	Number of Valid Samples				48		Number of Detected Data				10		
13	Number of Unique Samples				10		Number of Non-Detect Data				38		
14							Percent Non-Detects				79.17%		
15													
16	Raw Statistics					Log-transformed Statistics							
17	Minimum Detected				1.4		Minimum Detected				0.336		
18	Maximum Detected				5.6		Maximum Detected				1.723		
19	Mean of Detected				2.26		Mean of Detected				0.731		
20	SD of Detected				1.219		SD of Detected				0.391		
21	Minimum Non-Detect				0.96		Minimum Non-Detect				-0.0408		
22	Maximum Non-Detect				2		Maximum Non-Detect				0.693		
23													
24	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				43		
25	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				5		
26	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				89.58%		
27													
28	UCL Statistics												
29	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
30	Shapiro Wilk Test Statistic				0.628		Shapiro Wilk Test Statistic				0.8		
31	5% Shapiro Wilk Critical Value				0.842		5% Shapiro Wilk Critical Value				0.842		
32	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
33													
34	Assuming Normal Distribution					Assuming Lognormal Distribution							
35	DL/2 Substitution Method						DL/2 Substitution Method						
36	Mean				1.042		Mean				-0.125		
37	SD				0.839		SD				0.516		
38	95% DL/2 (t) UCL				1.245		95% H-Stat (DL/2) UCL				1.049		
39													
40	Maximum Likelihood Estimate(MLE) Method							Robust ROS Method					
41	Mean				-0.938		Mean in Log Scale				-0.311		
42	SD				2.287		SD in Log Scale				0.678		
43	95% MLE (t) UCL				-0.384		Mean in Original Scale				0.95		
44	95% MLE (Tiku) UCL				1.355		SD in Original Scale				0.89		
45							95% Percentile Bootstrap UCL				1.168		
46							95% BCA Bootstrap UCL				1.23		
47													
48	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only							
49	k star (bias corrected)				4.318		Data do not follow a Discernable Distribution (0.05)						
50	Theta Star				0.523								
51	nu star				86.36								
52													
53	A-D Test Statistic				1.018		Nonparametric Statistics						

	A	B	C	D	E	F	G	H	I	J	K	L
54	5% A-D Critical Value					0.729	Kaplan-Meier (KM) Method					
55	K-S Test Statistic					0.729	Mean					1.584
56	5% K-S Critical Value					0.267	SD					0.632
57	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0964
58							95% KM (t) UCL					1.746
59	Assuming Gamma Distribution						95% KM (z) UCL					1.743
60	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.713
61	Minimum					0	95% KM (bootstrap t) UCL					1.919
62	Maximum					5.6	95% KM (BCA) UCL					2.002
63	Mean					0.384	95% KM (percentile) UCL					1.877
64	Median					0	95% KM (Chebyshev) UCL					2.004
65	SD					1.004	97.5% KM (Chebyshev) UCL					2.186
66	k star					0.0679	99% KM (Chebyshev) UCL					2.543
67	Theta star					5.662						
68	Nu star					6.518	Potential UCLs to Use					
69	AppChi2					1.91	95% KM (t) UCL					1.746
70	95% Gamma Approximate UCL					1.312	95% KM (% Bootstrap) UCL					1.877
71	95% Adjusted Gamma UCL					1.366						
72												
73												
74	Arsenic											
75												
76	General Statistics											
77	Number of Valid Samples					48	Number of Detected Data					41
78	Number of Unique Samples					29	Number of Non-Detect Data					7
79							Percent Non-Detects					14.58%
80												
81	Raw Statistics						Log-transformed Statistics					
82	Minimum Detected					0.017	Minimum Detected					-4.075
83	Maximum Detected					0.1	Maximum Detected					-2.303
84	Mean of Detected					0.0427	Mean of Detected					-3.246
85	SD of Detected					0.0195	SD of Detected					0.431
86	Minimum Non-Detect					0.017	Minimum Non-Detect					-4.075
87	Maximum Non-Detect					0.02	Maximum Non-Detect					-3.912
88												
89	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					9
90	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					39
91	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					18.75%
92												
93	UCL Statistics											
94	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
95	Shapiro Wilk Test Statistic					0.878	Shapiro Wilk Test Statistic					0.967
96	5% Shapiro Wilk Critical Value					0.941	5% Shapiro Wilk Critical Value					0.941
97	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
98												
99	Assuming Normal Distribution						Assuming Lognormal Distribution					
100	DL/2 Substitution Method						DL/2 Substitution Method					
101	Mean					0.0378	Mean					-3.457
102	SD					0.0216	SD					0.65
103	95% DL/2 (t) UCL					0.043	95% H-Stat (DL/2) UCL					0.0423
104												
105	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
106	Mean					0.0369	Mean in Log Scale					-3.384

	A	B	C	D	E	F	G	H	I	J	K	L
107	SD					0.0229	SD in Log Scale					0.523
108	95% MLE (t) UCL					0.0425	Mean in Original Scale					0.0387
109	95% MLE (Tiku) UCL					0.0426	SD in Original Scale					0.0205
110							95% Percentile Bootstrap UCL					0.0438
111							95% BCA Bootstrap UCL					0.0443
112												
113	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
114	k star (bias corrected)					5.215	Data appear Gamma Distributed at 5% Significance Level					
115	Theta Star					0.00818						
116	nu star					427.6						
117												
118	A-D Test Statistic					0.471	Nonparametric Statistics					
119	5% A-D Critical Value					0.751	Kaplan-Meier (KM) Method					
120	K-S Test Statistic					0.751	Mean					0.0389
121	5% K-S Critical Value					0.138	SD					0.02
122	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.00292
123							95% KM (t) UCL					0.0438
124	Assuming Gamma Distribution						95% KM (z) UCL					0.0437
125	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0436
126	Minimum					0.00148	95% KM (bootstrap t) UCL					0.0445
127	Maximum					0.1	95% KM (BCA) UCL					0.0444
128	Mean					0.0379	95% KM (percentile) UCL					0.0441
129	Median					0.038	95% KM (Chebyshev) UCL					0.0516
130	SD					0.0215	97.5% KM (Chebyshev) UCL					0.0571
131	k star					2.482	99% KM (Chebyshev) UCL					0.0679
132	Theta star					0.0153						
133	Nu star					238.3	Potential UCLs to Use					
134	AppChi2					203.5	95% KM (BCA) UCL					0.0444
135	95% Gamma Approximate UCL					0.0443						
136	95% Adjusted Gamma UCL					0.0446						
137												
138												
139	Cadmium											
140												
141	General Statistics											
142	Number of Valid Samples					48	Number of Detected Data					24
143	Number of Unique Samples					21	Number of Non-Detect Data					24
144							Percent Non-Detects					50.00%
145												
146	Raw Statistics						Log-transformed Statistics					
147	Minimum Detected					0.0067	Minimum Detected					-5.006
148	Maximum Detected					0.21	Maximum Detected					-1.561
149	Mean of Detected					0.0242	Mean of Detected					-4.15
150	SD of Detected					0.0405	SD of Detected					0.757
151	Minimum Non-Detect					0.0051	Minimum Non-Detect					-5.279
152	Maximum Non-Detect					0.0099	Maximum Non-Detect					-4.615
153												
154	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					32
155	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					16
156	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					66.67%
157												
158	UCL Statistics											
159	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					

	A	B	C	D	E	F	G	H	I	J	K	L
160	Shapiro Wilk Test Statistic					0.389	Shapiro Wilk Test Statistic					0.85
161	5% Shapiro Wilk Critical Value					0.916	5% Shapiro Wilk Critical Value					0.916
162	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
163												
164	Assuming Normal Distribution						Assuming Lognormal Distribution					
165	DL/2 Substitution Method						DL/2 Substitution Method					
166	Mean				0.014		Mean				-4.869	
167	SD				0.0302		SD				0.916	
168	95% DL/2 (t) UCL				0.0214		95% H-Stat (DL/2) UCL				0.0151	
169												
170	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
171	Mean				-0.0232		Mean in Log Scale				-5.001	
172	SD				0.0584		SD in Log Scale				1.036	
173	95% MLE (t) UCL				-0.00909		Mean in Original Scale				0.0136	
174	95% MLE (Tiku) UCL				0.0004104		SD in Original Scale				0.0303	
175							95% Percentile Bootstrap UCL				0.0216	
176							95% BCA Bootstrap UCL				0.0271	
177												
178	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
179	k star (bias corrected)				1.169		Data do not follow a Discernable Distribution (0.05)					
180	Theta Star				0.0207							
181	nu star				56.12							
182												
183	A-D Test Statistic				2.111		Nonparametric Statistics					
184	5% A-D Critical Value				0.766		Kaplan-Meier (KM) Method					
185	K-S Test Statistic				0.766		Mean				0.0156	
186	5% K-S Critical Value				0.182		SD				0.0294	
187	Data not Gamma Distributed at 5% Significance Level						SE of Mean				0.00433	
188							95% KM (t) UCL				0.0228	
189	Assuming Gamma Distribution						95% KM (z) UCL				0.0227	
190	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL				0.0227	
191	Minimum				0		95% KM (bootstrap t) UCL				0.0399	
192	Maximum				0.21		95% KM (BCA) UCL				0.0249	
193	Mean				0.0108		95% KM (percentile) UCL				0.0235	
194	Median				0		95% KM (Chebyshev) UCL				0.0344	
195	SD				0.0312		97.5% KM (Chebyshev) UCL				0.0426	
196	k star				0.0881		99% KM (Chebyshev) UCL				0.0586	
197	Theta star				0.122							
198	Nu star				8.455		Potential UCLs to Use					
199	AppChi2				3.001		95% KM (t) UCL				0.0228	
200	95% Gamma Approximate UCL				0.0303		95% KM (% Bootstrap) UCL				0.0235	
201	95% Adjusted Gamma UCL				0.0313							
202												
203												
204	Chromium											
205												
206	General Statistics											
207	Number of Valid Samples				48		Number of Unique Samples				36	
208												
209	Raw Statistics						Log-transformed Statistics					
210	Minimum				0.39		Minimum of Log Data				-0.942	
211	Maximum				10		Maximum of Log Data				2.303	
212	Mean				2.211		Mean of log Data				0.399	

	A	B	C	D	E	F	G	H	I	J	K	L
213	Median					1.4	SD of log Data					0.865
214	SD					2.324						
215	Coefficient of Variation					1.051						
216	Skewness					2.292						
217												
218	Relevant UCL Statistics											
219	Normal Distribution Test						Lognormal Distribution Test					
220	Shapiro Wilk Test Statistic					0.701	Shapiro Wilk Test Statistic					0.945
221	Shapiro Wilk Critical Value					0.947	Shapiro Wilk Critical Value					0.947
222	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
223												
224	Assuming Normal Distribution						Assuming Lognormal Distribution					
225	95% Student's-t UCL					2.774	95% H-UCL					2.855
226	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					3.469
227	95% Adjusted-CLT UCL					2.881	97.5% Chebyshev (MVUE) UCL					4.043
228	95% Modified-t UCL					2.792	99% Chebyshev (MVUE) UCL					5.17
229												
230	Gamma Distribution Test						Nonparametric Test					
231	k star (bias corrected)					1.338	Data Follow Appr. Gamma Distribution at 5% Significance Level					
232	Theta Star					1.652						
233	nu star					128.5						
234	Approximate Chi Square Value (.05)					103.3	Nonparametric Statistics					
235	Adjusted Level of Significance					0.045	95% CLT UCL					2.762
236	Adjusted Chi Square Value					102.6	95% Jackknife UCL					2.774
237							95% Standard Bootstrap UCL					2.747
238	Anderson-Darling Test Statistic					1.257	95% Bootstrap-t UCL					2.98
239	Anderson-Darling 5% Critical Value					0.769	95% Hall's Bootstrap UCL					2.935
240	Kolmogorov-Smirnov Test Statistic					0.119	95% Percentile Bootstrap UCL					2.803
241	Kolmogorov-Smirnov 5% Critical Value					0.13	95% BCA Bootstrap UCL					2.85
242	Data follow Appr. Gamma Distribution at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					3.673
243							97.5% Chebyshev(Mean, Sd) UCL					4.306
244	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					5.549
245	95% Approximate Gamma UCL					2.75						
246	95% Adjusted Gamma UCL					2.768						
247												
248	Potential UCL to Use						Use 95% Approximate Gamma UCL					2.75
249												
250												
251	Cobalt											
252												
253	General Statistics											
254	Number of Valid Samples					48	Number of Detected Data					46
255	Number of Unique Samples					28	Number of Non-Detect Data					2
256							Percent Non-Detects					4.17%
257												
258	Raw Statistics						Log-transformed Statistics					
259	Minimum Detected					0.008	Minimum Detected					-4.828
260	Maximum Detected					0.084	Maximum Detected					-2.477
261	Mean of Detected					0.0216	Mean of Detected					-4.034
262	SD of Detected					0.0169	SD of Detected					0.593
263	Minimum Non-Detect					0.0087	Minimum Non-Detect					-4.744
264	Maximum Non-Detect					0.0099	Maximum Non-Detect					-4.615
265												

A	B	C	D	E	F	G	H	I	J	K	L
266	Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect					8
267	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),					Number treated as Detected					40
268	those Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage					16.67%
269											
270	UCL Statistics										
271	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only					
272	Shapiro Wilk Test Statistic				0.716	Shapiro Wilk Test Statistic				0.913	
273	5% Shapiro Wilk Critical Value				0.945	5% Shapiro Wilk Critical Value				0.945	
274	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level					
275											
276	Assuming Normal Distribution					Assuming Lognormal Distribution					
277	DL/2 Substitution Method					DL/2 Substitution Method					
278	Mean				0.0209	Mean				-4.09	
279	SD				0.0169	SD				0.64	
280	95% DL/2 (t) UCL				0.025	95% H-Stat (DL/2) UCL				0.0243	
281											
282	Maximum Likelihood Estimate(MLE) Method					Robust ROS Method					
283	Mean				0.0193	Mean in Log Scale				-4.074	
284	SD				0.0188	SD in Log Scale				0.611	
285	95% MLE (t) UCL				0.0239	Mean in Original Scale				0.021	
286	95% MLE (Tiku) UCL				0.0237	SD in Original Scale				0.0168	
287						95% Percentile Bootstrap UCL				0.0253	
288						95% BCA Bootstrap UCL				0.0263	
289											
290	Gamma Distribution Test with Detected Values Only					Nonparametric Test with Detected Values Only					
291	k star (bias corrected)				2.48	Data do not follow a Discernable Distribution (0.05)					
292	Theta Star				0.00873						
293	nu star				228.2						
294											
295	A-D Test Statistic				2.017	Nonparametric Statistics					
296	5% A-D Critical Value				0.758	Kaplan-Meier (KM) Method					
297	K-S Test Statistic				0.758	Mean				0.0211	
298	5% K-S Critical Value				0.132	SD				0.0166	
299	Data not Gamma Distributed at 5% Significance Level					SE of Mean				0.00242	
300						95% KM (t) UCL				0.0252	
301	Assuming Gamma Distribution					95% KM (z) UCL				0.0251	
302	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL				0.0252	
303	Minimum				0	95% KM (bootstrap t) UCL				0.0267	
304	Maximum				0.084	95% KM (BCA) UCL				0.0253	
305	Mean				0.0198	95% KM (percentile) UCL				0.0251	
306	Median				0.015	95% KM (Chebyshev) UCL				0.0317	
307	SD				0.018	97.5% KM (Chebyshev) UCL				0.0362	
308	k star				0.342	99% KM (Chebyshev) UCL				0.0452	
309	Theta star				0.0577						
310	Nu star				32.88	Potential UCLs to Use					
311	AppChi2				20.77	95% KM (Chebyshev) UCL				0.0317	
312	95% Gamma Approximate UCL				0.0313						
313	95% Adjusted Gamma UCL				0.0317						
314											
315											
316	Iron										
317											
318	General Statistics										

	A	B	C	D	E	F	G	H	I	J	K	L	
319	Number of Valid Samples					48	Number of Unique Samples					27	
320													
321	Raw Statistics					Log-transformed Statistics							
322	Minimum					3.9	Minimum of Log Data					1.361	
323	Maximum					210	Maximum of Log Data					5.347	
324	Mean					23.04	Mean of log Data					2.855	
325	Median					17	SD of log Data					0.649	
326	SD					29.66							
327	Coefficient of Variation					1.287							
328	Skewness					5.574							
329													
330	Relevant UCL Statistics												
331	Normal Distribution Test					Lognormal Distribution Test							
332	Shapiro Wilk Test Statistic					0.439	Shapiro Wilk Test Statistic					0.933	
333	Shapiro Wilk Critical Value					0.947	Shapiro Wilk Critical Value					0.947	
334	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
335													
336	Assuming Normal Distribution					Assuming Lognormal Distribution							
337	95% Student's-t UCL					30.22	95% H-UCL					25.92	
338	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					30.78		
339	95% Adjusted-CLT UCL					33.76	97.5% Chebyshev (MVUE) UCL					34.86	
340	95% Modified-t UCL					30.79	99% Chebyshev (MVUE) UCL					42.88	
341													
342	Gamma Distribution Test					Nonparametric Test							
343	k star (bias corrected)					1.818	Data do not follow a Discernable Distribution (0.05)						
344	Theta Star					12.67							
345	nu star					174.5							
346	Approximate Chi Square Value (.05)					145	Nonparametric Statistics						
347	Adjusted Level of Significance					0.045	95% CLT UCL					30.08	
348	Adjusted Chi Square Value					144.1	95% Jackknife UCL					30.22	
349							95% Standard Bootstrap UCL					30.17	
350	Anderson-Darling Test Statistic					2.387	95% Bootstrap-t UCL					40.64	
351	Anderson-Darling 5% Critical Value					0.763	95% Hall's Bootstrap UCL					57.07	
352	Kolmogorov-Smirnov Test Statistic					0.176	95% Percentile Bootstrap UCL					30.53	
353	Kolmogorov-Smirnov 5% Critical Value					0.13	95% BCA Bootstrap UCL					35.37	
354	Data not Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					41.7		
355							97.5% Chebyshev(Mean, Sd) UCL					49.77	
356	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					65.63		
357	95% Approximate Gamma UCL					27.73							
358	95% Adjusted Gamma UCL					27.89							
359													
360	Potential UCL to Use					Use 95% Chebyshev (Mean, Sd) UCL					41.7		
361													
362													
363	Lead												
364													
365	General Statistics												
366	Number of Valid Samples					48	Number of Detected Data					3	
367	Number of Unique Samples					3	Number of Non-Detect Data					45	
368							Percent Non-Detects					93.75%	
369													
370	Raw Statistics					Log-transformed Statistics							
371	Minimum Detected					0.016	Minimum Detected					-4.135	

	A	B	C	D	E	F	G	H	I	J	K	L
372	Maximum Detected					0.2	Maximum Detected					-1.609
373	Mean of Detected					0.0843	Mean of Detected					-3.014
374	SD of Detected					0.101	SD of Detected					1.286
375	Minimum Non-Detect					0.012	Minimum Non-Detect					-4.423
376	Maximum Non-Detect					0.02	Maximum Non-Detect					-3.912
377												
378	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					46
379	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					2
380	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					95.83%
381												
382	UCL Statistics											
383	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
384	Shapiro Wilk Test Statistic					0.834	Shapiro Wilk Test Statistic					0.964
385	5% Shapiro Wilk Critical Value					0.767	5% Shapiro Wilk Critical Value					0.767
386	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
387												
388	Assuming Normal Distribution					Assuming Lognormal Distribution						
389	DL/2 Substitution Method						DL/2 Substitution Method					
390	Mean					0.0123	Mean					-4.785
391	SD					0.028	SD					0.553
392	95% DL/2 (t) UCL					0.0191	95% H-Stat (DL/2) UCL					0.0105
393												
394	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
395							Mean in Log Scale					-10.62
396							SD in Log Scale					3.334
397							Mean in Original Scale					0.00544
398							SD in Original Scale					0.0293
399							95% Percentile Bootstrap UCL					0.0135
400							95% BCA Bootstrap UCL					0.0183
401												
402	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
403	k star (bias corrected)					N/A	Data appear Normal at 5% Significance Level					
404	Theta Star					N/A						
405	nu star					N/A						
406												
407	A-D Test Statistic					0.351	Nonparametric Statistics					
408	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
409	K-S Test Statistic					N/A	Mean					0.0203
410	5% K-S Critical Value					N/A	SD					0.0264
411	Data not Gamma Distributed at 5% Significance Level					SE of Mean					0.00466	
412							95% KM (t) UCL					0.0281
413	Assuming Gamma Distribution					95% KM (z) UCL					0.0279	
414	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.0344
415	Minimum					N/A	95% KM (bootstrap t) UCL					0.0437
416	Maximum					N/A	95% KM (BCA) UCL					1E+31
417	Mean					N/A	95% KM (percentile) UCL					0.2
418	Median					N/A	95% KM (Chebyshev) UCL					0.0406
419	SD					N/A	97.5% KM (Chebyshev) UCL					0.0494
420	k star					N/A	99% KM (Chebyshev) UCL					0.0667
421	Theta star					N/A						
422	Nu star					N/A	Potential UCLs to Use					
423	AppChi2					N/A	95% KM (t) UCL					0.0281
424	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					0.2

	A	B	C	D	E	F	G	H	I	J	K	L	
425	95% Adjusted Gamma UCL					N/A							
426													
427													
428	Mercury												
429													
430	General Statistics												
431	Number of Valid Samples				48	Number of Unique Samples						33	
432													
433	Raw Statistics					Log-transformed Statistics							
434	Minimum				0.027	Minimum of Log Data						-3.612	
435	Maximum				0.19	Maximum of Log Data						-1.661	
436	Mean				0.0931	Mean of log Data						-2.489	
437	Median				0.0865	SD of log Data						0.508	
438	SD				0.0428								
439	Coefficient of Variation				0.46								
440	Skewness				0.487								
441													
442	Relevant UCL Statistics												
443	Normal Distribution Test					Lognormal Distribution Test							
444	Shapiro Wilk Test Statistic				0.951	Shapiro Wilk Test Statistic						0.952	
445	Shapiro Wilk Critical Value				0.947	Shapiro Wilk Critical Value						0.947	
446	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
447													
448	Assuming Normal Distribution					Assuming Lognormal Distribution							
449	95% Student's-t UCL				0.104	95% H-UCL						0.109	
450	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL						0.126	
451	95% Adjusted-CLT UCL				0.104	97.5% Chebyshev (MVUE) UCL						0.139	
452	95% Modified-t UCL				0.104	99% Chebyshev (MVUE) UCL						0.166	
453													
454	Gamma Distribution Test					Nonparametric Test							
455	k star (bias corrected)				4.22	Data appear Normal at 5% Significance Level							
456	Theta Star				0.0221								
457	nu star				405.2								
458	Approximate Chi Square Value (.05)				359.5	Nonparametric Statistics							
459	Adjusted Level of Significance				0.045	95% CLT UCL						0.103	
460	Adjusted Chi Square Value				358.2	95% Jackknife UCL						0.104	
461						95% Standard Bootstrap UCL						0.103	
462	Anderson-Darling Test Statistic				0.264	95% Bootstrap-t UCL						0.104	
463	Anderson-Darling 5% Critical Value				0.753	95% Hall's Bootstrap UCL						0.104	
464	Kolmogorov-Smirnov Test Statistic				0.0937	95% Percentile Bootstrap UCL						0.103	
465	Kolmogorov-Smirnov 5% Critical Value				0.128	95% BCA Bootstrap UCL						0.103	
466	Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL						0.12	
467						97.5% Chebyshev(Mean, Sd) UCL						0.132	
468	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL						0.155	
469	95% Approximate Gamma UCL				0.105								
470	95% Adjusted Gamma UCL				0.105								
471													
472	Potential UCL to Use					Use 95% Student's-t UCL						0.104	
473													
474													
475	Nickel												
476													
477	General Statistics												

	A	B	C	D	E	F	G	H	I	J	K	L
478	Number of Valid Samples					48	Number of Unique Samples					38
479												
480	Raw Statistics					Log-transformed Statistics						
481	Minimum				0.095	Minimum of Log Data					-2.354	
482	Maximum				5.4	Maximum of Log Data					1.686	
483	Mean				1.132	Mean of log Data					-0.362	
484	Median				0.74	SD of log Data					1.005	
485	SD				1.261							
486	Coefficient of Variation				1.114							
487	Skewness				2.264							
488												
489	Relevant UCL Statistics											
490	Normal Distribution Test					Lognormal Distribution Test						
491	Shapiro Wilk Test Statistic				0.713	Shapiro Wilk Test Statistic					0.973	
492	Shapiro Wilk Critical Value				0.947	Shapiro Wilk Critical Value					0.947	
493	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
494												
495	Assuming Normal Distribution					Assuming Lognormal Distribution						
496	95% Student's-t UCL				1.437	95% H-UCL					1.624	
497	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					1.981	
498	95% Adjusted-CLT UCL				1.495	97.5% Chebyshev (MVUE) UCL					2.347	
499	95% Modified-t UCL				1.447	99% Chebyshev (MVUE) UCL					3.065	
500												
501	Gamma Distribution Test					Nonparametric Test						
502	k star (bias corrected)				1.109	Data appear Gamma Distributed at 5% Significance Level						
503	Theta Star				1.02							
504	nu star				106.5							
505	Approximate Chi Square Value (.05)				83.66	Nonparametric Statistics						
506	Adjusted Level of Significance				0.045	95% CLT UCL					1.431	
507	Adjusted Chi Square Value				83.04	95% Jackknife UCL					1.437	
508						95% Standard Bootstrap UCL					1.43	
509	Anderson-Darling Test Statistic				0.727	95% Bootstrap-t UCL					1.536	
510	Anderson-Darling 5% Critical Value				0.775	95% Hall's Bootstrap UCL					1.513	
511	Kolmogorov-Smirnov Test Statistic				0.115	95% Percentile Bootstrap UCL					1.456	
512	Kolmogorov-Smirnov 5% Critical Value				0.131	95% BCA Bootstrap UCL					1.504	
513	Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					1.925	
514						97.5% Chebyshev(Mean, Sd) UCL					2.268	
515	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL						
516	95% Approximate Gamma UCL				1.44							
517	95% Adjusted Gamma UCL				1.451							
518												
519	Potential UCL to Use					Use 95% Approximate Gamma UCL					1.44	
520												
521												
522	Selenium											
523												
524	General Statistics											
525	Number of Valid Samples				48	Number of Unique Samples					28	
526												
527	Raw Statistics					Log-transformed Statistics						
528	Minimum				0.29	Minimum of Log Data					-1.238	
529	Maximum				0.67	Maximum of Log Data					-0.4	
530	Mean				0.443	Mean of log Data					-0.837	

	A	B	C	D	E	F	G	H	I	J	K	L
531	Median					0.425	SD of log Data					0.214
532	SD					0.096						
533	Coefficient of Variation					0.217						
534	Skewness					0.507						
535												
536	Relevant UCL Statistics											
537	Normal Distribution Test						Lognormal Distribution Test					
538	Shapiro Wilk Test Statistic					0.949	Shapiro Wilk Test Statistic					0.965
539	Shapiro Wilk Critical Value					0.947	Shapiro Wilk Critical Value					0.947
540	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
541												
542	Assuming Normal Distribution						Assuming Lognormal Distribution					
543	95% Student's-t UCL					0.466	95% H-UCL					0.467
544	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					0.503
545	95% Adjusted-CLT UCL					0.467	97.5% Chebyshev (MVUE) UCL					0.529
546	95% Modified-t UCL					0.466	99% Chebyshev (MVUE) UCL					0.58
547												
548	Gamma Distribution Test						Nonparametric Test					
549	k star (bias corrected)					20.91	Data appear Normal at 5% Significance Level					
550	Theta Star					0.0212						
551	nu star					2008						
552	Approximate Chi Square Value (.05)					1905	Nonparametric Statistics					
553	Adjusted Level of Significance					0.045	95% CLT UCL					0.466
554	Adjusted Chi Square Value					1902	95% Jackknife UCL					0.466
555							95% Standard Bootstrap UCL					0.465
556	Anderson-Darling Test Statistic					0.413	95% Bootstrap-t UCL					0.467
557	Anderson-Darling 5% Critical Value					0.748	95% Hall's Bootstrap UCL					0.468
558	Kolmogorov-Smirnov Test Statistic					0.0875	95% Percentile Bootstrap UCL					0.465
559	Kolmogorov-Smirnov 5% Critical Value					0.128	95% BCA Bootstrap UCL					0.465
560	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					0.503
561							97.5% Chebyshev(Mean, Sd) UCL					0.529
562	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					0.581
563	95% Approximate Gamma UCL					0.467						
564	95% Adjusted Gamma UCL					0.467						
565												
566	Potential UCL to Use						Use 95% Student's-t UCL					0.466
567												
568												
569	Vanadium											
570												
571	General Statistics											
572	Number of Valid Samples					48	Number of Detected Data					21
573	Number of Unique Samples					17	Number of Non-Detect Data					27
574							Percent Non-Detects					56.25%
575												
576	Raw Statistics						Log-transformed Statistics					
577	Minimum Detected					0.039	Minimum Detected					-3.244
578	Maximum Detected					0.27	Maximum Detected					-1.309
579	Mean of Detected					0.078	Mean of Detected					-2.676
580	SD of Detected					0.0499	SD of Detected					0.472
581	Minimum Non-Detect					0.024	Minimum Non-Detect					-3.73
582	Maximum Non-Detect					0.049	Maximum Non-Detect					-3.016
583												

	A	B	C	D	E	F	G	H	I	J	K	L
584	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					33
585	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					15
586	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					68.75%
587												
588	UCL Statistics											
589	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
590	Shapiro Wilk Test Statistic				0.661	Shapiro Wilk Test Statistic				0.897		
591	5% Shapiro Wilk Critical Value				0.908	5% Shapiro Wilk Critical Value				0.908		
592	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
593												
594	Assuming Normal Distribution						Assuming Lognormal Distribution					
595	DL/2 Substitution Method					DL/2 Substitution Method						
596	Mean				0.0434	Mean				-3.493		
597	SD				0.0449	SD				0.807		
598	95% DL/2 (t) UCL				0.0543	95% H-Stat (DL/2) UCL				0.0454		
599												
600	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
601	Mean				0.00646	Mean in Log Scale				-3.384		
602	SD				0.0795	SD in Log Scale				0.726		
603	95% MLE (t) UCL				0.0257	Mean in Original Scale				0.0454		
604	95% MLE (Tiku) UCL				0.0393	SD in Original Scale				0.0437		
605						95% Percentile Bootstrap UCL				0.0559		
606						95% BCA Bootstrap UCL				0.0601		
607												
608	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only					
609	k star (bias corrected)				3.611	Data Follow Appr. Gamma Distribution at 5% Significance Level						
610	Theta Star				0.0216							
611	nu star				151.7							
612												
613	A-D Test Statistic				0.819	Nonparametric Statistics						
614	5% A-D Critical Value				0.747	Kaplan-Meier (KM) Method						
615	K-S Test Statistic				0.747	Mean				0.0561		
616	5% K-S Critical Value				0.19	SD				0.0375		
617	Data follow approximate Gamma Distribution at 5% Significance Level						SE of Mean				0.00555	
618						95% KM (t) UCL				0.0654		
619	Assuming Gamma Distribution						95% KM (z) UCL				0.0652	
620	Gamma ROS Statistics using Extrapolated Data					95% KM (jackknife) UCL				0.0653		
621	Minimum				0	95% KM (bootstrap t) UCL				0.0718		
622	Maximum				0.27	95% KM (BCA) UCL				0.0667		
623	Mean				0.0331	95% KM (percentile) UCL				0.0659		
624	Median				0.00646	95% KM (Chebyshev) UCL				0.0803		
625	SD				0.0504	97.5% KM (Chebyshev) UCL				0.0908		
626	k star				0.111	99% KM (Chebyshev) UCL				0.111		
627	Theta star				0.3							
628	Nu star				10.62	Potential UCLs to Use						
629	AppChi2				4.33	95% KM (t) UCL				0.0654		
630	95% Gamma Approximate UCL				0.0812							
631	95% Adjusted Gamma UCL				0.0836							
632												

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			U:\JCV\Puritan\2006\ucl data\fish\OU2_ucl_data.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(a)pyrene											
10												
11	General Statistics											
12	Number of Valid Samples				48		Number of Detected Data				3	
13	Number of Unique Samples				3		Number of Non-Detect Data				45	
14							Percent Non-Detects				93.75%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				8.6		Minimum Detected				2.152	
18	Maximum Detected				13		Maximum Detected				2.565	
19	Mean of Detected				11.2		Mean of Detected				2.401	
20	SD of Detected				2.307		SD of Detected				0.219	
21	Minimum Non-Detect				7.2		Minimum Non-Detect				1.974	
22	Maximum Non-Detect				7.7		Maximum Non-Detect				2.041	
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				45	
25	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				3	
26	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				93.75%	
27												
28	UCL Statistics											
29	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
30	Shapiro Wilk Test Statistic				0.91		Shapiro Wilk Test Statistic				0.889	
31	5% Shapiro Wilk Critical Value				0.767		5% Shapiro Wilk Critical Value				0.767	
32	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
33												
34	Assuming Normal Distribution					Assuming Lognormal Distribution						
35	DL/2 Substitution Method						DL/2 Substitution Method					
36	Mean				4.182		Mean				1.38	
37	SD				1.893		SD				0.27	
38	95% DL/2 (t) UCL				4.641		95% H-Stat (DL/2) UCL				4.246	
39												
40	Maximum Likelihood Estimate(MLE) Method					Robust ROS Method						
41	Mean				-3.68		Mean in Log Scale				0.873	
42	SD				7.458		SD in Log Scale				0.697	
43	95% MLE (t) UCL				-1.874		Mean in Original Scale				3.082	
44	95% MLE (Tiku) UCL				7.246		SD in Original Scale				2.58	
45							95% Percentile Bootstrap UCL				3.752	
46							95% BCA Bootstrap UCL				3.814	
47												
48	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
49	k star (bias corrected)				N/A		Data appear Normal at 5% Significance Level					
50	Theta Star				N/A							
51	nu star				N/A							
52												
53	A-D Test Statistic				0.395		Nonparametric Statistics					

	A	B	C	D	E	F	G	H	I	J	K	L
54	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
55	K-S Test Statistic					N/A	Mean					8.763
56	5% K-S Critical Value					N/A	SD					0.786
57	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.139
58							95% KM (t) UCL					8.996
59	Assuming Gamma Distribution						95% KM (z) UCL					8.991
60	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					10.93
61	Minimum					N/A	95% KM (bootstrap t) UCL					8.856
62	Maximum					N/A	95% KM (BCA) UCL					1E+31
63	Mean					N/A	95% KM (percentile) UCL					1E+31
64	Median					N/A	95% KM (Chebyshev) UCL					9.368
65	SD					N/A	97.5% KM (Chebyshev) UCL					9.63
66	k star					N/A	99% KM (Chebyshev) UCL					10.14
67	Theta star					N/A						
68	Nu star					N/A	Potential UCLs to Use					
69	AppChi2					N/A	95% KM (t) UCL					8.996
70	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					1E+31
71	95% Adjusted Gamma UCL					N/A						
72	Warning: Recommended UCL exceeds the maximum observation											
73												
74												
75	Benzo[a]anthracene											
76												
77	General Statistics											
78	Number of Valid Samples					48	Number of Detected Data					3
79	Number of Unique Samples					3	Number of Non-Detect Data					45
80							Percent Non-Detects					93.75%
81												
82	Raw Statistics						Log-transformed Statistics					
83	Minimum Detected					8.2	Minimum Detected					2.104
84	Maximum Detected					13	Maximum Detected					2.565
85	Mean of Detected					10.4	Mean of Detected					2.324
86	SD of Detected					2.425	SD of Detected					0.231
87	Minimum Non-Detect					7.2	Minimum Non-Detect					1.974
88	Maximum Non-Detect					7.7	Maximum Non-Detect					2.041
89												
90	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					45
91	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					3
92	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					93.75%
93												
94	UCL Statistics											
95	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
96	Shapiro Wilk Test Statistic					0.98	Shapiro Wilk Test Statistic					0.994
97	5% Shapiro Wilk Critical Value					0.767	5% Shapiro Wilk Critical Value					0.767
98	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
99												
100	Assuming Normal Distribution						Assuming Lognormal Distribution					
101	DL/2 Substitution Method						DL/2 Substitution Method					
102	Mean					4.132	Mean					1.375
103	SD					1.711	SD					0.252
104	95% DL/2 (t) UCL					4.547	95% H-Stat (DL/2) UCL					4.212
105												
106	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					

	A	B	C	D	E	F	G	H	I	J	K	L
107	Mean					11.05	Mean in Log Scale					0.523
108	SD					1.98	SD in Log Scale					0.821
109	95% MLE (t) UCL					11.53	Mean in Original Scale					2.4
110	95% MLE (Tiku) UCL					12.93	SD in Original Scale					2.46
111							95% Percentile Bootstrap UCL					3.002
112							95% BCA Bootstrap UCL					3.18
113												
114	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only					
115	k star (bias corrected)					N/A	Data appear Normal at 5% Significance Level					
116	Theta Star					N/A						
117	nu star					N/A						
118												
119	A-D Test Statistic					0.26	Nonparametric Statistics					
120	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
121	K-S Test Statistic					N/A	Mean					8.338
122	5% K-S Critical Value					N/A	SD					0.727
123	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.129
124							95% KM (t) UCL					8.553
125	Assuming Gamma Distribution						95% KM (z) UCL					8.549
126	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					9.492
127	Minimum					N/A	95% KM (bootstrap t) UCL					8.476
128	Maximum					N/A	95% KM (BCA) UCL					1E+31
129	Mean					N/A	95% KM (percentile) UCL					13
130	Median					N/A	95% KM (Chebyshev) UCL					8.898
131	SD					N/A	97.5% KM (Chebyshev) UCL					9.14
132	k star					N/A	99% KM (Chebyshev) UCL					9.616
133	Theta star					N/A						
134	Nu star					N/A	Potential UCLs to Use					
135	AppChi2					N/A	95% KM (t) UCL					8.553
136	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					13
137	95% Adjusted Gamma UCL					N/A						
138												
139												
140	Dibenz[a,h]anthracene											
141												
142	General Statistics											
143	Number of Valid Samples					48	Number of Detected Data					5
144	Number of Unique Samples					5	Number of Non-Detect Data					43
145							Percent Non-Detects					89.58%
146												
147	Raw Statistics						Log-transformed Statistics					
148	Minimum Detected					8.4	Minimum Detected					2.128
149	Maximum Detected					18	Maximum Detected					2.89
150	Mean of Detected					13.28	Mean of Detected					2.547
151	SD of Detected					4.086	SD of Detected					0.317
152	Minimum Non-Detect					7.2	Minimum Non-Detect					1.974
153	Maximum Non-Detect					7.7	Maximum Non-Detect					2.041
154												
155	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					43
156	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					5
157	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					89.58%
158												
159	UCL Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L	
160	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
161	Shapiro Wilk Test Statistic					0.918	Shapiro Wilk Test Statistic					0.932	
162	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762	
163	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
164													
165	Assuming Normal Distribution						Assuming Lognormal Distribution						
166	DL/2 Substitution Method						DL/2 Substitution Method						
167	Mean					4.709	Mean					1.44	
168	SD					3.185	SD					0.393	
169	95% DL/2 (t) UCL					5.481	95% H-Stat (DL/2) UCL					4.686	
170													
171	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method						
172	Mean					-6.067	Mean in Log Scale					0.871	
173	SD					11.01	SD in Log Scale					0.878	
174	95% MLE (t) UCL					-3.399	Mean in Original Scale					3.568	
175	95% MLE (Tiku) UCL					4.781	SD in Original Scale					3.852	
176							95% Percentile Bootstrap UCL					4.582	
177							95% BCA Bootstrap UCL					4.74	
178													
179	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only						
180	k star (bias corrected)					5.284	Data appear Normal at 5% Significance Level						
181	Theta Star					2.513							
182	nu star					52.84							
183													
184	A-D Test Statistic					0.316	Nonparametric Statistics						
185	5% A-D Critical Value					0.679	Kaplan-Meier (KM) Method						
186	K-S Test Statistic					0.679	Mean					8.908	
187	5% K-S Critical Value					0.357	SD					1.901	
188	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.307	
189							95% KM (t) UCL					9.423	
190	Assuming Gamma Distribution						95% KM (z) UCL					9.413	
191	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					10.53	
192	Minimum					0	95% KM (bootstrap t) UCL					9.474	
193	Maximum					18	95% KM (BCA) UCL					17.02	
194	Mean					2.813	95% KM (percentile) UCL					12.6	
195	Median					0.00509	95% KM (Chebyshev) UCL					10.25	
196	SD					4.465	97.5% KM (Chebyshev) UCL					10.82	
197	k star					0.0864	99% KM (Chebyshev) UCL					11.96	
198	Theta star					32.57							
199	Nu star					8.29	Potential UCLs to Use						
200	AppChi2					2.904	95% KM (t) UCL					9.423	
201	95% Gamma Approximate UCL					8.03	95% KM (Percentile Bootstrap) UCL					12.6	
202	95% Adjusted Gamma UCL					8.311							
203													
204													
205	Indeno(1,2,3-cd)pyrene												
206													
207	General Statistics												
208	Number of Valid Samples					48	Number of Detected Data					4	
209	Number of Unique Samples					3	Number of Non-Detect Data					44	
210							Percent Non-Detects					91.67%	
211													
212	Raw Statistics						Log-transformed Statistics						

	A	B	C	D	E	F	G	H	I	J	K	L
213	Minimum Detected					9.7	Minimum Detected					2.272
214	Maximum Detected					16	Maximum Detected					2.773
215	Mean of Detected					13.18	Mean of Detected					2.554
216	SD of Detected					3.305	SD of Detected					0.258
217	Minimum Non-Detect					7.2	Minimum Non-Detect					1.974
218	Maximum Non-Detect					7.7	Maximum Non-Detect					2.041
219												
220	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					44
221	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					4
222	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					91.67%
223												
224	UCL Statistics											
225	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
226	Shapiro Wilk Test Statistic					0.815	Shapiro Wilk Test Statistic					0.83
227	5% Shapiro Wilk Critical Value					0.748	5% Shapiro Wilk Critical Value					0.748
228	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
229												
230	Assuming Normal Distribution						Assuming Lognormal Distribution					
231	DL/2 Substitution Method						DL/2 Substitution Method					
232	Mean					4.502	Mean					1.415
233	SD					2.772	SD					0.353
234	95% DL/2 (t) UCL					5.173	95% H-Stat (DL/2) UCL					4.506
235												
236	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
237	Mean					-7.377	Mean in Log Scale					1.057
238	SD					10.99	SD in Log Scale					0.735
239	95% MLE (t) UCL					-4.716	Mean in Original Scale					3.814
240	95% MLE (Tiku) UCL					5.507	SD in Original Scale					3.382
241							95% Percentile Bootstrap UCL					4.651
242							95% BCA Bootstrap UCL					4.85
243												
244	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
245	k star (bias corrected)					5.306	Data appear Normal at 5% Significance Level					
246	Theta Star					2.483						
247	nu star					42.44						
248												
249	A-D Test Statistic					0.525	Nonparametric Statistics					
250	5% A-D Critical Value					0.657	Kaplan-Meier (KM) Method					
251	K-S Test Statistic					0.657	Mean					9.99
252	5% K-S Critical Value					0.394	SD					1.267
253	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.211
254							95% KM (t) UCL					10.34
255	Assuming Gamma Distribution						95% KM (z) UCL					10.34
256	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					10.83
257	Minimum					0	95% KM (bootstrap t) UCL					10.18
258	Maximum					16	95% KM (BCA) UCL					16
259	Mean					2.007	95% KM (percentile) UCL					16
260	Median					0	95% KM (Chebyshev) UCL					10.91
261	SD					4.024	97.5% KM (Chebyshev) UCL					11.31
262	k star					0.0712	99% KM (Chebyshev) UCL					12.09
263	Theta star					28.2						
264	Nu star					6.83	Potential UCLs to Use					
265	AppChi2					2.078	95% KM (t) UCL					10.34

	A	B	C	D	E	F	G	H	I	J	K	L
266	95% Gamma Approximate UCL					6.596	95% KM (Percentile Bootstrap) UCL					16
267	95% Adjusted Gamma UCL					N/A						
268												
269												
270	Total Homologs											
271												
272	General Statistics											
273	Number of Valid Samples				48	Number of Unique Samples					36	
274												
275	Raw Statistics					Log-transformed Statistics						
276	Minimum				90	Minimum of Log Data					4.5	
277	Maximum				2000	Maximum of Log Data					7.601	
278	Mean				506.2	Mean of log Data					5.986	
279	Median				395	SD of log Data					0.712	
280	SD				371.7							
281	Coefficient of Variation				0.734							
282	Skewness				1.709							
283												
284	Relevant UCL Statistics											
285	Normal Distribution Test					Lognormal Distribution Test						
286	Shapiro Wilk Test Statistic				0.851	Shapiro Wilk Test Statistic					0.978	
287	Shapiro Wilk Critical Value				0.947	Shapiro Wilk Critical Value					0.947	
288	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
289												
290	Assuming Normal Distribution					Assuming Lognormal Distribution						
291	95% Student's-t UCL				596.2	95% H-UCL					634.3	
292	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					759.7	
293	95% Adjusted-CLT UCL				608.6	97.5% Chebyshev (MVUE) UCL					867.9	
294	95% Modified-t UCL				598.4	99% Chebyshev (MVUE) UCL					1081	
295												
296	Gamma Distribution Test					Nonparametric Test						
297	k star (bias corrected)				2.106	Data appear Gamma Distributed at 5% Significance Level						
298	Theta Star				240.3							
299	nu star				202.2							
300	Approximate Chi Square Value (.05)				170.3	Nonparametric Statistics						
301	Adjusted Level of Significance				0.045	95% CLT UCL					594.4	
302	Adjusted Chi Square Value				169.4	95% Jackknife UCL					596.2	
303						95% Standard Bootstrap UCL					596.3	
304	Anderson-Darling Test Statistic				0.476	95% Bootstrap-t UCL					615.2	
305	Anderson-Darling 5% Critical Value				0.761	95% Hall's Bootstrap UCL					621.4	
306	Kolmogorov-Smirnov Test Statistic				0.1	95% Percentile Bootstrap UCL					598.5	
307	Kolmogorov-Smirnov 5% Critical Value				0.129	95% BCA Bootstrap UCL					613.7	
308	Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					740	
309						97.5% Chebyshev(Mean, Sd) UCL					841.2	
310	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL						
311	95% Approximate Gamma UCL				601							
312	95% Adjusted Gamma UCL				604.2							
313												
314	Potential UCL to Use					Use 95% Approximate Gamma UCL					601	
315												
316												
317	4,4'-DDD											
318												

	A	B	C	D	E	F	G	H	I	J	K	L
319	General Statistics											
320	Number of Valid Samples					48	Number of Detected Data					47
321	Number of Unique Samples					39	Number of Non-Detect Data					1
322							Percent Non-Detects					2.08%
323												
324	Raw Statistics					Log-transformed Statistics						
325	Minimum Detected					1.2	Minimum Detected					0.182
326	Maximum Detected					27	Maximum Detected					3.296
327	Mean of Detected					7.034	Mean of Detected					1.628
328	SD of Detected					6.068	SD of Detected					0.815
329	Minimum Non-Detect					0.32	Minimum Non-Detect					-1.139
330	Maximum Non-Detect					0.32	Maximum Non-Detect					-1.139
331												
332												
333	UCL Statistics											
334	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
335	Shapiro Wilk Test Statistic					0.816	Shapiro Wilk Test Statistic					0.968
336	5% Shapiro Wilk Critical Value					0.946	5% Shapiro Wilk Critical Value					0.946
337	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
338												
339	Assuming Normal Distribution					Assuming Lognormal Distribution						
340	DL/2 Substitution Method						DL/2 Substitution Method					
341	Mean					6.891	Mean					1.556
342	SD					6.084	SD					0.948
343	95% DL/2 (t) UCL					8.364	95% H-Stat (DL/2) UCL					9.402
344												
345	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
346	Mean					6.829	Mean in Log Scale					1.583
347	SD					6.116	SD in Log Scale					0.863
348	95% MLE (t) UCL					8.31	Mean in Original Scale					6.9
349	95% MLE (Tiku) UCL					8.238	SD in Original Scale					6.074
350							95% Percentile Bootstrap UCL					8.365
351							95% BCA Bootstrap UCL					8.556
352												
353	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
354	k star (bias corrected)					1.601	Data appear Gamma Distributed at 5% Significance Level					
355	Theta Star					4.393						
356	nu star					150.5						
357												
358	A-D Test Statistic					0.597	Nonparametric Statistics					
359	5% A-D Critical Value					0.765	Kaplan-Meier (KM) Method					
360	K-S Test Statistic					0.765	Mean					6.913
361	5% K-S Critical Value					0.131	SD					5.998
362	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					0.875	
363							95% KM (t) UCL					8.381
364	Assuming Gamma Distribution					95% KM (z) UCL					8.352	
365	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					8.377
366	Minimum					0	95% KM (bootstrap t) UCL					8.703
367	Maximum					27	95% KM (BCA) UCL					8.421
368	Mean					6.888	95% KM (percentile) UCL					8.398
369	Median					4.85	95% KM (Chebyshev) UCL					10.73
370	SD					6.088	97.5% KM (Chebyshev) UCL					12.38
371	k star					0.742	99% KM (Chebyshev) UCL					15.62

	A	B	C	D	E	F	G	H	I	J	K	L	
372	Theta star					9.287							
373	Nu star					71.19	Potential UCLs to Use						
374	AppChi2					52.77	95% KM (Chebyshev) UCL					10.73	
375	95% Gamma Approximate UCL					9.293							
376	95% Adjusted Gamma UCL					9.38							
377													
378													
379	4,4'-DDE												
380													
381	General Statistics												
382	Number of Valid Samples					48	Number of Unique Samples					37	
383													
384	Raw Statistics					Log-transformed Statistics							
385	Minimum					2.9	Minimum of Log Data					1.065	
386	Maximum					68	Maximum of Log Data					4.22	
387	Mean					14.97	Mean of log Data					2.466	
388	Median					12	SD of log Data					0.69	
389	SD					11.92							
390	Coefficient of Variation					0.796							
391	Skewness					2.384							
392													
393	Relevant UCL Statistics												
394	Normal Distribution Test					Lognormal Distribution Test							
395	Shapiro Wilk Test Statistic					0.788	Shapiro Wilk Test Statistic					0.989	
396	Shapiro Wilk Critical Value					0.947	Shapiro Wilk Critical Value					0.947	
397	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
398													
399	Assuming Normal Distribution					Assuming Lognormal Distribution							
400	95% Student's-t UCL					17.86	95% H-UCL					18.33	
401	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					21.9		
402	95% Adjusted-CLT UCL					18.43	97.5% Chebyshev (MVUE) UCL					24.94	
403	95% Modified-t UCL					17.96	99% Chebyshev (MVUE) UCL					30.93	
404													
405	Gamma Distribution Test					Nonparametric Test							
406	k star (bias corrected)					2.11	Data appear Gamma Distributed at 5% Significance Level						
407	Theta Star					7.094							
408	nu star					202.6							
409	Approximate Chi Square Value (.05)					170.7	Nonparametric Statistics						
410	Adjusted Level of Significance					0.045	95% CLT UCL					17.8	
411	Adjusted Chi Square Value					169.8	95% Jackknife UCL					17.86	
412							95% Standard Bootstrap UCL					17.86	
413	Anderson-Darling Test Statistic					0.438	95% Bootstrap-t UCL					18.76	
414	Anderson-Darling 5% Critical Value					0.761	95% Hall's Bootstrap UCL					19.51	
415	Kolmogorov-Smirnov Test Statistic					0.0958	95% Percentile Bootstrap UCL					17.92	
416	Kolmogorov-Smirnov 5% Critical Value					0.129	95% BCA Bootstrap UCL					18.45	
417	Data appear Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					22.47		
418							97.5% Chebyshev(Mean, Sd) UCL					25.72	
419	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL							32.09
420	95% Approximate Gamma UCL					17.77							
421	95% Adjusted Gamma UCL					17.87							
422													
423	Potential UCL to Use					Use 95% Approximate Gamma UCL					17.77		
424													

	A	B	C	D	E	F	G	H	I	J	K	L	
425													
426	4,4'-DDT												
427													
428	General Statistics												
429	Number of Valid Samples					48	Number of Detected Data					11	
430	Number of Unique Samples					9	Number of Non-Detect Data					37	
431							Percent Non-Detects					77.08%	
432													
433	Raw Statistics					Log-transformed Statistics							
434	Minimum Detected					0.81	Minimum Detected					-0.211	
435	Maximum Detected					9.8	Maximum Detected					2.282	
436	Mean of Detected					3.837	Mean of Detected					1.133	
437	SD of Detected					2.543	SD of Detected					0.719	
438	Minimum Non-Detect					0.31	Minimum Non-Detect					-1.171	
439	Maximum Non-Detect					0.32	Maximum Non-Detect					-1.139	
440													
441	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				37		
442	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				11		
443	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				77.08%		
444													
445	UCL Statistics												
446	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
447	Shapiro Wilk Test Statistic					0.884	Shapiro Wilk Test Statistic					0.948	
448	5% Shapiro Wilk Critical Value					0.85	5% Shapiro Wilk Critical Value					0.85	
449	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
450													
451	Assuming Normal Distribution					Assuming Lognormal Distribution							
452	DL/2 Substitution Method						DL/2 Substitution Method						
453	Mean					1	Mean					-1.171	
454	SD					1.954	SD					1.312	
455	95% DL/2 (t) UCL					1.473	95% H-Stat (DL/2) UCL					0.704	
456													
457	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method						
458	Mean					-3.865	Mean in Log Scale					-0.975	
459	SD					5.742	SD in Log Scale					1.548	
460	95% MLE (t) UCL					-2.475	Mean in Original Scale					1.131	
461	95% MLE (Tiku) UCL					-0.888	SD in Original Scale					1.914	
462							95% Percentile Bootstrap UCL					1.602	
463							95% BCA Bootstrap UCL					1.682	
464													
465	Gamma Distribution Test with Detected Values Only					Nonparametric Test with Detected Values Only							
466	k star (bias corrected)					1.891	Data appear Normal at 5% Significance Level						
467	Theta Star					2.029							
468	nu star					41.61							
469													
470	A-D Test Statistic					0.329	Nonparametric Statistics						
471	5% A-D Critical Value					0.736	Kaplan-Meier (KM) Method						
472	K-S Test Statistic					0.736	Mean					1.504	
473	5% K-S Critical Value					0.258	SD					1.722	
474	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					0.261		
475							95% KM (t) UCL					1.941	
476	Assuming Gamma Distribution					95% KM (z) UCL					1.933		
477	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.879	

	A	B	C	D	E	F	G	H	I	J	K	L
478	Minimum					0	95% KM (bootstrap t) UCL					2.073
479	Maximum					9.8	95% KM (BCA) UCL					2.971
480	Mean					0.935	95% KM (percentile) UCL					2.667
481	Median					0	95% KM (Chebyshev) UCL					2.64
482	SD					1.993	97.5% KM (Chebyshev) UCL					3.132
483	k star					0.073	99% KM (Chebyshev) UCL					4.098
484	Theta star					12.81						
485	Nu star					7.005	Potential UCLs to Use					
486	AppChi2					2.173	95% KM (t) UCL					1.941
487	95% Gamma Approximate UCL					3.014	95% KM (Percentile Bootstrap) UCL					2.667
488	95% Adjusted Gamma UCL					3.132						
489												
490												
491	alpha-Chlordane											
492												
493	General Statistics											
494	Number of Valid Samples					48	Number of Detected Data					47
495	Number of Unique Samples					40	Number of Non-Detect Data					1
496							Percent Non-Detects					2.08%
497												
498	Raw Statistics						Log-transformed Statistics					
499	Minimum Detected					0.47	Minimum Detected					-0.755
500	Maximum Detected					18	Maximum Detected					2.89
501	Mean of Detected					4.402	Mean of Detected					1.056
502	SD of Detected					4.121	SD of Detected					0.965
503	Minimum Non-Detect					0.32	Minimum Non-Detect					-1.139
504	Maximum Non-Detect					0.32	Maximum Non-Detect					-1.139
505												
506												
507	UCL Statistics											
508	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
509	Shapiro Wilk Test Statistic					0.827	Shapiro Wilk Test Statistic					0.953
510	5% Shapiro Wilk Critical Value					0.946	5% Shapiro Wilk Critical Value					0.946
511	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
512												
513	Assuming Normal Distribution						Assuming Lognormal Distribution					
514	DL/2 Substitution Method						DL/2 Substitution Method					
515	Mean					4.314	Mean					0.995
516	SD					4.123	SD					1.042
517	95% DL/2 (t) UCL					5.313	95% H-Stat (DL/2) UCL					6.228
518												
519	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
520	Mean					4.271	Mean in Log Scale					1.004
521	SD					4.142	SD in Log Scale					1.021
522	95% MLE (t) UCL					5.274	Mean in Original Scale					4.316
523	95% MLE (Tiku) UCL					5.216	SD in Original Scale					4.121
524							95% Percentile Bootstrap UCL					5.294
525							95% BCA Bootstrap UCL					5.436
526												
527	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
528	k star (bias corrected)					1.244	Data appear Gamma Distributed at 5% Significance Level					
529	Theta Star					3.538						
530	nu star					117						

	A	B	C	D	E	F	G	H	I	J	K	L
531												
532	A-D Test Statistic					0.684	Nonparametric Statistics					
533	5% A-D Critical Value					0.772	Kaplan-Meier (KM) Method					
534	K-S Test Statistic					0.772	Mean					4.32
535	5% K-S Critical Value					0.132	SD					4.074
536	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.594
537							95% KM (t) UCL					5.318
538	Assuming Gamma Distribution						95% KM (z) UCL					5.298
539	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					5.313
540	Minimum					0	95% KM (bootstrap t) UCL					5.531
541	Maximum					18	95% KM (BCA) UCL					5.338
542	Mean					4.311	95% KM (percentile) UCL					5.28
543	Median					2.85	95% KM (Chebyshev) UCL					6.911
544	SD					4.127	97.5% KM (Chebyshev) UCL					8.032
545	k star					0.673	99% KM (Chebyshev) UCL					10.23
546	Theta star					6.406						
547	Nu star					64.6	Potential UCLs to Use					
548	AppChi2					47.11	95% KM (Chebyshev) UCL					6.911
549	95% Gamma Approximate UCL					5.911						
550	95% Adjusted Gamma UCL					5.97						
551												
552												
553	Dieldrin											
554												
555	General Statistics											
556	Number of Valid Samples					48	Number of Unique Samples					37
557												
558	Raw Statistics						Log-transformed Statistics					
559	Minimum					2	Minimum of Log Data					0.693
560	Maximum					43	Maximum of Log Data					3.761
561	Mean					10.9	Mean of log Data					2.096
562	Median					7.85	SD of log Data					0.761
563	SD					9.257						
564	Coefficient of Variation					0.849						
565	Skewness					1.749						
566												
567	Relevant UCL Statistics											
568	Normal Distribution Test						Lognormal Distribution Test					
569	Shapiro Wilk Test Statistic					0.796	Shapiro Wilk Test Statistic					0.967
570	Shapiro Wilk Critical Value					0.947	Shapiro Wilk Critical Value					0.947
571	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
572												
573	Assuming Normal Distribution						Assuming Lognormal Distribution					
574	95% Student's-t UCL					13.14	95% H-UCL					13.7
575	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					16.5
576	95% Adjusted-CLT UCL					13.46	97.5% Chebyshev (MVUE) UCL					18.98
577	95% Modified-t UCL					13.2	99% Chebyshev (MVUE) UCL					23.84
578												
579	Gamma Distribution Test						Nonparametric Test					
580	k star (bias corrected)					1.755	Data appear Lognormal at 5% Significance Level					
581	Theta Star					6.212						
582	nu star					168.4						
583	Approximate Chi Square Value (.05)					139.4	Nonparametric Statistics					

	A	B	C	D	E	F	G	H	I	J	K	L
584	Adjusted Level of Significance					0.045	95% CLT UCL					13.1
585	Adjusted Chi Square Value					138.6	95% Jackknife UCL					13.14
586							95% Standard Bootstrap UCL					13.1
587	Anderson-Darling Test Statistic					0.911	95% Bootstrap-t UCL					13.74
588	Anderson-Darling 5% Critical Value					0.764	95% Hall's Bootstrap UCL					13.51
589	Kolmogorov-Smirnov Test Statistic					0.149	95% Percentile Bootstrap UCL					13.08
590	Kolmogorov-Smirnov 5% Critical Value					0.13	95% BCA Bootstrap UCL					13.56
591	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					16.72
592							97.5% Chebyshev(Mean, Sd) UCL					19.24
593	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					24.19
594	95% Approximate Gamma UCL					13.17						
595	95% Adjusted Gamma UCL					13.25						
596												
597	Potential UCL to Use						Use 95% H-UCL					13.7
598												
599												
600	Gamma-Chlordane											
601												
602	General Statistics											
603	Number of Valid Samples					48	Number of Detected Data					39
604	Number of Unique Samples					32	Number of Non-Detect Data					9
605							Percent Non-Detects					18.75%
606												
607	Raw Statistics						Log-transformed Statistics					
608	Minimum Detected					0.53	Minimum Detected					-0.635
609	Maximum Detected					11	Maximum Detected					2.398
610	Mean of Detected					3.734	Mean of Detected					1.071
611	SD of Detected					2.433	SD of Detected					0.782
612	Minimum Non-Detect					0.31	Minimum Non-Detect					-1.171
613	Maximum Non-Detect					0.32	Maximum Non-Detect					-1.139
614												
615	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					9
616	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					39
617	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					18.75%
618												
619	UCL Statistics											
620	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
621	Shapiro Wilk Test Statistic					0.923	Shapiro Wilk Test Statistic					0.925
622	5% Shapiro Wilk Critical Value					0.939	5% Shapiro Wilk Critical Value					0.939
623	Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
624												
625	Assuming Normal Distribution						Assuming Lognormal Distribution					
626	DL/2 Substitution Method						DL/2 Substitution Method					
627	Mean					3.063	Mean					0.523
628	SD					2.603	SD					1.35
629	95% DL/2 (t) UCL					3.694	95% H-Stat (DL/2) UCL					4.536
630												
631	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
632	Mean					2.776	Mean in Log Scale					0.754
633	SD					3.006	SD in Log Scale					0.976
634	95% MLE (t) UCL					3.504	Mean in Original Scale					3.139
635	95% MLE (Tiku) UCL					3.519	SD in Original Scale					2.521
636							95% Percentile Bootstrap UCL					3.726

	A	B	C	D	E	F	G	H	I	J	K	L		
637						95% BCA Bootstrap UCL							3.783	
638														
639	Gamma Distribution Test with Detected Values Only					Nonparametric Test with Detected Values Only								
640	k star (bias corrected)					2.028	Data appear Gamma Distributed at 5% Significance Level							
641	Theta Star					1.841								
642	nu star					158.2								
643														
644	A-D Test Statistic					0.428	Nonparametric Statistics							
645	5% A-D Critical Value					0.758	Kaplan-Meier (KM) Method							
646	K-S Test Statistic					0.758	Mean							3.133
647	5% K-S Critical Value					0.143	SD							2.5
648	Data appear Gamma Distributed at 5% Significance Level					SE of Mean							0.366	
649							95% KM (t) UCL							3.747
650	Assuming Gamma Distribution					95% KM (z) UCL							3.734	
651	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL							3.737
652	Minimum					0	95% KM (bootstrap t) UCL							3.812
653	Maximum					11	95% KM (BCA) UCL							3.761
654	Mean					3.105	95% KM (percentile) UCL							3.736
655	Median					2.95	95% KM (Chebyshev) UCL							4.727
656	SD					2.56	97.5% KM (Chebyshev) UCL							5.416
657	k star					0.486	99% KM (Chebyshev) UCL							6.77
658	Theta star					6.382								
659	Nu star					46.7	Potential UCLs to Use							
660	AppChi2					32.02	95% KM (BCA) UCL							3.761
661	95% Gamma Approximate UCL					4.528								
662	95% Adjusted Gamma UCL					4.582								
663														
664														
665	Heptachlor Epoxide													
666														
667	General Statistics													
668	Number of Valid Samples					48	Number of Detected Data					8		
669	Number of Unique Samples					8	Number of Non-Detect Data					40		
670							Percent Non-Detects					83.33%		
671														
672	Raw Statistics					Log-transformed Statistics								
673	Minimum Detected					0.34	Minimum Detected					-1.079		
674	Maximum Detected					0.81	Maximum Detected					-0.211		
675	Mean of Detected					0.566	Mean of Detected					-0.612		
676	SD of Detected					0.173	SD of Detected					0.318		
677	Minimum Non-Detect					0.31	Minimum Non-Detect					-1.171		
678	Maximum Non-Detect					0.32	Maximum Non-Detect					-1.139		
679														
680	Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect					40			
681	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),					Number treated as Detected					8			
682	those Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage					83.33%			
683														
684	UCL Statistics													
685	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only								
686	Shapiro Wilk Test Statistic					0.943	Shapiro Wilk Test Statistic					0.945		
687	5% Shapiro Wilk Critical Value					0.818	5% Shapiro Wilk Critical Value					0.818		
688	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level								
689														

	A	B	C	D	E	F	G	H	I	J	K	L	
690	Assuming Normal Distribution						Assuming Lognormal Distribution						
691	DL/2 Substitution Method						DL/2 Substitution Method						
692	Mean					0.225	Mean					-1.648	
693	SD					0.168	SD					0.484	
694	95% DL/2 (t) UCL					0.265	95% H-Stat (DL/2) UCL					0.22	
695													
696	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method						
697	Mean					-0.0959	Mean in Log Scale					-1.845	
698	SD					0.435	SD in Log Scale					0.796	
699	95% MLE (t) UCL					0.00952	Mean in Original Scale					0.216	
700	95% MLE (Tiku) UCL					0.197	SD in Original Scale					0.187	
701							95% Percentile Bootstrap UCL					0.262	
702							95% BCA Bootstrap UCL					0.263	
703													
704	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only						
705	k star (bias corrected)					7.44	Data appear Normal at 5% Significance Level						
706	Theta Star					0.0761							
707	nu star					119							
708													
709	A-D Test Statistic					0.267	Nonparametric Statistics						
710	5% A-D Critical Value					0.715	Kaplan-Meier (KM) Method						
711	K-S Test Statistic					0.715	Mean					0.378	
712	5% K-S Critical Value					0.294	SD					0.107	
713	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0165	
714							95% KM (t) UCL					0.405	
715	Assuming Gamma Distribution						95% KM (z) UCL					0.405	
716	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.412	
717	Minimum					0	95% KM (bootstrap t) UCL					0.409	
718	Maximum					0.81	95% KM (BCA) UCL					0.513	
719	Mean					0.176	95% KM (percentile) UCL					0.488	
720	Median					0.0969	95% KM (Chebyshev) UCL					0.45	
721	SD					0.217	97.5% KM (Chebyshev) UCL					0.481	
722	k star					0.125	99% KM (Chebyshev) UCL					0.542	
723	Theta star					1.406							
724	Nu star					12.01	Potential UCLs to Use						
725	AppChi2					5.236	95% KM (t) UCL					0.405	
726	95% Gamma Approximate UCL					0.404	95% KM (Percentile Bootstrap) UCL					0.488	
727	95% Adjusted Gamma UCL					0.415							
728													

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			H:\JCV\Puritan\2007\EPCs\Surface Water\ls_bank_sw_ucl_data.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Benzo(b)fluoranthene											
10												
11	General Statistics											
12	Number of Valid Samples				14		Number of Detected Data				2	
13	Number of Unique Samples				2		Number of Non-Detect Data				12	
14							Percent Non-Detects				85.71%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				0.14		Minimum Detected				-1.966	
18	Maximum Detected				0.16		Maximum Detected				-1.833	
19	Mean of Detected				0.15		Mean of Detected				-1.899	
20	SD of Detected				0.0141		SD of Detected				0.0944	
21	Minimum Non-Detect				0.1		Minimum Non-Detect				-2.303	
22	Maximum Non-Detect				0.1		Maximum Non-Detect				-2.303	
23												
24												
25	UCL Statistics											
26	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
27	Shapiro Wilk Test Statistic				1		Shapiro Wilk Test Statistic				1	
28	5% Shapiro Wilk Critical Value				N/A		5% Shapiro Wilk Critical Value				N/A	
29	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
30												
31	Assuming Normal Distribution					Assuming Lognormal Distribution						
32	DL/2 Substitution Method						DL/2 Substitution Method					
33	Mean				0.0643		Mean				-2.839	
34	SD				0.0365		SD				0.399	
35	95% DL/2 (t) UCL				0.0816		95% H-Stat (DL/2) UCL				0.0751	
36												
37	Maximum Likelihood Estimate(MLE) Method				N/A		Robust ROS Method					
38							Mean in Log Scale				-2.448	
39							SD in Log Scale				0.337	
40							Mean in Original Scale				0.0912	
41							SD in Original Scale				0.0316	
42							95% Percentile Bootstrap UCL				0.105	
43							95% BCA Bootstrap UCL				0.106	
44												
45	Gamma Distribution Test with Detected Values Only					Nonparametric Test with Detected Values Only						
46	k star (bias corrected)				N/A		Data do not follow a Discernable Distribution (0.05)					
47	Theta Star				N/A							
48	nu star				N/A							
49												
50	A-D Test Statistic				0.359		Nonparametric Statistics					
51	5% A-D Critical Value				N/A		Kaplan-Meier (KM) Method					
52	K-S Test Statistic				N/A		Mean				0.141	
53	5% K-S Critical Value				N/A		SD				0.00515	

	A	B	C	D	E	F	G	H	I	J	K	L
54	Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.00195
55							95% KM (t) UCL					0.145
56	Assuming Gamma Distribution						95% KM (z) UCL					0.145
57	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.155
58	Minimum					N/A	95% KM (bootstrap t) UCL					1.8E+308
59	Maximum					N/A	95% KM (BCA) UCL					0.16
60	Mean					N/A	95% KM (percentile) UCL					0.16
61	Median					N/A	95% KM (Chebyshev) UCL					0.15
62	SD					N/A	97.5% KM (Chebyshev) UCL					0.154
63	k star					N/A	99% KM (Chebyshev) UCL					0.161
64	Theta star					N/A						
65	Nu star					N/A	Potential UCLs to Use					
66	AppChi2					N/A	95% KM (t) UCL					0.145
67	95% Gamma Approximate UCL					N/A	95% KM (% Bootstrap) UCL					0.16
68	95% Adjusted Gamma UCL					N/A						
69												
70												
71	Aluminum											
72												
73	General Statistics											
74	Number of Valid Samples					14	Number of Detected Data					11
75	Number of Unique Samples					11	Number of Non-Detect Data					3
76							Percent Non-Detects					21.43%
77												
78	Raw Statistics						Log-transformed Statistics					
79	Minimum Detected					23.9	Minimum Detected					3.174
80	Maximum Detected					995	Maximum Detected					6.903
81	Mean of Detected					215.1	Mean of Detected					4.682
82	SD of Detected					304.7	SD of Detected					1.165
83	Minimum Non-Detect					200	Minimum Non-Detect					5.298
84	Maximum Non-Detect					200	Maximum Non-Detect					5.298
85												
86												
87	UCL Statistics											
88	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
89	Shapiro Wilk Test Statistic					0.654	Shapiro Wilk Test Statistic					0.925
90	5% Shapiro Wilk Critical Value					0.85	5% Shapiro Wilk Critical Value					0.85
91	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
92												
93	Assuming Normal Distribution						Assuming Lognormal Distribution					
94	DL/2 Substitution Method						DL/2 Substitution Method					
95	Mean					190.5	Mean					4.665
96	SD					271.7	SD					1.022
97	95% DL/2 (t) UCL					319.1	95% H-Stat (DL/2) UCL					700.8
98												
99	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
100	Mean					-346.5	Mean in Log Scale					4.574
101	SD					695.7	SD in Log Scale					1.075
102	95% MLE (t) UCL					-17.23	Mean in Original Scale					185.1
103	95% MLE (Tiku) UCL					399.8	SD in Original Scale					274.4
104							95% Percentile Bootstrap UCL					313.1
105							95% BCA Bootstrap UCL					350.3
106												

	A	B	C	D	E	F	G	H	I	J	K	L		
107	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only							
108	k star (bias corrected)					0.681	Data appear Lognormal at 5% Significance Level							
109	Theta Star					315.8								
110	nu star					14.99								
111														
112	A-D Test Statistic					0.812	Nonparametric Statistics							
113	5% A-D Critical Value					0.758	Kaplan-Meier (KM) Method							
114	K-S Test Statistic					0.758	Mean						183.7	
115	5% K-S Critical Value					0.264	SD						264.9	
116	Data not Gamma Distributed at 5% Significance Level						SE of Mean						74.38	
117							95% KM (t) UCL						315.4	
118	Assuming Gamma Distribution						95% KM (z) UCL						306	
119	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL						314.1	
120	Minimum					N/A	95% KM (bootstrap t) UCL						696.4	
121	Maximum					N/A	95% KM (BCA) UCL						325.3	
122	Mean					N/A	95% KM (percentile) UCL						309.2	
123	Median					N/A	95% KM (Chebyshev) UCL						507.9	
124	SD					N/A	97.5% KM (Chebyshev) UCL						648.2	
125	k star					N/A	99% KM (Chebyshev) UCL						923.8	
126	Theta star					N/A								
127	Nu star					N/A	Potential UCLs to Use							
128	AppChi2					N/A	97.5% KM (Chebyshev) UCL						648.2	
129	95% Gamma Approximate UCL					N/A								
130	95% Adjusted Gamma UCL					N/A								
131														
132														
133	Arsenic													
134														
135	General Statistics													
136	Number of Valid Samples					14	Number of Unique Samples					13		
137														
138	Raw Statistics						Log-transformed Statistics							
139	Minimum					1.19	Minimum of Log Data					0.174		
140	Maximum					2.41	Maximum of Log Data					0.88		
141	Mean					1.563	Mean of log Data					0.43		
142	Median					1.465	SD of log Data					0.181		
143	SD					0.312								
144	Coefficient of Variation					0.2								
145	Skewness					1.72								
146														
147	Relevant UCL Statistics													
148	Normal Distribution Test						Lognormal Distribution Test							
149	Shapiro Wilk Test Statistic					0.835	Shapiro Wilk Test Statistic					0.9		
150	Shapiro Wilk Critical Value					0.874	Shapiro Wilk Critical Value					0.874		
151	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level							
152														
153	Assuming Normal Distribution						Assuming Lognormal Distribution							
154	95% Student's-t UCL					1.711	95% H-UCL					1.711		
155	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					1.891		
156	95% Adjusted-CLT UCL					1.741	97.5% Chebyshev (MVUE) UCL					2.034		
157	95% Modified-t UCL					1.717	99% Chebyshev (MVUE) UCL					2.314		
158														
159	Gamma Distribution Test						Nonparametric Test							

	A	B	C	D	E	F	G	H	I	J	K	L	
160	k star (bias corrected)					24.5	Data Follow Appr. Gamma Distribution at 5% Significance Level						
161	Theta Star					0.0638							
162	nu star					686.1							
163	Approximate Chi Square Value (.05)					626.3	Nonparametric Statistics						
164	Adjusted Level of Significance					0.0312	95% CLT UCL					1.7	
165	Adjusted Chi Square Value					618.7	95% Jackknife UCL					1.711	
166							95% Standard Bootstrap UCL					1.697	
167	Anderson-Darling Test Statistic					0.724	95% Bootstrap-t UCL					1.808	
168	Anderson-Darling 5% Critical Value					0.734	95% Hall's Bootstrap UCL					1.975	
169	Kolmogorov-Smirnov Test Statistic					0.238	95% Percentile Bootstrap UCL					1.708	
170	Kolmogorov-Smirnov 5% Critical Value					0.228	95% BCA Bootstrap UCL					1.739	
171	Data follow Appr. Gamma Distribution at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					1.927	
172							97.5% Chebyshev(Mean, Sd) UCL					2.084	
173	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					2.394	
174	95% Approximate Gamma UCL					1.712							
175	95% Adjusted Gamma UCL					1.733							
176													
177	Potential UCL to Use						Use 95% Approximate Gamma UCL					1.712	
178													
179													
180	Barium												
181													
182	General Statistics												
183	Number of Valid Samples					14	Number of Detected Data					5	
184	Number of Unique Samples					5	Number of Non-Detect Data					9	
185							Percent Non-Detects					64.29%	
186													
187	Raw Statistics						Log-transformed Statistics						
188	Minimum Detected					37	Minimum Detected					3.611	
189	Maximum Detected					63	Maximum Detected					4.143	
190	Mean of Detected					44.34	Mean of Detected					3.772	
191	SD of Detected					10.73	SD of Detected					0.217	
192	Minimum Non-Detect					39.5	Minimum Non-Detect					3.676	
193	Maximum Non-Detect					200	Maximum Non-Detect					5.298	
194													
195	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					14	
196	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					0	
197	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%	
198													
199	UCL Statistics												
200	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
201	Shapiro Wilk Test Statistic					0.748	Shapiro Wilk Test Statistic					0.789	
202	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762	
203	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
204													
205	Assuming Normal Distribution						Assuming Lognormal Distribution						
206	DL/2 Substitution Method						DL/2 Substitution Method						
207	Mean					52.6	Mean					3.78	
208	SD					33.06	SD					0.625	
209	95% DL/2 (t) UCL					68.25	95% H-Stat (DL/2) UCL					96.75	
210													
211	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method						
212							Mean in Log Scale					3.71	

	A	B	C	D	E	F	G	H	I	J	K	L
213							SD in Log Scale					0.148
214							Mean in Original Scale					41.32
215							SD in Original Scale					7.045
216							95% Percentile Bootstrap UCL					44.7
217							95% BCA Bootstrap UCL					45.81
218												
219	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
220	k star (bias corrected)					10.06	Data appear Gamma Distributed at 5% Significance Level					
221	Theta Star					4.407						
222	nu star					100.6						
223												
224	A-D Test Statistic					0.656	Nonparametric Statistics					
225	5% A-D Critical Value					0.679	Kaplan-Meier (KM) Method					
226	K-S Test Statistic					0.679	Mean					41.43
227	5% K-S Critical Value					0.357	SD					7.541
228	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					2.75
229							95% KM (t) UCL					46.3
230	Assuming Gamma Distribution						95% KM (z) UCL					45.95
231	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					46.17
232	Minimum					N/A	95% KM (bootstrap t) UCL					52.56
233	Maximum					N/A	95% KM (BCA) UCL					48.65
234	Mean					N/A	95% KM (percentile) UCL					46.53
235	Median					N/A	95% KM (Chebyshev) UCL					53.42
236	SD					N/A	97.5% KM (Chebyshev) UCL					58.6
237	k star					N/A	99% KM (Chebyshev) UCL					68.79
238	Theta star					N/A						
239	Nu star					N/A	Potential UCLs to Use					
240	AppChi2					N/A	95% KM (t) UCL					46.3
241	95% Gamma Approximate UCL					N/A						
242	95% Adjusted Gamma UCL					N/A						
243												
244												
245	Chromium											
246												
247	General Statistics											
248	Number of Valid Samples					14	Number of Detected Data					8
249	Number of Unique Samples					8	Number of Non-Detect Data					6
250							Percent Non-Detects					42.86%
251												
252	Raw Statistics						Log-transformed Statistics					
253	Minimum Detected					0.43	Minimum Detected					-0.844
254	Maximum Detected					10	Maximum Detected					2.303
255	Mean of Detected					2.805	Mean of Detected					0.504
256	SD of Detected					3.366	SD of Detected					1.053
257	Minimum Non-Detect					0.4	Minimum Non-Detect					-0.916
258	Maximum Non-Detect					1.5	Maximum Non-Detect					0.405
259												
260	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					10
261	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					4
262	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					71.43%
263												
264	UCL Statistics											
265	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					

	A	B	C	D	E	F	G	H	I	J	K	L
266	Shapiro Wilk Test Statistic					0.72	Shapiro Wilk Test Statistic					0.931
267	5% Shapiro Wilk Critical Value					0.818	5% Shapiro Wilk Critical Value					0.818
268	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
269												
270	Assuming Normal Distribution						Assuming Lognormal Distribution					
271	DL/2 Substitution Method						DL/2 Substitution Method					
272	Mean					1.769	Mean					-0.169
273	SD					2.768	SD					1.163
274	95% DL/2 (t) UCL					3.079	95% H-Stat (DL/2) UCL					4.417
275												
276	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
277	Mean					-1.966	Mean in Log Scale					-0.391
278	SD					5.835	SD in Log Scale					1.362
279	95% MLE (t) UCL					0.796	Mean in Original Scale					1.7
280	95% MLE (Tiku) UCL					3.066	SD in Original Scale					2.803
281							95% Percentile Bootstrap UCL					3.106
282							95% BCA Bootstrap UCL					3.577
283												
284	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
285	k star (bias corrected)					0.761	Data Follow Appr. Gamma Distribution at 5% Significance Level					
286	Theta Star					3.684						
287	nu star					12.18						
288												
289	A-D Test Statistic					0.587	Nonparametric Statistics					
290	5% A-D Critical Value					0.734	Kaplan-Meier (KM) Method					
291	K-S Test Statistic					0.734	Mean					1.814
292	5% K-S Critical Value					0.301	SD					2.644
293	Data follow approximate Gamma Distribution at 5% Significance Level						SE of Mean					0.756
294							95% KM (t) UCL					3.152
295	Assuming Gamma Distribution						95% KM (z) UCL					3.057
296	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					3.051
297	Minimum					0	95% KM (bootstrap t) UCL					7.996
298	Maximum					10	95% KM (BCA) UCL					3.394
299	Mean					1.378	95% KM (percentile) UCL					3.204
300	Median					0	95% KM (Chebyshev) UCL					5.109
301	SD					2.942	97.5% KM (Chebyshev) UCL					6.534
302	k star					0.0977	99% KM (Chebyshev) UCL					9.335
303	Theta star					14.1						
304	Nu star					2.737	Potential UCLs to Use					
305	AppChi2					0.299	95% KM (BCA) UCL					3.394
306	95% Gamma Approximate UCL					12.61						
307	95% Adjusted Gamma UCL					16.86						
308												
309												
310	Iron											
311												
312	General Statistics											
313	Number of Valid Samples					14	Number of Unique Samples					14
314												
315	Raw Statistics						Log-transformed Statistics					
316	Minimum					407	Minimum of Log Data					6.009
317	Maximum					4910	Maximum of Log Data					8.499
318	Mean					1401	Mean of log Data					7.038

	A	B	C	D	E	F	G	H	I	J	K	L	
319	Median					986.5	SD of log Data					0.627	
320	SD					1136							
321	Coefficient of Variation					0.811							
322	Skewness					2.547							
323													
324	Relevant UCL Statistics												
325	Normal Distribution Test						Lognormal Distribution Test						
326	Shapiro Wilk Test Statistic					0.711	Shapiro Wilk Test Statistic					0.962	
327	Shapiro Wilk Critical Value					0.874	Shapiro Wilk Critical Value					0.874	
328	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
329													
330	Assuming Normal Distribution						Assuming Lognormal Distribution						
331	95% Student's-t UCL					1939	95% H-UCL					2049	
332	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					2403	
333	95% Adjusted-CLT UCL					2122	97.5% Chebyshev (MVUE) UCL					2852	
334	95% Modified-t UCL					1973	99% Chebyshev (MVUE) UCL					3734	
335													
336	Gamma Distribution Test						Nonparametric Test						
337	k star (bias corrected)					2.07	Data appear Gamma Distributed at 5% Significance Level						
338	Theta Star					676.9							
339	nu star					57.95							
340	Approximate Chi Square Value (.05)					41.45	Nonparametric Statistics						
341	Adjusted Level of Significance					0.0312	95% CLT UCL					1901	
342	Adjusted Chi Square Value					39.61	95% Jackknife UCL					1939	
343							95% Standard Bootstrap UCL					1879	
344	Anderson-Darling Test Statistic					0.537	95% Bootstrap-t UCL					2568	
345	Anderson-Darling 5% Critical Value					0.744	95% Hall's Bootstrap UCL					4138	
346	Kolmogorov-Smirnov Test Statistic					0.192	95% Percentile Bootstrap UCL					1940	
347	Kolmogorov-Smirnov 5% Critical Value					0.231	95% BCA Bootstrap UCL					2132	
348	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					2725	
349							97.5% Chebyshev(Mean, Sd) UCL					3298	
350	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL						4423
351	95% Approximate Gamma UCL					1959							
352	95% Adjusted Gamma UCL					2050							
353													
354	Potential UCL to Use						Use 95% Approximate Gamma UCL					1959	
355													
356													
357	Lead												
358													
359	General Statistics												
360	Number of Valid Samples					14	Number of Detected Data					5	
361	Number of Unique Samples					5	Number of Non-Detect Data					9	
362							Percent Non-Detects					64.29%	
363													
364	Raw Statistics						Log-transformed Statistics						
365	Minimum Detected					1.1	Minimum Detected					0.0953	
366	Maximum Detected					19.6	Maximum Detected					2.976	
367	Mean of Detected					8.74	Mean of Detected					1.739	
368	SD of Detected					7.68	SD of Detected					1.146	
369	Minimum Non-Detect					2	Minimum Non-Detect					0.693	
370	Maximum Non-Detect					2	Maximum Non-Detect					0.693	
371													

	A	B	C	D	E	F	G	H	I	J	K	L
372												
373	UCL Statistics											
374	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
375	Shapiro Wilk Test Statistic					0.923	Shapiro Wilk Test Statistic					0.962
376	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
377	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
378												
379	Assuming Normal Distribution						Assuming Lognormal Distribution					
380	DL/2 Substitution Method						DL/2 Substitution Method					
381	Mean					3.764	Mean					0.621
382	SD					5.741	SD					1.074
383	95% DL/2 (t) UCL					6.482	95% H-Stat (DL/2) UCL					5.179
384												
385	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
386	Mean					-5.474	Mean in Log Scale					0.515
387	SD					13.42	SD in Log Scale					1.346
388	95% MLE (t) UCL					0.88	Mean in Original Scale					3.871
389	95% MLE (Tiku) UCL					5.958	SD in Original Scale					5.73
390							95% Percentile Bootstrap UCL					6.483
391							95% BCA Bootstrap UCL					7.131
392												
393	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
394	k star (bias corrected)					0.657	Data appear Normal at 5% Significance Level					
395	Theta Star					13.31						
396	nu star					6.566						
397												
398	A-D Test Statistic					0.205	Nonparametric Statistics					
399	5% A-D Critical Value					0.688	Kaplan-Meier (KM) Method					
400	K-S Test Statistic					0.688	Mean					3.829
401	5% K-S Critical Value					0.363	SD					5.5
402	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					1.644
403							95% KM (t) UCL					6.739
404	Assuming Gamma Distribution						95% KM (z) UCL					6.532
405	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					6.363
406	Minimum					0	95% KM (bootstrap t) UCL					7.711
407	Maximum					19.6	95% KM (BCA) UCL					14.46
408	Mean					3.226	95% KM (percentile) UCL					8.914
409	Median					0	95% KM (Chebyshev) UCL					10.99
410	SD					6.048	97.5% KM (Chebyshev) UCL					14.09
411	k star					0.101	99% KM (Chebyshev) UCL					20.18
412	Theta star					31.82						
413	Nu star					2.839	Potential UCLs to Use					
414	AppChi2					0.326	95% KM (t) UCL					6.739
415	95% Gamma Approximate UCL					28.06	95% KM (Percentile Bootstrap) UCL					8.914
416	95% Adjusted Gamma UCL					37.5						
417												
418												
419	Manganese											
420												
421	General Statistics											
422	Number of Valid Samples					14	Number of Unique Samples					14
423												
424	Raw Statistics						Log-transformed Statistics					

	A	B	C	D	E	F	G	H	I	J	K	L
425	Minimum					96.9	Minimum of Log Data					4.574
426	Maximum					1010	Maximum of Log Data					6.918
427	Mean					311.3	Mean of log Data					5.491
428	Median					192.5	SD of log Data					0.681
429	SD					267.1						
430	Coefficient of Variation					0.858						
431	Skewness					1.829						
432												
433	Relevant UCL Statistics											
434	Normal Distribution Test						Lognormal Distribution Test					
435	Shapiro Wilk Test Statistic					0.72	Shapiro Wilk Test Statistic					0.886
436	Shapiro Wilk Critical Value					0.874	Shapiro Wilk Critical Value					0.874
437	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
438												
439	Assuming Normal Distribution						Assuming Lognormal Distribution					
440	95% Student's-t UCL					437.7	95% H-UCL					473.6
441	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					549.1
442	95% Adjusted-CLT UCL					466	97.5% Chebyshev (MVUE) UCL					657.1
443	95% Modified-t UCL					443.5	99% Chebyshev (MVUE) UCL					869
444												
445	Gamma Distribution Test						Nonparametric Test					
446	k star (bias corrected)					1.738	Data appear Lognormal at 5% Significance Level					
447	Theta Star					179.2						
448	nu star					48.65						
449	Approximate Chi Square Value (.05)					33.64	Nonparametric Statistics					
450	Adjusted Level of Significance					0.0312	95% CLT UCL					428.7
451	Adjusted Chi Square Value					31.99	95% Jackknife UCL					437.7
452							95% Standard Bootstrap UCL					423.6
453	Anderson-Darling Test Statistic					1.13	95% Bootstrap-t UCL					519.7
454	Anderson-Darling 5% Critical Value					0.745	95% Hall's Bootstrap UCL					438
455	Kolmogorov-Smirnov Test Statistic					0.279	95% Percentile Bootstrap UCL					432.4
456	Kolmogorov-Smirnov 5% Critical Value					0.231	95% BCA Bootstrap UCL					474.9
457	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					622.4
458							97.5% Chebyshev(Mean, Sd) UCL					757.1
459	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					1022
460	95% Approximate Gamma UCL					450.2						
461	95% Adjusted Gamma UCL					473.4						
462												
463	Potential UCL to Use						Use 95% H-UCL					473.6
464												
465												
466	Vanadium											
467												
468	General Statistics											
469	Number of Valid Samples					14	Number of Detected Data					7
470	Number of Unique Samples					7	Number of Non-Detect Data					7
471							Percent Non-Detects					50.00%
472												
473	Raw Statistics						Log-transformed Statistics					
474	Minimum Detected					0.58	Minimum Detected					-0.545
475	Maximum Detected					3.2	Maximum Detected					1.163
476	Mean of Detected					1.31	Mean of Detected					0.107
477	SD of Detected					0.918	SD of Detected					0.579

	A	B	C	D	E	F	G	H	I	J	K	L	
478	Minimum Non-Detect					0.7	Minimum Non-Detect					-0.357	
479	Maximum Non-Detect					50	Maximum Non-Detect					3.912	
480													
481	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					14	
482	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					0	
483	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%	
484													
485	UCL Statistics												
486	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
487	Shapiro Wilk Test Statistic					0.762	Shapiro Wilk Test Statistic					0.897	
488	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803	
489	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
490													
491	Assuming Normal Distribution						Assuming Lognormal Distribution						
492	DL/2 Substitution Method						DL/2 Substitution Method						
493	Mean					2.591	Mean					-0.166	
494	SD					6.498	SD					1.199	
495	95% DL/2 (t) UCL					5.666	95% H-Stat (DL/2) UCL					5.62	
496													
497	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method						
498							Mean in Log Scale					-0.347	
499							SD in Log Scale					0.671	
500							Mean in Original Scale					0.894	
501							SD in Original Scale					0.768	
502							95% Percentile Bootstrap UCL					1.256	
503							95% BCA Bootstrap UCL					1.356	
504													
505	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only						
506	k star (bias corrected)					1.942	Data Follow Appr. Gamma Distribution at 5% Significance Level						
507	Theta Star					0.675							
508	nu star					27.19							
509													
510	A-D Test Statistic					0.583	Nonparametric Statistics						
511	5% A-D Critical Value					0.712	Kaplan-Meier (KM) Method						
512	K-S Test Statistic					0.712	Mean						0.973
513	5% K-S Critical Value					0.314	SD						0.722
514	Data follow approximate Gamma Distribution at 5% Significance Level						SE of Mean					0.216	
515							95% KM (t) UCL					1.356	
516	Assuming Gamma Distribution						95% KM (z) UCL					1.329	
517	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1.31	
518	Minimum					N/A	95% KM (bootstrap t) UCL					2.249	
519	Maximum					N/A	95% KM (BCA) UCL					1.527	
520	Mean					N/A	95% KM (percentile) UCL					1.399	
521	Median					N/A	95% KM (Chebyshev) UCL					1.916	
522	SD					N/A	97.5% KM (Chebyshev) UCL					2.324	
523	k star					N/A	99% KM (Chebyshev) UCL					3.126	
524	Theta star					N/A							
525	Nu star					N/A	Potential UCLs to Use						
526	AppChi2					N/A	95% KM (t) UCL					1.356	
527	95% Gamma Approximate UCL					N/A							
528	95% Adjusted Gamma UCL					N/A							
529													

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			H:\JCV\Puritan\2007\EPCs\Sediment\un_isl_pond_ucl_data.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Acetophenone											
10												
11	General Statistics											
12	Number of Valid Samples				17		Number of Detected Data				1	
13	Number of Unique Samples				1		Number of Non-Detect Data				16	
14							Percent Non-Detects				94.12%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				44		Minimum Detected				3.784	
18	Maximum Detected				44		Maximum Detected				3.784	
19	Mean of Detected				44		Mean of Detected				3.784	
20	SD of Detected				N/A		SD of Detected				N/A	
21	Minimum Non-Detect				110		Minimum Non-Detect				4.7	
22	Maximum Non-Detect				530		Maximum Non-Detect				6.273	
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				17	
25	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				0	
26	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				100.00%	
27												
28	UCL Statistics											
29	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
30	Shapiro Wilk Test Statistic				N/A		Shapiro Wilk Test Statistic				N/A	
31	5% Shapiro Wilk Critical Value				N/A		5% Shapiro Wilk Critical Value				N/A	
32	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
33												
34	Assuming Normal Distribution					Assuming Lognormal Distribution						
35	DL/2 Substitution Method						DL/2 Substitution Method					
36	Mean				177.6		Mean				5.065	
37	SD				69.49		SD				0.557	
38	95% DL/2 (t) UCL				207		95% H-Stat (DL/2) UCL				304.6	
39												
40	Maximum Likelihood Estimate(MLE) Method				N/A		Robust ROS Method					
41							Mean in Log Scale				N/A	
42							SD in Log Scale				N/A	
43							Mean in Original Scale				N/A	
44							SD in Original Scale				N/A	
45							95% Percentile Bootstrap UCL				N/A	
46							95% BCA Bootstrap UCL				N/A	
47												
48	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
49	Gamma Statistics Not Available					Data do not follow a Discernable Distribution (0.05)						
50												
51												
52	Potential UCLs to Use					Nonparametric Statistics						
53	99% KM (Chebyshev) UCL				44		Kaplan-Meier (KM) Method					

	A	B	C	D	E	F	G	H	I	J	K	L
54							Mean					44
55							SD					0
56							SE of Mean					0
57							95% KM (t) UCL					44
58							95% KM (z) UCL					44
59							95% KM (jackknife) UCL					7020
60							95% KM (bootstrap t) UCL					N/A
61							95% KM (BCA) UCL					1E+31
62							95% KM (percentile) UCL					1E+31
63							95% KM (Chebyshev) UCL					44
64							97.5% KM (Chebyshev) UCL					44
65							99% KM (Chebyshev) UCL					44
66												
67												
68	bis(2-Ethylhexyl)phthalate											
69												
70	General Statistics											
71	Number of Valid Samples					17	Number of Detected Data					16
72	Number of Unique Samples					15	Number of Non-Detect Data					1
73							Percent Non-Detects					5.88%
74												
75	Raw Statistics						Log-transformed Statistics					
76	Minimum Detected					60	Minimum Detected					4.094
77	Maximum Detected					20000	Maximum Detected					9.903
78	Mean of Detected					3045	Mean of Detected					6.467
79	SD of Detected					5572	SD of Detected					1.852
80	Minimum Non-Detect					530	Minimum Non-Detect					6.273
81	Maximum Non-Detect					530	Maximum Non-Detect					6.273
82												
83												
84	UCL Statistics											
85	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
86	Shapiro Wilk Test Statistic					0.61	Shapiro Wilk Test Statistic					0.919
87	5% Shapiro Wilk Critical Value					0.887	5% Shapiro Wilk Critical Value					0.887
88	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
89												
90	Assuming Normal Distribution						Assuming Lognormal Distribution					
91	DL/2 Substitution Method						DL/2 Substitution Method					
92	Mean					2882	Mean					6.414
93	SD					5437	SD					1.806
94	95% DL/2 (t) UCL					5184	95% H-Stat (DL/2) UCL					20965
95												
96	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
97	Mean					-2196	Mean in Log Scale					6.399
98	SD					9884	SD in Log Scale					1.815
99	95% MLE (t) UCL					1989	Mean in Original Scale					2878
100	95% MLE (Tiku) UCL					3646	SD in Original Scale					5439
101							95% Percentile Bootstrap UCL					5140
102							95% BCA Bootstrap UCL					5906
103												
104	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
105	k star (bias corrected)					0.383	Data appear Lognormal at 5% Significance Level					
106	Theta Star					7953						

	A	B	C	D	E	F	G	H	I	J	K	L
107	nu star					12.25						
108												
109	A-D Test Statistic					1.08	Nonparametric Statistics					
110	5% A-D Critical Value					0.813	Kaplan-Meier (KM) Method					
111	K-S Test Statistic					0.813	Mean					2877
112	5% K-S Critical Value					0.229	SD					5277
113	Data not Gamma Distributed at 5% Significance Level						SE of Mean					1322
114							95% KM (t) UCL					5185
115	Assuming Gamma Distribution						95% KM (z) UCL					5052
116	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					5181
117	Minimum					0	95% KM (bootstrap t) UCL					7510
118	Maximum					20000	95% KM (BCA) UCL					5237
119	Mean					2764	95% KM (percentile) UCL					5152
120	Median					0	95% KM (Chebyshev) UCL					8639
121	SD					5499	97.5% KM (Chebyshev) UCL					11133
122	k star					0.0821	99% KM (Chebyshev) UCL					16030
123	Theta star					33647						
124	Nu star					2.793	Potential UCLs to Use					
125	AppChi2					0.314	99% KM (Chebyshev) UCL					16030
126	95% Gamma Approximate UCL					24599						
127	95% Adjusted Gamma UCL					30936						
128												
129												
130	Benzo(a)pyrene											
131												
132	General Statistics											
133	Number of Valid Samples					17	Number of Detected Data					16
134	Number of Unique Samples					15	Number of Non-Detect Data					1
135							Percent Non-Detects					5.88%
136												
137	Raw Statistics						Log-transformed Statistics					
138	Minimum Detected					315	Minimum Detected					5.753
139	Maximum Detected					6700	Maximum Detected					8.81
140	Mean of Detected					1557	Mean of Detected					6.99
141	SD of Detected					1584	SD of Detected					0.856
142	Minimum Non-Detect					3.7	Minimum Non-Detect					1.308
143	Maximum Non-Detect					3.7	Maximum Non-Detect					1.308
144												
145												
146	UCL Statistics											
147	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
148	Shapiro Wilk Test Statistic					0.719	Shapiro Wilk Test Statistic					0.957
149	5% Shapiro Wilk Critical Value					0.887	5% Shapiro Wilk Critical Value					0.887
150	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
151												
152	Assuming Normal Distribution						Assuming Lognormal Distribution					
153	DL/2 Substitution Method						DL/2 Substitution Method					
154	Mean					1465	Mean					6.615
155	SD					1579	SD					1.754
156	95% DL/2 (t) UCL					2134	95% H-Stat (DL/2) UCL					11521
157												
158	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
159	Mean					1413	Mean in Log Scale					6.866

	A	B	C	D	E	F	G	H	I	J	K	L
160	SD					1604	SD in Log Scale					0.974
161	95% MLE (t) UCL					2093	Mean in Original Scale					1473
162	95% MLE (Tiku) UCL					2061	SD in Original Scale					1572
163							95% Percentile Bootstrap UCL					2164
164							95% BCA Bootstrap UCL					2410
165												
166	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
167	k star (bias corrected)					1.287	Data appear Gamma Distributed at 5% Significance Level					
168	Theta Star					1210						
169	nu star					41.18						
170												
171	A-D Test Statistic					0.415	Nonparametric Statistics					
172	5% A-D Critical Value					0.754	Kaplan-Meier (KM) Method					
173	K-S Test Statistic					0.754	Mean					1484
174	5% K-S Critical Value					0.219	SD					1516
175	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					379.8
176							95% KM (t) UCL					2147
177	Assuming Gamma Distribution						95% KM (z) UCL					2108
178	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					2142
179	Minimum					0	95% KM (bootstrap t) UCL					2714
180	Maximum					6700	95% KM (BCA) UCL					2144
181	Mean					1465	95% KM (percentile) UCL					2165
182	Median					1100	95% KM (Chebyshev) UCL					3139
183	SD					1579	97.5% KM (Chebyshev) UCL					3855
184	k star					0.326	99% KM (Chebyshev) UCL					5262
185	Theta star					4489						
186	Nu star					11.1	Potential UCLs to Use					
187	AppChi2					4.637	95% KM (Chebyshev) UCL					3139
188	95% Gamma Approximate UCL					3505						
189	95% Adjusted Gamma UCL					3863						
190												
191												
192	Benzo(b)fluoranthene											
193												
194	General Statistics											
195	Number of Valid Samples					15	Number of Detected Data					14
196	Number of Unique Samples					11	Number of Non-Detect Data					1
197							Percent Non-Detects					6.67%
198												
199	Raw Statistics						Log-transformed Statistics					
200	Minimum Detected					350	Minimum Detected					5.858
201	Maximum Detected					3200	Maximum Detected					8.071
202	Mean of Detected					1487	Mean of Detected					7.03
203	SD of Detected					1056	SD of Detected					0.8
204	Minimum Non-Detect					3.7	Minimum Non-Detect					1.308
205	Maximum Non-Detect					3.7	Maximum Non-Detect					1.308
206												
207												
208	UCL Statistics											
209	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
210	Shapiro Wilk Test Statistic					0.86	Shapiro Wilk Test Statistic					0.894
211	5% Shapiro Wilk Critical Value					0.874	5% Shapiro Wilk Critical Value					0.874
212	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L	
213													
214	Assuming Normal Distribution						Assuming Lognormal Distribution						
215	DL/2 Substitution Method						DL/2 Substitution Method						
216	Mean					1388	Mean					6.602	
217	SD					1087	SD					1.827	
218	95% DL/2 (t) UCL					1883	95% H-Stat (DL/2) UCL					15684	
219													
220	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method						
221	Mean					1352	Mean in Log Scale					6.902	
222	SD					1111	SD in Log Scale					0.917	
223	95% MLE (t) UCL					1858	Mean in Original Scale					1399	
224	95% MLE (Tiku) UCL					1851	SD in Original Scale					1073	
225							95% Percentile Bootstrap UCL					1858	
226							95% BCA Bootstrap UCL					1875	
227													
228	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only						
229	k star (bias corrected)					1.596	Data appear Gamma Distributed at 5% Significance Level						
230	Theta Star					931.9							
231	nu star					44.68							
232													
233	A-D Test Statistic					0.671	Nonparametric Statistics						
234	5% A-D Critical Value					0.746	Kaplan-Meier (KM) Method						
235	K-S Test Statistic					0.746	Mean					1411	
236	5% K-S Critical Value					0.232	SD					1023	
237	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					274.1	
238							95% KM (t) UCL					1894	
239	Assuming Gamma Distribution						95% KM (z) UCL					1862	
240	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					1889	
241	Minimum					111.4	95% KM (bootstrap t) UCL					2012	
242	Maximum					3200	95% KM (BCA) UCL					1878	
243	Mean					1395	95% KM (percentile) UCL					1872	
244	Median					1100	95% KM (Chebyshev) UCL					2606	
245	SD					1078	97.5% KM (Chebyshev) UCL					3123	
246	k star					1.255	99% KM (Chebyshev) UCL					4139	
247	Theta star					1112							
248	Nu star					37.65	Potential UCLs to Use						
249	AppChi2					24.6	95% KM (Chebyshev) UCL					2606	
250	95% Gamma Approximate UCL					2136							
251	95% Adjusted Gamma UCL					2254							
252													
253													
254	Benzo[a]anthracene												
255													
256	General Statistics												
257	Number of Valid Samples					17	Number of Detected Data					16	
258	Number of Unique Samples					15	Number of Non-Detect Data					1	
259							Percent Non-Detects					5.88%	
260													
261	Raw Statistics						Log-transformed Statistics						
262	Minimum Detected					330	Minimum Detected					5.799	
263	Maximum Detected					7100	Maximum Detected					8.868	
264	Mean of Detected					1466	Mean of Detected					6.896	
265	SD of Detected					1678	SD of Detected					0.862	

	A	B	C	D	E	F	G	H	I	J	K	L
266	Minimum Non-Detect					3.7	Minimum Non-Detect					1.308
267	Maximum Non-Detect					3.7	Maximum Non-Detect					1.308
268												
269												
270	UCL Statistics											
271	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
272	Shapiro Wilk Test Statistic					0.655	Shapiro Wilk Test Statistic					0.945
273	5% Shapiro Wilk Critical Value					0.887	5% Shapiro Wilk Critical Value					0.887
274	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
275												
276	Assuming Normal Distribution					Assuming Lognormal Distribution						
277	DL/2 Substitution Method						DL/2 Substitution Method					
278	Mean					1380	Mean					6.527
279	SD					1663	SD					1.737
280	95% DL/2 (t) UCL					2084	95% H-Stat (DL/2) UCL					9973
281												
282	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
283	Mean					1323	Mean in Log Scale					6.772
284	SD					1688	SD in Log Scale					0.98
285	95% MLE (t) UCL					2038	Mean in Original Scale					1387
286	95% MLE (Tiku) UCL					1998	SD in Original Scale					1657
287							95% Percentile Bootstrap UCL					2069
288							95% BCA Bootstrap UCL					2455
289												
290	Gamma Distribution Test with Detected Values Only					Nonparametric Test with Detected Values Only						
291	k star (bias corrected)					1.188	Data appear Gamma Distributed at 5% Significance Level					
292	Theta Star					1234						
293	nu star					38.02						
294												
295	A-D Test Statistic					0.579	Nonparametric Statistics					
296	5% A-D Critical Value					0.756	Kaplan-Meier (KM) Method					
297	K-S Test Statistic					0.756	Mean					1399
298	5% K-S Critical Value					0.219	SD					1599
299	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					400.4
300							95% KM (t) UCL					2099
301	Assuming Gamma Distribution						95% KM (z) UCL					2058
302	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					2096
303	Minimum					0	95% KM (bootstrap t) UCL					2896
304	Maximum					7100	95% KM (BCA) UCL					2132
305	Mean					1380	95% KM (percentile) UCL					2086
306	Median					840	95% KM (Chebyshev) UCL					3145
307	SD					1663	97.5% KM (Chebyshev) UCL					3900
308	k star					0.323	99% KM (Chebyshev) UCL					5384
309	Theta star					4276						
310	Nu star					10.97	Potential UCLs to Use					
311	AppChi2					4.558	95% KM (Chebyshev) UCL					3145
312	95% Gamma Approximate UCL					3322						
313	95% Adjusted Gamma UCL					3664						
314												
315												
316	Dibenz[a,h]anthracene											
317												
318	General Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
319	Number of Valid Samples					17	Number of Detected Data					13
320	Number of Unique Samples					11	Number of Non-Detect Data					4
321							Percent Non-Detects					23.53%
322												
323	Raw Statistics						Log-transformed Statistics					
324	Minimum Detected					42	Minimum Detected					3.738
325	Maximum Detected					920	Maximum Detected					6.824
326	Mean of Detected					252.7	Mean of Detected					5.083
327	SD of Detected					256.1	SD of Detected					0.997
328	Minimum Non-Detect					3.7	Minimum Non-Detect					1.308
329	Maximum Non-Detect					480	Maximum Non-Detect					6.174
330												
331	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					14
332	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					3
333	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					82.35%
334												
335	UCL Statistics											
336	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
337	Shapiro Wilk Test Statistic					0.8	Shapiro Wilk Test Statistic					0.949
338	5% Shapiro Wilk Critical Value					0.866	5% Shapiro Wilk Critical Value					0.866
339	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
340												
341	Assuming Normal Distribution						Assuming Lognormal Distribution					
342	DL/2 Substitution Method						DL/2 Substitution Method					
343	Mean					231.9	Mean					4.872
344	SD					230.3	SD					1.402
345	95% DL/2 (t) UCL					329.4	95% H-Stat (DL/2) UCL					1567
346												
347	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
348	Mean					155.5	Mean in Log Scale					4.851
349	SD					338.2	SD in Log Scale					1.039
350	95% MLE (t) UCL					298.7	Mean in Original Scale					210.7
351	95% MLE (Tiku) UCL					542.5	SD in Original Scale					235.8
352							95% Percentile Bootstrap UCL					307.1
353							95% BCA Bootstrap UCL					339.9
354												
355	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
356	k star (bias corrected)					1.015	Data appear Gamma Distributed at 5% Significance Level					
357	Theta Star					249						
358	nu star					26.39						
359												
360	A-D Test Statistic					0.403	Nonparametric Statistics					
361	5% A-D Critical Value					0.754	Kaplan-Meier (KM) Method					
362	K-S Test Statistic					0.754	Mean					217.1
363	5% K-S Critical Value					0.242	SD					228.3
364	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					58.59
365							95% KM (t) UCL					319.3
366	Assuming Gamma Distribution						95% KM (z) UCL					313.4
367	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					318.6
368	Minimum					N/A	95% KM (bootstrap t) UCL					378.7
369	Maximum					N/A	95% KM (BCA) UCL					327.6
370	Mean					N/A	95% KM (percentile) UCL					316.9
371	Median					N/A	95% KM (Chebyshev) UCL					472.4

	A	B	C	D	E	F	G	H	I	J	K	L
372	SD					N/A	97.5% KM (Chebyshev) UCL					582.9
373	k star					N/A	99% KM (Chebyshev) UCL					800
374	Theta star					N/A						
375	Nu star					N/A	Potential UCLs to Use					
376	AppChi2					N/A	95% KM (BCA) UCL					327.6
377	95% Gamma Approximate UCL					N/A						
378	95% Adjusted Gamma UCL					N/A						
379												
380												
381	Indeno(1,2,3-cd)pyrene											
382												
383	General Statistics											
384	Number of Valid Samples					17	Number of Detected Data					16
385	Number of Unique Samples					13	Number of Non-Detect Data					1
386							Percent Non-Detects					5.88%
387												
388	Raw Statistics						Log-transformed Statistics					
389	Minimum Detected					130	Minimum Detected					4.868
390	Maximum Detected					1400	Maximum Detected					7.244
391	Mean of Detected					608.4	Mean of Detected					6.134
392	SD of Detected					447.5	SD of Detected					0.8
393	Minimum Non-Detect					3.7	Minimum Non-Detect					1.308
394	Maximum Non-Detect					3.7	Maximum Non-Detect					1.308
395												
396												
397	UCL Statistics											
398	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
399	Shapiro Wilk Test Statistic					0.847	Shapiro Wilk Test Statistic					0.93
400	5% Shapiro Wilk Critical Value					0.887	5% Shapiro Wilk Critical Value					0.887
401	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
402												
403	Assuming Normal Distribution						Assuming Lognormal Distribution					
404	DL/2 Substitution Method						DL/2 Substitution Method					
405	Mean					572.8	Mean					5.809
406	SD					457.6	SD					1.547
407	95% DL/2 (t) UCL					766.5	95% H-Stat (DL/2) UCL					2782
408												
409	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
410	Mean					559.5	Mean in Log Scale					6.019
411	SD					466.2	SD in Log Scale					0.908
412	95% MLE (t) UCL					756.9	Mean in Original Scale					576.5
413	95% MLE (Tiku) UCL					753.1	SD in Original Scale					452.9
414							95% Percentile Bootstrap UCL					757.7
415							95% BCA Bootstrap UCL					791.5
416												
417	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
418	k star (bias corrected)					1.631	Data appear Gamma Distributed at 5% Significance Level					
419	Theta Star					373.1						
420	nu star					52.18						
421												
422	A-D Test Statistic					0.435	Nonparametric Statistics					
423	5% A-D Critical Value					0.751	Kaplan-Meier (KM) Method					
424	K-S Test Statistic					0.751	Mean					580.3

	A	B	C	D	E	F	G	H	I	J	K	L
425	5% K-S Critical Value					0.218	SD					435.2
426	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					109
427							95% KM (t) UCL					770.6
428	Assuming Gamma Distribution						95% KM (z) UCL					759.6
429	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					769.9
430	Minimum					0	95% KM (bootstrap t) UCL					826.7
431	Maximum					1400	95% KM (BCA) UCL					756.5
432	Mean					572.6	95% KM (percentile) UCL					751.2
433	Median					460	95% KM (Chebyshev) UCL					1055
434	SD					457.7	97.5% KM (Chebyshev) UCL					1261
435	k star					0.345	99% KM (Chebyshev) UCL					1665
436	Theta star					1662						
437	Nu star					11.72	Potential UCLs to Use					
438	AppChi2					5.042	95% KM (Chebyshev) UCL					1055
439	95% Gamma Approximate UCL					1331						
440	95% Adjusted Gamma UCL					1462						
441												
442												
443	Aroclor-1254											
444												
445	General Statistics											
446	Number of Valid Samples					17	Number of Detected Data					5
447	Number of Unique Samples					5	Number of Non-Detect Data					12
448							Percent Non-Detects					70.59%
449												
450	Raw Statistics						Log-transformed Statistics					
451	Minimum Detected					50	Minimum Detected					3.912
452	Maximum Detected					650	Maximum Detected					6.477
453	Mean of Detected					312	Mean of Detected					5.443
454	SD of Detected					230	SD of Detected					0.972
455	Minimum Non-Detect					7.1	Minimum Non-Detect					1.96
456	Maximum Non-Detect					11	Maximum Non-Detect					2.398
457												
458	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					12
459	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					5
460	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					70.59%
461												
462	UCL Statistics											
463	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
464	Shapiro Wilk Test Statistic					0.954	Shapiro Wilk Test Statistic					0.927
465	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
466	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
467												
468	Assuming Normal Distribution						Assuming Lognormal Distribution					
469	DL/2 Substitution Method						DL/2 Substitution Method					
470	Mean					94.68	Mean					2.596
471	SD					184.8	SD					1.959
472	95% DL/2 (t) UCL					172.9	95% H-Stat (DL/2) UCL					325.8
473												
474	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
475	Mean					-226.5	Mean in Log Scale					2.978
476	SD					452.1	SD in Log Scale					1.78
477	95% MLE (t) UCL					-35.05	Mean in Original Scale					97.56

	A	B	C	D	E	F	G	H	I	J	K	L
478	95% MLE (Tiku) UCL					109.6	SD in Original Scale					183.3
479							95% Percentile Bootstrap UCL					180
480							95% BCA Bootstrap UCL					200.6
481												
482	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
483	k star (bias corrected)					0.859	Data appear Normal at 5% Significance Level					
484	Theta Star					363.1						
485	nu star					8.593						
486												
487	A-D Test Statistic					0.239	Nonparametric Statistics					
488	5% A-D Critical Value					0.685	Kaplan-Meier (KM) Method					
489	K-S Test Statistic					0.685	Mean					127.1
490	5% K-S Critical Value					0.361	SD					163.4
491	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					44.31
492							95% KM (t) UCL					204.4
493	Assuming Gamma Distribution						95% KM (z) UCL					199.9
494	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					231.6
495	Minimum					0	95% KM (bootstrap t) UCL					218
496	Maximum					650	95% KM (BCA) UCL					433.5
497	Mean					94.91	95% KM (percentile) UCL					303.5
498	Median					0	95% KM (Chebyshev) UCL					320.2
499	SD					185	97.5% KM (Chebyshev) UCL					403.8
500	k star					0.0872	99% KM (Chebyshev) UCL					567.9
501	Theta star					1089						
502	Nu star					2.964	Potential UCLs to Use					
503	AppChi2					0.362	95% KM (t) UCL					204.4
504	95% Gamma Approximate UCL					777.4	95% KM (Percentile Bootstrap) UCL					303.5
505	95% Adjusted Gamma UCL					975.6						
506												
507												
508	Aroclor-1260											
509												
510	General Statistics											
511	Number of Valid Samples					16	Number of Detected Data					10
512	Number of Unique Samples					9	Number of Non-Detect Data					6
513							Percent Non-Detects					37.50%
514												
515	Raw Statistics						Log-transformed Statistics					
516	Minimum Detected					10	Minimum Detected					2.303
517	Maximum Detected					550	Maximum Detected					6.31
518	Mean of Detected					183.1	Mean of Detected					4.765
519	SD of Detected					173	SD of Detected					1.117
520	Minimum Non-Detect					7.5	Minimum Non-Detect					2.015
521	Maximum Non-Detect					9.7	Maximum Non-Detect					2.272
522												
523	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					6
524	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					10
525	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					37.50%
526												
527	UCL Statistics											
528	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
529	Shapiro Wilk Test Statistic					0.805	Shapiro Wilk Test Statistic					0.904
530	5% Shapiro Wilk Critical Value					0.842	5% Shapiro Wilk Critical Value					0.842

	A	B	C	D	E	F	G	H	I	J	K	L
531	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
532												
533	Assuming Normal Distribution						Assuming Lognormal Distribution					
534	DL/2 Substitution Method						DL/2 Substitution Method					
535	Mean					116	Mean					3.52
536	SD					161.1	SD					1.873
537	95% DL/2 (t) UCL					186.6	95% H-Stat (DL/2) UCL					726.7
538												
539	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
540	Mean					58.35	Mean in Log Scale					3.787
541	SD					220.4	SD in Log Scale					1.572
542	95% MLE (t) UCL					154.9	Mean in Original Scale					117.8
543	95% MLE (Tiku) UCL					164.9	SD in Original Scale					159.8
544							95% Percentile Bootstrap UCL					186.8
545							95% BCA Bootstrap UCL					206.8
546												
547	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
548	k star (bias corrected)					0.951	Data appear Gamma Distributed at 5% Significance Level					
549	Theta Star					192.6						
550	nu star					19.02						
551												
552	A-D Test Statistic					0.448	Nonparametric Statistics					
553	5% A-D Critical Value					0.744	Kaplan-Meier (KM) Method					
554	K-S Test Statistic					0.744	Mean					118.2
555	5% K-S Critical Value					0.272	SD					154.4
556	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					40.7
557							95% KM (t) UCL					189.5
558	Assuming Gamma Distribution						95% KM (z) UCL					185.1
559	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					181.9
560	Minimum					0	95% KM (bootstrap t) UCL					237.1
561	Maximum					550	95% KM (BCA) UCL					221.1
562	Mean					114.4	95% KM (percentile) UCL					199.1
563	Median					78	95% KM (Chebyshev) UCL					295.6
564	SD					162.3	97.5% KM (Chebyshev) UCL					372.3
565	k star					0.112	99% KM (Chebyshev) UCL					523.1
566	Theta star					1021						
567	Nu star					3.587	Potential UCLs to Use					
568	AppChi2					0.566	95% KM (BCA) UCL					221.1
569	95% Gamma Approximate UCL					725.6						
570	95% Adjusted Gamma UCL					911.4						
571												
572												
573	Dieldrin											
574												
575	General Statistics											
576	Number of Valid Samples					14	Number of Detected Data					6
577	Number of Unique Samples					6	Number of Non-Detect Data					8
578							Percent Non-Detects					57.14%
579												
580	Raw Statistics						Log-transformed Statistics					
581	Minimum Detected					2	Minimum Detected					0.693
582	Maximum Detected					21	Maximum Detected					3.045
583	Mean of Detected					10.53	Mean of Detected					2.011

	A	B	C	D	E	F	G	H	I	J	K	L
584	SD of Detected					8.282	SD of Detected					0.97
585	Minimum Non-Detect					0.72	Minimum Non-Detect					-0.329
586	Maximum Non-Detect					4.445	Maximum Non-Detect					1.492
587												
588	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					11
589	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					3
590	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					78.57%
591												
592	UCL Statistics											
593	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
594	Shapiro Wilk Test Statistic					0.862	Shapiro Wilk Test Statistic					0.892
595	5% Shapiro Wilk Critical Value					0.788	5% Shapiro Wilk Critical Value					0.788
596	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
597												
598	Assuming Normal Distribution						Assuming Lognormal Distribution					
599	DL/2 Substitution Method						DL/2 Substitution Method					
600	Mean					4.884	Mean					0.481
601	SD					7.237	SD					1.566
602	95% DL/2 (t) UCL					8.309	95% H-Stat (DL/2) UCL					23.99
603												
604	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
605	Mean					-6.839	Mean in Log Scale					0.541
606	SD					18.32	SD in Log Scale					1.46
607	95% MLE (t) UCL					1.831	Mean in Original Scale					4.848
608	95% MLE (Tiku) UCL					11.54	SD in Original Scale					7.246
609							95% Percentile Bootstrap UCL					8.275
610							95% BCA Bootstrap UCL					8.703
611												
612	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only					
613	k star (bias corrected)					0.913	Data appear Normal at 5% Significance Level					
614	Theta Star					11.54						
615	nu star					10.95						
616												
617	A-D Test Statistic					0.442	Nonparametric Statistics					
618	5% A-D Critical Value					0.707	Kaplan-Meier (KM) Method					
619	K-S Test Statistic					0.707	Mean					5.687
620	5% K-S Critical Value					0.337	SD					6.494
621	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					1.902
622							95% KM (t) UCL					9.056
623	Assuming Gamma Distribution						95% KM (z) UCL					8.816
624	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					8.584
625	Minimum					N/A	95% KM (bootstrap t) UCL					9.076
626	Maximum					N/A	95% KM (BCA) UCL					14.57
627	Mean					N/A	95% KM (percentile) UCL					10.23
628	Median					N/A	95% KM (Chebyshev) UCL					13.98
629	SD					N/A	97.5% KM (Chebyshev) UCL					17.57
630	k star					N/A	99% KM (Chebyshev) UCL					24.62
631	Theta star					N/A						
632	Nu star					N/A	Potential UCLs to Use					
633	AppChi2					N/A	95% KM (t) UCL					9.056
634	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					10.23
635	95% Adjusted Gamma UCL					N/A						
636												

	A	B	C	D	E	F	G	H	I	J	K	L	
637													
638	Aluminum												
639													
640	General Statistics												
641	Number of Valid Samples					17		Number of Unique Samples					17
642													
643	Raw Statistics						Log-transformed Statistics						
644	Minimum					2310		Minimum of Log Data					7.745
645	Maximum					12000		Maximum of Log Data					9.393
646	Mean					5916		Mean of log Data					8.541
647	Median					4950		SD of log Data					0.563
648	SD					3178							
649	Coefficient of Variation					0.537							
650	Skewness					0.493							
651													
652	Relevant UCL Statistics												
653	Normal Distribution Test						Lognormal Distribution Test						
654	Shapiro Wilk Test Statistic					0.895		Shapiro Wilk Test Statistic					0.907
655	Shapiro Wilk Critical Value					0.892		Shapiro Wilk Critical Value					0.892
656	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
657													
658	Assuming Normal Distribution						Assuming Lognormal Distribution						
659	95% Student's-t UCL					7262		95% H-UCL					8076
660	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					9620	
661	95% Adjusted-CLT UCL					7283		97.5% Chebyshev (MVUE) UCL					11213
662	95% Modified-t UCL					7277		99% Chebyshev (MVUE) UCL					14343
663													
664	Gamma Distribution Test						Nonparametric Test						
665	k star (bias corrected)					3.018		Data appear Normal at 5% Significance Level					
666	Theta Star					1961							
667	nu star					102.6							
668	Approximate Chi Square Value (.05)					80.23		Nonparametric Statistics					
669	Adjusted Level of Significance					0.0346		95% CLT UCL					7184
670	Adjusted Chi Square Value					78.16		95% Jackknife UCL					7262
671								95% Standard Bootstrap UCL					7197
672	Anderson-Darling Test Statistic					0.661		95% Bootstrap-t UCL					7431
673	Anderson-Darling 5% Critical Value					0.744		95% Hall's Bootstrap UCL					7246
674	Kolmogorov-Smirnov Test Statistic					0.178		95% Percentile Bootstrap UCL					7199
675	Kolmogorov-Smirnov 5% Critical Value					0.21		95% BCA Bootstrap UCL					7231
676	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					9276	
677								97.5% Chebyshev(Mean, Sd) UCL					10730
678	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					13586	
679	95% Approximate Gamma UCL					7566							
680	95% Adjusted Gamma UCL					7766							
681													
682	Potential UCL to Use						Use 95% Student's-t UCL					7262	
683													
684													
685	Antimony												
686													
687	General Statistics												
688	Number of Valid Samples					17		Number of Detected Data					13
689	Number of Unique Samples					12		Number of Non-Detect Data					4

	A	B	C	D	E	F	G	H	I	J	K	L
690							Percent Non-Detects					23.53%
691												
692	Raw Statistics					Log-transformed Statistics						
693	Minimum Detected					0.27	Minimum Detected					-1.309
694	Maximum Detected					18.9	Maximum Detected					2.939
695	Mean of Detected					2.833	Mean of Detected					0.294
696	SD of Detected					5.023	SD of Detected					1.122
697	Minimum Non-Detect					0.36	Minimum Non-Detect					-1.022
698	Maximum Non-Detect					0.56	Maximum Non-Detect					-0.58
699												
700	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					7
701	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					10
702	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					41.18%
703												
704	UCL Statistics											
705	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
706	Shapiro Wilk Test Statistic					0.515	Shapiro Wilk Test Statistic					0.935
707	5% Shapiro Wilk Critical Value					0.866	5% Shapiro Wilk Critical Value					0.866
708	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
709												
710	Assuming Normal Distribution					Assuming Lognormal Distribution						
711	DL/2 Substitution Method						DL/2 Substitution Method					
712	Mean					2.219	Mean					-0.13
713	SD					4.497	SD					1.254
714	95% DL/2 (t) UCL					4.123	95% H-Stat (DL/2) UCL					3.941
715												
716	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
717	Mean					0.256	Mean in Log Scale					-0.167
718	SD					6.156	SD in Log Scale					1.298
719	95% MLE (t) UCL					2.863	Mean in Original Scale					2.211
720	95% MLE (Tiku) UCL					3.223	SD in Original Scale					4.501
721							95% Percentile Bootstrap UCL					4.324
722							95% BCA Bootstrap UCL					5.582
723												
724	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
725	k star (bias corrected)					0.663	Data appear Lognormal at 5% Significance Level					
726	Theta Star					4.272						
727	nu star					17.24						
728												
729	A-D Test Statistic					1.052	Nonparametric Statistics					
730	5% A-D Critical Value					0.768	Kaplan-Meier (KM) Method					
731	K-S Test Statistic					0.768	Mean					2.234
732	5% K-S Critical Value					0.245	SD					4.356
733	Data not Gamma Distributed at 5% Significance Level						SE of Mean					1.1
734							95% KM (t) UCL					4.154
735	Assuming Gamma Distribution						95% KM (z) UCL					4.043
736	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4.103
737	Minimum					0	95% KM (bootstrap t) UCL					11.93
738	Maximum					18.9	95% KM (BCA) UCL					4.549
739	Mean					2.094	95% KM (percentile) UCL					4.241
740	Median					0.77	95% KM (Chebyshev) UCL					7.027
741	SD					4.555	97.5% KM (Chebyshev) UCL					9.101
742	k star					0.115	99% KM (Chebyshev) UCL					13.18

	A	B	C	D	E	F	G	H	I	J	K	L
743	Theta star					18.17						
744	Nu star					3.919	Potential UCLs to Use					
745	AppChi2					0.69	97.5% KM (Chebyshev) UCL					9.101
746	95% Gamma Approximate UCL					11.9						
747	95% Adjusted Gamma UCL					14.51						
748												
749												
750	Arsenic											
751												
752	General Statistics											
753	Number of Valid Samples					17	Number of Detected Data					16
754	Number of Unique Samples					15	Number of Non-Detect Data					1
755							Percent Non-Detects					5.88%
756												
757	Raw Statistics						Log-transformed Statistics					
758	Minimum Detected					1.1	Minimum Detected					0.0953
759	Maximum Detected					21.5	Maximum Detected					3.068
760	Mean of Detected					9.759	Mean of Detected					1.981
761	SD of Detected					6.625	SD of Detected					0.894
762	Minimum Non-Detect					0.44	Minimum Non-Detect					-0.821
763	Maximum Non-Detect					0.44	Maximum Non-Detect					-0.821
764												
765												
766	UCL Statistics											
767	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
768	Shapiro Wilk Test Statistic					0.928	Shapiro Wilk Test Statistic					0.917
769	5% Shapiro Wilk Critical Value					0.887	5% Shapiro Wilk Critical Value					0.887
770	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
771												
772	Assuming Normal Distribution						Assuming Lognormal Distribution					
773	DL/2 Substitution Method						DL/2 Substitution Method					
774	Mean					9.198	Mean					1.775
775	SD					6.819	SD					1.212
776	95% DL/2 (t) UCL					12.09	95% H-Stat (DL/2) UCL					22.79
777												
778	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
779	Mean					9.015	Mean in Log Scale					1.856
780	SD					6.934	SD in Log Scale					1.007
781	95% MLE (t) UCL					11.95	Mean in Original Scale					9.236
782	95% MLE (Tiku) UCL					11.91	SD in Original Scale					6.767
783							95% Percentile Bootstrap UCL					11.94
784							95% BCA Bootstrap UCL					12.02
785												
786	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
787	k star (bias corrected)					1.529	Data appear Normal at 5% Significance Level					
788	Theta Star					6.385						
789	nu star					48.91						
790												
791	A-D Test Statistic					0.304	Nonparametric Statistics					
792	5% A-D Critical Value					0.752	Kaplan-Meier (KM) Method					
793	K-S Test Statistic					0.752	Mean					9.25
794	5% K-S Critical Value					0.218	SD					6.548
795	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					1.64

	A	B	C	D	E	F	G	H	I	J	K	L
796							95% KM (t) UCL					12.11
797	Assuming Gamma Distribution						95% KM (z) UCL					11.95
798	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					12.09
799	Minimum					1.1	95% KM (bootstrap t) UCL					12.17
800	Maximum					21.5	95% KM (BCA) UCL					11.83
801	Mean					9.288	95% KM (percentile) UCL					11.97
802	Median					7.3	95% KM (Chebyshev) UCL					16.4
803	SD					6.703	97.5% KM (Chebyshev) UCL					19.49
804	k star					1.401	99% KM (Chebyshev) UCL					25.57
805	Theta star					6.627						
806	Nu star					47.65	Potential UCLs to Use					
807	AppChi2					32.81	95% KM (t) UCL					12.11
808	95% Gamma Approximate UCL					13.49	95% KM (Percentile Bootstrap) UCL					11.97
809	95% Adjusted Gamma UCL					14.04						
810												
811												
812	Barium											
813												
814	General Statistics											
815	Number of Valid Samples					17	Number of Detected Data					13
816	Number of Unique Samples					13	Number of Non-Detect Data					4
817							Percent Non-Detects					23.53%
818												
819	Raw Statistics						Log-transformed Statistics					
820	Minimum Detected					15.4	Minimum Detected					2.734
821	Maximum Detected					617	Maximum Detected					6.425
822	Mean of Detected					140.5	Mean of Detected					4.366
823	SD of Detected					182.1	SD of Detected					1.082
824	Minimum Non-Detect					36	Minimum Non-Detect					3.584
825	Maximum Non-Detect					46	Maximum Non-Detect					3.829
826												
827	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					7
828	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					10
829	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					41.18%
830												
831	UCL Statistics											
832	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
833	Shapiro Wilk Test Statistic					0.663	Shapiro Wilk Test Statistic					0.955
834	5% Shapiro Wilk Critical Value					0.866	5% Shapiro Wilk Critical Value					0.866
835	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
836												
837	Assuming Normal Distribution						Assuming Lognormal Distribution					
838	DL/2 Substitution Method						DL/2 Substitution Method					
839	Mean					112.4	Mean					4.056
840	SD					166.1	SD					1.101
841	95% DL/2 (t) UCL					182.7	95% H-Stat (DL/2) UCL					188.1
842												
843	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
844	Mean					48.99	Mean in Log Scale					4.034
845	SD					225.4	SD in Log Scale					1.122
846	95% MLE (t) UCL					144.4	Mean in Original Scale					111.9
847	95% MLE (Tiku) UCL					157.3	SD in Original Scale					166.4
848							95% Percentile Bootstrap UCL					182.9

	A	B	C	D	E	F	G	H	I	J	K	L
849							95% BCA Bootstrap UCL					210.2
850												
851	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
852	k star (bias corrected)					0.818	Data appear Gamma Distributed at 5% Significance Level					
853	Theta Star					171.7						
854	nu star					21.28						
855												
856	A-D Test Statistic					0.678	Nonparametric Statistics					
857	5% A-D Critical Value					0.758	Kaplan-Meier (KM) Method					
858	K-S Test Statistic					0.758	Mean					112.5
859	5% K-S Critical Value					0.243	SD					161.1
860	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					40.69
861							95% KM (t) UCL					183.5
862	Assuming Gamma Distribution						95% KM (z) UCL					179.4
863	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					182.9
864	Minimum					0	95% KM (bootstrap t) UCL					346.2
865	Maximum					617	95% KM (BCA) UCL					191.2
866	Mean					103.7	95% KM (percentile) UCL					186.4
867	Median					54	95% KM (Chebyshev) UCL					289.9
868	SD					171.4	97.5% KM (Chebyshev) UCL					366.6
869	k star					0.105	99% KM (Chebyshev) UCL					517.4
870	Theta star					983.2						
871	Nu star					3.585	Potential UCLs to Use					
872	AppChi2					0.565	95% KM (Chebyshev) UCL					289.9
873	95% Gamma Approximate UCL					657.9						
874	95% Adjusted Gamma UCL					811.3						
875												
876												
877	Cadmium											
878												
879	General Statistics											
880	Number of Valid Samples					17	Number of Unique Samples					17
881												
882	Raw Statistics						Log-transformed Statistics					
883	Minimum					0.45	Minimum of Log Data					-0.799
884	Maximum					25	Maximum of Log Data					3.219
885	Mean					7.819	Mean of log Data					1.388
886	Median					4.3	SD of log Data					1.351
887	SD					7.631						
888	Coefficient of Variation					0.976						
889	Skewness					0.834						
890												
891	Relevant UCL Statistics											
892	Normal Distribution Test						Lognormal Distribution Test					
893	Shapiro Wilk Test Statistic					0.863	Shapiro Wilk Test Statistic					0.919
894	Shapiro Wilk Critical Value					0.892	Shapiro Wilk Critical Value					0.892
895	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
896												
897	Assuming Normal Distribution						Assuming Lognormal Distribution					
898	95% Student's-t UCL					11.05	95% H-UCL					29.91
899	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					24.08
900	95% Adjusted-CLT UCL					11.26	97.5% Chebyshev (MVUE) UCL					30.56
901	95% Modified-t UCL					11.11	99% Chebyshev (MVUE) UCL					43.29

	A	B	C	D	E	F	G	H	I	J	K	L
902												
903	Gamma Distribution Test						Nonparametric Test					
904	k star (bias corrected)					0.762	Data appear Gamma Distributed at 5% Significance Level					
905	Theta Star					10.26						
906	nu star					25.9						
907	Approximate Chi Square Value (.05)					15.3	Nonparametric Statistics					
908	Adjusted Level of Significance					0.0346	95% CLT UCL					10.86
909	Adjusted Chi Square Value					14.45	95% Jackknife UCL					11.05
910							95% Standard Bootstrap UCL					10.76
911	Anderson-Darling Test Statistic					0.499	95% Bootstrap-t UCL					11.63
912	Anderson-Darling 5% Critical Value					0.771	95% Hall's Bootstrap UCL					11.17
913	Kolmogorov-Smirnov Test Statistic					0.17	95% Percentile Bootstrap UCL					10.79
914	Kolmogorov-Smirnov 5% Critical Value					0.216	95% BCA Bootstrap UCL					10.86
915	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					15.89
916							97.5% Chebyshev(Mean, Sd) UCL					19.38
917	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					26.23
918	95% Approximate Gamma UCL					13.23						
919	95% Adjusted Gamma UCL					14.01						
920												
921	Potential UCL to Use						Use 95% Approximate Gamma UCL					13.23
922												
923												
924	Chromium											
925												
926	General Statistics											
927	Number of Valid Samples					17	Number of Unique Samples					17
928												
929	Raw Statistics						Log-transformed Statistics					
930	Minimum					4.8	Minimum of Log Data					1.569
931	Maximum					354	Maximum of Log Data					5.869
932	Mean					103.2	Mean of log Data					4.063
933	Median					70.1	SD of log Data					1.25
934	SD					100.1						
935	Coefficient of Variation					0.971						
936	Skewness					1.237						
937												
938	Relevant UCL Statistics											
939	Normal Distribution Test						Lognormal Distribution Test					
940	Shapiro Wilk Test Statistic					0.865	Shapiro Wilk Test Statistic					0.959
941	Shapiro Wilk Critical Value					0.892	Shapiro Wilk Critical Value					0.892
942	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
943												
944	Assuming Normal Distribution						Assuming Lognormal Distribution					
945	95% Student's-t UCL					145.6	95% H-UCL					332.7
946	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					295.6
947	95% Adjusted-CLT UCL					150.9	97.5% Chebyshev (MVUE) UCL					372.4
948	95% Modified-t UCL					146.8	99% Chebyshev (MVUE) UCL					523.3
949												
950	Gamma Distribution Test						Nonparametric Test					
951	k star (bias corrected)					0.868	Data appear Gamma Distributed at 5% Significance Level					
952	Theta Star					118.9						
953	nu star					29.5						
954	Approximate Chi Square Value (.05)					18.1	Nonparametric Statistics					

	A	B	C	D	E	F	G	H	I	J	K	L
955	Adjusted Level of Significance					0.0346	95% CLT UCL					143.1
956	Adjusted Chi Square Value					17.16	95% Jackknife UCL					145.6
957							95% Standard Bootstrap UCL					141.3
958	Anderson-Darling Test Statistic					0.161	95% Bootstrap-t UCL					156.3
959	Anderson-Darling 5% Critical Value					0.766	95% Hall's Bootstrap UCL					160.4
960	Kolmogorov-Smirnov Test Statistic					0.0971	95% Percentile Bootstrap UCL					142.7
961	Kolmogorov-Smirnov 5% Critical Value					0.215	95% BCA Bootstrap UCL					148.2
962	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					209.1
963							97.5% Chebyshev(Mean, Sd) UCL					254.9
964	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					344.9
965	95% Approximate Gamma UCL					168.2						
966	95% Adjusted Gamma UCL					177.3						
967												
968	Potential UCL to Use						Use 95% Approximate Gamma UCL					168.2
969												
970												
971	Copper											
972												
973	General Statistics											
974	Number of Valid Samples					17	Number of Detected Data					16
975	Number of Unique Samples					16	Number of Non-Detect Data					1
976							Percent Non-Detects					5.88%
977												
978	Raw Statistics						Log-transformed Statistics					
979	Minimum Detected					12.7	Minimum Detected					2.542
980	Maximum Detected					653	Maximum Detected					6.482
981	Mean of Detected					156.2	Mean of Detected					4.464
982	SD of Detected					174.9	SD of Detected					1.183
983	Minimum Non-Detect					5.5	Minimum Non-Detect					1.705
984	Maximum Non-Detect					5.5	Maximum Non-Detect					1.705
985												
986												
987	UCL Statistics											
988	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
989	Shapiro Wilk Test Statistic					0.781	Shapiro Wilk Test Statistic					0.969
990	5% Shapiro Wilk Critical Value					0.887	5% Shapiro Wilk Critical Value					0.887
991	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
992												
993	Assuming Normal Distribution						Assuming Lognormal Distribution					
994	DL/2 Substitution Method						DL/2 Substitution Method					
995	Mean					147.2	Mean					4.261
996	SD					173.4	SD					1.419
997	95% DL/2 (t) UCL					220.6	95% H-Stat (DL/2) UCL					472.2
998												
999	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
1000	Mean					141.4	Mean in Log Scale					4.292
1001	SD					175.9	SD in Log Scale					1.348
1002	95% MLE (t) UCL					215.9	Mean in Original Scale					147.3
1003	95% MLE (Tiku) UCL					211.7	SD in Original Scale					173.3
1004							95% Percentile Bootstrap UCL					220.8
1005							95% BCA Bootstrap UCL					231.5
1006												
1007	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					

	A	B	C	D	E	F	G	H	I	J	K	L	
1008	k star (bias corrected)					0.842	Data appear Gamma Distributed at 5% Significance Level						
1009	Theta Star					185.5							
1010	nu star					26.94							
1011													
1012	A-D Test Statistic					0.26	Nonparametric Statistics						
1013	5% A-D Critical Value					0.764	Kaplan-Meier (KM) Method						
1014	K-S Test Statistic					0.764	Mean					147.8	
1015	5% K-S Critical Value					0.221	SD					167.8	
1016	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					42.02	
1017							95% KM (t) UCL					221.1	
1018	Assuming Gamma Distribution						95% KM (z) UCL					216.9	
1019	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					220.9	
1020	Minimum					0	95% KM (bootstrap t) UCL					282.7	
1021	Maximum					653	95% KM (BCA) UCL					222.7	
1022	Mean					147	95% KM (percentile) UCL					216.6	
1023	Median					70.5	95% KM (Chebyshev) UCL					330.9	
1024	SD					173.6	97.5% KM (Chebyshev) UCL					410.2	
1025	k star					0.317	99% KM (Chebyshev) UCL					565.9	
1026	Theta star					464.2							
1027	Nu star					10.77	Potential UCLs to Use						
1028	AppChi2					4.427	95% KM (Chebyshev) UCL					330.9	
1029	95% Gamma Approximate UCL					357.6							
1030	95% Adjusted Gamma UCL					394.9							
1031													
1032													
1033	Iron												
1034													
1035	General Statistics												
1036	Number of Valid Samples					17	Number of Unique Samples					17	
1037													
1038	Raw Statistics						Log-transformed Statistics						
1039	Minimum					4155	Minimum of Log Data					8.332	
1040	Maximum					49600	Maximum of Log Data					10.81	
1041	Mean					13591	Mean of log Data					9.288	
1042	Median					11700	SD of log Data					0.672	
1043	SD					11005							
1044	Coefficient of Variation					0.81							
1045	Skewness					2.376							
1046													
1047	Relevant UCL Statistics												
1048	Normal Distribution Test						Lognormal Distribution Test						
1049	Shapiro Wilk Test Statistic					0.753	Shapiro Wilk Test Statistic					0.964	
1050	Shapiro Wilk Critical Value					0.892	Shapiro Wilk Critical Value					0.892	
1051	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
1052													
1053	Assuming Normal Distribution						Assuming Lognormal Distribution						
1054	95% Student's-t UCL					18251	95% H-UCL					19726	
1055	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					23353	
1056	95% Adjusted-CLT UCL					19625	97.5% Chebyshev (MVUE) UCL					27685	
1057	95% Modified-t UCL					18508	99% Chebyshev (MVUE) UCL					36194	
1058													
1059	Gamma Distribution Test						Nonparametric Test						
1060	k star (bias corrected)					1.965	Data appear Gamma Distributed at 5% Significance Level						

	A	B	C	D	E	F	G	H	I	J	K	L	
1061	Theta Star					6918							
1062	nu star					66.8							
1063	Approximate Chi Square Value (.05)					48.99	Nonparametric Statistics						
1064	Adjusted Level of Significance					0.0346	95% CLT UCL					17982	
1065	Adjusted Chi Square Value					47.4	95% Jackknife UCL					18251	
1066							95% Standard Bootstrap UCL					17882	
1067	Anderson-Darling Test Statistic					0.369	95% Bootstrap-t UCL					22194	
1068	Anderson-Darling 5% Critical Value					0.748	95% Hall's Bootstrap UCL					37726	
1069	Kolmogorov-Smirnov Test Statistic					0.123	95% Percentile Bootstrap UCL					18328	
1070	Kolmogorov-Smirnov 5% Critical Value					0.211	95% BCA Bootstrap UCL					19380	
1071	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					25225	
1072							97.5% Chebyshev(Mean, Sd) UCL					30259	
1073	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					40148	
1074	95% Approximate Gamma UCL					18532							
1075	95% Adjusted Gamma UCL					19157							
1076													
1077	Potential UCL to Use						Use 95% Approximate Gamma UCL					18532	
1078													
1079													
1080	Lead												
1081													
1082	General Statistics												
1083	Number of Valid Samples					17	Number of Unique Samples					17	
1084													
1085	Raw Statistics						Log-transformed Statistics						
1086	Minimum					3	Minimum of Log Data					1.099	
1087	Maximum					1760	Maximum of Log Data					7.473	
1088	Mean					260.4	Mean of log Data					4.415	
1089	Median					95	SD of log Data					1.588	
1090	SD					488.2							
1091	Coefficient of Variation					1.875							
1092	Skewness					2.651							
1093													
1094	Relevant UCL Statistics												
1095	Normal Distribution Test						Lognormal Distribution Test						
1096	Shapiro Wilk Test Statistic					0.531	Shapiro Wilk Test Statistic					0.972	
1097	Shapiro Wilk Critical Value					0.892	Shapiro Wilk Critical Value					0.892	
1098	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
1099													
1100	Assuming Normal Distribution						Assuming Lognormal Distribution						
1101	95% Student's-t UCL					467.2	95% H-UCL					1251	
1102	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					751.2	
1103	95% Adjusted-CLT UCL					536.6	97.5% Chebyshev (MVUE) UCL					966.8	
1104	95% Modified-t UCL					479.9	99% Chebyshev (MVUE) UCL					1390	
1105													
1106	Gamma Distribution Test						Nonparametric Test						
1107	k star (bias corrected)					0.489	Data appear Lognormal at 5% Significance Level						
1108	Theta Star					532.7							
1109	nu star					16.62							
1110	Approximate Chi Square Value (.05)					8.404	Nonparametric Statistics						
1111	Adjusted Level of Significance					0.0346	95% CLT UCL					455.2	
1112	Adjusted Chi Square Value					7.797	95% Jackknife UCL					467.2	
1113							95% Standard Bootstrap UCL					454.6	

	A	B	C	D	E	F	G	H	I	J	K	L
1114	Anderson-Darling Test Statistic					0.94	95% Bootstrap-t UCL					1414
1115	Anderson-Darling 5% Critical Value					0.794	95% Hall's Bootstrap UCL					1600
1116	Kolmogorov-Smirnov Test Statistic					0.228	95% Percentile Bootstrap UCL					473.4
1117	Kolmogorov-Smirnov 5% Critical Value					0.22	95% BCA Bootstrap UCL					521.7
1118	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					776.6
1119							97.5% Chebyshev(Mean, Sd) UCL					999.9
1120	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					1439
1121	95% Approximate Gamma UCL					515.2						
1122	95% Adjusted Gamma UCL					555.3						
1123												
1124	Potential UCL to Use						Use 99% Chebyshev (MVUE) UCL					1390
1125												
1126												
1127	Manganese											
1128												
1129	General Statistics											
1130	Number of Valid Samples					17	Number of Unique Samples					16
1131												
1132	Raw Statistics						Log-transformed Statistics					
1133	Minimum					63.3	Minimum of Log Data					4.148
1134	Maximum					450	Maximum of Log Data					6.109
1135	Mean					187.4	Mean of log Data					5.05
1136	Median					150	SD of log Data					0.638
1137	SD					113.4						
1138	Coefficient of Variation					0.605						
1139	Skewness					0.744						
1140												
1141	Relevant UCL Statistics											
1142	Normal Distribution Test						Lognormal Distribution Test					
1143	Shapiro Wilk Test Statistic					0.901	Shapiro Wilk Test Statistic					0.921
1144	Shapiro Wilk Critical Value					0.892	Shapiro Wilk Critical Value					0.892
1145	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1146												
1147	Assuming Normal Distribution						Assuming Lognormal Distribution					
1148	95% Student's-t UCL					235.4	95% H-UCL					271.4
1149	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					322.4
1150	95% Adjusted-CLT UCL					237.9	97.5% Chebyshev (MVUE) UCL					380.3
1151	95% Modified-t UCL					236.2	99% Chebyshev (MVUE) UCL					494.1
1152												
1153	Gamma Distribution Test						Nonparametric Test					
1154	k star (bias corrected)					2.414	Data appear Normal at 5% Significance Level					
1155	Theta Star					77.62						
1156	nu star					82.08						
1157	Approximate Chi Square Value (.05)					62.2	Nonparametric Statistics					
1158	Adjusted Level of Significance					0.0346	95% CLT UCL					232.6
1159	Adjusted Chi Square Value					60.39	95% Jackknife UCL					235.4
1160							95% Standard Bootstrap UCL					231.8
1161	Anderson-Darling Test Statistic					0.527	95% Bootstrap-t UCL					241.7
1162	Anderson-Darling 5% Critical Value					0.746	95% Hall's Bootstrap UCL					239.1
1163	Kolmogorov-Smirnov Test Statistic					0.164	95% Percentile Bootstrap UCL					233.4
1164	Kolmogorov-Smirnov 5% Critical Value					0.211	95% BCA Bootstrap UCL					234.8
1165	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					307.3
1166							97.5% Chebyshev(Mean, Sd) UCL					359.2

	A	B	C	D	E	F	G	H	I	J	K	L
1167	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					461.1
1168	95% Approximate Gamma UCL					247.3						
1169	95% Adjusted Gamma UCL					254.7						
1170												
1171	Potential UCL to Use						Use 95% Student's-t UCL					235.4
1172												
1173												
1174	Mercury											
1175												
1176	General Statistics											
1177	Number of Valid Samples					17	Number of Detected Data					15
1178	Number of Unique Samples					14	Number of Non-Detect Data					2
1179							Percent Non-Detects					11.76%
1180												
1181	Raw Statistics						Log-transformed Statistics					
1182	Minimum Detected					0.064	Minimum Detected					-2.749
1183	Maximum Detected					1.1	Maximum Detected					0.0953
1184	Mean of Detected					0.445	Mean of Detected					-1.096
1185	SD of Detected					0.294	SD of Detected					0.877
1186	Minimum Non-Detect					0.045	Minimum Non-Detect					-3.101
1187	Maximum Non-Detect					0.048	Maximum Non-Detect					-3.037
1188												
1189	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					2
1190	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					15
1191	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					11.76%
1192												
1193	UCL Statistics											
1194	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1195	Shapiro Wilk Test Statistic					0.94	Shapiro Wilk Test Statistic					0.9
1196	5% Shapiro Wilk Critical Value					0.881	5% Shapiro Wilk Critical Value					0.881
1197	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1198												
1199	Assuming Normal Distribution						Assuming Lognormal Distribution					
1200	DL/2 Substitution Method						DL/2 Substitution Method					
1201	Mean					0.395	Mean					-1.409
1202	SD					0.309	SD					1.207
1203	95% DL/2 (t) UCL					0.526	95% H-Stat (DL/2) UCL					0.848
1204												
1205	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
1206	Mean					0.378	Mean in Log Scale					-1.325
1207	SD					0.328	SD in Log Scale					1.045
1208	95% MLE (t) UCL					0.516	Mean in Original Scale					0.398
1209	95% MLE (Tiku) UCL					0.516	SD in Original Scale					0.305
1210							95% Percentile Bootstrap UCL					0.521
1211							95% BCA Bootstrap UCL					0.522
1212												
1213	Gamma Distribution Test with Detected Values Only						Nonparametric Test with Detected Values Only					
1214	k star (bias corrected)					1.568	Data appear Normal at 5% Significance Level					
1215	Theta Star					0.284						
1216	nu star					47.03						
1217												
1218	A-D Test Statistic					0.437	Nonparametric Statistics					
1219	5% A-D Critical Value					0.748	Kaplan-Meier (KM) Method					

	A	B	C	D	E	F	G	H	I	J	K	L
1220	K-S Test Statistic					0.748	Mean					0.4
1221	5% K-S Critical Value					0.225	SD					0.294
1222	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0737
1223							95% KM (t) UCL					0.529
1224	Assuming Gamma Distribution						95% KM (z) UCL					0.521
1225	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.527
1226	Minimum					0.0568	95% KM (bootstrap t) UCL					0.543
1227	Maximum					1.1	95% KM (BCA) UCL					0.527
1228	Mean					0.401	95% KM (percentile) UCL					0.526
1229	Median					0.31	95% KM (Chebyshev) UCL					0.721
1230	SD					0.301	97.5% KM (Chebyshev) UCL					0.86
1231	k star					1.301	99% KM (Chebyshev) UCL					1.134
1232	Theta star					0.308						
1233	Nu star					44.22	Potential UCLs to Use					
1234	AppChi2					29.97	95% KM (t) UCL					0.529
1235	95% Gamma Approximate UCL					0.592	95% KM (Percentile Bootstrap) UCL					0.526
1236	95% Adjusted Gamma UCL					0.617						
1237												
1238												
1239	Thallium											
1240												
1241	General Statistics											
1242	Number of Valid Samples					17	Number of Detected Data					5
1243	Number of Unique Samples					5	Number of Non-Detect Data					12
1244							Percent Non-Detects					70.59%
1245												
1246	Raw Statistics						Log-transformed Statistics					
1247	Minimum Detected					0.0935	Minimum Detected					-2.37
1248	Maximum Detected					0.96	Maximum Detected					-0.0408
1249	Mean of Detected					0.381	Mean of Detected					-1.299
1250	SD of Detected					0.351	SD of Detected					0.915
1251	Minimum Non-Detect					0.36	Minimum Non-Detect					-1.022
1252	Maximum Non-Detect					0.57	Maximum Non-Detect					-0.562
1253												
1254	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					16
1255	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1
1256	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					94.12%
1257												
1258	UCL Statistics											
1259	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1260	Shapiro Wilk Test Statistic					0.852	Shapiro Wilk Test Statistic					0.982
1261	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762
1262	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1263												
1264	Assuming Normal Distribution						Assuming Lognormal Distribution					
1265	DL/2 Substitution Method						DL/2 Substitution Method					
1266	Mean					0.276	Mean					-1.419
1267	SD					0.191	SD					0.483
1268	95% DL/2 (t) UCL					0.357	95% H-Stat (DL/2) UCL					0.404
1269												
1270	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
1271							Mean in Log Scale					-1.677
1272							SD in Log Scale					0.56

	A	B	C	D	E	F	G	H	I	J	K	L
1273							Mean in Original Scale					0.228
1274							SD in Original Scale					0.205
1275							95% Percentile Bootstrap UCL					0.315
1276							95% BCA Bootstrap UCL					0.378
1277												
1278	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
1279	k star (bias corrected)					0.793	Data appear Normal at 5% Significance Level					
1280	Theta Star					0.48						
1281	nu star					7.931						
1282												
1283	A-D Test Statistic					0.242	Nonparametric Statistics					
1284	5% A-D Critical Value					0.686	Kaplan-Meier (KM) Method					
1285	K-S Test Statistic					0.686	Mean					0.238
1286	5% K-S Critical Value					0.361	SD					0.207
1287	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					0.0668
1288							95% KM (t) UCL					0.355
1289	Assuming Gamma Distribution						95% KM (z) UCL					0.348
1290	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.36
1291	Minimum					N/A	95% KM (bootstrap t) UCL					0.398
1292	Maximum					N/A	95% KM (BCA) UCL					0.431
1293	Mean					N/A	95% KM (percentile) UCL					0.392
1294	Median					N/A	95% KM (Chebyshev) UCL					0.529
1295	SD					N/A	97.5% KM (Chebyshev) UCL					0.655
1296	k star					N/A	99% KM (Chebyshev) UCL					0.903
1297	Theta star					N/A						
1298	Nu star					N/A	Potential UCLs to Use					
1299	AppChi2					N/A	95% KM (t) UCL					0.355
1300	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					0.392
1301	95% Adjusted Gamma UCL					N/A						
1302												
1303												
1304	Vanadium											
1305												
1306	General Statistics											
1307	Number of Valid Samples					17	Number of Detected Data					12
1308	Number of Unique Samples					12	Number of Non-Detect Data					5
1309							Percent Non-Detects					29.41%
1310												
1311	Raw Statistics						Log-transformed Statistics					
1312	Minimum Detected					5.75	Minimum Detected					1.749
1313	Maximum Detected					34.3	Maximum Detected					3.535
1314	Mean of Detected					18.28	Mean of Detected					2.759
1315	SD of Detected					9.39	SD of Detected					0.599
1316	Minimum Non-Detect					8.9	Minimum Non-Detect					2.186
1317	Maximum Non-Detect					13	Maximum Non-Detect					2.565
1318												
1319	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					9
1320	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					8
1321	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					52.94%
1322												
1323	UCL Statistics											
1324	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
1325	Shapiro Wilk Test Statistic					0.949	Shapiro Wilk Test Statistic					0.925

	A	B	C	D	E	F	G	H	I	J	K	L
1				General UCL Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	From File			H:\JCV\Puritan\2007\EPCs\Data\unisl_surf_soil_data.wst								
4	Full Precision			OFF								
5	Confidence Coefficient			95%								
6	Number of Bootstrap Operations			2000								
7												
8												
9	Acetophenone											
10												
11	General Statistics											
12	Number of Valid Samples				25		Number of Detected Data				2	
13	Number of Unique Samples				2		Number of Non-Detect Data				23	
14							Percent Non-Detects				92.00%	
15												
16	Raw Statistics					Log-transformed Statistics						
17	Minimum Detected				53		Minimum Detected				3.97	
18	Maximum Detected				860		Maximum Detected				6.757	
19	Mean of Detected				456.5		Mean of Detected				5.364	
20	SD of Detected				570.6		SD of Detected				1.97	
21	Minimum Non-Detect				340		Minimum Non-Detect				5.829	
22	Maximum Non-Detect				510		Maximum Non-Detect				6.234	
23												
24	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect				24	
25	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected				1	
26	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage				96.00%	
27												
28	UCL Statistics											
29	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
30	Shapiro Wilk Test Statistic				1		Shapiro Wilk Test Statistic				1	
31	5% Shapiro Wilk Critical Value				N/A		5% Shapiro Wilk Critical Value				N/A	
32	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
33												
34	Assuming Normal Distribution					Assuming Lognormal Distribution						
35	DL/2 Substitution Method						DL/2 Substitution Method					
36	Mean				212.9		Mean				5.261	
37	SD				138.8		SD				0.413	
38	95% DL/2 (t) UCL				260.4		95% H-Stat (DL/2) UCL				276.7	
39												
40	Maximum Likelihood Estimate(MLE) Method				N/A		Robust ROS Method					
41							Mean in Log Scale				4.073	
42							SD in Log Scale				0.848	
43							Mean in Original Scale				95.87	
44							SD in Original Scale				164.6	
45							95% Percentile Bootstrap UCL				156.5	
46							95% BCA Bootstrap UCL				194.7	
47												
48	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
49	k star (bias corrected)				N/A		Data do not follow a Discernable Distribution (0.05)					
50	Theta Star				N/A							
51	nu star				N/A							
52												
53	A-D Test Statistic				0.356		Nonparametric Statistics					

	A	B	C	D	E	F	G	H	I	J	K	L
54	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
55	K-S Test Statistic					N/A	Mean					85.28
56	5% K-S Critical Value					N/A	SD					158.1
57	Data not Gamma Distributed at 5% Significance Level						SE of Mean					44.73
58							95% KM (t) UCL					161.8
59	Assuming Gamma Distribution						95% KM (z) UCL					158.9
60	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					616.6
61	Minimum					N/A	95% KM (bootstrap t) UCL					1.8E+308
62	Maximum					N/A	95% KM (BCA) UCL					1E+31
63	Mean					N/A	95% KM (percentile) UCL					1E+31
64	Median					N/A	95% KM (Chebyshev) UCL					280.2
65	SD					N/A	97.5% KM (Chebyshev) UCL					364.6
66	k star					N/A	99% KM (Chebyshev) UCL					530.3
67	Theta star					N/A						
68	Nu star					N/A	Potential UCLs to Use					
69	AppChi2					N/A	97.5% KM (Chebyshev) UCL					364.6
70	95% Gamma Approximate UCL					N/A						
71	95% Adjusted Gamma UCL					N/A						
72												
73												
74	bis(2-Ethylhexyl)phthalate											
75												
76	General Statistics											
77	Number of Valid Samples					25	Number of Detected Data					12
78	Number of Unique Samples					12	Number of Non-Detect Data					13
79							Percent Non-Detects					52.00%
80												
81	Raw Statistics					Log-transformed Statistics						
82	Minimum Detected					130	Minimum Detected					4.868
83	Maximum Detected					260000	Maximum Detected					12.47
84	Mean of Detected					49048	Mean of Detected					8.737
85	SD of Detected					92308	SD of Detected					2.504
86	Minimum Non-Detect					340	Minimum Non-Detect					5.829
87	Maximum Non-Detect					640	Maximum Non-Detect					6.461
88												
89	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					16
90	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					9
91	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					64.00%
92												
93	UCL Statistics											
94	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
95	Shapiro Wilk Test Statistic					0.569	Shapiro Wilk Test Statistic					0.95
96	5% Shapiro Wilk Critical Value					0.859	5% Shapiro Wilk Critical Value					0.859
97	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
98												
99	Assuming Normal Distribution						Assuming Lognormal Distribution					
100	DL/2 Substitution Method						DL/2 Substitution Method					
101	Mean					23652	Mean					6.962
102	SD					67272	SD					2.434
103	95% DL/2 (t) UCL					46671	95% H-Stat (DL/2) UCL					140425
104												
105	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
106	Mean					-59577	Mean in Log Scale					6.645

	A	B	C	D	E	F	G	H	I	J	K	L
107	SD					132029	SD in Log Scale					2.72
108	95% MLE (t) UCL					-144	Mean in Original Scale					23618
109	95% MLE (Tiku) UCL					10667	SD in Original Scale					67284
110							95% Percentile Bootstrap UCL					45643
111							95% BCA Bootstrap UCL					54060
112												
113	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
114	k star (bias corrected)					0.302	Data appear Gamma Distributed at 5% Significance Level					
115	Theta Star					162163						
116	nu star					7.259						
117												
118	A-D Test Statistic					0.539	Nonparametric Statistics					
119	5% A-D Critical Value					0.818	Kaplan-Meier (KM) Method					
120	K-S Test Statistic					0.818	Mean					23632
121	5% K-S Critical Value					0.264	SD					65920
122	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					13770
123							95% KM (t) UCL					47192
124	Assuming Gamma Distribution						95% KM (z) UCL					46282
125	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					46654
126	Minimum					0	95% KM (bootstrap t) UCL					184705
127	Maximum					260000	95% KM (BCA) UCL					45454
128	Mean					23504	95% KM (percentile) UCL					46194
129	Median					0	95% KM (Chebyshev) UCL					83655
130	SD					67326	97.5% KM (Chebyshev) UCL					109627
131	k star					0.0659	99% KM (Chebyshev) UCL					160644
132	Theta star					356410						
133	Nu star					3.297	Potential UCLs to Use					
134	AppChi2					0.466	95% KM (t) UCL					47192
135	95% Gamma Approximate UCL					166420						
136	95% Adjusted Gamma UCL					191697						
137												
138												
139	Benzo(a)pyrene											
140												
141	General Statistics											
142	Number of Valid Samples					25	Number of Unique Samples					24
143												
144	Raw Statistics						Log-transformed Statistics					
145	Minimum					85	Minimum of Log Data					4.443
146	Maximum					4000	Maximum of Log Data					8.294
147	Mean					926.8	Mean of log Data					6.4
148	Median					610	SD of log Data					0.975
149	SD					928.9						
150	Coefficient of Variation					1.002						
151	Skewness					1.947						
152												
153	Relevant UCL Statistics											
154	Normal Distribution Test						Lognormal Distribution Test					
155	Shapiro Wilk Test Statistic					0.788	Shapiro Wilk Test Statistic					0.988
156	Shapiro Wilk Critical Value					0.918	Shapiro Wilk Critical Value					0.918
157	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
158												
159	Assuming Normal Distribution						Assuming Lognormal Distribution					

	A	B	C	D	E	F	G	H	I	J	K	L
160	95% Student's-t UCL					1245	95% H-UCL					1584
161	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					1848
162	95% Adjusted-CLT UCL					1310	97.5% Chebyshev (MVUE) UCL					2240
163	95% Modified-t UCL					1257	99% Chebyshev (MVUE) UCL					3010
164												
165	Gamma Distribution Test						Nonparametric Test					
166	k star (bias corrected)					1.171	Data appear Gamma Distributed at 5% Significance Level					
167	Theta Star					791.3						
168	nu star					58.56						
169	Approximate Chi Square Value (.05)					41.97	Nonparametric Statistics					
170	Adjusted Level of Significance					0.0395	95% CLT UCL					1232
171	Adjusted Chi Square Value					41.01	95% Jackknife UCL					1245
172							95% Standard Bootstrap UCL					1219
173	Anderson-Darling Test Statistic					0.302	95% Bootstrap-t UCL					1427
174	Anderson-Darling 5% Critical Value					0.766	95% Hall's Bootstrap UCL					1415
175	Kolmogorov-Smirnov Test Statistic					0.12	95% Percentile Bootstrap UCL					1245
176	Kolmogorov-Smirnov 5% Critical Value					0.178	95% BCA Bootstrap UCL					1290
177	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					1737
178							97.5% Chebyshev(Mean, Sd) UCL					2087
179	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					2775
180	95% Approximate Gamma UCL					1293						
181	95% Adjusted Gamma UCL					1323						
182												
183	Potential UCL to Use						Use 95% Approximate Gamma UCL					1293
184												
185												
186	Benzo(b)fluoranthene											
187												
188	General Statistics											
189	Number of Valid Samples					25	Number of Unique Samples					21
190												
191	Raw Statistics						Log-transformed Statistics					
192	Minimum					0	Log Statistics Not Avaliable					
193	Maximum					6400						
194	Mean					1232						
195	Median					580						
196	SD					1476						
197	Coefficient of Variation					1.198						
198	Skewness					2.022						
199												
200	Relevant UCL Statistics											
201	Normal Distribution Test						Lognormal Distribution Test					
202	Shapiro Wilk Test Statistic					0.78	Not Available					
203	Shapiro Wilk Critical Value					0.918						
204	Data not Normal at 5% Significance Level											
205												
206	Assuming Normal Distribution						Assuming Lognormal Distribution					
207	95% Student's-t UCL					1737	95% H-UCL					N/A
208	Assuming Normal Distribution						95% UCLs (Adjusted for Skewness)					
209	95% Student's-t UCL					1737	95% Adjusted-CLT UCL					1845
210							95% Modified-t UCL					1757
211												
212	Gamma Distribution Test						Nonparametric Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
213	Gamma Statistics Not Available						Data do not follow a Discernable Distribution (0.05)						
214													
215	Potential UCL to Use												
216	Use 95% Chebyshev (Mean, Sd) UCL					2519	95% CLT UCL					1718	
217							95% Jackknife UCL					1737	
218							95% Standard Bootstrap UCL					1702	
219							95% Bootstrap-t UCL					1930	
220							95% Hall's Bootstrap UCL					2112	
221							95% Percentile Bootstrap UCL					1740	
222							95% BCA Bootstrap UCL					1883	
223							95% Chebyshev(Mean, Sd) UCL					2519	
224							97.5% Chebyshev(Mean, Sd) UCL					3075	
225							99% Chebyshev(Mean, Sd) UCL					4169	
226													
227													
228	Benzo[a]anthracene												
229													
230	General Statistics												
231	Number of Valid Samples					25	Number of Unique Samples					21	
232													
233	Raw Statistics						Log-transformed Statistics						
234	Minimum					80	Minimum of Log Data					4.382	
235	Maximum					4500	Maximum of Log Data					8.412	
236	Mean					973.6	Mean of log Data					6.393	
237	Median					560	SD of log Data					1.043	
238	SD					1013							
239	Coefficient of Variation					1.041							
240	Skewness					1.99							
241													
242	Relevant UCL Statistics												
243	Normal Distribution Test						Lognormal Distribution Test						
244	Shapiro Wilk Test Statistic					0.779	Shapiro Wilk Test Statistic					0.969	
245	Shapiro Wilk Critical Value					0.918	Shapiro Wilk Critical Value					0.918	
246	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
247													
248	Assuming Normal Distribution						Assuming Lognormal Distribution						
249	95% Student's-t UCL					1320	95% H-UCL					1779	
250	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					2038	
251	95% Adjusted-CLT UCL					1393	97.5% Chebyshev (MVUE) UCL					2488	
252	95% Modified-t UCL					1334	99% Chebyshev (MVUE) UCL					3373	
253													
254	Gamma Distribution Test						Nonparametric Test						
255	k star (bias corrected)					1.051	Data appear Gamma Distributed at 5% Significance Level						
256	Theta Star					926.4							
257	nu star					52.55							
258	Approximate Chi Square Value (.05)					36.9	Nonparametric Statistics						
259	Adjusted Level of Significance					0.0395	95% CLT UCL					1307	
260	Adjusted Chi Square Value					36	95% Jackknife UCL					1320	
261							95% Standard Bootstrap UCL					1295	
262	Anderson-Darling Test Statistic					0.535	95% Bootstrap-t UCL					1478	
263	Anderson-Darling 5% Critical Value					0.769	95% Hall's Bootstrap UCL					1594	
264	Kolmogorov-Smirnov Test Statistic					0.164	95% Percentile Bootstrap UCL					1336	
265	Kolmogorov-Smirnov 5% Critical Value					0.179	95% BCA Bootstrap UCL					1398	

	A	B	C	D	E	F	G	H	I	J	K	L
266	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					1857
267							97.5% Chebyshev(Mean, Sd) UCL					2239
268	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					2990
269	95% Approximate Gamma UCL					1387						
270	95% Adjusted Gamma UCL					1421						
271												
272	Potential UCL to Use						Use 95% Approximate Gamma UCL					1387
273												
274												
275	Dibenz[a,h]anthracene											
276												
277	General Statistics											
278	Number of Valid Samples					25	Number of Detected Data					20
279	Number of Unique Samples					19	Number of Non-Detect Data					5
280							Percent Non-Detects					20.00%
281												
282	Raw Statistics						Log-transformed Statistics					
283	Minimum Detected					41	Minimum Detected					3.714
284	Maximum Detected					750	Maximum Detected					6.62
285	Mean of Detected					198.9	Mean of Detected					4.932
286	SD of Detected					192.3	SD of Detected					0.843
287	Minimum Non-Detect					350	Minimum Non-Detect					5.858
288	Maximum Non-Detect					3400	Maximum Non-Detect					8.132
289												
290	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					25
291	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					0
292	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					100.00%
293												
294	UCL Statistics											
295	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
296	Shapiro Wilk Test Statistic					0.76	Shapiro Wilk Test Statistic					0.949
297	5% Shapiro Wilk Critical Value					0.905	5% Shapiro Wilk Critical Value					0.905
298	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
299												
300	Assuming Normal Distribution						Assuming Lognormal Distribution					
301	DL/2 Substitution Method						DL/2 Substitution Method					
302	Mean					255.7	Mean					5.073
303	SD					346.2	SD					0.902
304	95% DL/2 (t) UCL					374.2	95% H-Stat (DL/2) UCL					480.3
305												
306	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
307							Mean in Log Scale					4.89
308							SD in Log Scale					0.762
309							Mean in Original Scale					182
310							SD in Original Scale					174.8
311							95% Percentile Bootstrap UCL					239.4
312							95% BCA Bootstrap UCL					253.4
313												
314	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
315	k star (bias corrected)					1.337	Data Follow Appr. Gamma Distribution at 5% Significance Level					
316	Theta Star					148.8						
317	nu star					53.47						
318												

	A	B	C	D	E	F	G	H	I	J	K	L	
319	A-D Test Statistic					0.78	Nonparametric Statistics						
320	5% A-D Critical Value					0.757	Kaplan-Meier (KM) Method						
321	K-S Test Statistic					0.757	Mean						184.6
322	5% K-S Critical Value					0.197	SD						175.5
323	Data follow approximate Gamma Distribution at 5% Significance Level						SE of Mean						37.15
324							95% KM (t) UCL						248.1
325	Assuming Gamma Distribution						95% KM (z) UCL						245.7
326	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL						248
327	Minimum					N/A	95% KM (bootstrap t) UCL						277
328	Maximum					N/A	95% KM (BCA) UCL						246.5
329	Mean					N/A	95% KM (percentile) UCL						247.1
330	Median					N/A	95% KM (Chebyshev) UCL						346.5
331	SD					N/A	97.5% KM (Chebyshev) UCL						416.6
332	k star					N/A	99% KM (Chebyshev) UCL						554.2
333	Theta star					N/A							
334	Nu star					N/A	Potential UCLs to Use						
335	AppChi2					N/A	95% KM (BCA) UCL						246.5
336	95% Gamma Approximate UCL					N/A							
337	95% Adjusted Gamma UCL					N/A							
338													
339													
340	Indeno(1,2,3-cd)pyrene												
341													
342	General Statistics												
343	Number of Valid Samples					25	Number of Unique Samples					23	
344													
345	Raw Statistics						Log-transformed Statistics						
346	Minimum					52	Minimum of Log Data					3.951	
347	Maximum					2400	Maximum of Log Data					7.783	
348	Mean					548.9	Mean of log Data					5.831	
349	Median					330	SD of log Data					1.036	
350	SD					566.9							
351	Coefficient of Variation					1.033							
352	Skewness					1.862							
353													
354	Relevant UCL Statistics												
355	Normal Distribution Test						Lognormal Distribution Test						
356	Shapiro Wilk Test Statistic					0.787	Shapiro Wilk Test Statistic					0.978	
357	Shapiro Wilk Critical Value					0.918	Shapiro Wilk Critical Value					0.918	
358	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level						
359													
360	Assuming Normal Distribution						Assuming Lognormal Distribution						
361	95% Student's-t UCL					742.9	95% H-UCL					999.5	
362	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					1148	
363	95% Adjusted-CLT UCL					780.5	97.5% Chebyshev (MVUE) UCL					1400	
364	95% Modified-t UCL					749.9	99% Chebyshev (MVUE) UCL					1896	
365													
366	Gamma Distribution Test						Nonparametric Test						
367	k star (bias corrected)					1.071	Data appear Gamma Distributed at 5% Significance Level						
368	Theta Star					512.5							
369	nu star					53.55							
370	Approximate Chi Square Value (.05)					37.74	Nonparametric Statistics						
371	Adjusted Level of Significance					0.0395	95% CLT UCL					735.4	

	A	B	C	D	E	F	G	H	I	J	K	L
372	Adjusted Chi Square Value					36.84	95% Jackknife UCL					742.9
373							95% Standard Bootstrap UCL					729.1
374	Anderson-Darling Test Statistic					0.322	95% Bootstrap-t UCL					832.3
375	Anderson-Darling 5% Critical Value					0.769	95% Hall's Bootstrap UCL					836.9
376	Kolmogorov-Smirnov Test Statistic					0.0959	95% Percentile Bootstrap UCL					752.9
377	Kolmogorov-Smirnov 5% Critical Value					0.179	95% BCA Bootstrap UCL					774.2
378	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					1043
379							97.5% Chebyshev(Mean, Sd) UCL					1257
380	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					1677
381	95% Approximate Gamma UCL					778.8						
382	95% Adjusted Gamma UCL					798						
383												
384	Potential UCL to Use						Use 95% Approximate Gamma UCL					778.8
385												
386												
387	Phenanthrene											
388												
389	General Statistics											
390	Number of Valid Samples					25	Number of Unique Samples					21
391												
392	Raw Statistics						Log-transformed Statistics					
393	Minimum					61	Minimum of Log Data					4.111
394	Maximum					13000	Maximum of Log Data					9.473
395	Mean					1462	Mean of log Data					6.385
396	Median					530	SD of log Data					1.342
397	SD					2634						
398	Coefficient of Variation					1.802						
399	Skewness					3.812						
400												
401	Relevant UCL Statistics											
402	Normal Distribution Test						Lognormal Distribution Test					
403	Shapiro Wilk Test Statistic					0.522	Shapiro Wilk Test Statistic					0.97
404	Shapiro Wilk Critical Value					0.918	Shapiro Wilk Critical Value					0.918
405	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
406												
407	Assuming Normal Distribution						Assuming Lognormal Distribution					
408	95% Student's-t UCL					2364	95% H-UCL					3297
409	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					3300
410	95% Adjusted-CLT UCL					2758	97.5% Chebyshev (MVUE) UCL					4135
411	95% Modified-t UCL					2430	99% Chebyshev (MVUE) UCL					5776
412												
413	Gamma Distribution Test						Nonparametric Test					
414	k star (bias corrected)					0.619	Data Follow Appr. Gamma Distribution at 5% Significance Level					
415	Theta Star					2362						
416	nu star					30.95						
417	Approximate Chi Square Value (.05)					19.24	Nonparametric Statistics					
418	Adjusted Level of Significance					0.0395	95% CLT UCL					2329
419	Adjusted Chi Square Value					18.61	95% Jackknife UCL					2364
420							95% Standard Bootstrap UCL					2328
421	Anderson-Darling Test Statistic					0.912	95% Bootstrap-t UCL					3736
422	Anderson-Darling 5% Critical Value					0.791	95% Hall's Bootstrap UCL					5770
423	Kolmogorov-Smirnov Test Statistic					0.167	95% Percentile Bootstrap UCL					2411
424	Kolmogorov-Smirnov 5% Critical Value					0.182	95% BCA Bootstrap UCL					2937

	A	B	C	D	E	F	G	H	I	J	K	L
425	Data follow Appr. Gamma Distribution at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					3759
426							97.5% Chebyshev(Mean, Sd) UCL					4752
427	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					6704
428	95% Approximate Gamma UCL				2352							
429	95% Adjusted Gamma UCL				2431							
430												
431	Potential UCL to Use						Use 95% Approximate Gamma UCL					2352
432												
433												
434	Aroclor-1254											
435												
436	General Statistics											
437	Number of Valid Samples				25		Number of Detected Data					4
438	Number of Unique Samples				4		Number of Non-Detect Data					21
439							Percent Non-Detects					84.00%
440												
441	Raw Statistics					Log-transformed Statistics						
442	Minimum Detected				77		Minimum Detected					4.344
443	Maximum Detected				1200		Maximum Detected					7.09
444	Mean of Detected				614.3		Mean of Detected					5.884
445	SD of Detected				568.4		SD of Detected					1.336
446	Minimum Non-Detect				34		Minimum Non-Detect					3.526
447	Maximum Non-Detect				52		Maximum Non-Detect					3.951
448												
449	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					21
450	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					4
451	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					84.00%
452												
453	UCL Statistics											
454	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
455	Shapiro Wilk Test Statistic				0.853		Shapiro Wilk Test Statistic					0.884
456	5% Shapiro Wilk Critical Value				0.748		5% Shapiro Wilk Critical Value					0.748
457	Data appear Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
458												
459	Assuming Normal Distribution						Assuming Lognormal Distribution					
460	DL/2 Substitution Method						DL/2 Substitution Method					
461	Mean				114.7		Mean					3.435
462	SD				299.8		SD					1.193
463	95% DL/2 (t) UCL				217.3		95% H-Stat (DL/2) UCL					79.03
464												
465	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
466	Mean				-1022		Mean in Log Scale					0.287
467	SD				1078		SD in Log Scale					2.887
468	95% MLE (t) UCL				-652.9		Mean in Original Scale					99.3
469	95% MLE (Tiku) UCL				43.81		SD in Original Scale					305
470							95% Percentile Bootstrap UCL					203.9
471							95% BCA Bootstrap UCL					251.8
472												
473	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
474	k star (bias corrected)				0.434		Data appear Normal at 5% Significance Level					
475	Theta Star				1417							
476	nu star				3.468							
477												

	A	B	C	D	E	F	G	H	I	J	K	L
478	A-D Test Statistic					0.425	Nonparametric Statistics					
479	5% A-D Critical Value					0.666	Kaplan-Meier (KM) Method					
480	K-S Test Statistic					0.666	Mean					163
481	5% K-S Critical Value					0.402	SD					278.5
482	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					64.31
483							95% KM (t) UCL					273
484	Assuming Gamma Distribution						95% KM (z) UCL					268.7
485	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					258.6
486	Minimum					0	95% KM (bootstrap t) UCL					234.3
487	Maximum					1200	95% KM (BCA) UCL					1200
488	Mean					98.99	95% KM (percentile) UCL					1016
489	Median					0	95% KM (Chebyshev) UCL					443.3
490	SD					305.1	97.5% KM (Chebyshev) UCL					564.6
491	k star					0.0654	99% KM (Chebyshev) UCL					802.9
492	Theta star					1514						
493	Nu star					3.269	Potential UCLs to Use					
494	AppChi2					0.456	95% KM (t) UCL					273
495	95% Gamma Approximate UCL					709.1	95% KM (Percentile Bootstrap) UCL					1016
496	95% Adjusted Gamma UCL					N/A						
497												
498												
499	Aroclor-1260											
500												
501	General Statistics											
502	Number of Valid Samples					25	Number of Detected Data					19
503	Number of Unique Samples					18	Number of Non-Detect Data					6
504							Percent Non-Detects					24.00%
505												
506	Raw Statistics						Log-transformed Statistics					
507	Minimum Detected					45	Minimum Detected					3.807
508	Maximum Detected					720	Maximum Detected					6.579
509	Mean of Detected					203.9	Mean of Detected					5.005
510	SD of Detected					190.6	SD of Detected					0.788
511	Minimum Non-Detect					35	Minimum Non-Detect					3.555
512	Maximum Non-Detect					38	Maximum Non-Detect					3.638
513												
514	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					6
515	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					19
516	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					24.00%
517												
518	UCL Statistics											
519	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
520	Shapiro Wilk Test Statistic					0.723	Shapiro Wilk Test Statistic					0.954
521	5% Shapiro Wilk Critical Value					0.901	5% Shapiro Wilk Critical Value					0.901
522	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
523												
524	Assuming Normal Distribution						Assuming Lognormal Distribution					
525	DL/2 Substitution Method						DL/2 Substitution Method					
526	Mean					159.4	Mean					4.503
527	SD					183.8	SD					1.139
528	95% DL/2 (t) UCL					222.3	95% H-Stat (DL/2) UCL					218.6
529												
530	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					

	A	B	C	D	E	F	G	H	I	J	K	L
531	Mean					129.8	Mean in Log Scale					4.564
532	SD					216.1	SD in Log Scale					1.06
533	95% MLE (t) UCL					203.7	Mean in Original Scale					160.9
534	95% MLE (Tiku) UCL					204.8	SD in Original Scale					182.6
535							95% Percentile Bootstrap UCL					224.9
536							95% BCA Bootstrap UCL					237.4
537												
538	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
539	k star (bias corrected)					1.505	Data appear Gamma Distributed at 5% Significance Level					
540	Theta Star					135.5						
541	nu star					57.19						
542												
543	A-D Test Statistic					0.593	Nonparametric Statistics					
544	5% A-D Critical Value					0.754	Kaplan-Meier (KM) Method					
545	K-S Test Statistic					0.754	Mean					165.8
546	5% K-S Critical Value					0.201	SD					175.4
547	Data appear Gamma Distributed at 5% Significance Level						SE of Mean					36.03
548							95% KM (t) UCL					227.4
549	Assuming Gamma Distribution						95% KM (z) UCL					225.1
550	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					226.5
551	Minimum					0	95% KM (bootstrap t) UCL					273.3
552	Maximum					720	95% KM (BCA) UCL					237.4
553	Mean					155	95% KM (percentile) UCL					229.2
554	Median					120	95% KM (Chebyshev) UCL					322.9
555	SD					187.4	97.5% KM (Chebyshev) UCL					390.8
556	k star					0.138	99% KM (Chebyshev) UCL					524.3
557	Theta star					1122						
558	Nu star					6.908	Potential UCLs to Use					
559	AppChi2					2.12	95% KM (BCA) UCL					237.4
560	95% Gamma Approximate UCL					505						
561	95% Adjusted Gamma UCL					550.8						
562												
563												
564	Dieldrin											
565												
566	General Statistics											
567	Number of Valid Samples					25	Number of Detected Data					22
568	Number of Unique Samples					21	Number of Non-Detect Data					3
569							Percent Non-Detects					12.00%
570												
571	Raw Statistics						Log-transformed Statistics					
572	Minimum Detected					3.1	Minimum Detected					1.131
573	Maximum Detected					810	Maximum Detected					6.697
574	Mean of Detected					96.64	Mean of Detected					3.698
575	SD of Detected					175.5	SD of Detected					1.305
576	Minimum Non-Detect					3.5	Minimum Non-Detect					1.253
577	Maximum Non-Detect					3.8	Maximum Non-Detect					1.335
578												
579	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					4
580	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					21
581	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					16.00%
582												
583	UCL Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
584	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
585	Shapiro Wilk Test Statistic					0.517	Shapiro Wilk Test Statistic					0.974
586	5% Shapiro Wilk Critical Value					0.911	5% Shapiro Wilk Critical Value					0.911
587	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
588												
589	Assuming Normal Distribution						Assuming Lognormal Distribution					
590	DL/2 Substitution Method						DL/2 Substitution Method					
591	Mean					85.27	Mean					3.328
592	SD					167.1	SD					1.593
593	95% DL/2 (t) UCL					142.5	95% H-Stat (DL/2) UCL					197.3
594												
595	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
596	Mean					65.28	Mean in Log Scale					3.385
597	SD					184	SD in Log Scale					1.498
598	95% MLE (t) UCL					128.2	Mean in Original Scale					85.41
599	95% MLE (Tiku) UCL					125.6	SD in Original Scale					167
600							95% Percentile Bootstrap UCL					147.1
601							95% BCA Bootstrap UCL					175
602												
603	Gamma Distribution Test with Detected Values Only						Nonparametic Test with Detected Values Only					
604	k star (bias corrected)					0.629	Data appear Lognormal at 5% Significance Level					
605	Theta Star					153.7						
606	nu star					27.66						
607												
608	A-D Test Statistic					1.117	Nonparametric Statistics					
609	5% A-D Critical Value					0.788	Kaplan-Meier (KM) Method					
610	K-S Test Statistic					0.788	Mean					85.42
611	5% K-S Critical Value					0.193	SD					163.7
612	Data not Gamma Distributed at 5% Significance Level						SE of Mean					33.5
613							95% KM (t) UCL					142.7
614	Assuming Gamma Distribution						95% KM (z) UCL					140.5
615	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					142.4
616	Minimum					0	95% KM (bootstrap t) UCL					227.5
617	Maximum					810	95% KM (BCA) UCL					157.7
618	Mean					84.92	95% KM (percentile) UCL					147
619	Median					31	95% KM (Chebyshev) UCL					231.5
620	SD					167.3	97.5% KM (Chebyshev) UCL					294.7
621	k star					0.173	99% KM (Chebyshev) UCL					418.8
622	Theta star					490.6						
623	Nu star					8.655	Potential UCLs to Use					
624	AppChi2					3.12	97.5% KM (Chebyshev) UCL					294.7
625	95% Gamma Approximate UCL					235.6						
626	95% Adjusted Gamma UCL					253.7						
627												
628												
629	Aluminum											
630												
631	General Statistics											
632	Number of Valid Samples					25	Number of Unique Samples					25
633												
634	Raw Statistics						Log-transformed Statistics					
635	Minimum					3370	Minimum of Log Data					8.123
636	Maximum					10100	Maximum of Log Data					9.22

	A	B	C	D	E	F	G	H	I	J	K	L
637	Mean					5496	Mean of log Data					8.582
638	Median					5110	SD of log Data					0.242
639	SD					1463						
640	Coefficient of Variation					0.266						
641	Skewness					1.485						
642												
643	Relevant UCL Statistics											
644	Normal Distribution Test						Lognormal Distribution Test					
645	Shapiro Wilk Test Statistic					0.884	Shapiro Wilk Test Statistic					0.958
646	Shapiro Wilk Critical Value					0.918	Shapiro Wilk Critical Value					0.918
647	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
648												
649	Assuming Normal Distribution						Assuming Lognormal Distribution					
650	95% Student's-t UCL					5997	95% H-UCL					6000
651	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					6658
652	95% Adjusted-CLT UCL					6070	97.5% Chebyshev (MVUE) UCL					7164
653	95% Modified-t UCL					6011	99% Chebyshev (MVUE) UCL					8159
654												
655	Gamma Distribution Test						Nonparametric Test					
656	k star (bias corrected)					14.97	Data appear Gamma Distributed at 5% Significance Level					
657	Theta Star					367.1						
658	nu star					748.6						
659	Approximate Chi Square Value (.05)					686.1	Nonparametric Statistics					
660	Adjusted Level of Significance					0.0395	95% CLT UCL					5978
661	Adjusted Chi Square Value					682	95% Jackknife UCL					5997
662							95% Standard Bootstrap UCL					5964
663	Anderson-Darling Test Statistic					0.592	95% Bootstrap-t UCL					6129
664	Anderson-Darling 5% Critical Value					0.744	95% Hall's Bootstrap UCL					6201
665	Kolmogorov-Smirnov Test Statistic					0.158	95% Percentile Bootstrap UCL					6009
666	Kolmogorov-Smirnov 5% Critical Value					0.174	95% BCA Bootstrap UCL					6090
667	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					6772
668							97.5% Chebyshev(Mean, Sd) UCL					7324
669	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					8408
670	95% Approximate Gamma UCL					5997						
671	95% Adjusted Gamma UCL					6033						
672												
673	Potential UCL to Use						Use 95% Approximate Gamma UCL					5997
674												
675												
676	Antimony											
677												
678	General Statistics											
679	Number of Valid Samples					25	Number of Detected Data					5
680	Number of Unique Samples					5	Number of Non-Detect Data					20
681							Percent Non-Detects					80.00%
682												
683	Raw Statistics						Log-transformed Statistics					
684	Minimum Detected					6.4	Minimum Detected					1.856
685	Maximum Detected					63.6	Maximum Detected					4.153
686	Mean of Detected					27.93	Mean of Detected					2.997
687	SD of Detected					23.72	SD of Detected					0.948
688	Minimum Non-Detect					0.95	Minimum Non-Detect					-0.0513
689	Maximum Non-Detect					15	Maximum Non-Detect					2.708

	A	B	C	D	E	F	G	H	I	J	K	L	
690													
691	Note: Data have multiple DLs - Use of KM Method is recommended					Number treated as Non-Detect							22
692	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),					Number treated as Detected							3
693	those Observations < Largest ND are treated as NDs					Single DL Non-Detect Percentage							88.00%
694													
695	UCL Statistics												
696	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
697	Shapiro Wilk Test Statistic					0.905	Shapiro Wilk Test Statistic					0.962	
698	5% Shapiro Wilk Critical Value					0.762	5% Shapiro Wilk Critical Value					0.762	
699	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
700													
701	Assuming Normal Distribution					Assuming Lognormal Distribution							
702	DL/2 Substitution Method						DL/2 Substitution Method						
703	Mean					8.295	Mean					1.196	
704	SD					14.17	SD					1.373	
705	95% DL/2 (t) UCL					13.14	95% H-Stat (DL/2) UCL					20.98	
706													
707	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method						
708	Mean					45.39	Mean in Log Scale					0.26	
709	SD					17.68	SD in Log Scale					1.646	
710	95% MLE (t) UCL					51.44	Mean in Original Scale					6.352	
711	95% MLE (Tiku) UCL					62.53	SD in Original Scale					14.69	
712							95% Percentile Bootstrap UCL					11.46	
713							95% BCA Bootstrap UCL					13.5	
714													
715	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only							
716	k star (bias corrected)					0.794	Data appear Normal at 5% Significance Level						
717	Theta Star					35.2							
718	nu star					7.935							
719													
720	A-D Test Statistic					0.237	Nonparametric Statistics						
721	5% A-D Critical Value					0.686	Kaplan-Meier (KM) Method						
722	K-S Test Statistic					0.686	Mean					10.8	
723	5% K-S Critical Value					0.361	SD					12.79	
724	Data appear Gamma Distributed at 5% Significance Level					SE of Mean					2.865		
725							95% KM (t) UCL					15.7	
726	Assuming Gamma Distribution					95% KM (z) UCL					15.51		
727	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					14.75	
728	Minimum					N/A	95% KM (bootstrap t) UCL					20.45	
729	Maximum					N/A	95% KM (BCA) UCL					40.37	
730	Mean					N/A	95% KM (percentile) UCL					24.62	
731	Median					N/A	95% KM (Chebyshev) UCL					23.29	
732	SD					N/A	97.5% KM (Chebyshev) UCL					28.7	
733	k star					N/A	99% KM (Chebyshev) UCL					39.31	
734	Theta star					N/A							
735	Nu star					N/A	Potential UCLs to Use						
736	AppChi2					N/A	95% KM (t) UCL					15.7	
737	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					24.62	
738	95% Adjusted Gamma UCL					N/A							
739													
740													
741	Arsenic												
742													

	A	B	C	D	E	F	G	H	I	J	K	L	
743	General Statistics												
744	Number of Valid Samples					25	Number of Unique Samples					21	
745													
746	Raw Statistics					Log-transformed Statistics							
747	Minimum					2	Minimum of Log Data					0.693	
748	Maximum					26.1	Maximum of Log Data					3.262	
749	Mean					8.488	Mean of log Data					1.865	
750	Median					6.1	SD of log Data					0.729	
751	SD					7.063							
752	Coefficient of Variation					0.832							
753	Skewness					1.553							
754													
755	Relevant UCL Statistics												
756	Normal Distribution Test					Lognormal Distribution Test							
757	Shapiro Wilk Test Statistic					0.776	Shapiro Wilk Test Statistic					0.944	
758	Shapiro Wilk Critical Value					0.918	Shapiro Wilk Critical Value					0.918	
759	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
760													
761	Assuming Normal Distribution					Assuming Lognormal Distribution							
762	95% Student's-t UCL					10.9	95% H-UCL					11.67	
763	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					14.04		
764	95% Adjusted-CLT UCL					11.28	97.5% Chebyshev (MVUE) UCL					16.51	
765	95% Modified-t UCL					10.98	99% Chebyshev (MVUE) UCL					21.37	
766													
767	Gamma Distribution Test					Nonparametric Test							
768	k star (bias corrected)					1.769	Data Follow Appr. Gamma Distribution at 5% Significance Level						
769	Theta Star					4.797							
770	nu star					88.47							
771	Approximate Chi Square Value (.05)					67.78	Nonparametric Statistics						
772	Adjusted Level of Significance					0.0395	95% CLT UCL					10.81	
773	Adjusted Chi Square Value					66.55	95% Jackknife UCL					10.9	
774							95% Standard Bootstrap UCL					10.75	
775	Anderson-Darling Test Statistic					0.891	95% Bootstrap-t UCL					11.71	
776	Anderson-Darling 5% Critical Value					0.757	95% Hall's Bootstrap UCL					11.02	
777	Kolmogorov-Smirnov Test Statistic					0.169	95% Percentile Bootstrap UCL					10.76	
778	Kolmogorov-Smirnov 5% Critical Value					0.177	95% BCA Bootstrap UCL					11.47	
779	Data follow Appr. Gamma Distribution at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					14.65		
780							97.5% Chebyshev(Mean, Sd) UCL					17.31	
781	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					22.54		
782	95% Approximate Gamma UCL					11.08							
783	95% Adjusted Gamma UCL					11.28							
784													
785	Potential UCL to Use					Use 95% Approximate Gamma UCL					11.08		
786													
787													
788	Barium												
789													
790	General Statistics												
791	Number of Valid Samples					25	Number of Detected Data					15	
792	Number of Unique Samples					15	Number of Non-Detect Data					10	
793							Percent Non-Detects					40.00%	
794													
795	Raw Statistics					Log-transformed Statistics							

	A	B	C	D	E	F	G	H	I	J	K	L	
796	Minimum Detected					33.4	Minimum Detected					3.509	
797	Maximum Detected					881	Maximum Detected					6.781	
798	Mean of Detected					154	Mean of Detected					4.565	
799	SD of Detected					216.6	SD of Detected					0.872	
800	Minimum Non-Detect					31	Minimum Non-Detect					3.434	
801	Maximum Non-Detect					50	Maximum Non-Detect					3.912	
802													
803	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					13	
804	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					12	
805	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					52.00%	
806													
807	UCL Statistics												
808	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only							
809	Shapiro Wilk Test Statistic					0.555	Shapiro Wilk Test Statistic					0.89	
810	5% Shapiro Wilk Critical Value					0.881	5% Shapiro Wilk Critical Value					0.881	
811	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level							
812													
813	Assuming Normal Distribution					Assuming Lognormal Distribution							
814	DL/2 Substitution Method						DL/2 Substitution Method						
815	Mean					100.3	Mean					3.931	
816	SD					178.5	SD					1.038	
817	95% DL/2 (t) UCL					161.4	95% H-Stat (DL/2) UCL					135.2	
818													
819	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method						
820	Mean					-14.57	Mean in Log Scale					3.791	
821	SD					277	SD in Log Scale					1.19	
822	95% MLE (t) UCL					80.21	Mean in Original Scale					98.18	
823	95% MLE (Tiku) UCL					107.1	SD in Original Scale					179.5	
824							95% Percentile Bootstrap UCL					161	
825							95% BCA Bootstrap UCL					191.6	
826													
827	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only							
828	k star (bias corrected)					1.003	Data Follow Appr. Gamma Distribution at 5% Significance Level						
829	Theta Star					153.5							
830	nu star					30.1							
831													
832	A-D Test Statistic					1.233	Nonparametric Statistics						
833	5% A-D Critical Value					0.759	Kaplan-Meier (KM) Method						
834	K-S Test Statistic					0.759	Mean					105.9	
835	5% K-S Critical Value					0.227	SD					172.4	
836	Data follow approximate Gamma Distribution at 5% Significance Level						SE of Mean					35.7	
837							95% KM (t) UCL					167	
838	Assuming Gamma Distribution						95% KM (z) UCL					164.6	
839	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					163.1	
840	Minimum					0	95% KM (bootstrap t) UCL					328.9	
841	Maximum					881	95% KM (BCA) UCL					184.6	
842	Mean					87.45	95% KM (percentile) UCL					172.1	
843	Median					0	95% KM (Chebyshev) UCL					261.5	
844	SD					184.4	97.5% KM (Chebyshev) UCL					328.8	
845	k star					0.0846	99% KM (Chebyshev) UCL					461.1	
846	Theta star					1034							
847	Nu star					4.228	Potential UCLs to Use						
848	AppChi2					0.814	95% KM (t) UCL					167	

	A	B	C	D	E	F	G	H	I	J	K	L
849	95% Gamma Approximate UCL					454.3						
850	95% Adjusted Gamma UCL					513.3						
851												
852												
853	Cadmium											
854												
855	General Statistics											
856	Number of Valid Samples					25	Number of Detected Data					22
857	Number of Unique Samples					20	Number of Non-Detect Data					3
858							Percent Non-Detects					12.00%
859												
860	Raw Statistics					Log-transformed Statistics						
861	Minimum Detected					0.31	Minimum Detected					-1.171
862	Maximum Detected					21.8	Maximum Detected					3.082
863	Mean of Detected					3.58	Mean of Detected					0.883
864	SD of Detected					4.393	SD of Detected					0.889
865	Minimum Non-Detect					0.87	Minimum Non-Detect					-0.139
866	Maximum Non-Detect					1.1	Maximum Non-Detect					0.0953
867												
868	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					6
869	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					19
870	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					24.00%
871												
872	UCL Statistics											
873	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
874	Shapiro Wilk Test Statistic					0.552	Shapiro Wilk Test Statistic					0.938
875	5% Shapiro Wilk Critical Value					0.911	5% Shapiro Wilk Critical Value					0.911
876	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
877												
878	Assuming Normal Distribution					Assuming Lognormal Distribution						
879	DL/2 Substitution Method						DL/2 Substitution Method					
880	Mean					3.209	Mean					0.691
881	SD					4.235	SD					0.987
882	95% DL/2 (t) UCL					4.658	95% H-Stat (DL/2) UCL					4.476
883												
884	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
885	Mean					2.52	Mean in Log Scale					0.71
886	SD					4.919	SD in Log Scale					0.959
887	95% MLE (t) UCL					4.203	Mean in Original Scale					3.219
888	95% MLE (Tiku) UCL					4.21	SD in Original Scale					4.229
889							95% Percentile Bootstrap UCL					4.825
890							95% BCA Bootstrap UCL					5.781
891												
892	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
893	k star (bias corrected)					1.255	Data Follow Appr. Gamma Distribution at 5% Significance Level					
894	Theta Star					2.853						
895	nu star					55.21						
896												
897	A-D Test Statistic					0.896	Nonparametric Statistics					
898	5% A-D Critical Value					0.761	Kaplan-Meier (KM) Method					
899	K-S Test Statistic					0.761	Mean					3.206
900	5% K-S Critical Value					0.189	SD					4.153
901	Data follow approximate Gamma Distribution at 5% Significance Level					SE of Mean					0.85	

	A	B	C	D	E	F	G	H	I	J	K	L
902							95% KM (t) UCL					4.661
903	Assuming Gamma Distribution						95% KM (z) UCL					4.604
904	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					4.657
905	Minimum					0	95% KM (bootstrap t) UCL					6.618
906	Maximum					21.8	95% KM (BCA) UCL					5.068
907	Mean					3.084	95% KM (percentile) UCL					4.725
908	Median					2.3	95% KM (Chebyshev) UCL					6.912
909	SD					4.322	97.5% KM (Chebyshev) UCL					8.516
910	k star					0.156	99% KM (Chebyshev) UCL					11.67
911	Theta star					19.75						
912	Nu star					7.807	Potential UCLs to Use					
913	AppChi2					2.624	95% KM (BCA) UCL					5.068
914	95% Gamma Approximate UCL					9.177						
915	95% Adjusted Gamma UCL					9.937						
916												
917												
918	Chromium											
919												
920	General Statistics											
921	Number of Valid Samples					25	Number of Unique Samples					25
922												
923	Raw Statistics						Log-transformed Statistics					
924	Minimum					21.4	Minimum of Log Data					3.063
925	Maximum					471	Maximum of Log Data					6.155
926	Mean					107.1	Mean of log Data					4.274
927	Median					65.1	SD of log Data					0.846
928	SD					118.7						
929	Coefficient of Variation					1.108						
930	Skewness					2.125						
931												
932	Relevant UCL Statistics											
933	Normal Distribution Test						Lognormal Distribution Test					
934	Shapiro Wilk Test Statistic					0.669	Shapiro Wilk Test Statistic					0.928
935	Shapiro Wilk Critical Value					0.918	Shapiro Wilk Critical Value					0.918
936	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
937												
938	Assuming Normal Distribution						Assuming Lognormal Distribution					
939	95% Student's-t UCL					147.7	95% H-UCL					153.2
940	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					182.9
941	95% Adjusted-CLT UCL					156.9	97.5% Chebyshev (MVUE) UCL					218.4
942	95% Modified-t UCL					149.3	99% Chebyshev (MVUE) UCL					288.1
943												
944	Gamma Distribution Test						Nonparametric Test					
945	k star (bias corrected)					1.254	Data appear Lognormal at 5% Significance Level					
946	Theta Star					85.39						
947	nu star					62.69						
948	Approximate Chi Square Value (.05)					45.48	Nonparametric Statistics					
949	Adjusted Level of Significance					0.0395	95% CLT UCL					146.1
950	Adjusted Chi Square Value					44.48	95% Jackknife UCL					147.7
951							95% Standard Bootstrap UCL					145.2
952	Anderson-Darling Test Statistic					1.39	95% Bootstrap-t UCL					173.8
953	Anderson-Darling 5% Critical Value					0.764	95% Hall's Bootstrap UCL					147.6
954	Kolmogorov-Smirnov Test Statistic					0.191	95% Percentile Bootstrap UCL					148.3

	A	B	C	D	E	F	G	H	I	J	K	L
955	Kolmogorov-Smirnov 5% Critical Value					0.178	95% BCA Bootstrap UCL					157.3
956	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					210.5
957						97.5% Chebyshev(Mean, Sd) UCL					255.3	
958	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					343.2
959	95% Approximate Gamma UCL				147.6							
960	95% Adjusted Gamma UCL				150.9							
961												
962	Potential UCL to Use						Use 95% H-UCL					153.2
963												
964												
965	Copper											
966												
967	General Statistics											
968	Number of Valid Samples				25	Number of Unique Samples					25	
969												
970	Raw Statistics						Log-transformed Statistics					
971	Minimum				15.7	Minimum of Log Data					2.754	
972	Maximum				1310	Maximum of Log Data					7.178	
973	Mean				195.5	Mean of log Data					4.498	
974	Median				69.9	SD of log Data					1.157	
975	SD				316.5							
976	Coefficient of Variation				1.619							
977	Skewness				2.624							
978												
979	Relevant UCL Statistics											
980	Normal Distribution Test						Lognormal Distribution Test					
981	Shapiro Wilk Test Statistic				0.58	Shapiro Wilk Test Statistic					0.925	
982	Shapiro Wilk Critical Value				0.918	Shapiro Wilk Critical Value					0.918	
983	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
984												
985	Assuming Normal Distribution						Assuming Lognormal Distribution					
986	95% Student's-t UCL				303.8	95% H-UCL					333.3	
987	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					366.7
988	95% Adjusted-CLT UCL				335.2	97.5% Chebyshev (MVUE) UCL					452.6	
989	95% Modified-t UCL				309.4	99% Chebyshev (MVUE) UCL					621.2	
990												
991	Gamma Distribution Test						Nonparametric Test					
992	k star (bias corrected)				0.702	Data appear Lognormal at 5% Significance Level						
993	Theta Star				278.6							
994	nu star				35.1							
995	Approximate Chi Square Value (.05)				22.54	Nonparametric Statistics						
996	Adjusted Level of Significance				0.0395	95% CLT UCL					299.7	
997	Adjusted Chi Square Value				21.86	95% Jackknife UCL					303.8	
998						95% Standard Bootstrap UCL					298.6	
999	Anderson-Darling Test Statistic				1.892	95% Bootstrap-t UCL					401.4	
1000	Anderson-Darling 5% Critical Value				0.783	95% Hall's Bootstrap UCL					364.3	
1001	Kolmogorov-Smirnov Test Statistic				0.253	95% Percentile Bootstrap UCL					308.9	
1002	Kolmogorov-Smirnov 5% Critical Value				0.181	95% BCA Bootstrap UCL					334.3	
1003	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					471.5
1004						97.5% Chebyshev(Mean, Sd) UCL					590.9	
1005	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					825.4
1006	95% Approximate Gamma UCL				304.4							
1007	95% Adjusted Gamma UCL				314							

	A	B	C	D	E	F	G	H	I	J	K	L	
1008													
1009	Potential UCL to Use					Use 95% H-UCL						333.3	
1010													
1011													
1012	Iron												
1013													
1014	General Statistics												
1015	Number of Valid Samples				25	Number of Unique Samples					23		
1016													
1017	Raw Statistics					Log-transformed Statistics							
1018	Minimum				6130	Minimum of Log Data					8.721		
1019	Maximum				55750	Maximum of Log Data					10.93		
1020	Mean				14402	Mean of log Data					9.389		
1021	Median				10200	SD of log Data					0.552		
1022	SD				11592								
1023	Coefficient of Variation				0.805								
1024	Skewness				2.527								
1025													
1026	Relevant UCL Statistics												
1027	Normal Distribution Test					Lognormal Distribution Test							
1028	Shapiro Wilk Test Statistic				0.631	Shapiro Wilk Test Statistic					0.811		
1029	Shapiro Wilk Critical Value				0.918	Shapiro Wilk Critical Value					0.918		
1030	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
1031													
1032	Assuming Normal Distribution					Assuming Lognormal Distribution							
1033	95% Student's-t UCL				18369	95% H-UCL					17457		
1034	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					20802		
1035	95% Adjusted-CLT UCL				19468	97.5% Chebyshev (MVUE) UCL					23821		
1036	95% Modified-t UCL				18564	99% Chebyshev (MVUE) UCL					29750		
1037													
1038	Gamma Distribution Test					Nonparametric Test							
1039	k star (bias corrected)				2.528	Data do not follow a Discernable Distribution (0.05)							
1040	Theta Star				5696								
1041	nu star				126.4								
1042	Approximate Chi Square Value (.05)				101.4	Nonparametric Statistics							
1043	Adjusted Level of Significance				0.0395	95% CLT UCL					18216		
1044	Adjusted Chi Square Value				99.92	95% Jackknife UCL					18369		
1045						95% Standard Bootstrap UCL					18161		
1046	Anderson-Darling Test Statistic				2.552	95% Bootstrap-t UCL					21234		
1047	Anderson-Darling 5% Critical Value				0.752	95% Hall's Bootstrap UCL					20274		
1048	Kolmogorov-Smirnov Test Statistic				0.304	95% Percentile Bootstrap UCL					18702		
1049	Kolmogorov-Smirnov 5% Critical Value				0.176	95% BCA Bootstrap UCL					19854		
1050	Data not Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					24508		
1051						97.5% Chebyshev(Mean, Sd) UCL					28881		
1052	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					37470		
1053	95% Approximate Gamma UCL				17947								
1054	95% Adjusted Gamma UCL				18221								
1055													
1056	Potential UCL to Use					Use 95% Chebyshev (Mean, Sd) UCL					24508		
1057													
1058													
1059	Lead												
1060													

	A	B	C	D	E	F	G	H	I	J	K	L	
1061	General Statistics												
1062	Number of Valid Samples					25	Number of Unique Samples					25	
1063													
1064	Raw Statistics					Log-transformed Statistics							
1065	Minimum					19.1	Minimum of Log Data					2.95	
1066	Maximum					2230	Maximum of Log Data					7.71	
1067	Mean					295.4	Mean of log Data					4.787	
1068	Median					99.4	SD of log Data					1.216	
1069	SD					534							
1070	Coefficient of Variation					1.808							
1071	Skewness					2.817							
1072													
1073	Relevant UCL Statistics												
1074	Normal Distribution Test					Lognormal Distribution Test							
1075	Shapiro Wilk Test Statistic					0.537	Shapiro Wilk Test Statistic					0.906	
1076	Shapiro Wilk Critical Value					0.918	Shapiro Wilk Critical Value					0.918	
1077	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
1078													
1079	Assuming Normal Distribution					Assuming Lognormal Distribution							
1080	95% Student's-t UCL					478.2	95% H-UCL					503.9	
1081	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					539.9		
1082	95% Adjusted-CLT UCL					535.4	97.5% Chebyshev (MVUE) UCL					669.7	
1083	95% Modified-t UCL					488.2	99% Chebyshev (MVUE) UCL					924.9	
1084													
1085	Gamma Distribution Test					Nonparametric Test							
1086	k star (bias corrected)					0.62	Data do not follow a Discernable Distribution (0.05)						
1087	Theta Star					476.6							
1088	nu star					30.99							
1089	Approximate Chi Square Value (.05)					19.28	Nonparametric Statistics						
1090	Adjusted Level of Significance					0.0395	95% CLT UCL					471.1	
1091	Adjusted Chi Square Value					18.65	95% Jackknife UCL					478.2	
1092							95% Standard Bootstrap UCL					466.1	
1093	Anderson-Darling Test Statistic					2.245	95% Bootstrap-t UCL					721.2	
1094	Anderson-Darling 5% Critical Value					0.791	95% Hall's Bootstrap UCL					599.9	
1095	Kolmogorov-Smirnov Test Statistic					0.288	95% Percentile Bootstrap UCL					475.5	
1096	Kolmogorov-Smirnov 5% Critical Value					0.182	95% BCA Bootstrap UCL					562	
1097	Data not Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					761		
1098							97.5% Chebyshev(Mean, Sd) UCL					962.5	
1099	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					1358		
1100	95% Approximate Gamma UCL					475							
1101	95% Adjusted Gamma UCL					491.1							
1102													
1103	Potential UCL to Use					Use 99% Chebyshev (Mean, Sd) UCL					1358		
1104													
1105													
1106	Manganese												
1107													
1108	General Statistics												
1109	Number of Valid Samples					25	Number of Unique Samples					23	
1110													
1111	Raw Statistics					Log-transformed Statistics							
1112	Minimum					86.1	Minimum of Log Data					4.456	
1113	Maximum					410.5	Maximum of Log Data					6.017	

	A	B	C	D	E	F	G	H	I	J	K	L
1114	Mean					196.1	Mean of log Data					5.15
1115	Median					150	SD of log Data					0.505
1116	SD					106.8						
1117	Coefficient of Variation					0.545						
1118	Skewness					0.981						
1119												
1120	Relevant UCL Statistics											
1121	Normal Distribution Test					Lognormal Distribution Test						
1122	Shapiro Wilk Test Statistic					0.828	Shapiro Wilk Test Statistic					0.902
1123	Shapiro Wilk Critical Value					0.918	Shapiro Wilk Critical Value					0.918
1124	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level						
1125												
1126	Assuming Normal Distribution					Assuming Lognormal Distribution						
1127	95% Student's-t UCL					232.6	95% H-UCL					239.9
1128	95% UCLs (Adjusted for Skewness)					95% Chebyshev (MVUE) UCL					284	
1129	95% Adjusted-CLT UCL					235.7	97.5% Chebyshev (MVUE) UCL					322.7
1130	95% Modified-t UCL					233.3	99% Chebyshev (MVUE) UCL					398.6
1131												
1132	Gamma Distribution Test					Nonparametric Test						
1133	k star (bias corrected)					3.593	Data do not follow a Discernable Distribution (0.05)					
1134	Theta Star					54.57						
1135	nu star					179.6						
1136	Approximate Chi Square Value (.05)					149.6	Nonparametric Statistics					
1137	Adjusted Level of Significance					0.0395	95% CLT UCL					231.2
1138	Adjusted Chi Square Value					147.8	95% Jackknife UCL					232.6
1139							95% Standard Bootstrap UCL					230.8
1140	Anderson-Darling Test Statistic					1.135	95% Bootstrap-t UCL					238.6
1141	Anderson-Darling 5% Critical Value					0.749	95% Hall's Bootstrap UCL					233.5
1142	Kolmogorov-Smirnov Test Statistic					0.179	95% Percentile Bootstrap UCL					231.7
1143	Kolmogorov-Smirnov 5% Critical Value					0.175	95% BCA Bootstrap UCL					234.4
1144	Data not Gamma Distributed at 5% Significance Level					95% Chebyshev(Mean, Sd) UCL					289.2	
1145							97.5% Chebyshev(Mean, Sd) UCL					329.4
1146	Assuming Gamma Distribution					99% Chebyshev(Mean, Sd) UCL					408.6	
1147	95% Approximate Gamma UCL					235.4						
1148	95% Adjusted Gamma UCL					238.3						
1149												
1150	Potential UCL to Use					Use 95% Chebyshev (Mean, Sd) UCL					289.2	
1151												
1152												
1153	Mercury											
1154												
1155	General Statistics											
1156	Number of Valid Samples					25	Number of Unique Samples					22
1157												
1158	Raw Statistics					Log-transformed Statistics						
1159	Minimum					0.037	Minimum of Log Data					-3.297
1160	Maximum					1.8	Maximum of Log Data					0.588
1161	Mean					0.391	Mean of log Data					-1.362
1162	Median					0.27	SD of log Data					0.923
1163	SD					0.43						
1164	Coefficient of Variation					1.098						
1165	Skewness					2.263						
1166												

	A	B	C	D	E	F	G	H	I	J	K	L
1167	Relevant UCL Statistics											
1168	Normal Distribution Test						Lognormal Distribution Test					
1169	Shapiro Wilk Test Statistic					0.699	Shapiro Wilk Test Statistic					0.979
1170	Shapiro Wilk Critical Value					0.918	Shapiro Wilk Critical Value					0.918
1171	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level					
1172												
1173	Assuming Normal Distribution						Assuming Lognormal Distribution					
1174	95% Student's-t UCL					0.538	95% H-UCL					0.617
1175	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					0.728
1176	95% Adjusted-CLT UCL					0.574	97.5% Chebyshev (MVUE) UCL					0.878
1177	95% Modified-t UCL					0.545	99% Chebyshev (MVUE) UCL					1.171
1178												
1179	Gamma Distribution Test						Nonparametric Test					
1180	k star (bias corrected)					1.189	Data appear Gamma Distributed at 5% Significance Level					
1181	Theta Star					0.329						
1182	nu star					59.43						
1183	Approximate Chi Square Value (.05)					42.7	Nonparametric Statistics					
1184	Adjusted Level of Significance					0.0395	95% CLT UCL					0.533
1185	Adjusted Chi Square Value					41.74	95% Jackknife UCL					0.538
1186							95% Standard Bootstrap UCL					0.53
1187	Anderson-Darling Test Statistic					0.737	95% Bootstrap-t UCL					0.625
1188	Anderson-Darling 5% Critical Value					0.766	95% Hall's Bootstrap UCL					0.608
1189	Kolmogorov-Smirnov Test Statistic					0.177	95% Percentile Bootstrap UCL					0.533
1190	Kolmogorov-Smirnov 5% Critical Value					0.178	95% BCA Bootstrap UCL					0.564
1191	Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					0.766
1192							97.5% Chebyshev(Mean, Sd) UCL					0.928
1193	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					1.246
1194	95% Approximate Gamma UCL					0.545						
1195	95% Adjusted Gamma UCL					0.557						
1196												
1197	Potential UCL to Use						Use 95% Approximate Gamma UCL					0.545
1198												
1199												
1200	Thallium											
1201												
1202	General Statistics											
1203	Number of Valid Samples					25	Number of Detected Data					3
1204	Number of Unique Samples					3	Number of Non-Detect Data					22
1205							Percent Non-Detects					88.00%
1206												
1207	Raw Statistics						Log-transformed Statistics					
1208	Minimum Detected					0.89	Minimum Detected					-0.117
1209	Maximum Detected					1.2	Maximum Detected					0.182
1210	Mean of Detected					0.997	Mean of Detected					-0.0132
1211	SD of Detected					0.176	SD of Detected					0.169
1212	Minimum Non-Detect					0.29	Minimum Non-Detect					-1.238
1213	Maximum Non-Detect					1.1	Maximum Non-Detect					0.0953
1214												
1215	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect					24
1216	For all methods (except KM, DL/2, Robust ROS, and Gamma ROS),						Number treated as Detected					1
1217	those Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					96.00%
1218												
1219	UCL Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
1220	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
1221	Shapiro Wilk Test Statistic					0.774	Shapiro Wilk Test Statistic					0.778
1222	5% Shapiro Wilk Critical Value					0.767	5% Shapiro Wilk Critical Value					0.767
1223	Data appear Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
1224												
1225	Assuming Normal Distribution					Assuming Lognormal Distribution						
1226	DL/2 Substitution Method						DL/2 Substitution Method					
1227	Mean					0.426	Mean					-1.009
1228	SD					0.255	SD					0.568
1229	95% DL/2 (t) UCL					0.513	95% H-Stat (DL/2) UCL					0.538
1230												
1231	Maximum Likelihood Estimate(MLE) Method					N/A	Robust ROS Method					
1232							Mean in Log Scale					-0.592
1233							SD in Log Scale					0.237
1234							Mean in Original Scale					0.571
1235							SD in Original Scale					0.173
1236							95% Percentile Bootstrap UCL					0.632
1237							95% BCA Bootstrap UCL					0.649
1238												
1239	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
1240	k star (bias corrected)					N/A	Data appear Normal at 5% Significance Level					
1241	Theta Star					N/A						
1242	nu star					N/A						
1243												
1244	A-D Test Statistic					0.577	Nonparametric Statistics					
1245	5% A-D Critical Value					N/A	Kaplan-Meier (KM) Method					
1246	K-S Test Statistic					N/A	Mean					0.903
1247	5% K-S Critical Value					N/A	SD					0.0607
1248	Data not Gamma Distributed at 5% Significance Level					SE of Mean					0.0149	
1249							95% KM (t) UCL					0.928
1250	Assuming Gamma Distribution					95% KM (z) UCL					0.927	
1251	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					0.921
1252	Minimum					N/A	95% KM (bootstrap t) UCL					1.179
1253	Maximum					N/A	95% KM (BCA) UCL					1E+31
1254	Mean					N/A	95% KM (percentile) UCL					1.2
1255	Median					N/A	95% KM (Chebyshev) UCL					0.968
1256	SD					N/A	97.5% KM (Chebyshev) UCL					0.996
1257	k star					N/A	99% KM (Chebyshev) UCL					1.051
1258	Theta star					N/A						
1259	Nu star					N/A	Potential UCLs to Use					
1260	AppChi2					N/A	95% KM (t) UCL					0.928
1261	95% Gamma Approximate UCL					N/A	95% KM (Percentile Bootstrap) UCL					1.2
1262	95% Adjusted Gamma UCL					N/A						
1263												
1264												
1265	Vanadium											
1266												
1267	General Statistics											
1268	Number of Valid Samples					25	Number of Detected Data					24
1269	Number of Unique Samples					22	Number of Non-Detect Data					1
1270							Percent Non-Detects					4.00%
1271												
1272	Raw Statistics					Log-transformed Statistics						

	A	B	C	D	E	F	G	H	I	J	K	L
1273	Minimum Detected					8	Minimum Detected					2.079
1274	Maximum Detected					33.3	Maximum Detected					3.506
1275	Mean of Detected					14.78	Mean of Detected					2.636
1276	SD of Detected					5.587	SD of Detected					0.334
1277	Minimum Non-Detect					12	Minimum Non-Detect					2.485
1278	Maximum Non-Detect					12	Maximum Non-Detect					2.485
1279												
1280												
1281	UCL Statistics											
1282	Normal Distribution Test with Detected Values Only					Lognormal Distribution Test with Detected Values Only						
1283	Shapiro Wilk Test Statistic					0.856	Shapiro Wilk Test Statistic					0.963
1284	5% Shapiro Wilk Critical Value					0.916	5% Shapiro Wilk Critical Value					0.916
1285	Data not Normal at 5% Significance Level					Data appear Lognormal at 5% Significance Level						
1286												
1287	Assuming Normal Distribution					Assuming Lognormal Distribution						
1288	DL/2 Substitution Method						DL/2 Substitution Method					
1289	Mean					14.43	Mean					2.603
1290	SD					5.745	SD					0.368
1291	95% DL/2 (t) UCL					16.4	95% H-Stat (DL/2) UCL					15.98
1292												
1293	Maximum Likelihood Estimate(MLE) Method						Robust ROS Method					
1294	Mean					13.17	Mean in Log Scale					2.624
1295	SD					7.163	SD in Log Scale					0.332
1296	95% MLE (t) UCL					15.62	Mean in Original Scale					14.6
1297	95% MLE (Tiku) UCL					15.92	SD in Original Scale					5.545
1298							95% Percentile Bootstrap UCL					16.5
1299							95% BCA Bootstrap UCL					16.7
1300												
1301	Gamma Distribution Test with Detected Values Only					Nonparametic Test with Detected Values Only						
1302	k star (bias corrected)					7.839	Data appear Gamma Distributed at 5% Significance Level					
1303	Theta Star					1.886						
1304	nu star					376.3						
1305												
1306	A-D Test Statistic					0.488	Nonparametric Statistics					
1307	5% A-D Critical Value					0.745	Kaplan-Meier (KM) Method					
1308	K-S Test Statistic					0.745	Mean					14.6
1309	5% K-S Critical Value					0.178	SD					5.436
1310	Data appear Gamma Distributed at 5% Significance Level					SE of Mean						1.112
1311							95% KM (t) UCL					16.51
1312	Assuming Gamma Distribution					95% KM (z) UCL						16.43
1313	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL					16.5
1314	Minimum					1.235	95% KM (bootstrap t) UCL					17.1
1315	Maximum					33.3	95% KM (BCA) UCL					16.59
1316	Mean					13.21	95% KM (percentile) UCL					16.63
1317	Median					12.9	95% KM (Chebyshev) UCL					19.45
1318	SD					7.01	97.5% KM (Chebyshev) UCL					21.55
1319	k star					2.665	99% KM (Chebyshev) UCL					25.66
1320	Theta star					4.955						
1321	Nu star					133.3	Potential UCLs to Use					
1322	AppChi2					107.6	95% KM (BCA) UCL					16.59
1323	95% Gamma Approximate UCL					16.36						
1324	95% Adjusted Gamma UCL					16.6						
1325												

	A	B	C	D	E	F	G	H	I	J	K	L	
1326													
1327	Zinc												
1328													
1329	General Statistics												
1330	Number of Valid Samples					25	Number of Unique Samples					25	
1331													
1332	Raw Statistics					Log-transformed Statistics							
1333	Minimum					25.9	Minimum of Log Data					3.254	
1334	Maximum					1570	Maximum of Log Data					7.359	
1335	Mean					250.3	Mean of log Data					4.654	
1336	Median					68.3	SD of log Data					1.183	
1337	SD					409.7							
1338	Coefficient of Variation					1.637							
1339	Skewness					2.203							
1340													
1341	Relevant UCL Statistics												
1342	Normal Distribution Test					Lognormal Distribution Test							
1343	Shapiro Wilk Test Statistic					0.579	Shapiro Wilk Test Statistic					0.804	
1344	Shapiro Wilk Critical Value					0.918	Shapiro Wilk Critical Value					0.918	
1345	Data not Normal at 5% Significance Level					Data not Lognormal at 5% Significance Level							
1346													
1347	Assuming Normal Distribution					Assuming Lognormal Distribution							
1348	95% Student's-t UCL					390.4	95% H-UCL					410.7	
1349	95% UCLs (Adjusted for Skewness)						95% Chebyshev (MVUE) UCL					446.9	
1350	95% Adjusted-CLT UCL					423.6	97.5% Chebyshev (MVUE) UCL					552.8	
1351	95% Modified-t UCL					396.5	99% Chebyshev (MVUE) UCL					760.8	
1352													
1353	Gamma Distribution Test					Nonparametric Test							
1354	k star (bias corrected)					0.639	Data do not follow a Discernable Distribution (0.05)						
1355	Theta Star					391.4							
1356	nu star					31.97							
1357	Approximate Chi Square Value (.05)					20.05	Nonparametric Statistics						
1358	Adjusted Level of Significance					0.0395	95% CLT UCL					385	
1359	Adjusted Chi Square Value					19.41	95% Jackknife UCL					390.4	
1360							95% Standard Bootstrap UCL					383.5	
1361	Anderson-Darling Test Statistic					3.331	95% Bootstrap-t UCL					449.3	
1362	Anderson-Darling 5% Critical Value					0.788	95% Hall's Bootstrap UCL					409	
1363	Kolmogorov-Smirnov Test Statistic					0.348	95% Percentile Bootstrap UCL					404.1	
1364	Kolmogorov-Smirnov 5% Critical Value					0.182	95% BCA Bootstrap UCL					426.6	
1365	Data not Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL					607.4	
1366							97.5% Chebyshev(Mean, Sd) UCL					761.9	
1367	Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL					1065	
1368	95% Approximate Gamma UCL					399.1							
1369	95% Adjusted Gamma UCL					412.3							
1370													
1371	Potential UCL to Use						Use 99% Chebyshev (Mean, Sd) UCL					1065	
1372													

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Soil Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Quinnville Wellfield
Exposure Medium:	Surface Soil
Receptor(s):	Commercial Worker, Construction Worker, Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
LQW-009 LQW-009 (0-1)	0 - 1	11/30/05
LQW-009 DUP-1	0 - 1	11/30/05
LQW-010 LQW-010 (0-1)	0 - 1	12/01/05
LQW-011 LQW-011	0 - 1	12/02/05
LQW-012 LQW-012 (0-1)	0 - 1	11/30/05
LQW-012 LQW-012B	0 - 1	12/02/05
LQW-013 LQW-013 (0-1)	0 - 1	12/01/05
LQW-014 LQW-014 (0-1)	0 - 1	12/01/05
LQW-015 LQW-015 (0-1)	0 - 1	11/30/05
LQW-015 LQW-015B	0 - 1	12/02/05
LQW-016 LQW-016 (0-1)	0 - 1	11/30/05
LQW-016 LQW-016B	0 - 1	12/02/05
LQW-017 LQW-017 (0-1)	0 - 1	11/30/05
LQW-017 LQW-017B	0 - 1	12/02/05
LQW-018 LQW-018 (0-1)	0 - 1	11/30/05
LQW-018 LQW-018B	0 - 1	12/02/05
SO-001-BG SO-001-BG	0 - 1	08/18/03
SO-002-BG SO-002-BG	0 - 1	08/18/03
SO-003-BG SO-003-BG	0 - 1	08/18/03
SO-004-BG SO-004-BG	0 - 1	08/18/03
SO-004-BG SO-FD01	0 - 1	08/18/03
SO-005-BG SO-005-BG	0 - 1	08/18/03
SO-044-QW SO-044-QW	0 - 1	09/10/04
SO-045-QW SO-045-QW	0 - 1	09/10/04
SO-075-QW SO-075-QW	0 - 1	09/10/04
SO-076-QW SO-076-QW	0 - 1	09/10/04

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Soil Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Quinnville Wellfield
Exposure Medium:	Surface Soil
Receptor(s):	Commercial Worker, Construction Worker, Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
SO-076-QW SO-FD-13	0 - 1	09/10/04

Peterson Puritan Superfund Site - Operable Unit 2
Surface Soil Samples: Landfill

Scenario Timeframe:	Future
Exposure Area:	Landfill
Exposure Medium:	Surface Soil
Receptor(s):	Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
LLF-002 LLF-002(0-1)	0 - 1	12/01/05
LLF-003 LLF-003(0-1)	0 - 1	12/01/05
LLF-004 LLF-004(0-1)	0 - 1	12/01/05
SO-018-LF SO-018-LF	0 - 1	08/21/03
SO-019-LF SO-019-LF	0 - 1	08/21/03
SO-020-LF SO-020-LF	0 - 1	08/21/03
SO-021-LF SO-021-LF	0 - 1	08/21/03
SO-022-LF SO-022-LF	0 - 1	08/21/03
SO-022-LF SO-FD-03	0 - 1	08/21/03
SO-023-LF SO-023-LF	0 - 1	08/22/03
SO-024-LF SO-024-LF	0 - 1	08/22/03
SO-025-LF SO-025-LF	0 - 1	08/22/03
SO-026-LF SO-026-LF	0 - 1	08/22/03
SO-027-LF SO-027-LF	0 - 1	08/22/03
SO-028-LF SO-028-LF	0 - 1	08/22/03
SO-029-LF SO-029-LF	0 - 1	08/22/03
SO-030-LF SO-030-LF	0 - 1	08/22/03
SO-032-LF SO-032-LF	0 - 1	08/28/03
SO-041-LF SO-041-LF	0 - 1	09/09/04
SO-042-LF SO-042-LF	0 - 1	09/09/04
SO-043-LF SO-043-LF	0 - 1	09/09/04
SO-W05-DF SO-W05-DF	0 - 1	08/26/03
SO-W05-DF SO-W05-DFb	0 - 1	09/20/03
SO-W06-DF SO-W06-DF	0 - 1	08/26/03
SO-W06-DF SO-FD04	0 - 1	08/27/03
SO-W06-DF SO-W06-DFb	0 - 1	09/20/03

**Peterson Puritan Superfund Site - Operable Unit 2
Surface Soil Samples: Southern Bank (Lincoln Side)**

Scenario Timeframe:	Current/Future
Exposure Area:	Southern Bank (Lincoln side)
Exposure Medium:	Surface Soil
Receptor(s):	Recreational User, Construction Worker
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
SO-064-BR SO-064-BR	0 - 1	09/08/04
SO-065-BR SO-065-BR	0 - 1	09/08/04
SO-066-BR SO-066-BR	0 - 1	09/08/04
SO-067-BR SO-067-BR	0 - 1	09/08/04
SO-068-BR SO-068-BR	0 - 1	09/08/04
SO-069-BR SO-069-BR	0 - 1	09/08/04
SO-070-BR SO-070-BR	0 - 1	09/08/04
SO-071-BR SO-071-BR	0 - 1	09/08/04

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Soil Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Upstream of Landfill (Debris Fields)
Exposure Medium:	Surface Soil
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
SO-W07-DF SO-W07-DF	0 - 1	08/26/03
SO-W07x-DF SO-W07x-DF	0 - 1	09/20/03
SO-W08-DF SO-W08-DF	0 - 1	08/26/03
SO-W08-DF SO-W08-DFb	0 - 1	09/20/03
SO-046-DF SO-046-DF	0 - 1	09/09/04
SO-046-DF SO-FD-12	0 - 1	09/09/04
SO-047-DF SO-047-DF	0 - 1	09/09/04
SO-048-DF SO-048-DF	0 - 1	09/09/04
SO-049-DF SO-049-DF	0 - 1	09/09/04

USE SURFACE SOIL COPCS FROM TABLE 2.1

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Soil Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Nunes Parcel
Exposure Medium:	Surface Soil
Receptor(s):	Commercial Worker, Trespasser, Recreational User, Construction Worker
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
LNP-007 LNP-007(0-1)	0 - 1	12/01/05
LNP-008 LNP-008(0-1)	0 - 1	12/01/05
LNP-008 DUP-SS-PCDD/PCDF-1	0 - 1	12/01/05
SO-008-NP SO-008-NP	0 - 1	08/19/03
SO-009-NP SO-009-NP	0 - 1	08/19/03
SO-017-NP SO-017-NP	0 - 1	08/21/03
SO-033-NP SO-033-NP	0 - 1	09/05/03
SO-034-NP SO-034-NP	0 - 1	09/05/03
SO-035-NP SO-035-NP	0 - 1	09/06/03
SO-036-NP SO-036-NP	0 - 1	09/06/03
SO-037-NP SO-037-NP	0 - 1	09/06/03
SO-050-NP SO-050-NP	0 - 1	09/08/04
SO-051-NP SO-051-NP	0 - 1	09/08/04
SO-052-NP SO-052-NP	0 - 1	09/08/04
SO-053-NP SO-053-NP	0 - 1	09/08/04
SO-054-NP SO-054-NP	0 - 1	09/08/04
SO-055-NP SO-055-NP	0 - 1	09/08/04
SO-056-NP SO-056-NP	0 - 1	09/08/04
SO-056-NP SO-FD-11	0 - 1	09/08/04
SO-057-NP SO-057-NP	0 - 1	09/09/04
SO-058-WT SO-058-WT	0 - 1	09/08/04
SO-101-NP SO-101-NP	0 - 1	11/01/06
SO-102-NP SO-102-NP	0 - 1	10/31/06
SO-107-NP SO-107-NP	0 - 1	11/02/06

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Subsurface Soil Samples**

Scenario Timeframe:	Future
Exposure Area:	Nunes Parcel
Exposure Medium:	Subsurface Soil
Receptor(s):	Construction Worker
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
SEA-606 SSO-SPT8-5-NP	4 - 6	9/21/2003
SEA-606 SSO-SPT8-10-NP	8 - 10	9/21/2003
SEA-606 SSO-SPT8-15-NP	14 - 16	9/21/2003
SO-033-NP SO-W14-NP	1 - 5	9/5/2003
SO-034-NP SO-W13-NP	6 - 10	9/5/2003
SO-035-NP SO-15-NP	5 - 9	9/6/2003
SO-036-NP SSO-01-NP	1 - 5	9/6/2003
SO-036-NP SSO-FD01	1 - 5	9/6/2003
SO-037-NP SO-W16-NP	5 - 9	9/6/2003
SO-100-NP SO-100-NP	2 - 7	11/1/2006
SO-101-NP SO-101-NP	2 - 9	11/1/2006
SO-102-NP SO-102-NP	2 - 8.5	10/31/2006
SO-103-NP SO-103-NP	2 - 7	11/1/2006
SO-104-NP SO-104-NP	2 - 3.4	11/2/2006
SO-105-NP SO-105-NP	2 - 3.4	11/2/2006
SO-106-NP SO-106-NP	2 - 5	11/2/2006
SO-107-NP SO-107-NP	2 - 10	11/2/2006
SO-108-NP SO-108-NP	3 - 8	11/2/2006
SO-108-NP FD-110206	3 - 8	11/2/2006

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Soil Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Wetlands
Exposure Medium:	Surface Soil
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
SO-059-WT SO-059-WT	0 - 1	09/09/04
SO-060-WT SO-060-WT	0 - 1	09/08/04
SO-061-WT SO-061-WT	0 - 1	09/09/04
SO-061-WT SO-091-WT	0 - 1	11/27/04
SO-062-WT SO-062-WT	0 - 1	09/09/04
SO-062-WT SO-092-WT	0 - 1	11/27/04
SO-062-WT SO-FD-21	0 - 1	11/27/04
SO-063-WT SO-063-WT	0 - 1	09/09/04

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Sediment Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Unnamed Island Ponds (Ponds A, D, E, P, Excavator)
Exposure Medium:	Sediment
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected	Depth (ft) of Water at Collection
SE-001-UI SE-001-UI	0 - 1	08/28/03	2
SE-003-UI SE-003-UI	0 - 1	08/29/03	nearshore
SE-003-UI SE-FD01	0 - 1	08/29/03	2
SE-004-UI SE-004-UI	0 - 1	08/29/03	0
SE-005-UI SE-005-UI	0 - 1	08/29/03	2
SE-006-UI SE-006-UI	0 - 1	08/29/03	2
SE-007-UI SE-007-UI	0 - 1	09/02/03	2
SE-075-UI SE-075-UI	0 - 1	09/03/04	1
SE-076-UI SE-076-UI	0 - 1	09/03/04	0
SE-077-UI SE-077-UI	0 - 1	09/06/04	2
SE-078-UI SE-078-UI	0 - 1	09/06/04	2
SE-084-UI SE-084-UI	0 - 1	09/07/04	2
SE-085-UI SE-085-UI	0 - 1	09/07/04	2
SE-086-UI SE-086-UI	0 - 1	09/07/04	2
SE-087-UI SE-087-UI	0 - 1	09/07/04	2
T05PA-001 T05PA-001	0 - 0.5	06/21/05	nearshore
T05PA-003 T05PA-003	0 - 0.5	06/21/05	nearshore
T05PD-002 BD062105	0 - 0.5	06/21/05	shallow
T05PD-002 T05PD-002	0 - 0.5	06/21/05	shallow

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Sediment Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Southern Bank (Backwater and Pond F)
Exposure Medium:	Sediment
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected	Depth (ft) of Water at Collection
SE-008-BR SE-008-BR	0 - 1	09/02/03	nearshore
SE-023-BR SE-023-BR	0 - 1	09/06/03	2 - 3
SE-024-BR SE-024-BR	0 - 1	09/06/03	2
SE-025-BR SE-025-BR	0 - 1	09/06/03	2
SE-064-BR SE-064-BR	0 - 1	09/02/04	2
SE-065-BR SE-065-BR	0 - 1	09/02/04	2
SE-066-BR SE-066-BR	0 - 1	09/03/04	2
SE-067-BR SE-067-BR	0 - 1	09/03/04	2
SE-068-BR SE-068-BR	0 - 1	09/06/04	2
SE-071-BR SE-071-BR	0 - 1	09/06/04	2
SE-072-BR SE-072-BR	0 - 1	09/06/04	1.8
SE-082-BR SE-082-BR	0 - 1	09/06/04	2
SE-083-BR SE-083-BR	0 - 1	09/06/04	2
T05BR-007 T05BR-007	0 - 0.5	06/23/05	nearshore
T05PF-004 T05PF-004	0 - 0.5	06/21/05	shallow

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Sediment Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Upstream of Landfill
Exposure Medium:	Sediment
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected	Depth (ft) of Water at Collection
SE-032-BR SE-032-BR	0 - 1	09/10/03	2
SE-048-BR SE-048-BR	0 - 1	08/31/04	2
SE-051-DF SE-051-DF	0 - 1	08/31/04	inlet, assumed to be shallow

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Sediment Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Adjacent to Landfill
Exposure Medium:	Sediment
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected	Depth (ft) of Water at Collection
SE-019-LF SE-019-LF	0 - 1	09/05/03	0
SE-020-LF SE-020-LF	0 - 1	09/05/03	0.4
SE-028-BR SE-028-BR	0 - 1	09/08/03	2
SE-029-BR SE-029-BR	0 - 1	09/09/03	2
SE-029-BR SE-FD03	0 - 1	09/09/03	2
SE-030-BR SE-030-BR	0 - 1	09/09/03	2
SE-031-BR SE-031-BR	0 - 1	09/09/03	2
SE-041-BR SE-041-BR	0 - 1	08/30/04	2
SE-043-BR SE-043-BR	0 - 1	08/30/04	2
SE-047-BR SE-047-BR	0 - 1	08/30/04	2
SE-070-LF SE-070-LF	0 - 1	09/02/04	0
SE-073-LF SE-073-LF	0 - 1	09/03/04	0
SE-074-LF SE-074-LF	0 - 1	09/03/04	0
T05BR-002 T05BR-002	0 - 0.5	06/21/05	nearshore
T05BR-004 BD062205	0 - 0.5	06/22/05	nearshore
T05BR-004 T05BR-004	0 - 0.5	06/22/05	nearshore
T05BR-006 T05BR-006	0 - 0.5	06/22/05	nearshore

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Sediment Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Downstream of Landfill
Exposure Medium:	Sediment
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected	Depth (ft) of Water at Collection
SE-021-NP SE-021-NP	0 - 1	09/05/03	0.8
SE-026-BR SE-026-BR	0 - 1	09/08/03	2
SE-026-BR SE-042-BR	0 - 1	08/31/04	2
SE-026-BR SE-FD-02	0 - 1	09/08/03	2
SE-027-BR SE-027-BR	0 - 1	09/08/03	2
SE-046-BR SE-046-BR	0 - 1	08/30/04	2
SE-046-BR SE-FD-11	0 - 1	08/30/04	2
SE-069-NP SE-069-NP	0 - 1	09/02/04	0.8
SE-069-NP SE-FD-12	0 - 1	09/02/04	0.8
T05BR-001 T05BR-001	0 - 0.5	06/21/05	nearshore
T05BR-003 T05BR-003	0 - 0.5	06/21/05	nearshore
T05BR-005 T05BR-005	0 - 0.5	06/22/05	nearshore

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Sediment Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Wetlands
Exposure Medium:	Sediment
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Sample Depth	Date Collected
SE-009-WT SE-009-WT	0 - 1	09/03/03
SE-010-WT SE-010-WT	0 - 1	09/03/03
SE-011-WT SE-011-WT	0 - 1	09/03/03
SE-012-WT SE-012-WT	0 - 1	09/03/03
SE-013-WT SE-013-WT	0 - 1	09/04/03
SE-014-WT SE-014-WT	0 - 1	09/04/03
SE-016-WT SE-016-WT	0 - 1	09/04/03
SE-017-WT SE-017-WT	0 - 1	09/05/03
SE-018-WT SE-018-WT	0 - 1	09/05/03
SE-052-WT SE-052-WT	0 - 1	09/01/04
SE-053-WT SE-053-WT	0 - 1	08/31/04
SE-055-WT SE-055-WT	0 - 1	08/31/04
SE-057-WT SE-057-WT	0 - 1	09/02/04
SE-058-WT SE-058-WT	0 - 1	09/01/04
SE-059-WT SE-059-WT	0 - 1	09/01/04
SE-060-WT SE-060-WT	0 - 1	09/02/04
SE-061-WT SE-061-WT	0 - 1	09/01/04
SE-062-WT SE-062-WT	0 - 1	09/01/04
SE-063-WT SE-063-WT	0 - 1	09/06/04
T05WB-001 T05WB-001	0 - 0.5	06/21/05
T05WB-002 T05WB-002	0 - 0.5	06/21/05
T05WD-003 T05WD-003	0 - 0.5	06/21/05

**Peterson Puritan Superfund Site - Operable Unit 2
Fish Fillet Samples: OU2**

Scenario Timeframe:	Current/Future
Exposure Area:	OU2 (Ponds and Blackstone River)
Exposure Medium:	Fish Tissue
Receptor(s):	Recreational User
Pathway(s):	Ingestion

Location ID Sample ID	Date Collected	Location	Species
BR3-FI-1 BR3-FI-1-FILL	09/27/05	BR-3	Largemouth bass
BR3-FI-2 BR3-FI-2-FILL	09/27/05	BR-3	Largemouth bass
BR3-FI-3 BR3-FI-3-FILL	09/27/05	BR-3	Largemouth bass
BR3-FI-4 BR3-FI-4-FILL	09/27/05	BR-3	Largemouth bass
BR3-FI-5 BR3-FI-5-FILL	09/27/05	BR-3	Largemouth bass
BR3-FI-6 BR3-FI-6-FILL	09/28/05	BR-3	Largemouth bass
BR3-FI-7 BR3-FI-7-FILL	09/28/05	BR-3	Largemouth bass
BR3-FI-8 BR3-FI-8-FILL	09/28/05	BR-3	Largemouth bass
BR3-FI-9 BR3-FI-9-FILL	09/27/05	BR-3	White sucker
BR3-FI-10 BR3-FI-10-FILL	09/27/05	BR-3	White sucker
BR3-FI-11 BR3-FI-11-FILL	09/27/05	BR-3	White sucker
BR3-FI-12 BR3-FI-12-FILL	09/27/05	BR-3	White sucker
BR3-FI-13 BR3-FI-13-FILL	09/27/05	BR-3	White sucker
BR3-FI-14 BR3-FI-14-FILL	09/28/05	BR-3	White sucker
BR3-FI-15 BR3-FI-15-FILL	09/28/05	BR-3	White sucker
BR3-FI-16 BR3-FI-16-FILL	09/28/05	BR-3	White sucker
P1-FI-25 P1-FI-25-FILL	09/27/05	Pond A (P-1)	Largemouth bass
P1-FI-26 P1-FI-26-FILL	09/27/05	Pond A (P-1)	Largemouth bass
P1-FI-27 P1-FI-27-FILL	09/27/05	Pond A (P-1)	Largemouth bass
P1-FI-28 P1-FI-28-FILL	09/27/05	Pond A (P-1)	Largemouth bass
P1-FI-29 P1-FI-29-FILL	09/27/05	Pond A (P-1)	Largemouth bass
P1-FI-30 P1-FI-30-FILL	09/27/05	Pond A (P-1)	Largemouth bass
P1-FI-31 P1-FI-31-FILL	09/27/05	Pond A (P-1)	Largemouth bass
P1-FI-32 P1-FI-32-FILL	09/27/05	Pond A (P-1)	Largemouth bass
P1-FI-33 P1-FI-33-FILL	09/27/05	Pond A (P-1)	White sucker
P1-FI-34 P1-FI-34-FILL	09/27/05	Pond A (P-1)	White sucker
P1-FI-35 P1-FI-35-FILL	09/27/05	Pond A (P-1)	White sucker
P1-FI-36 P1-FI-36-FILL	09/27/05	Pond A (P-1)	White sucker
P1-FI-37 P1-FI-37-FILL	09/27/05	Pond A (P-1)	White sucker

**Peterson Puritan Superfund Site - Operable Unit 2
Fish Fillet Samples: OU2**

Scenario Timeframe:	Current/Future
Exposure Area:	OU2 (Ponds and Blackstone River)
Exposure Medium:	Fish Tissue
Receptor(s):	Recreational User
Pathway(s):	Ingestion

Location ID Sample ID	Date Collected	Location	Species
P1-FI-38 P1-FI-38-FILL	09/27/05	Pond A (P-1)	White sucker
P1-FI-39 P1-FI-39-FILL	09/27/05	Pond A (P-1)	White sucker
P1-FI-40 P1-FI-40-FILL	09/27/05	Pond A (P-1)	White sucker
P2-FI-49 P2-FI-49-FILL	09/27/05	Pond F (P-2)	Bluegill
P2-FI-50 P2-FI-50-FILL	09/27/05	Pond F (P-2)	Bluegill
P2-FI-51 P2-FI-51-FILL	09/27/05	Pond F (P-2)	Bluegill
P2-FI-52 P2-FI-52-FILL	09/27/05	Pond F (P-2)	Bluegill
P2-FI-53 P2-FI-53-FILL	09/27/05	Pond F (P-2)	Bluegill
P2-FI-54 P2-FI-54-FILL	09/27/05	Pond F (P-2)	Bluegill
P2-FI-55 P2-FI-55-FILL	09/27/05	Pond F (P-2)	Bluegill
P2-FI-56 P2-FI-56-FILL	09/27/05	Pond F (P-2)	Pumpkinseed
P2-FI-57 P2-FI-57-FILL	09/27/05	Pond F (P-2)	White sucker
P2-FI-58 P2-FI-58-FILL	09/27/05	Pond F (P-2)	White sucker
P2-FI-59 P2-FI-59-FILL	09/27/05	Pond F (P-2)	White sucker
P2-FI-60 P2-FI-60-FILL	09/27/05	Pond F (P-2)	White sucker
P2-FI-61 P2-FI-61-FILL	09/27/05	Pond F (P-2)	White sucker
P2-FI-62 P2-FI-62-FILL	09/27/05	Pond F (P-2)	White sucker
P2-FI-63 P2-FI-63-FILL	09/27/05	Pond F (P-2)	White sucker
P2-FI-64 P2-FI-64-FILL	09/27/05	Pond F (P-2)	White sucker

Peterson Puritan Superfund Site - Operable Unit 2
Fish Fillet Samples: BR2

Scenario Timeframe:	Current/Future
Exposure Area:	BR-2 (Blackstone River)
Exposure Medium:	Fish Tissue
Receptor(s):	Recreational User
Pathway(s):	Ingestion

Location ID Sample ID	Date Collected	Location	Species
BR2-FI-73 BR2-FI-73-FILL	09/28/05	BR-2	Largemouth bass
BR2-FI-74 BR2-FI-74-FILL	09/28/05	BR-2	Largemouth bass
BR2-FI-75 BR2-FI-75-FILL	09/28/05	BR-2	Largemouth bass
BR2-FI-76 BR2-FI-76-FILL	09/28/05	BR-2	Largemouth bass
BR2-FI-77 BR2-FI-77-FILL	09/28/05	BR-2	Largemouth bass
BR2-FI-78 BR2-FI-78-FILL	09/28/05	BR-2	Largemouth bass
BR2-FI-79 BR2-FI-79-FILL	09/28/05	BR-2	Largemouth bass
BR2-FI-80 BR2-FI-80-FILL	09/28/05	BR-2	Largemouth bass
BR2-FI-81 BR2-FI-81-FILL	09/28/05	BR-2	White sucker
BR2-FI-82 BR2-FI-82-FILL	09/28/05	BR-2	White sucker
BR2-FI-83 BR2-FI-83-FILL	09/28/05	BR-2	White sucker
BR2-FI-84 BR2-FI-84-FILL	09/28/05	BR-2	White sucker
BR2-FI-85 BR2-FI-85-FILL	09/28/05	BR-2	White sucker
BR2-FI-86 BR2-FI-86-FILL	09/28/05	BR-2	White sucker
BR2-FI-87 BR2-FI-87-FILL	09/28/05	BR-2	White sucker
BR2-FI-88 BR2-FI-88-FILL	09/28/05	BR-2	White sucker

**Peterson Puritan Superfund Site - Operable Unit 2
Fish Fillet Samples: BR-1**

Scenario Timeframe:	Current/Future
Exposure Area:	BR-1 (Blackstone River)
Exposure Medium:	Fish Tissue
Receptor(s):	Recreational User
Pathway(s):	Ingestion

Location ID Sample ID	Date Collected	Location	Species
BR1-FI-113 BR1-FI-113-FILL	09/29/05	BR-1	White sucker
BR1-FI-114 BR1-FI-114-FILL	09/29/05	BR-1	White sucker
BR1-FI-115 BR1-FI-115-FILL	09/29/05	BR-1	White sucker
BR1-FI-116 BR1-FI-116-FILL	09/29/05	BR-1	White sucker
BR1-FI-117 BR1-FI-117-FILL	09/29/05	BR-1	White sucker
BR1-FI-118 BR1-FI-118-FILL	09/29/05	BR-1	White sucker
BR1-FI-119 BR1-FI-119-FILL	09/29/05	BR-1	White sucker
BR1-FI-120 BR1-FI-120-FILL	09/29/05	BR-1	White sucker
BR1-FI-121 BR1-FI-121-FILL	09/29/05	BR-1	Bluegill
BR1-FI-122 BR1-FI-122-FILL	09/29/05	BR-1	Bluegill
BR1-FI-123 BR1-FI-123-FILL	09/29/05	BR-1	Bluegill
BR1-FI-124 BR1-FI-124-FILL	09/29/05	BR-1	Bluegill
BR1-FI-125 BR1-FI-125-FILL	09/29/05	BR-1	Bluegill
BR1-FI-126 BR1-FI-126-FILL	09/29/05	BR-1	Pumpkinseed
BR1-FI-127 BR1-FI-127-FILL	09/29/05	BR-1	Pumpkinseed
BR1-FI-128 BR1-FI-128-FILL	09/29/05	BR-1	Pumpkinseed

Peterson Puritan Superfund Site - Operable Unit 2
Fish Fillet Samples: P-6

Scenario Timeframe:	Current/Future
Exposure Area:	P-6 (Background/Reference Area)
Exposure Medium:	Fish Tissue
Receptor(s):	Recreational User
Pathway(s):	Ingestion

Location ID Sample ID	Date Collected	Location	Species
P6-FI-97 P6-FI-97-FILL	09/29/05	P-6	Largemouth bass
P6-FI-98 P6-FI-98-FILL	09/29/05	P-6	Largemouth bass
P6-FI-99 P6-FI-99-FILL	09/29/05	P-6	Largemouth bass
P6-FI-100 P6-FI-100-FILL	09/29/05	P-6	Largemouth bass
P6-FI-101 P6-FI-101-FILL	09/29/05	P-6	Largemouth bass
P6-FI-102 P6-FI-102-FILL	09/29/05	P-6	Largemouth bass
P6-FI-103 P6-FI-103-FILL	09/29/05	P-6	Largemouth bass
P6-FI-104 P6-FI-104-FILL	09/29/05	P-6	Largemouth bass

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Water Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Southern Bank (Backwater and Pond F)
Exposure Medium:	Surface Water
Receptor(s):	Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
SE-008-BR SW-008-BR	09/02/03
SE-023-BR SW-023-BR	09/06/03
SE-024-BR SW-024-BR	09/06/03
SE-025-BR SW-025-BR	09/06/03
SE-064-BR SW-064-BR	09/02/04
SE-065-BR SW-065-BR	09/02/04
SE-066-BR SW-066-BR	09/03/04
SE-067-BR SW-067-BR	09/03/04
SE-068-BR SW-068-BR	09/06/04
SE-071-BR SW-071-BR	09/06/04
SE-072-BR SW-072-BR	09/06/04
SE-081-BR SW-081-BR	09/07/04
SE-082-BR SW-082-BR	09/06/04
SE-083-BR SW-083-BR	09/06/04

Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Water Samples

Scenario Timeframe:	Current/Future
Exposure Area:	Upstream of Landfill
Exposure Medium:	Surface Water
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
SE-032-BR SW-032-BR	09/10/03
SE-048B-BR SW-048-BR	08/31/04
SE-051-DF SW-051-DF	08/31/04

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Water Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Adjacent to Landfill
Exposure Medium:	Surface Water
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
SE-020-LF SW-020-LF	09/05/03
SE-028-BR SW-028-BR	09/08/03
SE-029-BR SW-029-BR	09/09/03
SE-029-BR SW-FD-03	09/09/03
SE-030-BR SW-030-BR	09/09/03
SE-031-BR SW-031-BR	09/09/03
SE-041-BR SW-041-BR	08/30/04
SE-043-BR SW-043-BR	08/30/04
SE-047-BR SW-047-BR	08/30/04
SE-074-LF SW-074-LF	09/10/04

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Water Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Downstream of Landfill
Exposure Medium:	Surface Water
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
SE-021-NP SW-021-NP	09/05/03
SE-026-BR SW-026-BR	09/08/03
SE-026-BR SW-FD-02	09/08/03
SE-026-BR SW-042-BR	08/31/04
SE-027-BR SW-027-BR	09/08/03
SE-046-BR SW-046-BR	08/30/04
SE-046-BR SW-FD-11	08/30/04
SE-069-NP SW-069-NP	09/02/04
SE-069-NP SW-FD-12	09/02/04
SW-3 Pratt Cumberland SW-3 Pratt Cumberland	04/04/05
SW-3 Pratt SW-3 Pratt	04/04/05
SW-4 Pratt Lincoln SW-4 Pratt Lincoln	04/04/05
SW-4 Pratt SW-4 Pratt	04/04/05

**Peterson Puritan Superfund Site - Operable Unit 2
Summary of Surface Water Samples**

Scenario Timeframe:	Current/Future
Exposure Area:	Wetlands
Exposure Medium:	Surface Water
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
SE-009-WT SW-009-WT	09/03/03
SE-010-WT SW-010-WT	09/03/03
SE-011-WT SW-011-WT	09/03/03
SE-012-WT SW-012-WT	09/03/03
SE-013-WT SW-013-WT	09/04/03
SE-014-WT SW-014-WT	09/04/03
SE-016-WT SW-016-WT	09/04/03
SE-017-WT SW-017-WT	09/05/03
SE-052-WT SW-052-WT	09/01/04
SE-053B-WT SW-053-WT	09/09/04
SE-057-WT SW-057-WT	09/02/04
SE-058-WT SW-058-WT	09/01/04
SE-059-WT SW-059-WT	09/01/04
SE-060-WT SW-060-WT	09/02/04
SE-061-WT SW-061-WT	09/01/04
SE-062-WT SW-062-WT	09/01/04

Peterson Puritan Superfund Site - Operable Unit 2
Leachate Samples¹: Landfill and Unnamed Island

Scenario Timeframe:	Current/Future
Exposure Area:	Landfill
Exposure Medium:	Leachate
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Dermal

Location ID Sample ID	Date Collected
GLF-704 GLF-704	12/06/05
GLF-704 DUP-2	12/06/05
GNP-708 GNP-708	11/29/05
MW-108AA GW-011-LF	10/01/03
MW-108AA MW-108AA	12/07/05
MW-B2 GW-002-LF	09/29/03
MW-B2 GW-066-LF	09/27/04
MW-C2 GW-006-LF	09/30/03
MW-C2 GW-071-LF	09/27/04
MW-C2 MW-C2	12/06/05
P-8 GW-018-LF	10/02/03
P-8 GW-063-LF	09/30/04
SEA-602A GW-022-LF	10/03/03
SEA-602A GW-062-LF	09/28/04
SEA-602a SEA-602a	12/07/05
SEA-603 GW-021-LF	10/03/03
SEA-603 GW-064-LF	10/01/04
SEA-603 GW-FD-13	10/01/04
SEA-603 SEA-603	12/06/05
SEA-604 GW-027-LF	10/04/03
SEA-604 GW-067-LF	09/30/04
SEA-607 GW-072-UI	10/01/04
SEA-608 GW-026-UI	10/03/03
SEA-608 GW-FD03	10/03/03
SEA-608 GW-073-UI	10/01/04
SEA-608 SEA-608	01/10/06

Peterson Puritan Superfund Site - Operable Unit 2
Leachate Samples¹: Landfill and Unnamed Island

Scenario Timeframe:	Current/Future
Exposure Area:	Landfill
Exposure Medium:	Leachate
Receptor(s):	Trespasser, Recreational User
Pathway(s):	Dermal

Location ID Sample ID	Date Collected

Note:

(1) Because there are no "true" leachate data for the site, as discussed, groundwater data will be used as a surrogate to evaluate potential leachate exposures to the trespasser and recreational user. Screening of leachate data using samples below was performed (see Table 2.10) and COPCs were used with the surrogate groundwater data to calculate EPCs.

Location ID Sample ID	Date Collected
UI-TT-06 GW-LE01-UI	08/19/03
UI-TT-06 GW-FD01	08/19/03
UI-TT-10 GW-LE02-UI	08/19/03
LF-TT-02 GW-LE3-LF	08/21/03
LF-TT-04 GW-LE4-LF	08/21/03
LF-TT-07 GW-LE5-LF	08/22/03
LF-TT-09 GW-LE6-LF	08/22/03

**Peterson Puritan Superfund Site - Operable Unit 2
Shallow Groundwater Samples**

Scenario Timeframe:	Future
Exposure Area:	Site-Wide
Exposure Medium:	Shallow Groundwater
Receptor(s):	Construction Worker
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
GLF-704 GLF-704	12/06/05
GLF-704 DUP-2	12/06/05
GLF-706 GLF-706	11/29/05
GNP-705 GNP-705	11/28/05
GNP-708 GNP-708	11/29/05
GUI-701 GUI-701	12/08/05
GUI-702 GUI-702	01/10/06
GUI-703 GUI-703	01/10/06
GZ-4-1 GW-013-QW	10/01/03
GZ-4-1 GW-079-QW	09/30/04
MW-108AA GW-011-LF	10/01/03
MW-108AA MW-108AA	12/07/05
MW-109AA GW-003-LF	09/30/03
MW-109AA GW-048-LF	09/23/04
MW-109AA GW-FD-11	09/23/04
MW-111AA GW-015-WT	10/02/03
MW-111AA GW-052-WT	09/24/04
MW-112AA GW-020-NP	10/03/03
MW-112AA GW-056-NP	09/27/04
MW-112AA MW-112AA	11/30/05
MW-A2 GW-012-QW	10/01/03
MW-A2 GW-080-QW	09/30/04
MW-A2 MW-A2	12/08/05
MW-B2 GW-002-LF	09/29/03
MW-B2 GW-066-LF	09/27/04
MW-C2 GW-006-LF	09/30/03

**Peterson Puritan Superfund Site - Operable Unit 2
Shallow Groundwater Samples**

Scenario Timeframe:	Future
Exposure Area:	Site-Wide
Exposure Medium:	Shallow Groundwater
Receptor(s):	Construction Worker
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
MW-C2 GW-071-LF	09/27/04
MW-C2 MW-C2	12/06/05
P-7 GW-014-LF	10/02/03
P-7 GW-059-LF	09/28/04
P-8 GW-018-LF	10/02/03
P-8 GW-063-LF	09/30/04
SEA-601 GW-017-LF	10/02/03
SEA-601 GW-060-LF	09/28/04
SEA-602A GW-022-LF	10/03/03
SEA-602A GW-062-LF	09/28/04
SEA-602a SEA-602a	12/07/05
SEA-603 GW-021-LF	10/03/03
SEA-603 GW-064-LF	10/01/04
SEA-603 GW-FD-13	10/01/04
SEA-603 SEA-603	12/06/05
SEA-604 GW-027-LF	10/04/03
SEA-604 GW-067-LF	09/30/04
SEA-605 GW-028-LF	10/04/03
SEA-605 GW-068-LF	09/30/04
SEA-605 SEA-605	12/07/05
SEA-606 GW-024-NP	10/04/03
SEA-606 GW-069-NP	09/30/04
SEA-606 SEA-606	12/05/05
SEA-607 GW-025-UI	10/03/03
SEA-607 GW-072-UI	10/01/04
SEA-608 GW-026-UI	10/03/03

Peterson Puritan Superfund Site - Operable Unit 2
Shallow Groundwater Samples

Scenario Timeframe:	Future
Exposure Area:	Site-Wide
Exposure Medium:	Shallow Groundwater
Receptor(s):	Construction Worker
Pathway(s):	Ingestion, dermal

Location ID Sample ID	Date Collected
SEA-608 GW-FD03	10/03/03
SEA-608 GW-073-UI	10/01/04
SEA-608 SEA-608	01/10/06

USE COPCS FROM TABLE 2.7

**Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples**

Scenario Timeframe:	Future
Exposure Area:	Site-wide
Exposure Medium:	Groundwater
Receptor(s):	Resident
Pathway(s):	Ingestion, dermal, inhalation

Location ID Sample ID	Date Collected
GLF-700a GLF-700a	12/06/05
GLF-704 GLF-704	12/06/05
GLF-704 DUP-2	12/06/05
GLF-706 GLF-706	11/29/05
GLF-706a GLF-706a	11/29/05
GLF-706a DUP-1	11/29/05
GNP-705 GNP-705	11/28/05
GNP-705B GNP-705B	12/01/05
GNP-707 GNP-707	11/29/05
GNP-708 GNP-708	11/29/05
GNP-708A GNP-708A	12/01/05
GUI-701 GUI-701	12/08/05
GUI-702 GUI-702	01/10/06
GUI-703 GUI-703	01/10/06
GZ-4-1 GW-013-QW	10/01/03
GZ-4-1 GW-079-QW	09/30/04
MW-106A GW-009-DF	10/01/03
MW-106A GW-074-DF	09/30/04
MW-106A MW-106A	12/02/05
MW-106B GW-078-DF	09/28/04
MW-106B GW-FD-12	09/28/04
MW-106B MW-106B	12/02/05
MW-106C GW-077-DF	09/28/04
MW-106C MW-106C	12/02/05

**Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples**

Scenario Timeframe:	Future
Exposure Area:	Site-wide
Exposure Medium:	Groundwater
Receptor(s):	Resident
Pathway(s):	Ingestion, dermal, inhalation

Location ID Sample ID	Date Collected
MW-108A GW-010-LF	10/01/03
MW-108A GW-046-LF	09/22/04
MW-108AA GW-011-LF	10/01/03
MW-108AA MW-108AA	12/07/05
MW-108B GW-043-LF	09/21/04
MW-108C GW-058-LF	09/22/04
MW-109A GW-001-LF	09/29/03
MW-109A GW-047-LF	09/23/04
MW-109AA GW-003-LF	09/30/03
MW-109AA GW-048-LF	09/23/04
MW-109AA GW-FD-11	09/23/04
MW-109B GW-042-LF	09/21/04
MW-109B GW-DUP-01	09/21/04
MW-109C GW-041-LF	09/21/04
MW-110A GW-004-WT	09/30/03
MW-110A GW-045-WT	09/22/04
MW-110B GW-005-WT	09/30/03
MW-110B GW-FD02	09/30/03
MW-110B GW-044-WT	09/22/04
MW-110C GW-053-WT	09/23/04
MW-111A GW-016-WT	10/02/03
MW-111A GW-051-WT	09/24/04
MW-111AA GW-015-WT	10/02/03
MW-111AA GW-052-WT	09/24/04

**Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples**

Scenario Timeframe:	Future
Exposure Area:	Site-wide
Exposure Medium:	Groundwater
Receptor(s):	Resident
Pathway(s):	Ingestion, dermal, inhalation

Location ID Sample ID	Date Collected
MW-111B GW-050-WT	09/24/04
MW-111C GW-057-WT	09/20/04
MW-112A GW-019-NP	10/02/03
MW-112A GW-055-NP	09/27/04
MW-112A MW-112A	11/30/05
MW-112AA GW-020-NP	10/03/03
MW-112AA GW-056-NP	09/27/04
MW-112AA MW-112AA	11/30/05
MW-112B GW-054-NP	09/27/04
MW-112B MW-112B	11/30/05
MW-112C GW-049-NP	09/22/04
MW-112C MW-112C	11/30/05
MW-502 MW-502	12/08/05
MW-A2 GW-012-QW	10/01/03
MW-A2 GW-080-QW	09/30/04
MW-A2 MW-A2	12/08/05
MW-B1 GW-008-LF	10/01/03
MW-B1 GW-065-LF	09/24/04
MW-B2 GW-002-LF	09/29/03
MW-B2 GW-066-LF	09/27/04
MW-C1 GW-007-LF	09/30/03
MW-C1 GW-070-LF	09/28/04
MW-C1 MW-C1	12/07/05
MW-C2 GW-006-LF	09/30/03

**Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples**

Scenario Timeframe:	Future
Exposure Area:	Site-wide
Exposure Medium:	Groundwater
Receptor(s):	Resident
Pathway(s):	Ingestion, dermal, inhalation

Location ID Sample ID	Date Collected
MW-C2 GW-071-LF	09/27/04
MW-C2 MW-C2	12/06/05
MW-EA-1 GW-075-WT	10/01/04
MW-EA-1 MW-EAI	12/09/05
MW-EA-3 GW-076-WT	10/01/04
P-7 GW-014-LF	10/02/03
P-7 GW-059-LF	09/28/04
P-8 GW-018-LF	10/02/03
P-8 GW-063-LF	09/30/04
SEA-601 GW-017-LF	10/02/03
SEA-601 GW-060-LF	09/28/04
SEA-602A GW-022-LF	10/03/03
SEA-602A GW-062-LF	09/28/04
SEA-602a SEA-602a	12/07/05
SEA-602B GW-023-LF	10/03/03
SEA-602B GW-061-LF	10/01/04
SEA-603 GW-021-LF	10/03/03
SEA-603 GW-064-LF	10/01/04
SEA-603 GW-FD-13	10/01/04
SEA-603 SEA-603	12/06/05
SEA-604 GW-027-LF	10/04/03
SEA-604 GW-067-LF	09/30/04
SEA-605 GW-028-LF	10/04/03
SEA-605 GW-068-LF	09/30/04

**Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples**

Scenario Timeframe:	Future
Exposure Area:	Site-wide
Exposure Medium:	Groundwater
Receptor(s):	Resident
Pathway(s):	Ingestion, dermal, inhalation
Location ID Sample ID	Date Collected
SEA-605	
SEA-605	12/07/05
SEA-606	
GW-024-NP	10/04/03
SEA-606	
GW-069-NP	09/30/04
SEA-606	
SEA-606	12/05/05
SEA-607	
GW-025-UI	10/03/03
SEA-607	
GW-072-UI	10/01/04
SEA-608	
GW-026-UI	10/03/03
SEA-608	
GW-FD03	10/03/03
SEA-608	
GW-073-UI	10/01/04
SEA-608	
SEA-608	01/10/06

Note:

EPC for RME scenario will be maximum detected concentration.

EPC for CTE scenario will be average plume concentration.

Peterson Puritan Superfund Site - Operable Unit 2
 Surface Soil Samples: Southern Bank (Lincoln Side)

Scenario Timeframe:	Future
Exposure Area:	Southern Bank (Lincoln side)
Exposure Medium:	Surface Soil to Outdoor Air
Receptor(s):	Construction worker

Location ID Sample ID	Sample Depth	Date Collected
SO-064-BR SO-064-BR	0 - 1	09/08/04
SO-065-BR SO-065-BR	0 - 1	09/08/04
SO-066-BR SO-066-BR	0 - 1	09/08/04
SO-067-BR SO-067-BR	0 - 1	09/08/04
SO-068-BR SO-068-BR	0 - 1	09/08/04
SO-069-BR SO-069-BR	0 - 1	09/08/04
SO-070-BR SO-070-BR	0 - 1	09/08/04
SO-071-BR SO-071-BR	0 - 1	09/08/04

Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples: Quinnville Wellfield

Scenario Timeframe:	Future
Exposure Area:	Quinnville Wellfield
Exposure Medium:	Groundwater to Indoor/Outdoor Air
Receptor(s):	Commercial Worker/Construction Worker

Location ID Sample ID	Date Collected
GZ-4-1 GW-013-QW	10/01/03
GZ-4-1 GW-079-QW	09/30/04
MW-502 MW-502	12/08/05
MW-A2 GW-012-QW	10/01/03
MW-A2 GW-080-QW	09/30/04
MW-A2 MW-A2	12/08/05

**Peterson Puritan Superfund Site - Operable Unit 2
Groundwater Samples: Quinnville Wellfield**

Scenario Timeframe:	Future
Exposure Area:	Nunes Parcel
Exposure Medium:	Groundwater to Indoor Air
Receptor(s):	Commercial Worker/Resident

Location ID Sample ID	Date Collected
GNP-705 GNP-705	11/28/05
GNP-705B GNP-705B	12/01/05
GNP-707 GNP-707	11/29/05
GNP-708 GNP-708	11/29/05
GNP-708A GNP-708A	12/01/05
MW-112AA GW-020-NP	10/03/03
MW-112AA GW-056-NP	09/27/04
MW-112AA MW-112AA	11/30/05
MW-112A GW-019-NP	10/02/03
MW-112A GW-055-NP	09/27/04
MW-112A MW-112A	11/30/05
MW-112B GW-054-NP	09/27/04
MW-112B MW-112B	11/30/05
MW-112C GW-049-NP	09/22/04
MW-112C MW-112C	11/30/05
SEA-606 GW-024-NP	10/04/03
SEA-606 GW-069-NP	09/30/04
SEA-606 SEA-606	12/05/05



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May 15, 2007

ARCADIS BBL Project No.:

B0037902.0000.0300

Subject:

Petersen Puritan Air Modeling

ARCADIS BBL estimated ambient air concentrations for constituents of potential concern (COPC) at the Petersen/Puritan, Inc. Superfund Site (the site) to support the Human Health Risk Assessment (HHRA) for Operable Unit 2 (OU2). COPC concentrations were estimated at discrete distance intervals from passive gas vents located on the J.M. Mills Landfill (the landfill) using analytical data from ambient air grab samples and conservative exposure assumptions in the USEPA SCREEN3 air dispersion model. The results of the analysis indicate that COPC concentrations in ambient air generally decrease with increasing distance from the vents. Given that these results are based on conservative exposure assumptions, these results likely contribute to an overestimate of potential exposure on the landfill.

Site Setting

The site is located in the town of Cumberland along the Blackstone River in Providence County, Rhode Island. The site is approximately two miles long and extends 2,000 feet to the east and west of the main river channel. The site includes an industrial park, an inactive landfill and solid waste transfer station, sand and gravel operations, part of a National Heritage Corridor and state park, municipal water supply wells, and a number of undeveloped areas along the river.

This analysis evaluates potential ambient air concentrations above the landfill. The landfill covers approximately 36 acres and is bounded on the east by the Providence and Worcester Railroad and on the

west by the river. The landfill is greater than 80 feet in elevation at its crest, with steep slopes that are covered with vegetation.

Meteorological data obtained from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC) for the Pawtucket, Rhode Island weather station indicate that winds generally blow from the southwest, west or north in the vicinity of the site (NCDC 2007).

Methods

Ambient air concentrations were estimated using the USEPA SCREEN3 model. SCREEN3 is a single source Gaussian plume model which provides maximum ground-level ambient air concentrations for point, area, flare, and volume sources. SCREEN3 can also generate concentration estimates for the cavity zone in building downwash scenarios, and concentrations due to inversion break-up and shoreline fumigation. SCREEN3 is a screening version of the Industrial Source Complex model, Version 3 (ISC3). SCREEN3 assumes that the constituents do not undergo chemical transformation, and no other removal processes, such as wet or dry deposition, act on the plume during transport (USEPA 1995).

Table 1 presents the SCREEN3 model input parameters used for this analysis. Limited data were available to characterize the landfill vents. Shields Environmental Associates, Inc. (Shields) indicates that vent height ranges from ground surface to approximately 3 feet, and inside vent diameter is 4 inches (pers. comm., J. Knauss, May 1, 2007). Default values were used for stack gas temperature (298 K) and ambient gas temperature (293 K). Receptor height (1.75 m or 5.7 ft) above ground was estimated using professional judgment for standard breathing zone height.

Landfill vent gas flow rate was estimated based on the range of values provided in the literature. Two studies present landfill gas flow rates (Kleinfelder 2006; Gebert and Groengroeft 2006). Kleinfelder (2006) reports gas flow rates from passive vents at the Old Southington Landfill Superfund Site in Connecticut ranging from 0.088 ft³/min (0.00042 m³/sec) to 16.1 ft³/min (0.00760 m³/sec). Gebert and Groengroeft (2006) report gas flow rates from biofiltered passive vents at a harbor sludge disposal landfill in Hamburg, Germany ranging from -4 m³/hr (-0.001 m³/sec) to 4 m³/hr (0.001 m³/sec). As noted by Gebert and Groengroeft (2006) passive emission rates of landfill gas are influenced by the pressure gradient between the landfill and the atmosphere, and as such these rates are sensitive to local conditions. Therefore, the rates from the Old Southington Landfill in Connecticut were considered more representative of potential emission rates for the Petersen Puritan landfill, located in Rhode Island, than the landfill located in Germany. For conservatism, the maximum reported gas emission rate from the Old Southington Landfill was selected for this analysis.

Site-specific gas emission rates from landfill vents were unavailable. Emission rates were therefore estimated using the landfill vent gas flow rate and the analytical results of ambient air grab samples collected by Shields in October 2003 near three vents located near the crest of the landfill (AR001-LF,

ARFD-1, AR002-LF, AR003-LF). Half detection limits were used for COPCs that were not detected in air grab samples. Emission rates for each vent were estimated using the following equation:

$$ER = EC * CF * GFR$$

where:

ER = emission rate (g/sec)

EC = air emission concentration (ug/m³)

CF = conversion factor (10⁻⁶ g/ug)

GFR = gas flow rate (m³/sec)

Model assumptions include a single point emission source for a “representative stack.” The USEPA (1992) *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised* recommends merging emissions parameters for multiple stacks with similar parameters. As the vents on the Petersen Puritan landfill occupy an area less than 100 m in linear distance and have similar construction, emission rates from each vent were summed to generate the emission rates used for each COPC in the model. These point emission rates are presented in Table 2.

Given the environmental setting for the landfill, particularly the distance to buildings and other urban structures, rural dispersion coefficients were used in the model, and no building downwash was assumed.

The landfill vents are located near and just below the crest of the landfill. The crest may exceed vent openings by up to approximately 10 feet within a lateral distance of 20 to 30 feet from the vents. This scenario was modeled using the complex terrain option in SCREEN3. Complex terrain scenarios are utilized for scenarios in which terrain elevations exceed stack height. In these calculations, receptor height is assumed to be at ground surface on the elevated terrain.

Flat terrain was also modeled, assuming full meteorology (i.e., the model evaluates potential plume concentrations for each stability class and associated wind speeds) for distances from the “representative stack” of 1 to 650 meters (m). The nearest fenceline to the vents is located approximately 90 m to the northeast. The farthest fenceline to the vents is located approximately 650 m to the northwest.

Results

SCREEN3 outputs include the maximum modeled 1-hour concentration across stability classes for each distance modeled from the source (USEPA 1995).

The results of the complex terrain modeling indicate that plume height is less than the terrain height at the crest of the landfill. As such, modeled exposure to receptors at ground surface on the crest of the landfill is negligible.

Flat terrain model results for each COPC are presented in Attachment A. The results indicate that maximum concentrations are present nearest the source (the vents); concentrations decrease as distance increases laterally toward the fenceline and away from the vent location.

The results from the flat terrain scenario were assumed to represent COPC concentrations on concentric circles radiating out from the “representative stack,” which was assumed to occupy the location of the central vent, Vent 3 (Figure 1). Modeled concentrations for locations within the area of the landfill were used to estimate reasonable maximum exposure (RME) and central tendency exposure (CTE) ambient air concentrations across the landfill.

RME ambient air concentrations for the landfill were estimated by averaging modeled 1-hour maximum concentrations for points within the landfill along the approximate four cardinal (North, South, East, West) and four intercardinal (Northeast, Southeast, Southwest, Northwest) directions at each modeled distance from the plume. Figure 1 presents approximate locations for the modeled air concentration locations included in the RME ambient air concentration calculations (in red). RME exposure point concentrations are presented in Table 3.

CTE ambient air concentrations for the landfill were estimated by multiplying the RME ambient air concentration by a factor of 0.7 to estimate the maximum 8-hour concentration across the landfill. USEPA (1992) recommends the use of this factor to convert 1-hour maximum concentrations into 8-hour maximum concentrations. CTE exposure point concentrations are presented in Table 3.

Uncertainty Assessment

The input parameters for the model are generally conservative, and likely contribute to an overestimate of exposure. Specifically, the use of the maximum reported landfill gas flow rate is a conservative estimate of emission rates. The relationship between atmospheric pressure and landfill gas emission rates has been documented in the literature (GC Environmental 1985; Gebert and Groengroeft 2006). In general, landfill internal pressure increases and decreases in response to atmospheric pressure. As such, landfill gas flow rates are inversely related to atmospheric pressure. As atmospheric pressure decreases, landfill gas pressure and landfill gas flow rates may increase. Conversely, landfill gas flow rates may decrease during periods of increasing atmospheric pressure, and may cause a temporary infiltration of ambient air into the landfill (GC Environmental 1985). Gebert and Groengroeft (2006) documented changes in gas flux direction on average every 20 hours (i.e., more than once a day). The authors concluded gas emissions were driven by momentary pressure buildups inside the landfill, conditions which were not sustained for long periods of time (Gebert and Groengroeft 2006). Given the fluctuating nature of landfill

gas emission rates, the use of a maximum landfill gas flow rate to model long-term ambient air conditions produces a highly conservative estimate of exposure.

Model results for the crest of the landfill indicate that exposure to receptors at ground surface is negligible. Winds generally come from the southwesterly to northerly direction in the vicinity of the site. As such, the direction of vent plumes, if any, is anticipated to be toward the northeast to south, and away from the crest of the landfill. Therefore, uncertainty regarding modeled exposure to receptors at the crest of the landfill likely contributes to an overestimate of exposure.

Model results for flat terrain also contribute to an overestimate of exposure. The location of the vents is at the crest of the landfill. The slopes of the landfill are steep. Therefore, receptors located at the base of the landfill may be located below the plume, where actual ambient air concentrations of COPC may be less than modeled concentrations. As such, the uncertainty associated with the use of flat terrain calculations likely contributes to an overestimate of potential exposure to receptors below the crest of the landfill, on the landfill property, or at the property fenceline.

MPB/PG/TN

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Table 1
SCREEN3 Input Parameter Values
Peterson Puritan Superfund Site

Parameter	Units	Value
Emission Rate	g/s	Chemical-Specific
Stack Height	m	1
Stack Inside Diameter	m	0.1016
Stack Gas Flow Rate	m	0.008
Stack Gas Temperature	K	298
Ambient Gas Temperature	K	293
Receptor Height Above Ground	m	1.75

Notes:

g/s = grams per second

m = meters

K = Kelvin

Table 2
Grab Sample Analytical Data and Estimated Landfill Vent Emission Rates
Peterson Puritan Superfund Site

		Grab Sample Analytical Data				Estimated Emission Rates				
Location ID: Sample ID:		AR-001-LF AR-001-LF	AR-001-LF AR-FD1	AR-002-LF AR-002-LF	AR-003-LF AR-003-LF	AR-001-LF AR-001-LF	AR-001-LF AR-FD1	AR-002-LF AR-002-LF	AR-003-LF AR-003-LF	Total
	Units	ug/m ³	ug/m ³	ug/m ³	ug/m ³	g/sec	g/sec	g/sec	g/sec	g/sec
Air Parameters - VOCs (TO-15)										
1,1-Dichloroethane	ug/m ³	0.20 U	0.20 U	9.70 J	0.20 U	7.6E-10	7.6E-10	7.4E-08	7.6E-10	7.6E-08
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ug/m ³	1.33 J	0.63 U	174.85	0.63 U	1.0E-08	2.4E-09	1.3E-06	2.4E-09	1.3E-06
1,2-Dichlorobenzene	ug/m ³	0.43 U	0.43 U	122.70	0.58 J	1.6E-09	1.6E-09	9.3E-07	4.4E-09	9.4E-07
1,3,5-Trimethylbenzene	ug/m ³	3.48	1.67 J	16.69 J	1.23 J	2.6E-08	1.3E-08	1.3E-07	9.3E-09	1.8E-07
1,3-Dichlorobenzene	ug/m ³	0.49 U	0.49 U	251.53	0.80 J	1.9E-09	1.9E-09	1.9E-06	6.1E-09	1.9E-06
1,4-Dichlorobenzene	ug/m ³	0.98 J	0.45 J	674.85	5.09	7.5E-09	3.5E-09	5.1E-06	3.9E-08	5.2E-06
4-Ethyltoluene	ug/m ³	6.87	3.78	103.07	2.06	5.2E-08	2.9E-08	7.8E-07	1.6E-08	8.8E-07
Benzene	ug/m ³	1.56	0.80	1722.70	1.08	1.2E-08	6.1E-09	1.3E-05	8.2E-09	1.3E-05
Benzene, 1,2,4-trimethyl-	ug/m ³	8.34	4.71	112.88	3.09	6.3E-08	3.6E-08	8.6E-07	2.3E-08	9.8E-07
Carbon tetrachloride	ug/m ³	0.61 J	0.61 J	6.13 U	0.67 J	4.7E-09	4.7E-09	2.3E-08	5.1E-09	3.8E-08
Chlorobenzene	ug/m ³	1.30	0.43 J	3959.10	2.61	9.9E-09	3.3E-09	3.0E-05	2.0E-08	3.0E-05
Chloroethane	ug/m ³	0.37 U	0.37 U	29.24	0.37 U	1.4E-09	1.4E-09	2.2E-07	1.4E-09	2.3E-07
cis-1,2-Dichloroethene	ug/m ³	0.20 U	0.20 U	21.03	0.20 U	7.5E-10	7.5E-10	1.6E-07	7.5E-10	1.6E-07
Dichlorodifluoromethane	ug/m ³	3.24	2.90	33.37	3.04	2.5E-08	2.2E-08	2.5E-07	2.3E-08	3.2E-07
Ethylbenzene	ug/m ³	3.64	3.28	1304.70	12.15	2.8E-08	2.5E-08	9.9E-06	9.2E-08	1.0E-05
Methylene chloride	ug/m ³	0.38 J	0.38 J	5.56 U	6.26	2.9E-09	2.9E-09	2.1E-08	4.8E-08	7.5E-08
Toluene	ug/m ³	3.31	3.09	71.49	2.26	2.5E-08	2.3E-08	5.4E-07	1.7E-08	6.1E-07
trans-1,2-Dichloroethene	ug/m ³	0.28 U	0.28 U	22.61	0.28 U	1.1E-09	1.1E-09	1.7E-07	1.1E-09	1.8E-07
Trichloroethene	ug/m ³	23.39	20.20	10.10 J	1.38	1.8E-07	1.5E-07	7.7E-08	1.1E-08	4.2E-07
Vinyl Chloride	ug/m ³	0.44 J	0.21 J	211.29	0.15 U	3.3E-09	1.6E-09	1.6E-06	5.9E-10	1.6E-06
Xylene (Total)	ug/m ³	62.99	29.69	629.86	8.10	4.8E-07	2.3E-07	4.8E-06	6.2E-08	5.6E-06

Notes:

ug/m3 = micrograms per cubic meter

g/sec = grams per second

Emission rates for each vent location estimated using a landfill gas flow rate of 0.0076 cubic meters per second (m³/sec).

Gas Flow Rate: 0.0076 m3/sec

Table 3
RME and CTE Ambient Air Concentration Estimates
Peterson Puritan Superfund Site

		Distance from Point Emission Source (Vents)														RME	CTE
COPC		1	50	100	150	200	250	300	350	400	450	500	550	600	650		
1,1-Dichloroethane	ug/m ³	1.6E-02	3.1E-03	1.3E-03	8.3E-04	5.7E-04	4.2E-04	3.2E-04	2.6E-04	2.1E-04	1.7E-04	1.5E-04	1.3E-04	1.1E-04	9.7E-05	4.2E-03	2.9E-03
Benzene	ug/m ³	2.8E+00	5.3E-01	2.3E-01	1.4E-01	9.9E-02	7.3E-02	5.6E-02	4.4E-02	3.6E-02	3.0E-02	2.5E-02	2.2E-02	1.9E-02	1.7E-02	7.2E-01	5.0E-01
Carbon Tetrachloride	ug/m ³	8.1E-03	1.5E-03	6.7E-04	4.2E-04	2.9E-04	2.1E-04	1.6E-04	1.3E-04	1.1E-04	8.8E-05	7.4E-05	6.4E-05	5.6E-05	4.9E-05	2.1E-03	1.5E-03
Chlorobenzene	ug/m ³	6.4E+00	1.2E+00	5.3E-01	3.3E-01	2.3E-01	1.7E-01	1.3E-01	1.0E-01	8.3E-02	6.9E-02	5.9E-02	5.0E-02	4.4E-02	3.9E-02	1.7E+00	1.2E+00
Chloroethane	ug/m ³	4.9E-02	9.4E-03	4.1E-03	2.5E-03	1.7E-03	1.3E-03	9.9E-04	7.8E-04	6.4E-04	5.3E-04	4.5E-04	3.9E-04	3.4E-04	3.0E-04	1.3E-02	8.9E-03
1,2-Dichlorobenzene	ug/m ³	2.0E-01	3.8E-02	1.7E-02	1.0E-02	7.1E-03	5.3E-03	4.0E-03	3.2E-03	2.6E-03	2.2E-03	1.8E-03	1.6E-03	1.4E-03	1.2E-03	5.2E-02	3.6E-02
1,3-Dichlorobenzene	ug/m ³	4.1E-01	7.7E-02	3.4E-02	2.1E-02	1.4E-02	1.1E-02	8.2E-03	6.5E-03	5.3E-03	4.4E-03	3.7E-03	3.2E-03	2.8E-03	2.4E-03	1.0E-01	7.3E-02
1,4-Dichlorobenzene	ug/m ³	1.1E+00	2.1E-01	9.2E-02	5.7E-02	3.9E-02	2.9E-02	2.2E-02	1.8E-02	1.4E-02	1.2E-02	1.0E-02	8.7E-03	7.6E-03	6.7E-03	2.9E-01	2.0E-01
Dichlorodifluoromethane	ug/m ³	6.8E-02	1.3E-02	5.7E-03	3.5E-03	2.4E-03	1.8E-03	1.4E-03	1.1E-03	8.9E-04	7.4E-04	6.3E-04	5.4E-04	4.7E-04	4.1E-04	1.8E-02	1.2E-02
cis-1,2-Dichloroethene	ug/m ³	3.4E-02	6.5E-03	2.8E-03	1.8E-03	1.2E-03	8.9E-04	6.9E-04	5.5E-04	4.4E-04	3.7E-04	3.1E-04	2.7E-04	2.3E-04	2.1E-04	8.8E-03	6.2E-03
trans-1,2-Dichloroethene	ug/m ³	3.8E-02	7.3E-03	3.2E-03	2.0E-03	1.4E-03	1.0E-03	7.7E-04	6.1E-04	5.0E-04	4.2E-04	3.5E-04	3.0E-04	2.6E-04	2.3E-04	9.9E-03	7.0E-03
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ug/m ³	2.8E-01	5.3E-02	2.3E-02	1.4E-02	9.9E-03	7.3E-03	5.6E-03	4.4E-03	3.6E-03	3.0E-03	2.5E-03	2.2E-03	1.9E-03	1.7E-03	7.2E-02	5.0E-02
Ethylbenzene	ug/m ³	2.1E+00	4.1E-01	1.8E-01	1.1E-01	7.6E-02	5.6E-02	4.3E-02	3.4E-02	2.8E-02	2.3E-02	2.0E-02	1.7E-02	1.5E-02	1.3E-02	5.5E-01	3.9E-01
4-Ethyltoluene	ug/m ³	1.9E-01	3.6E-02	1.6E-02	9.7E-03	6.7E-03	4.9E-03	3.8E-03	3.0E-03	2.4E-03	2.0E-03	1.7E-03	1.5E-03	1.3E-03	1.1E-03	4.9E-02	3.4E-02
Methylene Chloride	ug/m ³	1.6E-02	3.1E-03	1.3E-03	8.2E-04	5.7E-04	4.2E-04	3.2E-04	2.6E-04	2.1E-04	1.7E-04	1.5E-04	1.3E-04	1.1E-04	9.6E-05	4.1E-03	2.9E-03
Toluene	ug/m ³	1.3E-01	2.5E-02	1.1E-02	6.7E-03	4.6E-03	3.4E-03	2.6E-03	2.1E-03	1.7E-03	1.4E-03	1.2E-03	1.0E-03	8.9E-04	7.8E-04	3.4E-02	2.4E-02
Trichloroethene	ug/m ³	9.0E-02	1.7E-02	7.4E-03	4.6E-03	3.2E-03	2.3E-03	1.8E-03	1.4E-03	1.2E-03	9.7E-04	8.2E-04	7.1E-04	6.1E-04	5.4E-04	2.3E-02	1.6E-02
1,2,4-Trimethylbenzene	ug/m ³	2.1E-01	4.0E-02	1.7E-02	1.1E-02	7.4E-03	5.5E-03	4.2E-03	3.3E-03	2.7E-03	2.3E-03	1.9E-03	1.6E-03	1.4E-03	1.3E-03	5.4E-02	3.8E-02
1,3,5-Trimethylbenzene	ug/m ³	3.8E-02	7.3E-03	3.2E-03	2.0E-03	1.4E-03	1.0E-03	7.7E-04	6.1E-04	5.0E-04	4.2E-04	3.5E-04	3.0E-04	2.6E-04	2.3E-04	9.9E-03	7.0E-03
Vinyl Chloride	ug/m ³	3.4E-01	6.5E-02	2.8E-02	1.8E-02	1.2E-02	8.9E-03	6.9E-03	5.5E-03	4.4E-03	3.7E-03	3.1E-03	2.7E-03	2.3E-03	2.1E-03	8.8E-02	6.2E-02
Xylene	ug/m ³	1.2E+00	2.3E-01	9.9E-02	6.2E-02	4.3E-02	3.1E-02	2.4E-02	1.9E-02	1.6E-02	1.3E-02	1.1E-02	9.4E-03	8.2E-03	7.2E-03	3.1E-01	2.2E-01

Notes:

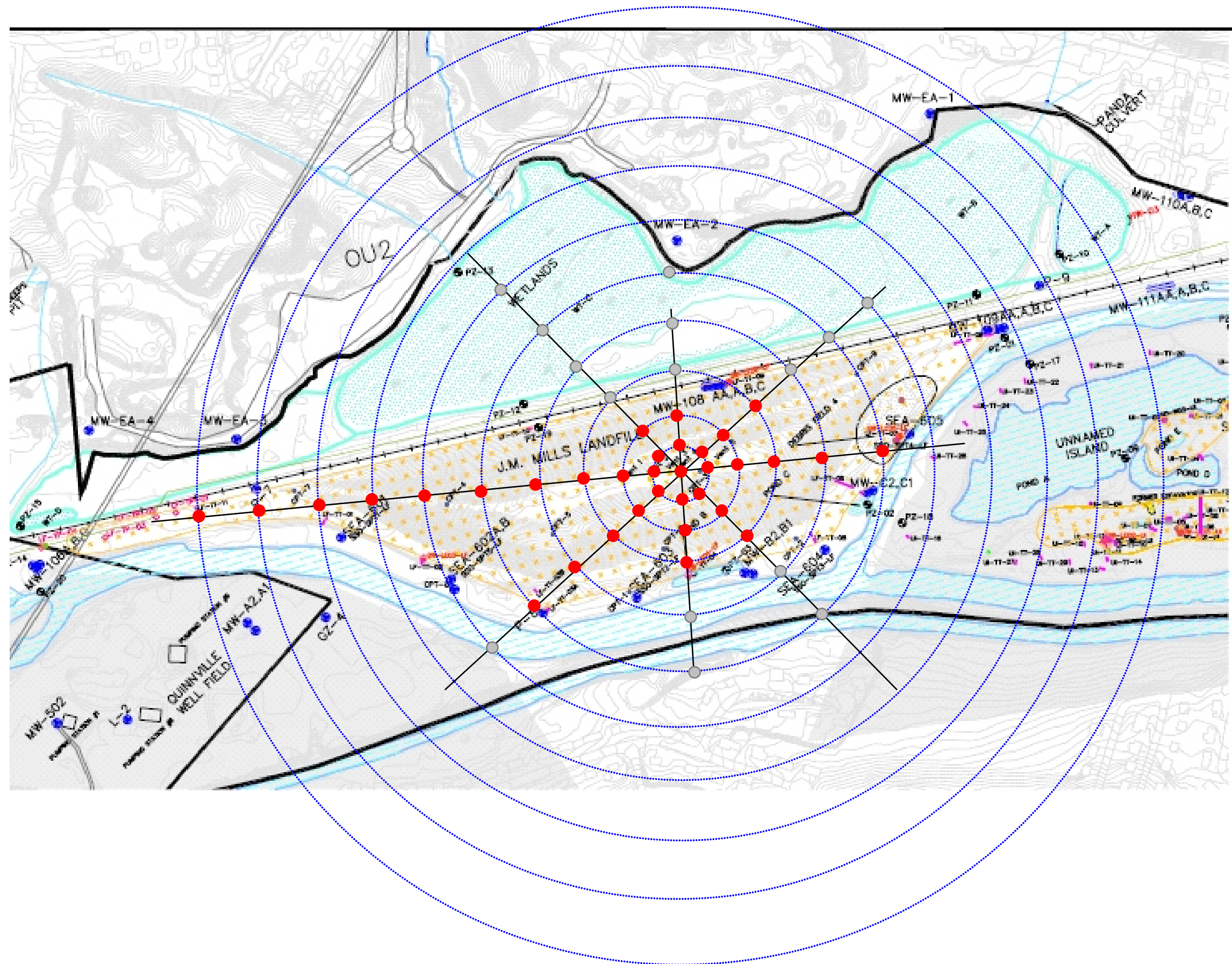
COPC = constituent of potential concern

RME = reasonable maximum exposure

CTE = central tendency exposure

RME concentration estimated by averaging concentrations for concentric ring points within the area of the landfill. See Figure 1 for locations.

CTE estimated by multiplying RME concentration by factor of 0.7 to convert to average of 8-hour maximum concentrations.



Grey locations excluded from average.
Red locations included in average.
Modeled locations are approximate.

PETERSON PURITAN OU2 SUPERFUND SITE
CUMBERLAND AND LINCOLN, RHODE ISLAND
BASELINE HUMAN HEALTH RISK ASSESSMENT

SCREEN3 AIR MODELING LOCATIONS
USED IN CALCULATION OF EPCs

Attachment A

05/15/07

15:35:11

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

4-Ethyltoluene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.880000E-06
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M) (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:35:11

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

4-Ethyltoluene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .880000E-06
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =          298.0000
AMBIENT AIR TEMP (K)  =          293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----

NO	1.	.1878	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.3586E-01	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.1556E-01	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.9671E-02	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.6680E-02	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.4917E-02	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.3778E-02	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.3000E-02	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.2445E-02	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.2035E-02	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.1723E-02	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.1480E-02	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.1287E-02	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.1130E-02	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.1878	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:32:57

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

1,2-Dichlorobenzene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.940000E-06
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**		*VALLEY 24-HR CALCS*			**SIMPLE TERRAIN 24-HR		
TERR HT (M)	DIST (M)	MAX 24-HR CONC (UG/M**3)	CONC (UG/M**3)	PLUME HT ABOVE STK BASE (M)	CONC (UG/M**3)	PLUME HT ABOVE STK HGT (M)	SC
U10M USTK (M/S)							
3.	3.	.0000	.0000	.9	.0000	.0	0
.0 .0							
6.	6.	.0000	.0000	.9	.0000	.0	0
.0 .0							
9.	9.	.0000	.0000	1.0	.0000	.0	0
.0 .0							

05/15/07

15:32:57

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

1,2-Dichlorobenzene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .940000E-06
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	.2007	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.3830E-01	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.1662E-01	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.1033E-01	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.7135E-02	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.5252E-02	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.4036E-02	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.3205E-02	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.2612E-02	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.2174E-02	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.1841E-02	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.1581E-02	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.1375E-02	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.1207E-02	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.2007	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:31:46

*** SCREEN3 MODEL RUN ***

*** VERSION DATED 96043 ***

1,2-Dichloro-1,1,2,2-tetrafluoroethane

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.130000E-05
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.

THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1

DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:31:46

*** SCREEN3 MODEL RUN ***

*** VERSION DATED 96043 ***

1,2-Dichloro-1,1,2,2-tetrafluoroethane

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .130000E-05
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	.2775	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.5297E-01	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.2298E-01	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.1429E-01	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.9868E-02	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.7263E-02	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.5581E-02	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.4432E-02	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.3613E-02	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.3007E-02	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.2546E-02	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.2186E-02	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.1901E-02	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.1670E-02	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.2775	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:34:12

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

1,3-Dichlorobenzene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.190000E-05
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:34:12

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

1,3-Dichlorobenzene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .190000E-05
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	.4056	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.7742E-01	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.3359E-01	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.2088E-01	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.1442E-01	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.1062E-01	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.8158E-02	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.6478E-02	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.5280E-02	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.4394E-02	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.3720E-02	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.3196E-02	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.2778E-02	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.2441E-02	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.4056	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:34:44

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

1,4-Dichlorobenzene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.520000E-05
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR		
TERR HT (M)	DIST (M)	MAX 24-HR CONC (UG/M**3)	CONC (UG/M**3)	PLUME HT ABOVE STK BASE (M)	CONC (UG/M**3)	PLUME HT ABOVE STK HGT (M)	SC
U10M USTK (M/S)							
3.	3.	.0000	.0000	.9	.0000	.0	0
.0 .0							
6.	6.	.0000	.0000	.9	.0000	.0	0
.0 .0							
9.	9.	.0000	.0000	1.0	.0000	.0	0
.0 .0							

05/15/07

15:34:44

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

1,4-Dichlorobenzene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .520000E-05
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	1.110	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.2119	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.9193E-01	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.5715E-01	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.3947E-01	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.2905E-01	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.2233E-01	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.1773E-01	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.1445E-01	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.1203E-01	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.1018E-01	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.8746E-02	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.7604E-02	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.6680E-02	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	1.110	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:36:03

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

1,2,4-Trimethylbenzene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.980000E-06
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:36:03

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

1,2,4-Trimethylbenzene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .980000E-06
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
1.	.2092	6	4.0	4.0	10000.0	1.91	.06	.06	
NO	50.	.3993E-01	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.1733E-01	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.1077E-01	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.7439E-02	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.5476E-02	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.4208E-02	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.3341E-02	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.2723E-02	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.2266E-02	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.1919E-02	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.1648E-02	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.1433E-02	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.1259E-02	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.2092	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:33:27

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

1,3,5-Trimethylbenzene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.180000E-06
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*		**SIMPLE TERRAIN 24-HR		
TERR HT (M)	DIST (M)	MAX 24-HR CONC (UG/M**3)	CONC (UG/M**3)	PLUME HT ABOVE STK BASE (M)	CONC (UG/M**3)	PLUME HT ABOVE STK HGT (M)	SC	
U10M USTK (M/S)								
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:33:27

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

1,3,5-Trimethylbenzene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .180000E-06
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	.3842E-01	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.7335E-02	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.3182E-02	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.1978E-02	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.1366E-02	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.1006E-02	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.7728E-03	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.6137E-03	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.5002E-03	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.4163E-03	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.3525E-03	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.3027E-03	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.2632E-03	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.2312E-03	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.3842E-01	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:35:36

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Benzene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.130000E-04
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M) (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
-----	-----	-----	-----	-----	-----	-----	-----	---
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:35:36

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Benzene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .130000E-04
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	2.775	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.5297	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.2298	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.1429	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.9868E-01	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.7263E-01	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.5581E-01	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.4432E-01	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.3613E-01	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.3007E-01	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.2546E-01	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.2186E-01	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.1901E-01	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.1670E-01	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	2.775	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:36:32

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Carbon Tetrachloride

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.380000E-07
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M) (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:36:32

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Carbon Tetrachloride

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .380000E-07
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	.8112E-02	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.1548E-02	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.6718E-03	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.4176E-03	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.2885E-03	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.2123E-03	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.1632E-03	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.1296E-03	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.1056E-03	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.8788E-04	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.7441E-04	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.6391E-04	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.5557E-04	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.4881E-04	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.8112E-02	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:37:04

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Chlorobenzene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.300000E-04
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M) (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
-----	-----	-----	-----	-----	-----	-----	-----	---
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:37:04

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Chlorobenzene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .300000E-04
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	6.404	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	1.222	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.5304	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.3297	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.2277	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.1676	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.1288	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.1023	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.8337E-01	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.6938E-01	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.5874E-01	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.5046E-01	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.4387E-01	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.3854E-01	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	6.404	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:37:29

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Chloroethane

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.230000E-06
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:37:29

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Chloroethane

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =          POINT
EMISSION RATE (G/S)   =      .230000E-06
STACK HEIGHT (M)      =          1.0000
STK INSIDE DIAM (M)   =          .1016
STK EXIT VELOCITY (M/S)=          .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =          1.7500
URBAN/RURAL OPTION    =          RURAL
BUILDING HEIGHT (M)   =          .0000
MIN HORIZ BLDG DIM (M) =          .0000
MAX HORIZ BLDG DIM (M) =          .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	.4910E-01	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.9372E-02	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.4066E-02	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.2528E-02	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.1746E-02	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.1285E-02	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.9875E-03	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.7842E-03	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.6391E-03	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.5319E-03	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.4504E-03	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.3868E-03	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.3363E-03	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.2955E-03	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.4910E-01	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:39:00

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

cis-1,2-Dichloroethene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.160000E-06
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M) (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
-----	-----	-----	-----	-----	-----	-----	-----	---
.0 3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:39:00

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

cis-1,2-Dichloroethene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .160000E-06
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	.3415E-01	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.6520E-02	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.2829E-02	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.1758E-02	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.1215E-02	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.8940E-03	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.6870E-03	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.5455E-03	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.4446E-03	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.3700E-03	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.3133E-03	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.2691E-03	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.2340E-03	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.2055E-03	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.3415E-01	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:39:35

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Dichlorodifluoromethane

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.320000E-06
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:39:35

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Dichlorodifluoromethane

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .320000E-06
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	.6831E-01	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.1304E-01	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.5657E-02	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.3517E-02	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.2429E-02	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.1788E-02	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.1374E-02	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.1091E-02	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.8892E-03	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.7401E-03	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.6266E-03	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.5382E-03	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.4679E-03	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.4111E-03	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.6831E-01	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:40:03

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Ethylbenzene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.100000E-04
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:40:03

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Ethylbenzene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .100000E-04
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----

NO	1.	2.135	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.4075	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.1768	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.1099	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.7591E-01	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.5587E-01	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.4293E-01	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.3410E-01	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.2779E-01	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.2313E-01	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.1958E-01	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.1682E-01	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.1462E-01	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.1285E-01	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	2.135	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:40:29

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Methylene Chloride

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.750000E-07
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT (M)	DIST (M)	MAX 24-HR CONC (UG/M**3)	CONC (UG/M**3)	PLUME HT ABOVE STK BASE (M)	CONC (UG/M**3)	PLUME HT ABOVE STK HGT (M)	SC	
U10M USTK (M/S)								
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:40:29

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Methylene Chloride

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .750000E-07
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	.1601E-01	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.3056E-02	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.1326E-02	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.8243E-03	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.5693E-03	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.4190E-03	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.3220E-03	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.2557E-03	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.2084E-03	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.1735E-03	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.1469E-03	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.1261E-03	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.1097E-03	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.9634E-04	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.1601E-01	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:41:43

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Trichloroethene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.420000E-06
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M) (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
-----	-----	-----	-----	-----	-----	-----	-----	---
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:41:43

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Trichloroethene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .420000E-06
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	.8965E-01	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.1711E-01	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.7425E-02	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.4616E-02	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.3188E-02	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.2347E-02	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.1803E-02	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.1432E-02	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.1167E-02	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.9713E-03	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.8224E-03	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.7064E-03	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.6141E-03	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.5395E-03	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.8965E-01	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:40:51

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Toluene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.610000E-06
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M) (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
-----	-----	-----	-----	-----	-----	-----	-----	
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:40:51

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Toluene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .610000E-06
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----

NO	1.	.1302	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.2486E-01	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.1078E-01	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.6704E-02	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.4630E-02	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.3408E-02	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.2619E-02	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.2080E-02	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.1695E-02	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.1411E-02	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.1194E-02	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.1026E-02	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.8920E-03	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.7836E-03	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.1302	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:41:17

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

trans-1,2-Dichloroethene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.180000E-06
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M) (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
-----	-----	-----	-----	-----	-----	-----	-----	---
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:41:17

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

trans-1,2-Dichloroethene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .180000E-06
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	.3842E-01	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.7335E-02	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.3182E-02	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.1978E-02	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.1366E-02	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.1006E-02	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.7728E-03	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.6137E-03	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.5002E-03	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.4163E-03	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.3525E-03	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.3027E-03	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.2632E-03	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.2312E-03	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.3842E-01	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:42:06

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Vinyl Chloride

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.160000E-05
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M) (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
-----	-----	-----	-----	-----	-----	-----	-----	---
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:42:06

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Vinyl Chloride

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .160000E-05
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----

NO	1.	.3415	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.6520E-01	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.2829E-01	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.1758E-01	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.1215E-01	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.8940E-02	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.6870E-02	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.5455E-02	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.4446E-02	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.3700E-02	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.3133E-02	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.2691E-02	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.2340E-02	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.2055E-02	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.3415	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

05/15/07

15:42:40

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Xylene

COMPLEX TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.560000E-05
STACK HT (M)	=	1.0000
STACK DIAMETER (M)	=	.1016
STACK VELOCITY (M/S)	=	.9868
STACK GAS TEMP (K)	=	298.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

FINAL STABLE PLUME HEIGHT (M) = 2.1
DISTANCE TO FINAL RISE (M) = 151.3

CALCS**				*VALLEY 24-HR CALCS*	**SIMPLE TERRAIN 24-HR			
TERR HT	DIST	MAX 24-HR CONC	CONC	PLUME HT ABOVE STK	CONC	PLUME HT ABOVE STK		
U10M USTK (M/S)	(M)	(UG/M**3)	(UG/M**3)	BASE (M)	(UG/M**3)	HGT (M)	SC	
3.	3.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
6.	6.	.0000	.0000	.9	.0000	.0	0	
.0 .0								
9.	9.	.0000	.0000	1.0	.0000	.0	0	
.0 .0								

05/15/07

15:42:40

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Xylene

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =           POINT
EMISSION RATE (G/S)   =      .560000E-05
STACK HEIGHT (M)      =           1.0000
STK INSIDE DIAM (M)   =           .1016
STK EXIT VELOCITY (M/S)=           .9868
STK GAS EXIT TEMP (K) =      298.0000
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =           1.7500
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           .0000
MIN HORIZ BLDG DIM (M) =           .0000
MAX HORIZ BLDG DIM (M) =           .0000

```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = .80000000E-02 (M**3/S)

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .002 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING
 DISTANCES ***

	DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)
DWASH	-----	-----	----	-----	-----	-----	-----	-----	-----
NO	1.	1.195	6	4.0	4.0	10000.0	1.91	.06	.06
NO	50.	.2282	6	1.0	1.0	10000.0	2.74	2.19	1.40
NO	100.	.9901E-01	6	1.0	1.0	10000.0	2.74	4.10	2.38
NO	150.	.6154E-01	6	1.0	1.0	10000.0	2.74	5.95	3.28
NO	200.	.4251E-01	6	1.0	1.0	10000.0	2.74	7.75	4.13
NO	250.	.3129E-01	6	1.0	1.0	10000.0	2.74	9.51	4.90
NO	300.	.2404E-01	6	1.0	1.0	10000.0	2.74	11.25	5.65
NO	350.	.1909E-01	6	1.0	1.0	10000.0	2.74	12.96	6.37
NO	400.	.1556E-01	6	1.0	1.0	10000.0	2.74	14.65	7.07

NO	450.	.1295E-01	6	1.0	1.0	10000.0	2.74	16.32	7.75
NO	500.	.1097E-01	6	1.0	1.0	10000.0	2.74	17.97	8.41
NO	550.	.9419E-02	6	1.0	1.0	10000.0	2.74	19.61	9.06
NO	600.	.8189E-02	6	1.0	1.0	10000.0	2.74	21.24	9.70
NO	650.	.7194E-02	6	1.0	1.0	10000.0	2.74	22.86	10.33

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, $X < 3 \cdot LB$

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	1.195	1.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

MEMOTo:
FileCopies:
Matt Plautz
John Schell
Keith Stang
Dave LangFrom:
Serese MarottaDate:
February 7, 2007ARCADIS BBL Project No.:
37902.300Subject:
Peterson Puritan Risk Assessments: Statistical Evaluation of Fish Tissue PCB Data
for OU2 and Upstream/Background Areas

The following briefly describes the fish sampling program, and presents the methodology and results of statistical evaluations (i.e., analysis of variance) conducted for the fish tissue PCB homolog data collected as part of the Remedial Investigation. The objective of the evaluation was to determine if there are statistically significant differences in fish tissue PCB homolog concentrations for fillet and whole-body fish samples collected from various portions of the Blackstone River, OU2 ponds and a background/reference area pond.

Fish Sampling:

Fish fillet samples of largemouth bass, white sucker, bluegill and pumpkinseed were collected to evaluate potential human health exposures. Fillet samples were intended to represent edible-size fish that could be consumed by local anglers. Composite whole-body fish samples of common shiner, golden shiner, bluegill and pumpkinseed were collected to evaluate potential ecological exposures. Additionally, whole-body PCB concentrations for largemouth bass and white suckers were calculated by summing concentrations for fillet and remaining carcass samples.

Fish data were collected from the following locations (in order from upstream to downstream) (see Figure 1):

P-6: Isolated background pond located north of site (OU2)

BR-1: Stretch of Blackstone River located upstream of Ashton Dam

BR-2: Stretch of Blackstone River located downstream of Ashton Dam

BR-3: Stretch of Blackstone River located adjacent to the site (OU2); terminus is Pratt Dam

P-1 (Pond A): Pond located within the Unnamed Island within OU2

P-2 (Pond F): Pond located within OU2, adjacent to Pratt Dam

The following table presents a summary of the fish species and sample types collected from the Blackstone River and OU2 ponds, as well as the background pond.

Fish Species	Sample Type	Sampling Location	Sample Size
Largemouth bass	Fillet	BR-2	8
		BR-3	8
		P-1	8
		P-6	8
	Whole-body ^a	BR-2	8
		BR-3	8
		P-1	8
		P-6	8
White sucker	Fillet	BR-1	8
		BR-2	8
		BR-3	8
		P-1	8
		P-2	8
	Whole-body ^a	BR-1	8
		BR-2	8
		BR-3	8
Bluegill	Fillet	BR-1	5
		P-2	7
	Whole-body ^a	BR-1	5
		P-2	7
	Whole-body composite ^b	P-1	8
		P-6	8
Pumpkinseed	Fillet	BR-1	3
		P-2	1
	Whole-body ^a	BR-1	3
		P-2	1

Fish Species	Sample Type	Sampling Location	Sample Size
Common shiner	Whole-body composite ^b	BR-1	8
		BR-2	8
		BR-3	8
Golden shiner	Whole-body composite ^b	P-2	8

Notes:

^a Whole-body PCB concentrations were calculated by summing fillet and remaining carcass concentrations.

^b Represents whole-body composite samples.

Methodology:

The statistical evaluation of fish PCB homolog data consisted of Analysis of Variance (ANOVA), which is a statistical method for making simultaneous comparisons between two or more data sets (e.g., groups, populations) to determine if there is a statistically significant difference between them. An analytical software package (Statistix 7) was used to run the ANOVAs. Prior to analysis, the fish data were separated into species and sample type (i.e., fillet, whole-body), and in some instances, size ranges if sufficient data were available. Subsequently, the data sets were tested for normality to determine if they follow a certain distribution (i.e., normal, lognormal, non-parametric).

A parametric One-Way Analysis of Variance (AOV) was conducted for data sets that followed a normal or lognormal distribution. The output of the One-Way AOV is a p-value, which indicates whether the null hypothesis (i.e., concentrations are not significantly different between groups) should be accepted or rejected. Following the One-Way AOV, a Bonferroni Comparison of Means (alpha = 0.05) was used to compare the means of the different groups. The output of the Comparison of Means is a tabular presentation of homogeneous populations.

For non-parametric data sets (i.e., those that don't follow a certain pattern), the Kruskal-Wallis One-Way AOV procedure was used, which relies on a ranking system to determine if there are significant differences in central values (i.e., medians) between groups. Like the One-Way AOV, the output of the Kruskal-Wallis One-Way AOV is a p-value, which indicates whether the null hypothesis (i.e., concentrations are not significantly different between groups) should be accepted or rejected. Following the Kruskal-Wallis One-Way AOV, a Comparison of Mean Ranks (alpha = 0.05) was used to compare the mean ranks of the different groups. Like the Bonferroni Comparison of Means, the output of the Comparison of Mean Ranks is a tabular presentation of homogeneous populations.

Analyses were performed on both lipid-normalized and un-normalized PCB homolog fish tissue data.

Results for Fish Fillets:

Largemouth Bass

- There are no statistically significant differences in fish tissue PCB concentrations in largemouth bass (all sizes) collected from BR-2, BR-3 and P-1. However, fish tissue PCB concentrations in largemouth bass from P-6 (background pond) are significantly lower compared to concentrations observed in largemouth bass from the Blackstone River with the following exception: lipid-normalized PCB concentrations in bass from P-6 are not significantly lower than lipid-normalized PCB concentrations in bass from BR-2.
- There are no statistically significant differences between largemouth bass (>30 cm in length) PCB concentrations collected from BR-3 and P-1. However, PCB concentrations in largemouth bass of this same size range collected from P-6 are significantly lower than those PCB concentrations in bass from BR-3 and P-1. Lipid-normalized PCB data displayed the same results.

Bluegill/Pumpkinseed

- There are no statistically significant differences in fish tissue PCB concentrations in bluegill and pumpkinseed (all sizes) collected from BR-1 and P-2. However, the evaluation of lipid-normalized PCB data for these species showed a significant difference between BR-1 and P-2.

White Sucker

- There are no statistically significant differences in fish tissue PCB concentrations in white suckers (all sizes) collected from BR-2, BR-3, P-1 and P-2. Similarly, white sucker PCB concentrations from BR-1, P-1 and P-2 are not significantly different. Evaluation of the lipid-normalized PCB data showed no statistically significant differences in white sucker concentrations from BR-2, BR-3 and P-2. Likewise, lipid-normalized PCB concentrations from BR-1, BR-3, P-1 and P-2 are not significantly different.
- There are no statistically significant differences in fish tissue PCB concentrations in white suckers (>35 cm in length) collected from BR-1, BR-2 and BR-3. Lipid-normalized PCB data displayed the same results.

The following tables summarize the above results for fish fillet PCB concentrations (un-normalized and lipid-normalized data). Populations with "I" in the same column are not significantly different from one another, while populations with "I" in separate columns are significantly different from one another.

Total PCB Homologs: Fish Fillets			
Species	Size	Location	Homogeneous Populations ⁽¹⁾
Largemouth bass	All ⁽³⁾	BR-2	
		BR-3	
		P-1	
		P-6	
	>30 cm ⁽³⁾	BR-3	
		P-1	
		P-6	
Bluegill/Pumpkinseed	All ⁽²⁾	BR-1	
		P-2	
White sucker	All ⁽³⁾	BR-1	
		BR-2	
		BR-3	
		P-1	
		P-2	
	>35 cm ⁽³⁾	BR-1	
		BR-2	
		BR-3	

Total PCB Homologs (Lipid-Normalized): Fish Fillets			
Species	Size	Location	Homogeneous Populations ⁽¹⁾
Largemouth bass	All ⁽³⁾	BR-2	
		BR-3	
		P-1	
		P-6	
	>30 cm ⁽³⁾	BR-3	
		P-1	
		P-6	
Bluegill/Pumpkinseed	All ⁽²⁾	BR-1	
		P-2	
White sucker	All ⁽²⁾	BR-1	
		BR-2	
		BR-3	
		P-1	
		P-2	
	>35 cm ⁽²⁾	BR-1	
		BR-2	
		BR-3	

Notes:

(1) Based on comparison of mean ranks using Statistix 7.0. Populations with "I" in the same column are not significantly different from one another. Conversely, populations with "I" in different columns are significantly different from one another. Results should be interpreted on a species-specific basis.

(2) Sample populations for the white sucker locations were shown to be either normal- or lognormally-distributed. One way Analysis of Variance (AOV) methods were used to test differences in sample populations. Comparison of means were performed using the Bonferroni test methodology for an alpha value equal to 0.05.

(3) Sample population comparisons were performed using Kruskal-Wallis AOV non-parametric test; based on statistical differences (at alpha = 0.05) of the mean ranks.

Results for Whole-Body Fish:

Bluegill/Pumpkinseed

- There are no statistically significant differences in fish tissue PCB concentrations in bluegill and pumpkinseed (all sizes) collected from BR-1 and P-2. PCB concentrations in bluegill and pumpkinseed from P-1 and P-6 are significantly different from one another, and are also significantly different compared to BR-1 and P-2. The evaluation of lipid-normalized PCB data for these species showed a significant difference between all groups (i.e., BR-1, P-1, P-2 and P-6).

Common Shiner/Golden Shiner

- There are no statistically significant differences in fish tissue PCB concentrations in shiners from BR-1, BR-2 and BR-3. Likewise, there are no statistically significant differences in PCB concentrations in these species collected from BR-3 and P-2. The evaluation of lipid-normalized PCB concentrations showed no statistically significant differences in fish tissue PCB concentrations from BR-2, BR-3 and P-2. Likewise, lipid-normalized PCB concentrations in fish from BR-1, BR-2, and P-2 are not significantly different from one another.

Largemouth Bass

- There are no statistically significant differences in fish tissue PCB concentrations in largemouth bass (all sizes) collected from BR-2, BR-3 and P-1. Likewise, there are no statistically significant differences in fish tissue PCB concentrations from P-1 and P-6. The evaluation of lipid-normalized PCB concentrations in fish showed no statistically significant differences between BR-2, BR-3 and P-1; however, lipid-normalized PCB concentrations in fish from P-6 were significantly lower compared to BR-2, BR-3 and P-1.

- There are no statistically significant differences between largemouth bass (>30 cm in length) PCB concentrations collected from BR-3 and P-1. However, PCB concentrations in largemouth bass of this same size range collected from P-6 are significantly lower than PCB concentrations in bass from BR-3 and P-1. Lipid-normalized PCB data displayed the same results.

White Sucker

- There are no statistically significant differences in fish tissue PCB concentrations in white suckers (all sizes) collected from BR-2 and BR-3. Similarly, white sucker PCB concentrations from BR-3 and P-2 are not significantly different. Also, PCB concentrations in fish from BR-1, P-1 and P-2 are not significantly different. Evaluation of the lipid-normalized PCB data showed no statistically significant differences in white sucker concentrations from BR-2, BR-3 and P-2. Likewise, lipid-normalized PCB concentrations in fish from BR-1, BR-3, P-1 and P-2 are not significantly different.
- There are no statistically significant differences in fish tissue PCB concentrations in white suckers (>35 cm in length) collected from BR-1 and BR-3; PCB concentrations in fish from BR-2 were significantly different compared to those concentrations observed in fish from BR-1 and BR-3. However, lipid-normalized PCB concentrations showed there are no statistically significant differences in fish from BR-1, BR-2 and BR-3.

The following tables summarize the above results for PCB concentrations in whole-body fish (un-normalized and lipid-normalized data). Populations with "I" in the same column are not significantly different from one another, while populations with "I" in separate columns are significantly different from one another.

Total PCB Homologs: Whole-Body Fish			
Species	Size	Location	Homogeneous Populations ⁽¹⁾
Bluegill/Pumpkinseed	All ⁽²⁾	BR-1	
		P-1	
		P-2	
		P-6	
Common/Golden Shiner	All ⁽³⁾	BR-1	
		BR-2	
		BR-3	
		P-2	
Largemouth bass	All ⁽³⁾	BR-2	
		BR-3	
		P-1	
		P-6	
	>30 cm ⁽³⁾	BR-3	
		P-1	
		P-6	
White sucker	All ⁽²⁾	BR-1	
		BR-2	
		BR-3	
		P-1	
		P-2	
	>35 cm ⁽²⁾	BR-1	
		BR-2	
		BR-3	

Total PCB Homologs (Lipid-Normalized): Whole-Body Fish			
Species	Size	Location	Homogeneous Populations ⁽¹⁾
Bluegill/Pumpkinseed	All ⁽²⁾	BR-1	
		P-1	
		P-2	
		P-6	
Common/Golden Shiner	All ⁽²⁾	BR-1	
		BR-2	
		BR-3	
		P-2	
Largemouth bass	All ⁽³⁾	BR-2	
		BR-3	
		P-1	
		P-6	
	>30 cm ⁽³⁾	BR-3	
		P-1	
White sucker	All ⁽³⁾	P-6	
		BR-1	
		BR-2	
		BR-3	
	>35 cm ⁽²⁾	P-1	
		P-2	

Notes:

(1) Based on comparison of mean ranks using Statistix 7.0. Populations with "I" in the same column are not significantly different from one another. Conversely, populations with "I" in different columns are significantly different from one another. Results should be interpreted on a species-specific basis.

(2) Sample populations were shown to be either normal- or lognormally-distributed. One way Analysis of Variance (AOV) methods were used to test differences in sample populations. Comparison of means were performed using the Bonferroni test methodology for an alpha value equal to 0.05.

(3) Sample population comparisons were performed using the Kruskal-Wallis AOV non-parametric test; based on statistical differences (at alpha = 0.05) of the mean ranks.

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Summary:

In general, PCB homolog concentrations in fish collected from OU2 ponds and the portion of the Blackstone River adjacent to the site were not significantly different compared to PCB homolog concentrations observed in fish collected from upstream locations within the Blackstone River.

US EPA ARCHIVE DOCUMENT

1.0 Introduction

As requested by the United States Environmental Protection Agency (USEPA), this technical memorandum presents an evaluation of potential risks associated with exposure of human receptors to lead in site-related media at the Peterson Puritan Operable Unit 2 (OU2) Superfund Site located in Cumberland and Lincoln, Rhode Island. This technical memorandum is included as Appendix Z to the *Baseline Human Health Risk Assessment* (HHRA) that was submitted for the site in February 2009 (ARCADIS, 2009).

Lead was identified as a constituent of potential concern (COPC) in the HHRA (ARCADIS, 2009) for the following subareas and media:

- Site-wide surface soil (excluding Nunes Parcel and wetlands)
- Nunes Parcel surface soil
- Nunes Parcel subsurface soil
- Site-wide sediments
- Wetland sediments
- Site-wide groundwater
- Leachate
- Fish (fillet) tissue

As requested by the USEPA, the lead evaluation consists of a separate evaluation for each subarea of the site and each exposure scenario previously evaluated in the HHRA (ARCADIS, 2009). Although lead was identified as a COPC in leachate, this exposure pathway is not quantitatively evaluated because uncertainty in assigning a dermal absorption fraction for lead precludes quantification of potential risks associated with the dermal exposure route (USEPA, 2003a; 2004; 2007).

2.0 Methodology

Risks associated with exposure to lead in various site-related media were evaluated using USEPA's lead models – the Adult Lead Model (ALM) and the IEUBK Model for Lead in Children (USEPA, 1994a; 2003a). Specifically, the ALM was used to evaluate potential lead risks for non-residential scenarios, and the IEUBK Model was used to evaluate potential lead risks for residential scenarios (i.e., children ages 0 to 84 months of age). Parameter values used in the ALM and IEUBK are largely based on the USEPA's recommended default values and were previously approved by the USEPA on May 13, 2008. The dose equations and modeling approaches are consistent with USEPA guidance (1994a; 2003a; 2007).

Incidental ingestion of lead in soil is generally the primary exposure pathway of concern for risk assessments. However, the models can also quantify cumulative doses and risk attributed to other sources of exposure, such as drinking water, diet, lead-based paint, and air emissions. Because lead is ubiquitous in the environment, predicted blood lead levels (PbB) associated with exposure to site-related sources of lead are added to an assumed age-specific baseline PbB that reflects exposure to non-site-related sources of lead. Forty-one different exposure scenarios (current and future) were evaluated using the ALM, including exposure of recreational users (adults and older children, age 6 to 12 years), commercial workers, construction workers, adolescent trespassers (age 9 to 18 years), and adult anglers. Four exposure scenarios were evaluated using the IEUBK Model: exposure of residential young children to site-wide groundwater, exposure of young children to fish tissue, exposure of residential young children to soil and groundwater at Nunes

Parcel, and exposure of residential young children to soil and groundwater at the Rhode Island Department of Environmental Management (RIDEM) Soil Removal Area.

In both the ALM and IEUBK Model, potential health risks associated with lead exposure are evaluated by comparing the estimated PbB to the target PbB of 10 micrograms per deciliter ($\mu\text{g/dL}$) (Centers for Disease Control [CDC], 1991). The target PbB is based on potentially adverse neurological effects in children (CDC, 1991). Therefore, lead risk is evaluated based on the probability that PbB among a receptor population will exceed 10 $\mu\text{g/dL}$. This is sometimes referred to as the “P10 statistic.” Consistent with USEPA guidance (USEPA, 1994a; 2003b), this lead evaluation focuses on determining if P10 equals or exceeds 5 percent, which is equivalent to calculating the 95th percentile of the probability distribution of PbB among a receptor population.

The USEPA employs a simplifying assumption in both models to estimate the probability distribution of PbBs. Each model first generates a point estimate of the central tendency of the PbB distribution, and it is assumed that the value represents the geometric mean PbB among a receptor population that is exposed to the same levels of lead in the environment. Epidemiological data on PbBs among various populations suggests that the distribution is roughly lognormal in shape (USEPA, 1994b). The USEPA applies the assumption of lognormality to both models using the following equation:

$$PbB_{0.95} = PbB_{GM} \times GSD^{1.645}$$

$PbB_{0.95}$ = 95th percentile of the distribution of PbBs ($\mu\text{g/dL}$)
 PbB_{GM} = geometric mean (or 50th percentile) of the lognormal distribution of PbBs ($\mu\text{g/dL}$)
 GSD = geometric standard deviation of the lognormal distribution of PbBs (unitless)

3.0 Adult Lead Model for Non-Residential Receptor Populations

The USEPA’s ALM is used to evaluate risks to non-residential receptor populations (USEPA, 2007). The following equation is used in the ALM to estimate quasi-steady state PbBs:

$$PbB_{GM} = PbB_0 + \frac{PbS \times BKSF \times IR \times AF \times EF}{AT}$$

PbB_{GM} = geometric mean (or 50th percentile) of the lognormal distribution of PbBs in adult workers ($\mu\text{g/dL}$)
 PbB_0 = baseline PbB due to exposure to non-site-related sources of lead ($\mu\text{g/dL}$)
 PbS = soil lead concentration (milligrams per kilogram [mg/kg])
 $BKSF$ = biokinetic slope factor ($\mu\text{g/dL}$ per micrograms per day)
 IR = soil ingestion rate (grams per day [g/day])
 AF = gastrointestinal absorption fraction for lead in soil (unitless)
 EF = exposure frequency (days per year)
 AT = averaging time (years)

The receptor of concern in the ALM is the fetus of an adult worker. The USEPA assumes a linear relationship between PbB in the adult woman and the fetus. Therefore, the geometric mean PbB in the fetus is equal to PbB_{GM} multiplied by a constant, R. USEPA guidance (2003b) indicates that because the IEUBK Model is limited to 0 to 84 months, the ALM may also be used to assess older children and adolescents with appropriate adjustments. Per the USEPA’s request, a time-

weighted approach was used to evaluate potential risks for recreational users and trespassers consistent with USEPA guidance (2003b).

3.1 Adult Lead Model Parameter Values

Table 1a presents the central tendency parameter values used to evaluate lead risks for the following receptors:

- Current and future commercial worker (risks presented in Table 1b)
- Future construction worker (risks presented in Table 1c)
- Current and future adult recreational user (risks presented in Table 1d)
- Current and future older child recreational user (risks presented in Table 1e)
- Current adolescent trespasser (risks presented in Table 1f)
- Current and future adult angler (risks presented in Table 1g)

Baseline Blood Lead Concentration (PbB₀)

The baseline PbB is intended to represent the best estimate of a reasonable central value of PbB in women of child-bearing age who are not exposed to lead-contaminated non-residential soil or dust at the site. The USEPA (2003b) recommends a range of baseline concentrations (1.7 to 2.2 µg/dL) based on national survey data for women from different demographic groups defined by geographic region, ethnicity, and race. Per the USEPA's request, a baseline value of 1.9 µg/dL was used in the ALM, which represents non-Hispanic white populations from the Northeast Region (USEPA, 2002a).

Geometric Standard Deviation

The USEPA recommends a range of geometric standard deviations (GSDs) that may be used in the ALM Model, depending on site-specific demographics and the characteristics of the receptor population (USEPA, 2003b). Higher GSD values imply greater variability in PbBs and will result in a higher probability of exceeding the target PbB of 10 µg/dL. Per the USEPA's request, a GSD of 2.01 was used in this lead evaluation to reflect a non-Hispanic white population from the Northeast (USEPA, 2002a).

Biokinetic Slope Factor

The Biokinetic Slope Factor (BKSF) represents the increase in typical adult PbB due to average daily lead uptake. The USEPA (2003b) recommends a default value of 0.4 µg lead/dL blood per µg lead absorbed per day for the BKSF. This value is based on empirical data on the relationship between tap-water lead concentrations and PbBs for a sample group of adult males. This default value was used for all exposure pathways in this evaluation.

Soil Ingestion Rate (IR_s)

Consistent with USEPA guidance (2003a; 2007), a soil ingestion rate of 50 mg/day was used to evaluate potential risks for the commercial worker, adult recreational user, older child recreational user, and adolescent trespasser. This value represents the central tendency ingestion rate for soil non-contact-intensive activities (including soil-derived indoor dust) (USEPA, 2007). Per the USEPA's request, a soil ingestion rate of 330 mg/day was used to evaluate potential lead exposures for the construction worker. However, it should be noted that this value is significantly

higher than the central tendency ingestion rate (100 mg/day) recommended by the USEPA (2007) for the construction worker scenario.

Exposure Frequency and Averaging Time

Exposure frequencies used in this lead evaluation were consistent with values used in the HHRA (ARCADIS, 2009). Consistent with USEPA guidance (2003b), a time-weighted average approach was used to evaluate potential risks for recreational users and trespassers.

Lead Absorption Fraction

This evaluation used a lead absorption fraction of 0.12, which is the default value recommended by the USEPA (2003b). This value is based on experimental studies of the bioavailability of ingested lead in adults with considerations for the following three major sources of variability: 1) effect of food on lead bioavailability, 2) nonlinearity in PbB, and 3) effect of lead form and particle size on bioavailability. The value assumes the a relative bioavailability of 0.6 for lead in site-related media as compared to soluble lead, and also assumes an absorption fraction (AF) of 0.2 for soluble lead. Thus, the final AF is 0.12 (i.e., $AF = 0.6 \times 0.2 = 0.12$).

Fetal/Maternal Blood Lead Concentration ($R_{\text{fetal/maternal}}$)

This evaluation used a fetal/maternal blood lead ratio of 0.9 for adult receptors, which is the default value recommended by the USEPA (2003b) based on studies that have explored the relationship between umbilical cord and maternal PbBs. Because the older child recreational user and adolescent trespasser are not of child-bearing age, the fetal/maternal PbB ratio for these receptors was set equal to 1.

Fish Ingestion Rate

For the adult angler scenario, it was assumed that site-related lead exposure is restricted to fish consumption. The lead evaluation used the same Central Tendency Exposure fish ingestion rate (8.9 g/day) as was used in the HHRA (ARCADIS, 2009). This value represents the 50th percentile for fish-consuming anglers in Maine from Ebert et al. (1993). The lead evaluation conservatively assumes that 100 percent of fish consumed by the adult angler are from on-site sources.

3.2 Exposure Point Concentrations

The exposure point concentrations (EPCs) used in the lead evaluation are arithmetic means based on site-related data. As requested by the USEPA, media within each subarea were evaluated separately (i.e., medium-specific arithmetic means were used as the EPCs). Per the USEPA's request, one-half the laboratory detection limit was used as a surrogate for non-detects in calculating arithmetic mean lead concentrations. Attachment A presents the sample groupings used to calculate EPCs for each exposure scenario evaluated using the ALM. Attachment B presents the sample groupings used to calculate EPCs for each exposure scenario evaluated using the IEUBK model.

3.3 Adult Lead Model Results

Table 1b presents the modeling results for the commercial worker. The ALM predicts that exposure of commercial workers to site-related media at Nunes Parcel and Quinnville Wellfield

will result in a P10 less than 5 percent (i.e., less than 5 percent of fetal PbBs will be greater than the target of 10 µg/dL). However, exposure of commercial workers to soils within the RIDEM Soil Removal Area results in a P10 of 10 percent for surface soils and a P10 of 12 percent for surface and subsurface soils combined.

Table 1c presents the modeling results for the construction worker. Exposure of construction workers to sitewide shallow groundwater (incidental ingestion during intrusive activities) results in a P10 of less than 1 percent, which is well below the threshold of 5 percent. However, exposure of construction workers to soils at Quinnville Wellfield, Southern Bank, Nunes Parcel, and RIDEM Soil Removal Area results in P10s of 5 percent, 6 percent, 13 percent, and 89 percent, respectively, which are above the 5 percent threshold.

Table 1d presents the modeling results for the adult recreational user. Exposure of adult recreational users to site-related media associated with Southern Bank, Nunes Parcel, Quinnville Wellfield, Debris Fields, Wetlands, RIDEM Soil Removal Area, and Landfill results in P10s less than 5 percent.

Table 1e presents the modeling results for the older child recreational user. Because this receptor is not of child-bearing age, the ALM was only used to estimate the geometric mean of PbB for the exposed individual. Exposure of older child recreational users to site-related media associated with Southern Bank, Nunes Parcel, Quinnville Wellfield, Debris Fields, Wetlands, RIDEM Soil Removal Area, and Landfill results in PbBs less than 10 µg/dL.

Table 1f presents the modeling results for the adolescent trespasser. Similar to the older child recreational user, the ALM was only used to estimate the geometric mean of PbB for the exposed individual. Exposure of the adolescent trespasser to site-related media associated with Southern Bank, Nunes Parcel, Quinnville Wellfield, Debris Fields, Wetlands, RIDEM Soil Removal Area, and Landfill results in PbBs less than 10 µg/dL.

Table 1g presents the modeling results for the adult angler. Exposure of adult anglers via consumption of fish tissue from the site (OU2) results in a P10 of less 1 percent, which is well below the threshold of 5 percent. Likewise, evaluation of potential lead risks associated with consumption of fish from upstream reaches of the Blackstone River (BR1 and BR2) result in P10s less than 1 percent.

3.4 Uncertainties Associated with the Adult Lead Model

Notable uncertainties associated with the ALM in this evaluation are associated with the limited analytical data for the RIDEM Soil Removal Area and the construction worker soil ingestion rate. At the request of the USEPA, the RIDEM Soil Removal Area was evaluated as a separate subarea within the Nunes Parcel using only three sampling points (SO-033-NP, SO-107-NP, and SO-108-NP). However, this conservatively assumes that the receptor would preferentially spend all of their time in a relatively small area of the site. Lead concentrations in these samples ranged from 10 mg/kg (SO-107-NP) to 5,460 mg/kg (SO-033-NP, 1 to 5 feet).

USEPA guidance (2007) indicates that a soil ingestion rate of 100 mg/day is appropriate for evaluating contact-intensive activities for construction workers. However, at the request of the USEPA, an upper-bound soil ingestion rate of 330 mg/day was used in this evaluation in the ALM. Using a soil ingestion rate of 100 mg/day, the resulting P10s for Quinnville Wellfield and Southern Bank surface soils would be 1 percent and 2 percent, respectively. The P10s for the RIDEM Soil Removal Area and Nunes Parcel (surface and subsurface soil) would be 39 percent

and 3 percent, respectively, if a soil ingestion rate of 100 mg/day was used for the construction worker.

4.0 IEUBK Model for Residential Receptor Populations

The IEUBK Model consists of four modules (exposure, uptake, biokinetics, and variability) that mathematically and statistically link environmental lead exposure to blood lead concentrations for a population of children, ages 0 to 84 months (USEPA, 2002b). USEPA's IEUBK Model (Windows version 1, Build 264) was used to assess risks for the following scenarios for children ages 0 to 84 months:

- Hypothetical future exposure of young child residents to site-wide groundwater
- Current and hypothetical future exposure of young child anglers to fish from the site (OU2) and upstream reaches of the Blackstone River (BR1 and BR2)
- Hypothetical future exposure of young child residents to soils at Nunes Parcel and site-wide groundwater
- Hypothetical future exposure of young child residents to soils at the RIDEM Soil Removal Area and site-wide groundwater.

The application of the IEUBK Model assumed one child, one location, and homogeneous media concentrations. Similar to the ALM, the EPC(s) used in the IEUBK Model represent arithmetic means of the available data. Per the USEPA's request, one-half the laboratory detection limit was used for non-detects in the calculation of arithmetic means.

4.1 IEUBK Model Parameters Values

Tables 2a, 3a, and 5a present the parameter values used in the IEUBK Model. The majority of the parameter values used in the IEUBK Model were defaults, with the exception of using more recent estimates of dietary lead intake, evaluating an alternate diet intake scenario (i.e., fish ingestion), using site-specific lead concentration in drinking water, and using a site-specific background lead concentration for soils. The use of site-specific background soils data was previously approved by the USEPA following the February 20, 2007 meeting in Boston. Specifically, as noted in Table 1: "Technical items discussed during the 2/20/07 meeting in Boston, MA regarding the Peterson Puritan Superfund Site HHRA," on the issue of "identification of background soil samples," Metcalf & Eddy state "offsite soil samples from Mackland Farms will be used as site-specific background samples." Attachment B presents the sample groupings used to calculate site-specific EPCs for each exposure scenario evaluated using the IEUBK Model.

Dietary Data

The default dietary lead intakes in the IEUBK Model are based on data collected by the U.S. Food and Drug Administration (USFDA) in the late 1980s. More recent USFDA (2001) data are available, and therefore, were incorporated into the model. In addition, for the fish consumption scenario, alternate diet intakes consisted of site-specific data for fish tissue collected from OU2, BR1, and BR2. The lead intake from fish was calculated using the following equation:

$$\text{Fish Intake } (\mu\text{g lead/day}) = (\text{Total meat intake rate, g/day}) \times (\% \text{ Total Meat Intake from Fish}) \times (\% \text{ Fish from Source}) \times (\text{Fish Concentration, } \mu\text{g lead/day})$$

Where:

% of Total Meat Intake from Fish = 10%

% Fish Consumption from Source = 100%

The fish concentrations represent the arithmetic means of the fish fillet data for each subarea (OU2 = 0.012 mg/kg; BR1 = 0.013 mg/kg; and BR2 = 0.0056 mg/kg). The resulting lead intakes attributable to consumption of fish for OU2, BR1, and BR2 are presented in Table 4.

Lead Concentration in Drinking Water

To evaluate hypothetical future exposure of residential young children to lead in drinking water, the arithmetic mean of the site-wide groundwater data (2.17 micrograms per liter) was used in the IEUBK Model. This evaluation assumes that site-related groundwater may be used as a potable source in the future, and that current measured concentrations are representative of future concentrations.

Lead Concentration in Soil/Dust

For the site-wide groundwater and fish scenarios, the soil/dust concentration represents a site-specific background concentration (i.e., the arithmetic mean of the Mackland Farms soils data [samples SO-072-MF, SO-073-MF, and SO-074-MF]). For the evaluation of hypothetical future residential young children exposed to soils and groundwater at Nunes Parcel, the soil/dust lead concentration (270 mg/kg) represents the arithmetic mean of surface and subsurface soils from Nunes Parcel. For the evaluation of hypothetical future residential young children exposed to soils and groundwater at the RIDEM Soils Removal Area, the soil/dust lead concentration (2,050 mg/kg) represents the arithmetic mean of surface and subsurface soils (i.e., the three sampling points identified by the USEPA [SO-033-NP, SO-107-NP, and SO-108-NP]).

4.2 IEUBK Model Results

Table 2b presents the input parameters and results for evaluation of hypothetical future exposure of young child residents to site-wide groundwater. There is less than a 1 percent probability that children exposed to lead in groundwater will have a PbB that exceeds the target PbB of concern (10 µg/dL) (i.e., well below the P10 = 5 percent threshold).

Table 3b presents the input parameters and results for evaluation of exposure of young child anglers to fish tissue from OU2. There is less than a 1 percent probability that children exposed to lead in fish will have a PbB greater than 10 µg/dL.

To place OU2 lead risks into perspective, consumption of fish from upstream reaches of the Blackstone River (BR1 and BR2) was also evaluated. Table 3c presents the input parameters and results for evaluation of exposure of young child anglers to fish tissue from BR1. Results indicate there is less than a 1 percent probability that children exposed to lead in fish from BR1 will have a PbB greater than 10 µg/dL. Table 3d presents the input parameters and results for evaluation of exposure of young child anglers to fish tissue from BR2. Results indicate there is less than a 1 percent probability that children exposed to lead in fish from BR2 will have a PbB greater than 10 µg/dL.

Table 5b presents the input parameters and results for evaluation of exposure of hypothetical young child residents to soil and groundwater from Nunes Parcel. Results indicate there is a 2

percent probability (less than the 5 percent threshold) that children exposed to soil and groundwater will have a PbB greater than 10 µg/dL.

Table 5c presents the input parameters and results for evaluation of exposure of hypothetical young child residents to soil and groundwater from the RIDEM Soil Removal Area. Results indicate there is an 87 percent probability (above the 5 percent threshold) that children exposed to soil and groundwater will have a PbB greater than 10 µg/dL.

4.3 Uncertainties Associated with the IEUBK Model

The notable uncertainty associated with the use of the IEUBK Model is that many of the default parameters may not accurately reflect site conditions (e.g., air emissions, dietary lead intake, bioavailability). Specifically, the bioavailability factors used in the model are based on the absolute bioavailability of soluble lead acetate (50 percent) (used for lead in food and water) and the relative bioavailability of lead in soil (60 percent), which yields an absolute bioavailability for soil lead of 30 percent (i.e., 60 percent x 50 percent = 30 percent). The USEPA (1999) notes that the default estimates of bioavailability have significant variability and uncertainty due to many factors related to the site-specific conditions (e.g., lead speciation, mineralogy, soil particle size) and receptor population (complex biological process of gastrointestinal absorption).

5.0 Summary and Conclusions

In summary, the lead evaluation identified the following scenarios as having estimated (potential) lead risks above the USEPA target:

- Exposure of commercial workers to soils within the RIDEM Soil Removal Area
- Exposure of construction workers to soils at Quinnville Wellfield, Southern Bank, Nunes Parcel, and RIDEM Soil Removal Area
- Exposure of hypothetical young child residents to soil and groundwater from the RIDEM Soil Removal Area

However, the quantification of potential risks for the commercial worker, construction worker, and hypothetical young child resident exposed to soils within the RIDEM Soil Removal Area is based on a very limited ($n = 5$) sample size, which may present an artificially high average due to lead concentrations in sample SO-033-NP (2,380 mg/kg in the 0 to 1 foot interval and 5,460 mg/kg in the 1 to 5-foot interval). Although the potential exposure of construction workers to site soils produces risks above the USEPA target, these risks would likely be mitigated with the use of proper health and safety protocols, properly trained personnel, and personal protective equipment.

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Tables

Table 1a. Summary of Parameter Values Used in the Adult Lead Model (ALM) for Evaluation of Non-Residential Lead Risks Associated with Site-Related Soil, Sediment, Groundwater, and Fish Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Exposure Variable	Description	Units	Receptor Scenarios					
			Commercial Worker ^[1]	Construction Worker ^[1]	Adult Recreational User ^[2]	Older Child Recreational User ^[2,3]	Adolescent Trespasser ^[2,4]	Adult Angler ^[1]
			Table 1b	Table 1c	Table 1d	Table 1e	Table 1f	Table 1g
PbS	Lead concentration in medium of interest	ppm	Site-specific	Site-specific	Site-specific	Site-specific	Site-specific	Site-specific
R _{fetal/maternal}	Fetal/maternal PbB ratio	--	0.9 [a]	0.9 [a]	0.9 [a]	1.0 [b]	1.0 [b]	0.9 [a]
BKSF _s	Biokinetic Slope Factor (soil, sediment, and food)	µg/dL per µg/day	0.4 [a]	0.4 [a]	0.4 [a]	0.4 [a]	0.4 [a]	0.4 [a]
BKSF _w	Biokinetic Slope Factor (groundwater)	µg/dL per µg/day	NA	0.4 [a]	NA	NA	NA	NA
GSD _i	Geometric standard deviation PbB	--	2.01 [c]	2.01 [c]	2.01 [c]	2.01 [c]	2.01 [c]	2.01 [c]
PbB ₀	Baseline PbB	µg/dL	1.9 [c]	1.9 [c]	1.9 [c]	1.9 [c]	1.9 [c]	1.9 [c]
IR _s	Soil/sediment ingestion rate (including soil-derived indoor dust)	g/day	0.05 [d]	0.33 [o]	0.05 [d]	0.05 [d]	0.05 [d]	NA
IR _f	Food ingestion rate (fish)	g/day	NA	NA	NA	NA	NA	8.9 [e]
IR _w	Shallow groundwater ingestion rate	L/day	NA	0.05 [m]	NA	NA	NA	NA
AF _{s, d, w}	Absorption fraction, Pb in soil, dust, sediment, and groundwater	--	0.12 [a]	0.12 [a]	0.12 [a]	0.12 [a]	0.12 [a]	NA
AF _f	Absorption fraction, Pb in food	--	NA	NA	NA	NA	NA	0.12 [f]
EF _{s, d, w}	Exposure frequency, Pb pathway	days/yr	219 [j]	62 [h]	2 [g]	2 [g]	2 [g]	365 [j]
AT _{s, d, w}	Averaging time, Pb pathway	days/yr	365 [k]	84 [l]	7 [n]	7 [n]	7 [n]	365 [k]

Notes:

[1] Lead exposures for these receptors were evaluated individually for each applicable subarea. Consistent with the ALM guidance (USEPA, 2003a; 2007), the arithmetic mean of lead concentrations was used in the ALM.

[2] A time-weighted approach was used to evaluate potential lead risks for these receptors in the ALM, consistent with Example 6 in Appendix A in USEPA (2003b).

[3] Older child = 6 - 12 years of age

[4] Adolescent = 9 - 18 years of age

[5] Consistent with USEPA (2003a; 2004; 2007) guidance, dermal exposures to lead in aqueous and non-aqueous media were not quantitatively evaluated with the ALM due to the uncertainty in assigning a dermal absorption fraction that would apply to the numerous inorganic forms of lead that are typically found in environmental settings.

[a] Default value (USEPA, 2003a).

[b] Fetal/maternal PbB ratio does not apply because receptor is assumed to be an older child (6-12 years) or adolescent (9-18 years); risks to fetus of pregnant women are evaluated in adult receptor scenarios.

[c] Default value for non-Hispanic white populations from the Northeast region (USEPA, 2002).

[d] Default CTE value for soil ingestion (USEPA, 2003a; 2007). Value for commercial worker assumes non-contact-intensive activities.

[e] CTE fish ingestion rate based on the 50th percentile for Maine anglers (Ebert et al., 1993. Estimating Consumption of Freshwater Fish among Maine Anglers. *North American Journal of Fisheries Management* 13:737-745.). Assumes 100% of fish consumed are from on-site sources.

**Table 1a. Summary of Parameter Values Used in the Adult Lead Model (ALM) for Evaluation of Non-Residential Lead Risks Associated with Site-Related Soil, Sediment, Groundwater, and Fish Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island**

Notes (continued):

- [f] Value considered protective for bioavailable fraction of lead in fish (USEPA, 2007).
 [g] Reflects the same CTE value used in baseline human health risk assessment (2 days per week for approximately 6 months). Applying the time-weighted approach consistent with note [2] above, the resulting exposure frequency is set equal to 2 days/week.
 [h] Same CTE value used in baseline human health risk assessment (5 days per week for approximately 12 weeks).
 [i] Default central tendency estimate of exposure frequency for commercial/industrial workers from USEPA (2007).
 [j] Fish ingestion rate reflects a longterm average daily intake assuming 100% of fish are obtained from the site; therefore, EF is 365 days/year.
 [k] Averaging time appropriate for chronic exposure scenario (USEPA, 2003a; 2007).
 [l] Averaging time is based on EF to avoid diluting exposures over the entire year (7 days per week x 12 weeks/year = 84 days/year).
 [m] Default surface water contact rate for recreational swimmers (USEPA, 1989). Assumed to provide a conservative estimate of incidental ingestion by construction workers exposed to shallow groundwater.
 [n] Applying the time-weighted approach consistent with note [2] above, the resulting averaging time is set equal to 7 days/week.
 [o] Same CTE value used in baseline human health risk assessment.
 µg/dL = micrograms per deciliter
 g/day = grams per day
 L/day = liters per day
 NA = not applicable

References:

- USEPA. 2007. Frequent Questions from Risk Assessors on the ALM. Accessed on-line 4/23/08 at <http://www.epa.gov/superfund/health/contaminants/lead/almfaq.htm>. Updated August 2, 2007.
 USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.
 USEPA. 2003a. Recommendations of the Technical Review Workgroup for Lead for an Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil. EPA-540-R-03-001. January 2003.
 USEPA. 2003b. Assessing Intermittent or Variable Exposures at Lead Sites. OSWER Directive #9285.7-76. EPA-540-R-03-008. November 2003.
 USEPA. 2002. Blood Lead Concentrations of U.S. Adult Females: Summary Statistics From Phases 1 and 2 of the National Health and Nutrition Evaluation Survey (NHANES III). OSWER #9285.7-52. March 2002.
 USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

Table 1b. Adult Lead Model (ALM) for Evaluation of Lead Risks for Commercial Workers Exposed to Site-Related Soil
 Baseline Human Health Risk Assessment
 Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Calculations of Blood Lead Concentrations (PbBs)

Exposure Variable	Description	Units	Commercial Workers				
			Nunes Parcel Surface Soil ^[1]	Quinnville Well Field Surface Soil ^[1,2]	RIDEM Soil Removal Area, Surface Soil ^[1,3]	RIDEM Soil Removal Area, All Soil ^[2,4]	Nunes Parcel Surface and Subsurface Soil ^[2]
PbS	Soil lead concentration (arithmetic mean) ^[a]	mg/kg or ppm	239	142	1790	2050	270
$R_{\text{fetal/maternal}}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	2.01	2.01	2.01	2.01	2.01
PbB_0	Baseline PbB	µg/dL	1.9	1.9	1.9	1.9	1.9
IR_s	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050	0.050
AF	Absorption fraction (Pb in soil and dust)	--	0.12	0.12	0.12	0.12	0.12
EF	Exposure frequency, Pb pathway	days/yr	219	219	219	219	219
AT	Averaging time, Pb pathway	days/yr	365	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	2.2	2.1	4.5	4.9	2.3
$PbB_{\text{fetal}, 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	6.4	6.0	12.7	13.8	6.5
PbB_t	Target PbB level of concern	µg/dL	10.0	10.0	10.0	10.0	10.0
$P(PbB_{\text{fetal}} > PbB_t)$	Probability that fetal PbB > PbB_t , assuming lognormal distribution	%	1.1%	0.9%	9.6%	11.8%	1.2%

Notes:

ALM Version date 5/19/05

[1] Current scenario, as indicated in Table 1 of the baseline HHRA.

[2] Future scenario, as indicated in Table 1 of the baseline HHRA.

[3] Per USEPA's request, the RIDEM soil removal area was evaluated using only three soil samples, only one of which (SO-033-NP) was surficial (0 - 1 foot below ground surface). Therefore, the surface soil PbS for the soil removal area represents one sampling point rather than an arithmetic mean of several sampling points.

[4] Per USEPA's request, the RIDEM soil removal area was evaluated using only three soil samples.

[a] Per USEPA's request, arithmetic means were calculated using one-half the laboratory detection limit for non-detects.

Table 1c. Adult Lead Model (ALM) for Evaluation of Lead Risks for Construction Workers Exposed to Site-Related Soil and Shallow Groundwater
 Baseline Human Health Risk Assessment
 Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Calculations of Blood Lead Concentrations (PbBs)

Exposure Variable	Description	Units	Construction Workers				
			Site-Wide Shallow Groundwater ^[1]	Quinnville Well Field Surface Soil ^[1]	Southern Bank Surface Soil ^[1]	RIDEM Soil Removal Area, All Soil ^[1,2]	Nunes Parcel Surface and Subsurface Soil ^[1]
PbS	Lead concentration in medium of interest (arithmetic mean) ^[a]	ppm	0.0030	142	168	2050	270
R _{fetal/maternal}	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4	0.4
GSD _i	Geometric standard deviation PbB	--	2.01	2.01	2.01	2.01	2.01
PbB ₀	Baseline PbB	µg/dL	1.9	1.9	1.9	1.9	1.9
IR _{s,w}	Ingestion rate (soil, groundwater)	g/day	0.050	0.330	0.330	0.330	0.330
AF	Absorption fraction (Pb in soil, dust, and groundwater)	--	0.12	0.12	0.12	0.12	0.12
EF	Exposure frequency, Pb pathway	days/yr	62	62	62	62	62
AT	Averaging time, Pb pathway	days/yr	84	84	84	84	84
PbB _{adult}	PbB of adult worker, geometric mean	µg/dL	1.9	3.6	3.9	25.9	5.1
PbB _{fetal, 0.95}	95th percentile PbB among fetuses of adult workers	µg/dL	5.4	10.1	11.0	73.4	14.4
PbB _i	Target PbB level of concern	µg/dL	10.0	10.0	10.0	10.0	10.0
P(PbB _{fetal} > PbB _i)	Probability that fetal PbB > PbB _i , assuming lognormal distribution	%	0.6%	5.2%	6.5%	88.7%	13.0%

Notes:

ALM Version date 5/19/05

[1] Future scenario, as indicated in Table 1 of the baseline HHRA.

[a] Per USEPA's request, arithmetic means were calculated using one-half the laboratory detection limit for non-detects.

Table 1d. Adult Lead Model (ALM) for Evaluation of Lead Risks for Adult Recreational Users Exposed to Site-Related Soil and Sediment
Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Calculations of Blood Lead Concentrations (PbBs)

Exposure Variable	Description	Units	Adult Recreational Users										
			Southern Bank Surface Soil ^[1,2]	Southern Bank Sediment ^[1,2]	Nunes Parcel Surface and Subsurface Soil ^[2]	Downstream of Landfill Sediment ^[2,3]	Quinnville Well Field Surface Soil ^[2]	Upstream of Landfill Sediment ^[2,4]	Debris Fields Surface Soil ^[2]	Wetlands Sediment ^[2]	RIDEM Soil Removal Area, All Soil ^[1,5]	Landfill Surface Soil ^[2]	Adjacent to Landfill Sediment ^[2,6]
PbS	Lead concentration in media of interest (arithmetic mean) ^[a]	mg/kg or ppm	168	41	270	105	142	76	154	71	2050	201	71
R _{fetal/maternal}	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
GSD _i	Geometric standard deviation PbB	--	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
PbB ₀	Baseline PbB	µg/dL	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
IR _s	Soil/sediment ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
AF	Absorption fraction (Pb in soil, dust, and sediment)	--	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
EF	Exposure frequency, Pb pathway	days/yr	2	2	2	2	2	2	2	2	2	2	2
AT	Averaging time, Pb pathway	days/yr	7	7	7	7	7	7	7	7	7	7	7
PbB _{adult}	PbB of adult recreational user, geometric mean	µg/dL	2.0	1.9	2.1	2.0	2.0	2.0	2.0	1.9	3.3	2.0	1.9
PbB _{95th}	95th percentile PbB among fetuses of adults	µg/dL	5.7	5.5	5.9	5.6	5.7	5.5	5.7	5.5	9.4	5.8	5.5
PbB _i	Target PbB level of concern	µg/dL	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
P(PbB _{95th} > PbB _i)	Probability that fetal PbB > PbB _i , assuming lognormal distribution	%	0.7%	0.6%	0.8%	0.7%	0.7%	0.6%	0.7%	0.6%	4.1%	0.8%	0.6%

Notes:
ALM Version date 5/19/05
[1] Current scenario, as indicated in Table 1 of the baseline HHRA.
[2] Future scenario, as indicated in Table 1 of the baseline HHRA.
[3] Sediment data represent those collected from the Blackstone River, downstream of the landfill.
[4] Sediment data represent those collected from the Blackstone River, upstream of the landfill.
[5] Per USEPA's request, the RIDEM soil removal area was evaluated using only three soil samples.
[6] Sediment data represent those collected from the Blackstone River, adjacent to the landfill.
[a] Per USEPA's request, arithmetic means were calculated using one-half the laboratory detection limit for non-detects.

Table 1e. Adult Lead Model (ALM) for Evaluation of Lead Risks for Older Child Recreational Users Exposed to Site-Related Soil and Sediment
Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Calculations of Blood Lead Concentrations (PbBs)

Exposure Variable	Description	Units	Older Child Recreational Users										
			Southern Bank Surface Soil ^[1,2]	Southern Bank Sediment ^[1,2]	Nunes Parcel Surface and Subsurface Soil ^[2]	Downstream of Landfill Sediment ^[2,3]	Quinnville Well Field Surface Soil ^[2]	Upstream of Landfill Sediment ^[2,4]	Debris Fields Surface Soil ^[2]	Wetlands Sediment ^[2]	RIDEM Soil Removal Area, All Soil ^[1,5]	Landfill Surface Soil ^[2]	Adjacent to Landfill Sediment ^[2,6]
PbS	Lead concentration in media of interest (arithmetic mean) ^[a]	mg/kg or ppm	168	41	270	105	142	76	154	71	2050	201	71
R _{fetal/maternal}	Fetal/maternal PbB ratio	--	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
GSD _i	Geometric standard deviation PbB	--	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
PbB ₀	Baseline PbB	µg/dL	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
IR _s	Soil/sediment ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
AF	Absorption fraction (Pb in soil, dust, and sediment)	--	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
EF	Exposure frequency, Pb pathway	days/yr	2	2	2	2	2	2	2	2	2	2	2
AT	Averaging time, Pb pathway	days/yr	7	7	7	7	7	7	7	7	7	7	7
PbB _{adult}	PbB of older child recreational user, geometric mean	µg/dL	2.0	1.9	2.1	2.0	2.0	2.0	2.0	1.9	3.3	2.0	1.9
PbB _{fetal, 0.95}	95th percentile PbB among fetuses of adults	µg/dL	--	--	--	--	--	--	--	--	--	--	--
PbB _i	Target PbB level of concern	µg/dL	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
P(PbB _{fetal} > PbB _i)	Probability that fetal PbB > PbB _i , assuming lognormal distribution	%	--	--	--	--	--	--	--	--	--	--	--

Notes:
ALM Version date 5/19/05
[1] Current scenario, as indicated in Table 1 of the baseline HHRA.
[2] Future scenario, as indicated in Table 1 of the baseline HHRA.
[3] Sediment data represent those collected from the Blackstone River, downstream of the landfill.
[4] Sediment data represent those collected from the Blackstone River, upstream of the landfill.
[5] Per USEPA's request, the RIDEM soil removal area was evaluated using only three soil samples.
[6] Sediment data represent those collected from the Blackstone River, adjacent to the landfill.
[a] Per USEPA's request, arithmetic means were calculated using one-half the laboratory detection limit for non-detects.

Table 1f. Adult Lead Model (ALM) for Evaluation of Lead Risks for Adolescent Trespassers Exposed to Site-Related Soil and Sediment
Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Calculations of Blood Lead Concentrations (PbBs)

Exposure Variable	Description	Units	Adolescent Trespassers									
			Nunes Parcel Surface Soil ^[1]	Downstream of Landfill Sediment ^[1,2]	Quinnville Well Field Surface Soil ^[1]	Debris Fields Surface Soil ^[1]	Upstream of Landfill Sediment ^[1,3]	Southern Bank Sediment ^[1,4]	Wetlands Sediment ^[1]	RIDEM Soil Removal Area, Surface Soil ^[1,5]	Landfill Surface Soil ^[1]	Adjacent to Landfill Sediment ^[1,6]
PbS	Lead concentration in media of interest (arithmetic mean) ^[6]	mg/kg or ppm	239	105	142	154	76	41	71	1790	201	71
R _{fetal/maternal}	Fetal/maternal PbB ratio	--	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
GSD _i	Geometric standard deviation PbB	--	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
PbB ₀	Baseline PbB	µg/dL	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
IR _s	Soil/sediment ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
AF	Absorption fraction (Pb in soil, dust, and sediment)	--	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
EF	Exposure frequency, Pb pathway	days/yr	2	2	2	2	2	2	2	2	2	2
AT	Averaging time, Pb pathway	days/yr	7	7	7	7	7	7	7	7	7	7
PbB _{adult}	PbB of adolescent trespasser, geometric mean	µg/dL	2.1	2.0	2.0	2.0	2.0	1.9	1.9	3.1	2.0	1.9
PbB _{fetal, 0.95}	95th percentile PbB among fetuses of adults	µg/dL	--	--	--	--	--	--	--	--	--	--
PbB _i	Target PbB level of concern	µg/dL	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
P(PbB _{fetal} > PbB _i)	Probability that fetal PbB > PbB _i , assuming lognormal distribution	%	--	--	--	--	--	--	--	--	--	--

Notes:
 ALM Version date 5/19/05
 [1] Current scenario, as indicated in Table 1 of the baseline HHRA.
 [2] Sediment data represent those collected from the Blackstone River, downstream of the landfill.
 [3] Sediment data represent those collected from the Blackstone River, upstream of the landfill.
 [4] Sediment data represent those collected from the backwater area of Blackstone River and Pond F.
 [5] Per USEPA's request, the RIDEM soil removal area was evaluated using only three soil samples, only one of which (SO-033-NP) was surficial (0 - 1 foot below ground surface). Therefore, the surface soil PbS for the soil removal area represents one sampling point rather than an arithmetic mean of several sampling points.
 [6] Sediment data represent those collected from the Blackstone River, adjacent to the landfill.
 [a] Per USEPA's request, arithmetic means were calculated using one-half the laboratory detection limit for non-detects.

Table 1g. Adult Lead Model (ALM) for Evaluation of Lead Risks for Adult Angler Exposed to Edible Fish Tissue
Baseline Human Health Risk Assessment
Peterson Puritan (OU2), Cumberland and Lincoln, Rhode Island

Calculations of Blood Lead Concentrations (PbBs)

Exposure Variable	Description	Units	Adult Angler		
			OU2 Fish Fillets ^[1,2]	BR-1 Fish Fillets ^[1,2]	BR-2 Fish Fillets ^[1,2]
PbS	Fish (fillet) tissue lead concentration (arithmetic mean) ^[a]	mg/kg or ppm	0.01	0.01	0.006
R _{fetal/maternal}	Fetal/maternal PbB ratio	--	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	μg/dL per μg/day	0.4	0.4	0.4
GSD _i	Geometric standard deviation PbB	--	2.01	2.01	2.01
PbB ₀	Baseline PbB	μg/dL	1.9	1.9	1.9
IR _s	Fish ingestion rate	g/day	8.9	8.9	8.9
AF	Absorption fraction (food)	--	0.12	0.12	0.12
EF	Exposure frequency, Pb pathway	days/yr	365	365	365
AT	Averaging time, Pb pathway	days/yr	365	365	365
PbB _{adult}	PbB of adult angler, geometric mean	μg/dL	1.9	1.9	1.9
PbB _{fetal, 0.95}	95th percentile PbB among fetuses of adult anglers	μg/dL	5.4	5.4	5.4
PbB _t	Target PbB level of concern	μg/dL	10.0	10.0	10.0
P(PbB _{fetal} > PbB _t)	Probability that fetal PbB > PbB _t , assuming lognormal distribution	%	0.6%	0.6%	0.6%

Notes:

ALM Version date 5/19/05

[1] Current scenario, as indicated in Table 1 of the baseline HHRA.

[2] Future scenario, as indicated in Table 1 of the baseline HHRA.

[a] Per USEPA's request, arithmetic means were calculated using one-half the laboratory detection limit for non-detects.

Table 2a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK)
Model for Evaluation of Residential Lead Risks Associated with Site-Related Groundwater
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child ^[1,2] (Resident)

Parameter	Value	Units
Indoor air lead concentration (% of outdoor)	30 [a]	%
AIR (by year)		
Air Concentration		
Age (years) = 0 - 1	0.10 [a]	µg/m ³
1 - 2	0.10 [a]	µg/m ³
2 - 3	0.10 [a]	µg/m ³
3 - 4	0.10 [a]	µg/m ³
4 - 5	0.10 [a]	µg/m ³
5 - 6	0.10 [a]	µg/m ³
6 - 7	0.10 [a]	µg/m ³
Time Outdoors		
Age (years) = 0 - 1	1 [a]	hours/day
1 - 2	2 [a]	hours/day
2 - 3	3 [a]	hours/day
3 - 7	4 [a]	hours/day
Ventilation Rate		
Age (years) = 0 - 1	2 [a]	m ³ /day
1 - 2	3 [a]	m ³ /day
2 - 5	5 [a]	m ³ /day
5 - 7	7 [a]	m ³ /day
Lung Absorption	32 [a]	%
DIET (by year)		
Dietary Lead Intake		
Age (years) = 0 - 1	3.16 [b]	µg Pb/day
1 - 2	2.60 [b]	µg Pb/day
2 - 3	2.87 [b]	µg Pb/day
3 - 4	2.74 [b]	µg Pb/day
4 - 5	2.61 [b]	µg Pb/day
5 - 6	2.74 [b]	µg Pb/day
6 - 7	2.99 [b]	µg Pb/day
ALTERNATE DIET SOURCES (by food class)		
Concentration:		
home-grown fruits	0 [a]	µg Pb/g
home-grown vegetables	0 [a]	µg Pb/g
fish from fishing	0 [a]	µg Pb/g
game animals from hunting	0 [a]	µg Pb/g

**Table 2a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK)
Model for Evaluation of Residential Lead Risks Associated with Site-Related Groundwater
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island**

Receptor Scenario: Young Child ^[1,2] (Resident)

Parameter	Value	Units
ALTERNATE DIET SOURCES (by food class) (continued)		
Percent of food class:		
home-grown fruits	0 [a]	%
home-grown vegetables	0 [a]	%
fish from fishing	0 [a]	%
game animals from hunting	0 [a]	%
DRINKING WATER		
Lead Concentration in drinking water	2.17 [c]	µg/L
Ingestion rate:		
Age (years) = 0 - 1	0.20 [a]	L/day
1 - 2	0.50 [a]	L/day
2 - 3	0.52 [a]	L/day
3 - 4	0.53 [a]	L/day
4 - 5	0.55 [a]	L/day
5 - 6	0.58 [a]	L/day
6 - 7	0.59 [a]	L/day
SOIL/DUST INGESTION		
Concentration:		
soil	101.2 [d]	µg/g
dust	101.2 [d]	µg/g
Soil/dust ingestion weighting factor (% soil)	45 [a]	%
Soil/dust ingestion:		
Age (years) = 0 - 1	0.085 [a]	g/day
1 - 4	0.135 [a]	g/day
4 - 5	0.100 [a]	g/day
5 - 6	0.090 [a]	g/day
6 - 7	0.085 [a]	g/day
SOIL/DUST MULTIPLE SOURCE ANALYSIS		
Fraction of indoor dust lead attributable to soil	0.70 [a]	unitless
Ratio of dust lead concentration to outdoor air lead concentration	100 [a]	µg Pb/g dust per µg Pb/m ³ air
BIOAVAILABILITY FOR GUT ABSORPTION PATHWAYS		
Total lead absorption (at low intake):		
diet	50 [a]	%
drinking water	50 [a]	%
soil	30 [a]	%
dust	30 [a]	%
alternate source	0 [a]	%
Fraction of total net absorption at low intake rate that is attributable to non-saturable (passive) processes	0.2 [a]	unitless

**Table 2a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK)
Model for Evaluation of Residential Lead Risks Associated with Site-Related Groundwater
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island**

Receptor Scenario: Young Child ^[1,2] (Resident)

Parameter	Value	Units
ALTERNATE SOURCES OF LEAD		
Total lead intake:		
Age (years) = 0 - 1	0 [a]	µg/day
1 - 2	0 [a]	µg/day
2 - 3	0 [a]	µg/day
3 - 4	0 [a]	µg/day
4 - 5	0 [a]	µg/day
5 - 6	0 [a]	µg/day
6 - 7	0 [a]	µg/day
MATERNAL-TO-NEWBORN LEAD EXPOSURE		
Mothers blood lead concentration at childbirth	2.5 [a]	µg/dL
PLOTING AND RISK ESTIMATION		
Geometric standard deviation (GSD) for blood lead	1.6 [a]	unitless
Blood lead level of concern	10 [a]	µg/dL
COMPUTATION OPTIONS		
Iteration time step for numerical integration	4 [a]	hours

Notes:

- [1] Young child = 0 - 7 years of age (0 - 84 months)
- [2] Assumes exposure to site-specific groundwater concentrations of lead via ingestion from a potable source
- [3] The IEUBK model (USEPA, 2002) does not allow for a quantitative evaluation of dermal exposures to lead in groundwater presumably due to the uncertainty in assigning a dermal absorption fraction that would apply to the numerous inorganic forms of lead that are typically found in environmental settings.
- [a] Default value (USEPA, 2002).
- [b] Defaults in IEUBK model represent U.S. Food and Drug Administration (FDA) data collected in the late 1980s. More recent FDA (2001) data are presented. Source: FDA (2001) Total Diet Study. U. S. Food and Drug Administration Center for Food Safety and Applied Nutrition Office of Plant and Dairy Foods and Beverages. June 2001. Available online at The U.S. Food and Drug Administration Center for Food Safety and Applied Nutrition Web site. (<http://www.cfsan.fda.gov/~comm/tdstoc.html>).
- [c] Groundwater concentration represents arithmetic mean of site data.
- [d] Background soil concentrations of lead represent arithmetic mean of Mackland Farms soils data (samples)

References:

USEPA. 2002. User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK). Office of Solid Waste and Emergency Response. EPA-540-K-01-005. OSWER #9285.7-42. May 2002.

Table 2b: IEUBK Model for Exposure of Young Child Residents to Site-Wide Groundwater

LEAD MODEL FOR WINDOWS Version 1.0

```
=====
Model Version: 1.0 Build 264
User Name: Serese Marotta
Date: 06/12/2008
Site Name: Peterson Puritan
Operable Unit: OU2
Run Mode: Site Risk Assessment
=====
```

```
-----
# Diet Data
FDA (2001) data
# Water Data
Arithmetic mean of site data.
# Soil/Dust Data
Soil and dust concentration represent arithmetic mean of Mackland Farms soils
data.
# GSD, Cutoff and Age Type
# GSD, Cutoff and Age Type
=====
```

The time step used in this model run: 1 - Every 4 Hours (6 times a day).

***** Air *****

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m ³ /day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m ³)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

***** Diet *****

Age	Diet Intake(ug/day)
.5-1	3.160
1-2	2.600
2-3	2.870
3-4	2.740
4-5	2.610
5-6	2.740
6-7	2.990

***** Drinking Water *****

Water Consumption:

Age	Water (L/day)

.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 2.170 ug Pb/L

***** Soil & Dust *****

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	101.000	101.000
1-2	101.000	101.000
2-3	101.000	101.000
3-4	101.000	101.000
4-5	101.000	101.000
5-6	101.000	101.000
6-7	101.000	101.000

***** Alternate Intake *****

Age	Alternate (ug Pb/day)

.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

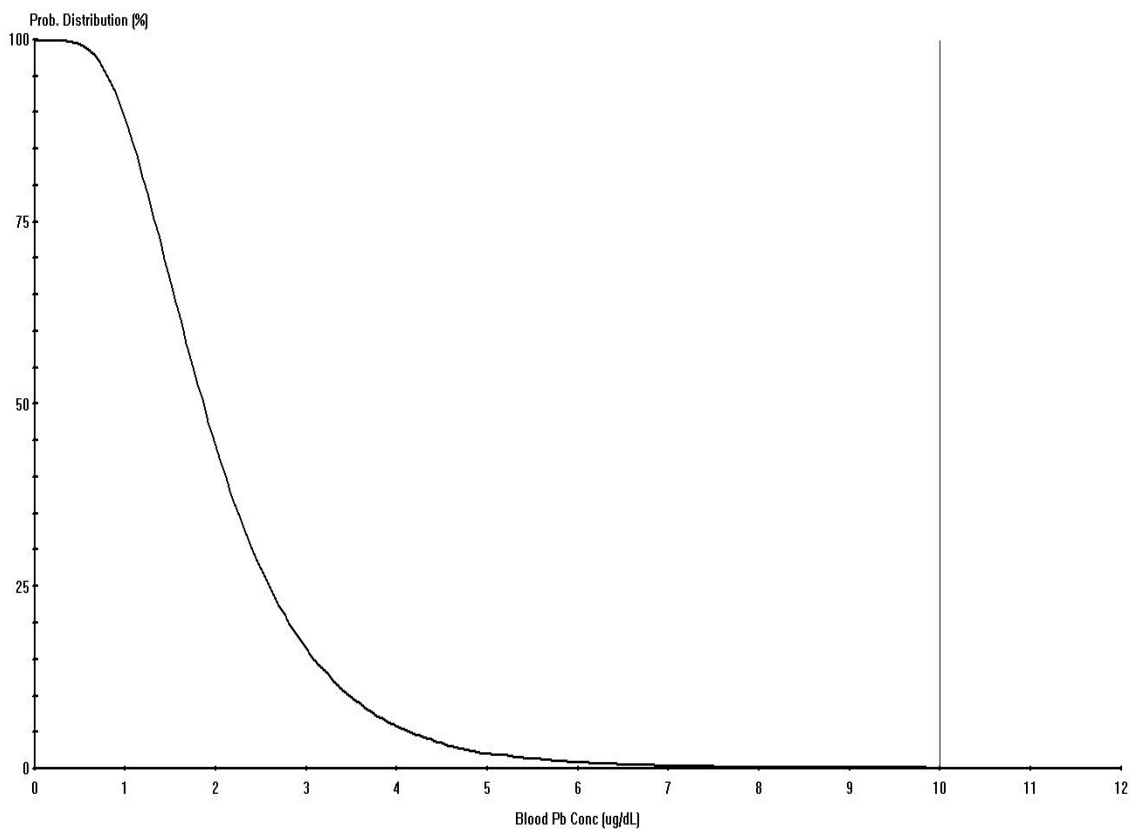
***** Maternal Contribution: Infant Model *****

Maternal Blood Concentration: 2.500 ug Pb/dL

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	1.507	0.000	0.207
1-2	0.034	1.237	0.000	0.516
2-3	0.062	1.374	0.000	0.540
3-4	0.067	1.320	0.000	0.554
4-5	0.067	1.271	0.000	0.581
5-6	0.093	1.340	0.000	0.615
6-7	0.093	1.465	0.000	0.627

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	2.456	4.191	2.3
1-2	3.894	5.682	2.4
2-3	3.917	5.894	2.2
3-4	3.943	5.884	2.1
4-5	2.952	4.871	1.7
5-6	2.667	4.715	1.5
6-7	2.523	4.709	1.4



Cutoff = 10.000 ug/dl
Geo Mean = 1.955
GSD = 1.600
% Above = 0.026

Age Range = 0 to 84 months
Time Step = Every 4 Hours
Run Mode = Site Risk Assessment

**Table 3a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK)
Model for Evaluation of Lead Risks Associated with Consumption of Fish Tissue**
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child ^[1,2] (Angler)

Parameter	Value	Units
Indoor air lead concentration (% of outdoor)	30 [a]	%
AIR (by year)		
Air Concentration		
Age (years) = 0 - 1	0.10 [a]	µg/m ³
1 - 2	0.10 [a]	µg/m ³
2 - 3	0.10 [a]	µg/m ³
3 - 4	0.10 [a]	µg/m ³
4 - 5	0.10 [a]	µg/m ³
5 - 6	0.10 [a]	µg/m ³
6 - 7	0.10 [a]	µg/m ³
Time Outdoors		
Age (years) = 0 - 1	1 [a]	hours/day
1 - 2	2 [a]	hours/day
2 - 3	3 [a]	hours/day
3 - 7	4 [a]	hours/day
Ventilation Rate		
Age (years) = 0 - 1	2 [a]	m ³ /day
1 - 2	3 [a]	m ³ /day
2 - 5	5 [a]	m ³ /day
5 - 7	7 [a]	m ³ /day
Lung Absorption	32 [a]	%
DIET (by year)		
Dietary Lead Intake		
Age (years) = 0 - 1	3.16 [b]	µg Pb/day
1 - 2	2.60 [b]	µg Pb/day
2 - 3	2.87 [b]	µg Pb/day
3 - 4	2.74 [b]	µg Pb/day
4 - 5	2.61 [b]	µg Pb/day
5 - 6	2.74 [b]	µg Pb/day
6 - 7	2.99 [b]	µg Pb/day
ALTERNATE DIET SOURCES (by food class)		
Concentration:		
home-grown fruits	0 [a]	µg Pb/g
home-grown vegetables	0 [a]	µg Pb/g
fish from fishing	0 [a]	µg Pb/g
game animals from hunting	0 [a]	µg Pb/g
Percent of food class:		
home-grown fruits	0 [a]	%
home-grown vegetables	0 [a]	%
fish from fishing	0 [a]	%
game animals from hunting	0 [a]	%
ALTERNATE INTAKE (Fish Ingestion)		

**Table 3a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK)
Model for Evaluation of Lead Risks Associated with Consumption of Fish Tissue**
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child ^[1,2] (Angler)

Parameter	Value	Units
Ingestion rate:		
Age (years) = 0 - 1	see Table 4	µg Pb/day
1 - 2	see Table 4	µg Pb/day
2 - 3	see Table 4	µg Pb/day
3 - 4	see Table 4	µg Pb/day
4 - 5	see Table 4	µg Pb/day
5 - 6	see Table 4	µg Pb/day
6 - 7	see Table 4	µg Pb/day
DRINKING WATER		
Lead Concentration in drinking water	4 [a]	µg/L
Ingestion rate:		
Age (years) = 0 - 1	0.20 [a]	L/day
1 - 2	0.50 [a]	L/day
2 - 3	0.52 [a]	L/day
3 - 4	0.53 [a]	L/day
4 - 5	0.55 [a]	L/day
5 - 6	0.58 [a]	L/day
6 - 7	0.59 [a]	L/day
SOIL/DUST INGESTION		
Concentration:		
soil	101.2 [c]	µg/g
dust	101.2 [c]	µg/g
Soil/dust ingestion weighting factor (% soil)	45 [a]	%
Soil/dust ingestion:		
Age (years) = 0 - 1	0.085 [a]	g/day
1 - 4	0.135 [a]	g/day
4 - 5	0.100 [a]	g/day
5 - 6	0.090 [a]	g/day
6 - 7	0.085 [a]	g/day
SOIL/DUST MULTIPLE SOURCE ANALYSIS		
Fraction of indoor dust lead attributable to soil	0.70 [a]	unitless
Ratio of dust lead concentration to outdoor air lead concentration	100 [a]	µg Pb/g dust per µg Pb/m ³ air
BIOAVAILABILITY FOR GUT ABSORPTION PATHWAYS		
Total lead absorption (at low intake):		
diet	50 [a]	%
drinking water	50 [a]	%
soil	30 [a]	%
dust	30 [a]	%
alternate source	50 [d]	%

**Table 3a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK)
Model for Evaluation of Lead Risks Associated with Consumption of Fish Tissue**
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child ^[1,2] (Angler)

Parameter	Value	Units
BIOAVAILABILITY FOR GUT ABSORPTION PATHWAYS (continued)		
Fraction of total net absorption at low intake rate that is attributable to non-saturable (passive) processes	0.2 [a]	unitless
ALTERNATE SOURCES OF LEAD		
Total lead intake:		
Age (years) = 0 - 1	0 [a]	µg/day
1 - 2	0 [a]	µg/day
2 - 3	0 [a]	µg/day
3 - 4	0 [a]	µg/day
4 - 5	0 [a]	µg/day
5 - 6	0 [a]	µg/day
6 - 7	0 [a]	µg/day
MATERNAL-TO-NEWBORN LEAD EXPOSURE		
Mothers blood lead concentration at childbirth	2.5 [a]	µg/dL
PLOTING AND RISK ESTIMATION		
Geometric standard deviation (GSD) for blood lead	1.6 [a]	unitless
Blood lead level of concern	10 [a]	µg/dL
COMPUTATION OPTIONS		
Iteration time step for numerical integration	4 [a]	hours

Notes:

- [1] Young child = 0 - 7 years of age (0 - 84 months)
 [2] Assumes exposure to lead via consumption of edible fish tissue.
 [a] Default value (USEPA, 2002).
 [b] Defaults in IEUBK model represent U.S. Food and Drug Administration (FDA) data collected in the late 1980s. More recent FDA (2001) data are presented. Source: FDA (2001) Total Diet Study. U. S. Food and Drug Administration Center for Food Safety and Applied Nutrition Office of Plant and Dairy Foods and Beverages. June 2001. Available online at The U.S. Food and Drug Administration Center for Food
 [c] Background soil concentrations of lead represent arithmetic mean of Mackland Farms soils data (samples)
 [d] Bioavailability for fish ingestion would be the same as that for diet.

References:

USEPA. 2007. Frequent Questions from Risk Assessors on the IEUBK Model. Accessed on-line 4/24/08 at <http://www.epa.gov/superfund/health/contaminants/lead/ieubkfaq.htm>. Updated August 24, 2007.
 USEPA. 2002. User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK). Office of Solid Waste and Emergency Response. EPA-540-K-01-005. OSWER #9285.7-42. May 2002.

Table 3b: IEUBK Model for Consumption of OU2 Fish by Young Child Angler

LEAD MODEL FOR WINDOWS Version 1.0

```
=====
Model Version: 1.0 Build 264
User Name: Serese Marotta
Date: 06/12/2008
Site Name: Peterson Puritan
Operable Unit: OU2
Run Mode: Site Risk Assessment
-----
```

```
# Diet Data
FDA (2001) data
# Alternate Source Data
OU2 fish intake
# Soil/Dust Data
Arithmetic mean of Mackland Farms soils data.
# GI Values + Bioavailability Data
Bioavailability for fish ingestion.
```

```
=====
The time step used in this model run: 1 - Every 4 Hours (6 times a day).
```

***** Air *****

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m ³ /day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m ³)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

***** Diet *****

Age	Diet Intake(ug/day)
.5-1	3.160
1-2	2.600
2-3	2.870
3-4	2.740
4-5	2.610
5-6	2.740
6-7	2.990

***** Drinking Water *****

Water Consumption:

Age	Water (L/day)

.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

***** Soil & Dust *****

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	101.200	101.200
1-2	101.200	101.200
2-3	101.200	101.200
3-4	101.200	101.200
4-5	101.200	101.200
5-6	101.200	101.200
6-7	101.200	101.200

***** Alternate Intake *****

Age	Alternate (ug Pb/day)

.5-1	0.036
1-2	0.100
2-3	0.110
3-4	0.120
4-5	0.130
5-6	0.130
6-7	0.150

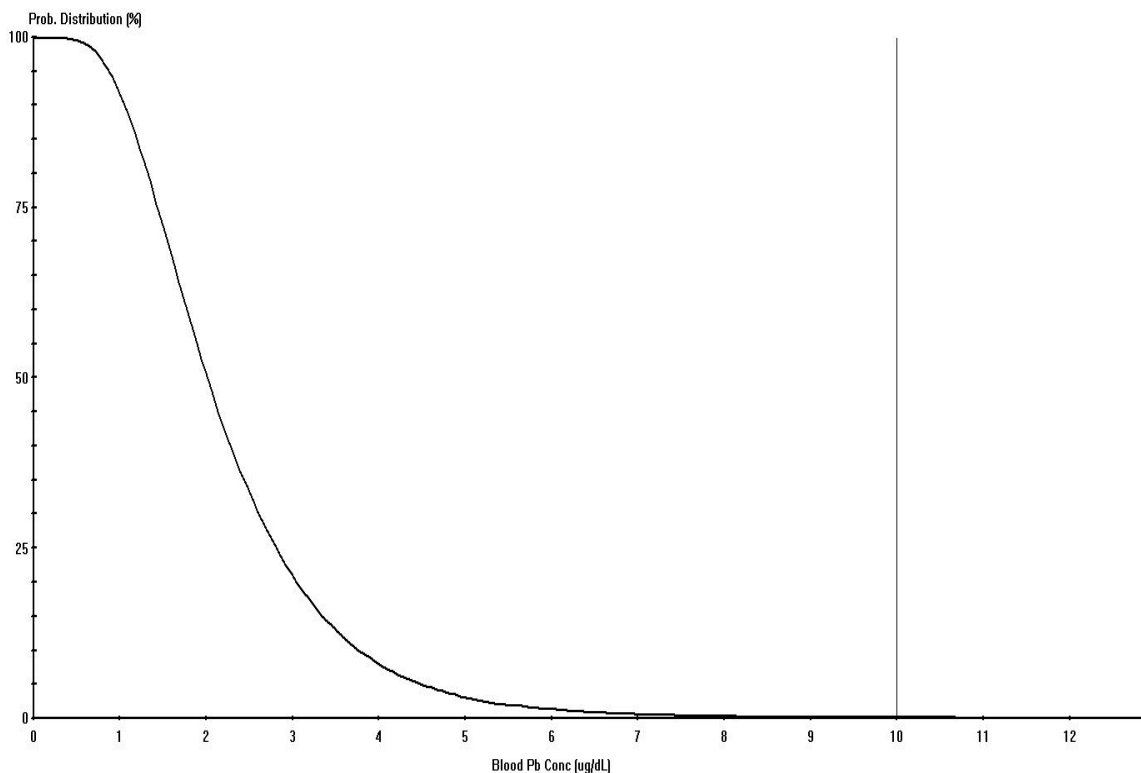
***** Maternal Contribution: Infant Model *****

Maternal Blood Concentration: 2.500 ug Pb/dL

 CALCULATED BLOOD LEAD AND LEAD UPTAKES:

Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	1.504	0.017	0.381
1-2	0.034	1.232	0.047	0.948
2-3	0.062	1.369	0.052	0.992
3-4	0.067	1.316	0.058	1.018
4-5	0.067	1.267	0.063	1.068
5-6	0.093	1.336	0.063	1.131
6-7	0.093	1.461	0.073	1.153

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	2.456	4.379	2.4
1-2	3.885	6.147	2.6
2-3	3.911	6.387	2.4
3-4	3.938	6.396	2.3
4-5	2.949	5.414	1.9
5-6	2.665	5.289	1.7
6-7	2.522	5.302	1.5



Cutoff = 10.000 ug/dl
 Geo Mean = 2.118
 GSD = 1.600
 % Above = 0.048

Age Range = 0 to 84 months
 Time Step = Every 4 Hours
 Run Mode = Site Risk Assessment

Table 3c: IEUBK Model for Consumption of BR1 Fish by Young Child Anglers

LEAD MODEL FOR WINDOWS Version 1.0

```
=====
Model Version: 1.0 Build 264
User Name: Serese Marotta
Date: 06/12/2008
Site Name: Peterson Puritan
Operable Unit: OU2
Run Mode: Site Risk Assessment
-----
```

```
# Diet Data
FDA (2001) data
# GI Values + Bioavailability Data
Bioavailability for fish ingestion
# Alternate Source Data
BR1 fish intake
# Soil/Dust Data
Arithmetic mean of Mackland Farms soils data.
# GI Values + Bioavailability Data
```

```
=====
The time step used in this model run: 1 - Every 4 Hours (6 times a day).
```

***** Air *****

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m ³ /day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m ³)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

***** Diet *****

Age	Diet Intake(ug/day)
.5-1	3.160
1-2	2.600
2-3	2.870
3-4	2.740
4-5	2.610
5-6	2.740
6-7	2.990

***** Drinking Water *****

Water Consumption:

Age	Water (L/day)

.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

***** Soil & Dust *****

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	101.200	101.200
1-2	101.200	101.200
2-3	101.200	101.200
3-4	101.200	101.200
4-5	101.200	101.200
5-6	101.200	101.200
6-7	101.200	101.200

***** Alternate Intake *****

Age	Alternate (ug Pb/day)

.5-1	0.038
1-2	0.110
2-3	0.120
3-4	0.130
4-5	0.140
5-6	0.140
6-7	0.160

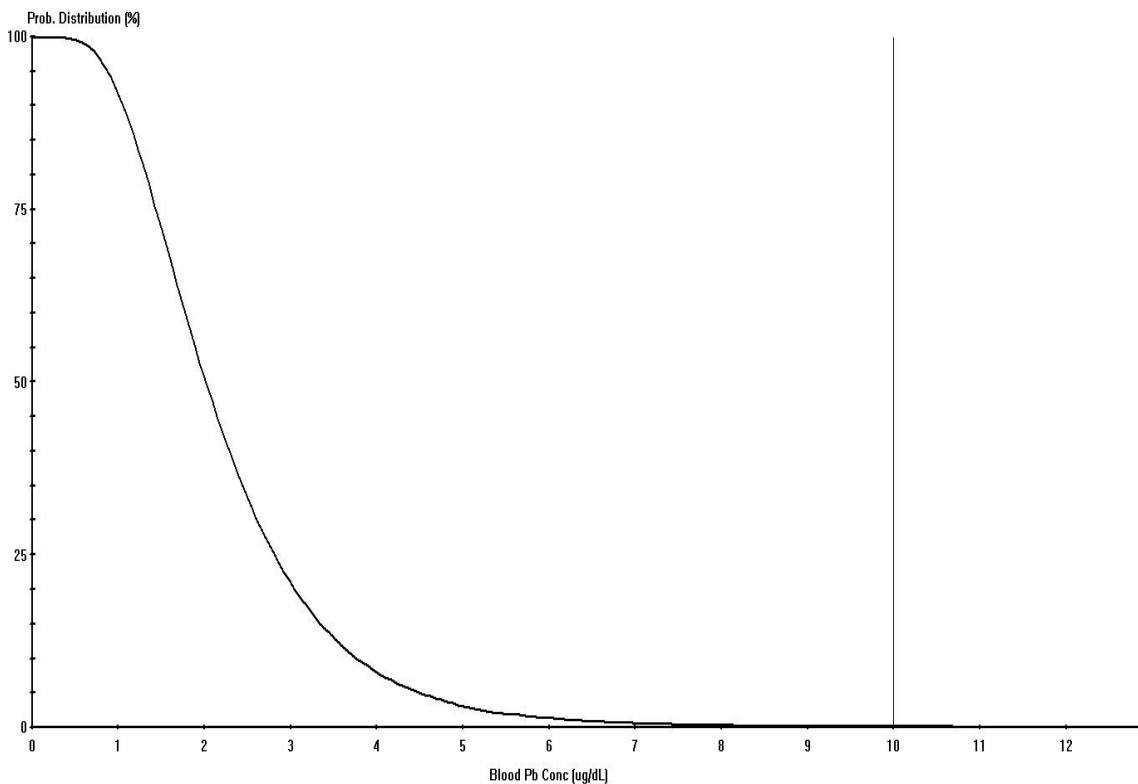
***** Maternal Contribution: Infant Model *****

Maternal Blood Concentration: 2.500 ug Pb/dL

 CALCULATED BLOOD LEAD AND LEAD UPTAKES:

Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	1.504	0.018	0.381
1-2	0.034	1.232	0.052	0.948
2-3	0.062	1.369	0.057	0.992
3-4	0.067	1.316	0.062	1.018
4-5	0.067	1.267	0.068	1.068
5-6	0.093	1.336	0.068	1.131
6-7	0.093	1.461	0.078	1.153

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	2.456	4.379	2.4
1-2	3.885	6.152	2.6
2-3	3.910	6.391	2.4
3-4	3.937	6.401	2.3
4-5	2.949	5.419	1.9
5-6	2.665	5.293	1.7
6-7	2.522	5.307	1.5



Cutoff = 10.000 ug/dL
 Geo Mean = 2.119
 GSD = 1.600
 % Above = 0.048

Age Range = 0 to 84 months
 Time Step = Every 4 Hours
 Run Mode = Site Risk Assessment

Table 3d: IEUBK Model for Consumption of BR2 Fish by Young Child Anglers

LEAD MODEL FOR WINDOWS Version 1.0

```
=====
Model Version: 1.0 Build 264
User Name: Serese Marotta
Date: 06/12/2008
Site Name: Peterson Puritan
Operable Unit: OU2
Run Mode: Site Risk Assessment
-----
```

```
# Diet Data
FDA (2001) data
# GI Values + Bioavailability Data
Bioavailability for fish ingestion
# Alternate Source Data
BR2 fish intake
# Soil/Dust Data
Arithmetic mean of Mackland Farms soils data.
```

```
=====
The time step used in this model run: 1 - Every 4 Hours (6 times a day).
```

***** Air *****

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m ³ /day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m ³)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

***** Diet *****

Age	Diet Intake(ug/day)
.5-1	3.160
1-2	2.600
2-3	2.870
3-4	2.740
4-5	2.610
5-6	2.740
6-7	2.990

***** Drinking Water *****

Water Consumption:

Age	Water (L/day)

.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

***** Soil & Dust *****

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	101.200	101.200
1-2	101.200	101.200
2-3	101.200	101.200
3-4	101.200	101.200
4-5	101.200	101.200
5-6	101.200	101.200
6-7	101.200	101.200

***** Alternate Intake *****

Age	Alternate (ug Pb/day)

.5-1	0.017
1-2	0.049
2-3	0.054
3-4	0.057
4-5	0.060
5-6	0.062
6-7	0.068

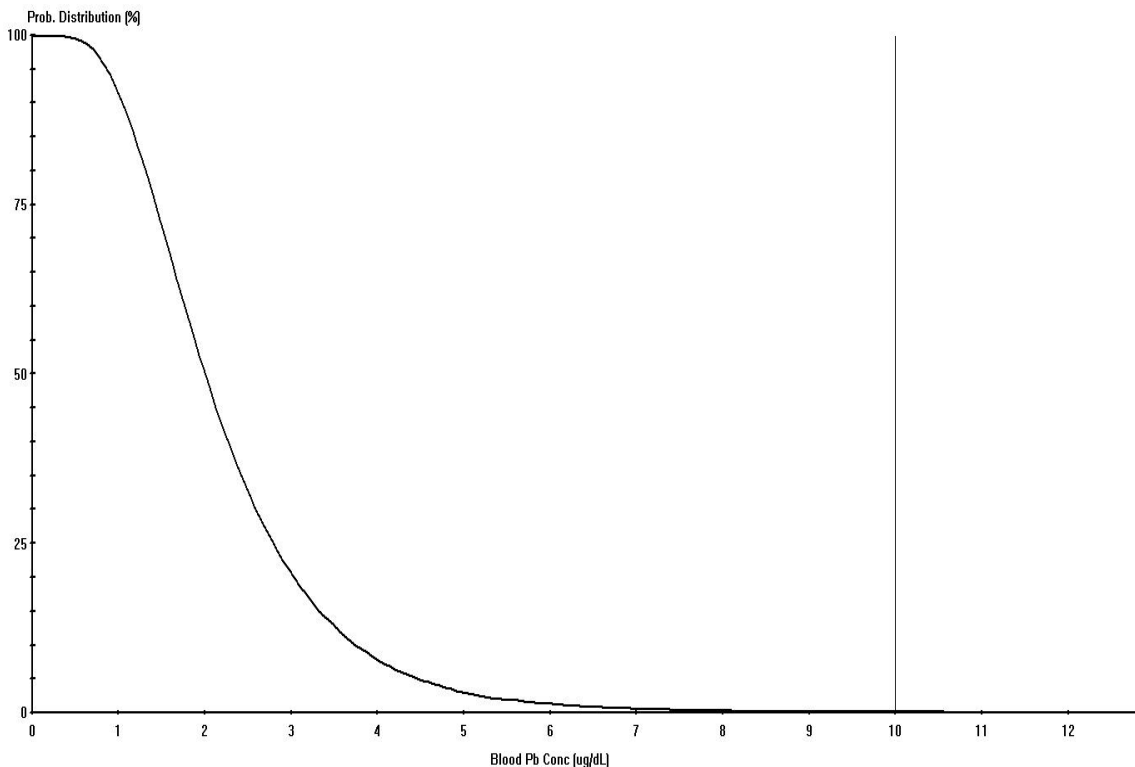
***** Maternal Contribution: Infant Model *****

Maternal Blood Concentration: 2.500 ug Pb/dL

 CALCULATED BLOOD LEAD AND LEAD UPTAKES:

Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	1.504	0.008	0.381
1-2	0.034	1.233	0.023	0.948
2-3	0.062	1.369	0.026	0.992
3-4	0.067	1.316	0.027	1.019
4-5	0.067	1.268	0.029	1.069
5-6	0.093	1.336	0.030	1.131
6-7	0.093	1.461	0.033	1.153

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	2.456	4.370	2.4
1-2	3.886	6.124	2.6
2-3	3.911	6.361	2.4
3-4	3.938	6.367	2.2
4-5	2.949	5.381	1.9
5-6	2.665	5.256	1.7
6-7	2.522	5.263	1.5



Cutoff = 10.000 ug/dl
 Geo Mean = 2.109
 GSD = 1.600
 % Above = 0.046

Age Range = 0 to 84 months
 Time Step = Every 4 Hours
 Run Mode = Site Risk Assessment

Table 4. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model to Calculate Average Daily Lead Intake from Fish
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child ^[1,2] (Angler)

Parameter	Value	Units
TOTAL MEAT INTAKE (g/day)		
Ingestion rate:		
Age (years) = 0 - 1	29.6 [a]	g/day
1 - 2	87.4 [a]	g/day
2 - 3	95.7 [a]	g/day
3 - 4	101.6 [a]	g/day
4 - 5	107.4 [a]	g/day
5 - 6	111.9 [a]	g/day
6 - 7	121.0 [a]	g/day
% of Total Meat Intake from Fish	10 [b]	%
% Fish Consumption from Source	100 [c]	%
Lead Concentration in Fish	site-specific [d]	µg Pb/g fish
DIETARY INTAKE FROM FISH (µg Pb/day)		
Dietary Lead Intake		
Age (years) = 0 - 1	calculation [e]	µg Pb/day
1 - 2	calculation [e]	µg Pb/day
2 - 3	calculation [e]	µg Pb/day
3 - 4	calculation [e]	µg Pb/day
4 - 5	calculation [e]	µg Pb/day
5 - 6	calculation [e]	µg Pb/day
6 - 7	calculation [e]	µg Pb/day
DIETARY INTAKE FROM FISH (µg Pb/day) - OU2		
Dietary Lead Intake		
Age (years) = 0 - 1	0.036 [f]	µg Pb/day
1 - 2	0.10 [f]	µg Pb/day
2 - 3	0.11 [f]	µg Pb/day
3 - 4	0.12 [f]	µg Pb/day
4 - 5	0.13 [f]	µg Pb/day
5 - 6	0.13 [f]	µg Pb/day
6 - 7	0.15 [f]	µg Pb/day
DIETARY INTAKE FROM FISH (µg Pb/day) - BR1		
Dietary Lead Intake		
Age (years) = 0 - 1	0.038 [g]	µg Pb/day
1 - 2	0.11 [g]	µg Pb/day
2 - 3	0.12 [g]	µg Pb/day
3 - 4	0.13 [g]	µg Pb/day
4 - 5	0.14 [g]	µg Pb/day
5 - 6	0.14 [g]	µg Pb/day
6 - 7	0.16 [g]	µg Pb/day

Table 4. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model to Calculate Average Daily Lead Intake from Fish
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child ^[1,2] (Angler)

Parameter	Value	Units
DIETARY INTAKE FROM FISH (µg Pb/day) - BR2		
Dietary Lead Intake		
Age (years) = 0 - 1	0.017 [h]	µg Pb/day
1 - 2	0.049 [h]	µg Pb/day
2 - 3	0.054 [h]	µg Pb/day
3 - 4	0.057 [h]	µg Pb/day
4 - 5	0.060 [h]	µg Pb/day
5 - 6	0.062 [h]	µg Pb/day
6 - 7	0.068 [h]	µg Pb/day

Notes:

[1] Young child = 0 - 7 years of age (0 - 84 months)

[2] Assumes exposure to lead concentrations via consumption of edible fish tissue.

[a] USEPA. Frequently Asked Questions - Can IEUBK be Used to Develop a Site-specific Fish Advisory?

<http://www.epa.gov/superfund/lead/ieubkfaq.htm#fish>

[b] Estimate for recreational anglers. USEPA. Frequently Asked Question - Can IEUBK be Used to Develop a

Site-specific Fish Advisory? <http://www.epa.gov/superfund/lead/ieubkfaq.htm#fish>

[c] Assumes 100% of fish come from Blackstone River or on-site ponds. This may overestimate lead intake

from fish because a portion of the default dietary Pb intake includes fish from other sources.

[d] Fish tissue concentration represents arithmetic mean of site-related data.

OU2 fish = 0.012 mg/kg; BR1 fish = 0.013 mg/kg; BR2 fish = 0.0056 mg/kg

[e] Intake from Fish (µg Pb/day) = (Total Meat Intake Rate g/day) x (% Total Meat Intake from Fish) x (%

from Source) x (Concentration in Fish µg Pb/g)

[f] Arithmetic mean of OU2 fish fillets is 0.012 mg/kg.

[g] Arithmetic mean of BR1 fish fillets is 0.013 mg/kg.

[h] Arithmetic mean of BR2 fish fillets is 0.0056 mg/kg.

Reference:

USEPA. 2002. User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK). Office of Solid Waste and Emergency Response. EPA-540-K-01-005. OSWER #9285.7-42. May 2002.

Table 5a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Evaluation of Residential Lead Risks Associated with Groundwater and Soils from Nunes Parcel
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child ^[1,2] (Resident)

Parameter	Value	Units
Indoor air lead concentration (% of outdoor)	30 [a]	%
AIR (by year)		
Air Concentration		
Age (years) = 0 - 1	0.10 [a]	µg/m ³
1 - 2	0.10 [a]	µg/m ³
2 - 3	0.10 [a]	µg/m ³
3 - 4	0.10 [a]	µg/m ³
4 - 5	0.10 [a]	µg/m ³
5 - 6	0.10 [a]	µg/m ³
6 - 7	0.10 [a]	µg/m ³
Time Outdoors		
Age (years) = 0 - 1	1 [a]	hours/day
1 - 2	2 [a]	hours/day
2 - 3	3 [a]	hours/day
3 - 7	4 [a]	hours/day
Ventilation Rate		
Age (years) = 0 - 1	2 [a]	m ³ /day
1 - 2	3 [a]	m ³ /day
2 - 5	5 [a]	m ³ /day
5 - 7	7 [a]	m ³ /day
Lung Absorption	32 [a]	%
DIET (by year)		
Dietary Lead Intake		
Age (years) = 0 - 1	3.16 [b]	µg Pb/day
1 - 2	2.60 [b]	µg Pb/day
2 - 3	2.87 [b]	µg Pb/day
3 - 4	2.74 [b]	µg Pb/day
4 - 5	2.61 [b]	µg Pb/day
5 - 6	2.74 [b]	µg Pb/day
6 - 7	2.99 [b]	µg Pb/day
ALTERNATE DIET SOURCES (by food class)		
Concentration:		
home-grown fruits	0 [a]	µg Pb/g
home-grown vegetables	0 [a]	µg Pb/g
fish from fishing	0 [a]	µg Pb/g
game animals from hunting	0 [a]	µg Pb/g

Table 5a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Evaluation of Residential Lead Risks Associated with Groundwater and Soils from Nunes Parcel
Baseline Human Health Risk Assessment
Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child ^[1,2] (Resident)

Parameter	Value	Units
ALTERNATE DIET SOURCES (by food class) (continued)		
Percent of food class:		
home-grown fruits	0 [a]	%
home-grown vegetables	0 [a]	%
fish from fishing	0 [a]	%
game animals from hunting	0 [a]	%
DRINKING WATER		
Lead Concentration in drinking water	2.17 [c]	µg/L
Ingestion rate:		
Age (years) = 0 - 1	0.20 [a]	L/day
1 - 2	0.50 [a]	L/day
2 - 3	0.52 [a]	L/day
3 - 4	0.53 [a]	L/day
4 - 5	0.55 [a]	L/day
5 - 6	0.58 [a]	L/day
6 - 7	0.59 [a]	L/day
SOIL/DUST INGESTION		
Concentration:		
soil	532 [d]	µg/g
dust	532 [d]	µg/g
Soil/dust ingestion weighting factor (% soil)	45 [a]	%
Soil/dust ingestion:		
Age (years) = 0 - 1	0.085 [a]	g/day
1 - 4	0.135 [a]	g/day
4 - 5	0.100 [a]	g/day
5 - 6	0.090 [a]	g/day
6 - 7	0.085 [a]	g/day
SOIL/DUST MULTIPLE SOURCE ANALYSIS		
Fraction of indoor dust lead attributable to soil	0.70 [a]	unitless
Ratio of dust lead concentration to outdoor air lead concentration	100 [a]	µg Pb/g dust per µg Pb/m ³ air
BIOAVAILABILITY FOR GUT ABSORPTION PATHWAYS		
Total lead absorption (at low intake):		
diet	50 [a]	%
drinking water	50 [a]	%
soil	30 [a]	%
dust	30 [a]	%
alternate source	0 [a]	%
Fraction of total net absorption at low intake rate that is attributable to non-saturable (passive) processes	0.2 [a]	unitless

Table 5a. Summary of Parameter Values Used in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Evaluation of Residential Lead Risks Associated with Groundwater and Soils from Nunes Parcel Baseline Human Health Risk Assessment Peterson Puritan Site (OU2), Cumberland and Lincoln, Rhode Island

Receptor Scenario: Young Child ^[1,2] (Resident)

Parameter	Value	Units
ALTERNATE SOURCES OF LEAD		
Total lead intake:		
Age (years) = 0 - 1	0 [a]	µg/day
1 - 2	0 [a]	µg/day
2 - 3	0 [a]	µg/day
3 - 4	0 [a]	µg/day
4 - 5	0 [a]	µg/day
5 - 6	0 [a]	µg/day
6 - 7	0 [a]	µg/day
MATERNAL-TO-NEWBORN LEAD EXPOSURE		
Mothers blood lead concentration at childbirth	2.5 [a]	µg/dL
PLOTING AND RISK ESTIMATION		
Geometric standard deviation (GSD) for blood lead	1.6 [a]	unitless
Blood lead level of concern	10 [a]	µg/dL
COMPUTATION OPTIONS		
Iteration time step for numerical integration	4 [a]	hours

Notes:

[1] Young child = 0 - 7 years of age (0 - 84 months)

[2] Assumes exposure to lead in onsite surface and subsurface soils within Nunes Parcel and ingestion of site-related groundwater.

[3] The IEUBK model (USEPA, 2002) does not allow for a quantitative evaluation of dermal exposures to lead in soils presumably due to the uncertainty in assigning a dermal absorption fraction that would apply to the numerous inorganic forms of lead that are typically found in environmental settings.

[a] Default value (USEPA, 2002a).

[b] Defaults in IEUBK model represent U.S. Food and Drug Administration (FDA) data collected in the late 1980s. More recent FDA (2001) data are presented. Source: FDA (2001) Total Diet Study. U. S. Food and Drug Administration Center for Food Safety and Applied Nutrition Office of Plant and Dairy Foods and Beverages. June 2001. Available online at The U.S. Food and Drug Administration Center for Food Safety and Applied Nutrition Web site. (<http://www.cfsan.fda.gov/~comm/tdstoc.html>).

[c] Groundwater concentration represents arithmetic mean of site data.

[d] Soil concentration represents arithmetic mean of site data.

References:

USEPA. 2002. User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK). Office of Solid Waste and Emergency Response. EPA-540-K-01-005. OSWER #9285.7-42. May 2002.

Table 5b: IEUBK Model for Exposure of Young Child Residents to Nunes Parcel Soil and Groundwater

LEAD MODEL FOR WINDOWS Version 1.0

```
=====
Model Version: 1.0 Build 264
User Name: Serese Marotta
Date: 08/20/2008
Site Name: Peterson Puritan
Operable Unit: OU2
Run Mode: Site Risk Assessment
-----
```

```
# Diet Data
FDA (2001) data
# Water Data
Arithmetic mean of site data
# Soil/Dust Data
Arithmetic mean of Nunes Parcel soils data (surface and subsurface)
=====
```

The time step used in this model run: 1 - Every 4 Hours (6 times a day).

***** Air *****

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m ³ /day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m ³)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

***** Diet *****

Age	Diet Intake(ug/day)
.5-1	3.160
1-2	2.600
2-3	2.870
3-4	2.740
4-5	2.610
5-6	2.740
6-7	2.990

***** Drinking Water *****

Water Consumption:

Age	Water (L/day)

.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 2.170 ug Pb/L

***** Soil & Dust *****

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	270.000	270.000
1-2	270.000	270.000
2-3	270.000	270.000
3-4	270.000	270.000
4-5	270.000	270.000
5-6	270.000	270.000
6-7	270.000	270.000

***** Alternate Intake *****

Age	Alternate (ug Pb/day)

.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

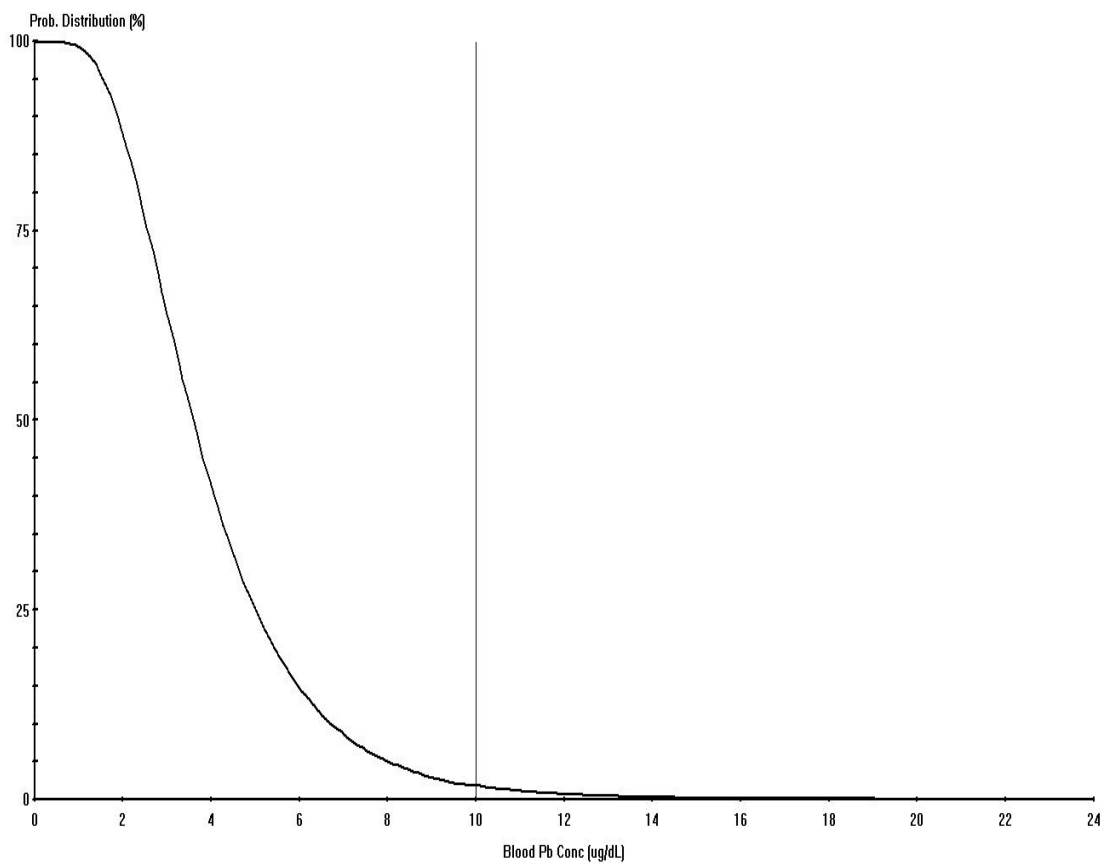
***** Maternal Contribution: Infant Model *****

Maternal Blood Concentration: 2.500 ug Pb/dL

 CALCULATED BLOOD LEAD AND LEAD UPTAKES:

Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	1.443	0.000	0.198
1-2	0.034	1.174	0.000	0.490
2-3	0.062	1.313	0.000	0.516
3-4	0.067	1.269	0.000	0.533
4-5	0.067	1.239	0.000	0.566
5-6	0.093	1.312	0.000	0.603
6-7	0.093	1.438	0.000	0.616

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	6.287	7.949	4.3
1-2	9.875	11.573	4.8
2-3	10.007	11.899	4.4
3-4	10.133	12.001	4.2
4-5	7.689	9.561	3.4
5-6	6.982	8.990	2.9
6-7	6.624	8.772	2.5



Cutoff = 10.000 ug/dL
 Geo Mean = 3.778
 GSD = 1.600
 % Above = 1.918

Age Range = 0 to 84 months
 Time Step = Every 4 Hours
 Run Mode = Site Risk Assessment

**Table 5c: IEUBK Model for Exposure of Young Child Residents to Soils within
RIDEM Soil Removal Area and Groundwater**

LEAD MODEL FOR WINDOWS Version 1.0

```
=====
Model Version: 1.0 Build 264
User Name: Serese Marotta
Date: 08/20/2008
Site Name: Peterson Puritan
Operable Unit: OU2
Run Mode: Site Risk Assessment
-----
```

```
# Diet Data
FDA (2001) data
# Water Data
Arithmetic mean of site data
# Soil/Dust Data
Arithmetic mean of Nunes Parcel soils data (surface and subsurface)
# GSD, Cutoff and Age Type

# Soil/Dust Data
Arithmetic mean of samples from RIDEM Soil Removal Area (surface and
subsurface)
```

```
=====
The time step used in this model run: 1 - Every 4 Hours (6 times a day).
```

***** Air *****

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m ³ /day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m ³)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

***** Diet *****

Age	Diet Intake(ug/day)
.5-1	3.160
1-2	2.600
2-3	2.870
3-4	2.740
4-5	2.610
5-6	2.740
6-7	2.990

***** Drinking Water *****

Water Consumption:

Age	Water (L/day)

.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 2.170 ug Pb/L

***** Soil & Dust *****

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	2050.000	2050.000
1-2	2050.000	2050.000
2-3	2050.000	2050.000
3-4	2050.000	2050.000
4-5	2050.000	2050.000
5-6	2050.000	2050.000
6-7	2050.000	2050.000

***** Alternate Intake *****

Age	Alternate (ug Pb/day)

.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

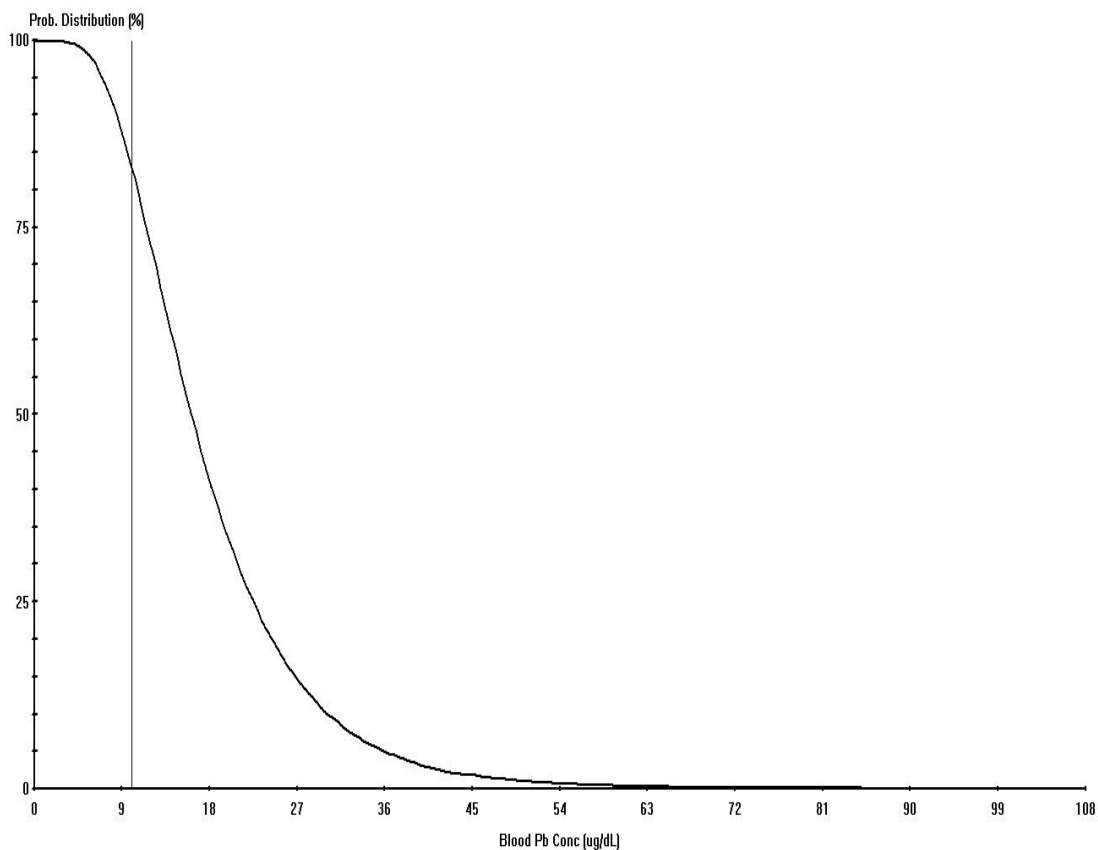
***** Maternal Contribution: Infant Model *****

Maternal Blood Concentration: 2.500 ug Pb/dL

 CALCULATED BLOOD LEAD AND LEAD UPTAKES:

Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	1.036	0.000	0.142
1-2	0.034	0.803	0.000	0.335
2-3	0.062	0.932	0.000	0.366
3-4	0.067	0.932	0.000	0.391
4-5	0.067	0.991	0.000	0.453
5-6	0.093	1.089	0.000	0.500
6-7	0.093	1.219	0.000	0.522

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	34.277	35.476	18.1
1-2	51.291	52.464	20.8
2-3	53.929	55.289	19.8
3-4	56.476	57.866	19.4
4-5	46.726	48.237	16.5
5-6	44.002	45.684	14.2
6-7	42.623	44.457	12.6



Cutoff = 10.000 ug/dl
 Geo Mean = 16.974
 GSD = 1.600
 % Above = 86.985

Age Range = 0 to 84 months
 Time Step = Every 4 Hours
 Run Mode = Site Risk Assessment

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Attachment A

Table A-1
Samples Used in Lead Modeling
SOUTHERN BANK SEDIMENT

Location ID / Sample ID	Pb Concentration (mg/kg)
SE-008-BR / SE-008-BR	54
SE-023-BR / SE-023-BR	13
SE-024-BR / SE-024-BR	51
SE-025-BR / SE-025-BR	57
SE-064-BR / SE-064-BR	48
SE-065-BR / SE-065-BR	7
SE-066-BR / SE-066-BR	11
SE-067-BR / SE-067-BR	5
SE-068-BR / SE-068-BR	24
SE-071-BR / SE-071-BR	19
SE-072-BR / SE-072-BR	12
SE-082-BR / SE-082-BR	41
SE-083-BR / SE-083-BR	47
T05BR-007 / T05BR-007	44
T05PF-004 / T05PF-004	180
Average Concentration:	41

Table A-2
Samples Used in Lead Modeling
SOUTHERN BANK SURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
SO-064-BR / SO-064-BR	197
SO-065-BR / SO-065-BR	194
SO-066-BR / SO-066-BR	221
SO-067-BR / SO-067-BR	164
SO-068-BR / SO-068-BR	216
SO-069-BR / SO-069-BR	156
SO-070-BR / SO-070-BR	44
SO-071-BR / SO-071-BR	150
Average Concentration:	168

Table A-3
Samples Used in Lead Modeling
NUNES PARCEL SURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
LNP-007 / LNP-007(0-1)	NA
LNP-008 / LNP-008(0-1)	NA
SO-008-NP / SO-008-NP	255
SO-009-NP / SO-009-NP	267
SO-017-NP / SO-017-NP	240
SO-034-NP / SO-034-NP	223
SO-035-NP / SO-035-NP	180
SO-036-NP / SO-036-NP	62
SO-037-NP / SO-037-NP	110
SO-050-NP / SO-050-NP	447
SO-051-NP / SO-051-NP	233
SO-052-NP / SO-052-NP	424
SO-053-NP / SO-053-NP	374
SO-054-NP / SO-054-NP	132
SO-055-NP / SO-055-NP	303
SO-056-NP / SO-056-NP	295
SO-057-NP / SO-057-NP	289
SO-058-WT / SO-058-WT	399
SO-101-NP / SO-101-NP (0-1')	35
SO-102-NP / SO-102-NP (0-1')	28
Average Concentration:	239

Note:

NA = Not analyzed

Table A-4
Samples Used in Lead Modeling
DOWNSTREAM OF LANDFILL SEDIMENT

Location ID / Sample ID	Pb Concentration (mg/kg)
SE-021-NP / SE-021-NP	155
SE-026-BR / SE-026-BR	26
SE-026-BR / SE-042-BR	12
SE-027-BR / SE-027-BR	207
SE-046-BR / SE-046-BR	10
SE-069-NP / SE-069-NP	227
T05BR-001 / T05BR-001	46
T05BR-003 / T05BR-003	73
T05BR-005 / T05BR-005	190
Average Concentration:	105

Note:

NA = Not analyzed

Table A-5
Samples Used in Lead Modeling
QUINNVILLE WELLFIELD SURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
LQW-009 / LQW-009 (0-1)	190
LQW-010 / LQW-010 (0-1)	460
LQW-011 / LQW-011	320
LQW-012 / LQW-012 (0-1)	410
LQW-012 / LQW-012B	NA
LQW-013 / LQW-013 (0-1)	190
LQW-014 / LQW-014 (0-1)	100
LQW-015 / LQW-015 (0-1)	16
LQW-015 / LQW-015B	NA
LQW-016 / LQW-016 (0-1)	68
LQW-016 / LQW-016B	NA
LQW-017 / LQW-017 (0-1)	11
LQW-017 / LQW-017B	NA
LQW-018 / LQW-018 (0-1)	27
LQW-018 / LQW-018B	NA
SO-001-BG / SO-001-BG	51
SO-002-BG / SO-002-BG	70
SO-003-BG / SO-003-BG	119
SO-004-BG / SO-004-BG	121
SO-005-BG / SO-005-BG	100
SO-044-QW / SO-044-QW	111
SO-045-QW / SO-045-QW	151
SO-075-QW / SO-075-QW	65
SO-076-QW / SO-076-QW	123
Average Concentration:	142

Note:

NA = Not analyzed

Table A-6
Samples Used in Lead Modeling
UPSTREAM OF LANDFILL SEDIMENT

Location ID / Sample ID	Pb Concentration (mg/kg)
SE-032-BR / SE-032-BR	33
SE-048-BR / SE-048-BR	11
SE-051-DF / SE-051-DF	185
Average Concentration:	76

Table A-7
Samples Used in Lead Modeling
NUNES PARCEL SURFACE AND SUBSURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
SEA-606 / SSO-SPT8-5-NP	NA
SEA-606 / SSO-SPT8-10-NP	NA
SEA-606 / SSO-SPT8-15-NP	NA
SO-034-NP / SO-W13-NP	433
SO-035-NP / SO-W15-NP	2270
SO-036-NP / SSO-01-NP	51
SO-037-NP / SO-W16-NP	20
SO-100-NP / SO-100-NP (2-7')	51
SO-101-NP / SO-101-NP (2-9')	24
SO-102-NP / SO-102-NP (2-8.5')	410
SO-103-NP / SO-103-NP (2-7')	10
SO-104-NP / SO-104-NP (2-3.4')	34
SO-105-NP / SO-105-NP (2-3.4')	200
SO-106-NP / SO-106-NP (2-5')	24
LNP-007 / LNP-007(0-1)	NA
LNP-008 / LNP-008(0-1)	NA
SO-008-NP / SO-008-NP	255
SO-009-NP / SO-009-NP	267
SO-017-NP / SO-017-NP	240
SO-034-NP / SO-034-NP	223
SO-035-NP / SO-035-NP	180
SO-036-NP / SO-036-NP	62
SO-037-NP / SO-037-NP	110
SO-050-NP / SO-050-NP	447
SO-051-NP / SO-051-NP	233
SO-052-NP / SO-052-NP	424
SO-053-NP / SO-053-NP	374
SO-054-NP / SO-054-NP	132
SO-055-NP / SO-055-NP	303
SO-056-NP / SO-056-NP	295
SO-057-NP / SO-057-NP	289
SO-058-WT / SO-058-WT	399
SO-101-NP / SO-101-NP (0-1')	35
SO-102-NP / SO-102-NP (0-1')	28
Average Concentration:	270

Note:
NA = Not analyzed

Table A-8
Samples Used in Lead Modeling
DEBRIS FIELDS SURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
SO-W07-DF / SO-W07-DF	141
SO-W07x-DF / SO-W07x-DF	NA
SO-W08-DF / SO-W08-DF	104
SO-W08-DF / SO-W08-DFb	NA
SO-046-DF / SO-046-DF	237
SO-047-DF / SO-047-DF	175
SO-048-DF / SO-048-DF	177
SO-049-DF / SO-049-DF	90
Average Concentration:	154

Note:

NA = Not analyzed

Table A-9
Samples Used in Lead Modeling
LANDFILL SURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
LLF-002 / LLF-002(0-1)	NA
LLF-003 / LLF-003(0-1)	NA
LLF-004 / LLF-004(0-1)	NA
SO-018-LF / SO-018-LF	44
SO-019-LF / SO-019-LF	161
SO-020-LF / SO-020-LF	206
SO-021-LF / SO-021-LF	176
SO-022-LF / SO-022-LF	145
SO-023-LF / SO-023-LF	178
SO-024-LF / SO-024-LF	103
SO-025-LF / SO-025-LF	98
SO-026-LF / SO-026-LF	263
SO-027-LF / SO-027-LF	97
SO-028-LF / SO-028-LF	344
SO-029-LF / SO-029-LF	222
SO-030-LF / SO-030-LF	233
SO-032-LF / SO-032-LF	233
SO-041-LF / SO-041-LF	226
SO-042-LF / SO-042-LF	102
SO-043-LF / SO-043-LF	193
SO-W05-DF / SO-W05-DF	77
SO-W05-DF / SO-W05-DFb	NA
SO-W06-DF / SO-W06-DF	714
SO-W06-DF / SO-W06-DFb	NA
Average Concentration:	201

Note:

NA = Not analyzed

Table A-10
Samples Used in Lead Modeling
ADJACENT TO LANDFILL SEDIMENT

Location ID / Sample ID	Pb Concentration (mg/kg)
SE-019-LF / SE-019-LF	172
SE-020-LF / SE-020-LF	201
SE-028-BR / SE-028-BR	8
SE-029-BR / SE-029-BR	19
SE-030-BR / SE-030-BR	16
SE-031-BR / SE-031-BR	13
SE-041-BR / SE-041-BR	12
SE-043-BR / SE-043-BR	9
SE-047-BR / SE-047-BR	20
SE-070-LF / SE-070-LF	148
SE-073-LF / SE-073-LF	206
SE-074-LF / SE-074-LF	145
T05BR-002 / T05BR-002	11
T05BR-004 / T05BR-004	33
T05BR-006 / T05BR-006	52
Average Concentration:	71

Table A-11
Samples Used in Lead Modeling
WETLANDS SEDIMENT

Location ID / Sample ID	Pb Concentration (mg/kg)
SE-009-WT / SE-009-WT	17
SE-010-WT / SE-010-WT	362
SE-011-WT / SE-011-WT	74
SE-012-WT / SE-012-WT	83
SE-013-WT / SE-013-WT	26
SE-014-WT / SE-014-WT	98
SE-016-WT / SE-016-WT	30
SE-017-WT / SE-017-WT	48
SE-018-WT / SE-018-WT	52
SE-052-WT / SE-052-WT	7
SE-053-WT / SE-053-WT	59
SE-055-WT / SE-055-WT	29
SE-057-WT / SE-057-WT	76
SE-058-WT / SE-058-WT	21
SE-059-WT / SE-059-WT	46
SE-060-WT / SE-060-WT	80
SE-061-WT / SE-061-WT	43
SE-062-WT / SE-062-WT	127
SE-063-WT / SE-063-WT	88
T05WB-001 / T05WB-001	27
T05WB-002 / T05WB-002	160
T05WD-003 / T05WD-003	18
Average Concentration:	71

Table A-12
Samples Used in Lead Modeling
OU2 FISH FILLETS

Location ID / Sample ID	Pb Concentration (mg/kg)
BR3-FI-1 / BR3-FI-1-FILL	0.007
BR3-FI-2 / BR3-FI-2-FILL	0.007
BR3-FI-3 / BR3-FI-3-FILL	0.0065
BR3-FI-4 / BR3-FI-4-FILL	0.0075
BR3-FI-5 / BR3-FI-5-FILL	0.007
BR3-FI-6 / BR3-FI-6-FILL	0.0065
BR3-FI-7 / BR3-FI-7-FILL	0.0065
BR3-FI-8 / BR3-FI-8-FILL	0.0065
BR3-FI-9 / BR3-FI-9-FILL	0.0065
BR3-FI-10 / BR3-FI-10-FILL	0.0075
BR3-FI-11 / BR3-FI-11-FILL	0.0065
BR3-FI-12 / BR3-FI-12-FILL	0.007
BR3-FI-13 / BR3-FI-13-FILL	0.007
BR3-FI-14 / BR3-FI-14-FILL	0.008
BR3-FI-15 / BR3-FI-15-FILL	0.006
BR3-FI-16 / BR3-FI-16-FILL	0.007
P1-FI-25 / P1-FI-25-FILL	0.0085
P1-FI-26 / P1-FI-26-FILL	0.0095
P1-FI-27 / P1-FI-27-FILL	0.009
P1-FI-28 / P1-FI-28-FILL	0.0085
P1-FI-29 / P1-FI-29-FILL	0.0095
P1-FI-30 / P1-FI-30-FILL	0.01
P1-FI-31 / P1-FI-31-FILL	0.0095
P1-FI-32 / P1-FI-32-FILL	0.0085
P1-FI-33 / P1-FI-33-FILL	0.0085
P1-FI-34 / P1-FI-34-FILL	0.0095
P1-FI-35 / P1-FI-35-FILL	0.0095
P1-FI-36 / P1-FI-36-FILL	0.0095
P1-FI-37 / P1-FI-37-FILL	0.009
P1-FI-38 / P1-FI-38-FILL	0.009
P1-FI-39 / P1-FI-39-FILL	0.2
P1-FI-40 / P1-FI-40-FILL	0.037
P2-FI-49 / P2-FI-49-FILL	0.007
P2-FI-50 / P2-FI-50-FILL	0.007
P2-FI-51 / P2-FI-51-FILL	0.0065
P2-FI-52 / P2-FI-52-FILL	0.007
P2-FI-53 / P2-FI-53-FILL	0.0065
P2-FI-54 / P2-FI-54-FILL	0.0065
P2-FI-55 / P2-FI-55-FILL	0.0065
P2-FI-56 / P2-FI-56-FILL	0.016
P2-FI-57 / P2-FI-57-FILL	0.007
P2-FI-58 / P2-FI-58-FILL	0.0065
P2-FI-59 / P2-FI-59-FILL	0.0065
P2-FI-60 / P2-FI-60-FILL	0.0065
P2-FI-61 / P2-FI-61-FILL	0.0065
P2-FI-62 / P2-FI-62-FILL	0.0065
P2-FI-63 / P2-FI-63-FILL	0.0065
P2-FI-64 / P2-FI-64-FILL	0.007
Average Concentration:	0.012

Table A-13
Samples Used in Lead Modeling
BR1 FISH FILLETS

Location ID / Sample ID	Pb Concentration (mg/kg)
BR1-FI-113 / BR1-FI-113-FILL	0.011
BR1-FI-114 / BR1-FI-114-FILL	0.0125
BR1-FI-115 / BR1-FI-115-FILL	0.011
BR1-FI-116 / BR1-FI-116-FILL	0.01
BR1-FI-117 / BR1-FI-117-FILL	0.0125
BR1-FI-118 / BR1-FI-118-FILL	0.01
BR1-FI-119 / BR1-FI-119-FILL	0.0115
BR1-FI-120 / BR1-FI-120-FILL	0.024
BR1-FI-121 / BR1-FI-121-FILL	0.0105
BR1-FI-122 / BR1-FI-122-FILL	0.011
BR1-FI-123 / BR1-FI-123-FILL	0.0125
BR1-FI-124 / BR1-FI-124-FILL	0.012
BR1-FI-125 / BR1-FI-125-FILL	0.011
BR1-FI-126 / BR1-FI-126-FILL	0.029
BR1-FI-127 / BR1-FI-127-FILL	0.009
BR1-FI-128 / BR1-FI-128-FILL	0.0095
Average Concentration:	0.013

Table A-14
Samples Used in Lead Modeling
BR2 FISH FILLETS

Location ID / Sample ID	Pb Concentration (mg/kg)
BR2-FI-73 / BR2-FI-73-FILL	0.005
BR2-FI-74 / BR2-FI-74-FILL	0.005
BR2-FI-75 / BR2-FI-75-FILL	0.005
BR2-FI-76 / BR2-FI-76-FILL	0.0055
BR2-FI-77 / BR2-FI-77-FILL	0.0055
BR2-FI-78 / BR2-FI-78-FILL	0.005
BR2-FI-79 / BR2-FI-79-FILL	0.0055
BR2-FI-80 / BR2-FI-80-FILL	0.006
BR2-FI-81 / BR2-FI-81-FILL	0.0055
BR2-FI-82 / BR2-FI-82-FILL	0.0055
BR2-FI-83 / BR2-FI-83-FILL	0.01
BR2-FI-84 / BR2-FI-84-FILL	0.0055
BR2-FI-85 / BR2-FI-85-FILL	0.005
BR2-FI-86 / BR2-FI-86-FILL	0.005
BR2-FI-87 / BR2-FI-87-FILL	0.0055
BR2-FI-88 / BR2-FI-88-FILL	0.005
Average Concentration:	0.0056

Table A-15
Samples Used in Lead Modeling
SITE-WIDE SHALLOW GROUNDWATER

Location ID / Sample ID	Pb Concentration (ug/L)
GLF-704 / GLF-704	0.62
GLF-706 / GLF-706	5.1
GNP-705 / GNP-705	13
GNP-708 / GNP-708	1.2
GUI-701 / GUI-701	0.38
GUI-702 / GUI-702	0.2
GUI-703 / GUI-703	1.2
GZ-4-1 / GW-013-QW	7.5
GZ-4-1 / GW-079-QW	79.3
MW-108AA / GW-011-LF	0.86
MW-108AA / MW-108AA	0.27
MW-109AA / GW-003-LF	0.81
MW-109AA / GW-048-LF	1.5
MW-111AA / GW-015-WT	0.92
MW-111AA / GW-052-WT	1.5
MW-112AA / GW-020-NP	0.35
MW-112AA / GW-056-NP	1.5
MW-112AA / MW-112AA	0.24
MW-A2 / GW-012-QW	7.5
MW-A2 / GW-080-QW	1.5
MW-A2 / MW-A2	0.34
MW-B2 / GW-002-LF	0.35
MW-B2 / GW-066-LF	1.5
MW-C2 / GW-006-LF	0.35
MW-C2 / GW-071-LF	1.5
MW-C2 / MW-C2	1.1
P-7 / GW-014-LF	0.35
P-7 / GW-059-LF	1.5
P-8 / GW-018-LF	1
P-8 / GW-063-LF	1.5
SEA-601 / GW-017-LF	0.35
SEA-601 / GW-060-LF	1.5
SEA-602A / GW-022-LF	0.35
SEA-602A / GW-062-LF	1.5
SEA-602a / SEA-602a	0.4
SEA-603 / GW-021-LF	0.35
SEA-603 / GW-064-LF	1.5
SEA-603 / SEA-603	1.5
SEA-604 / GW-027-LF	0.35
SEA-604 / GW-067-LF	1.5
SEA-605 / GW-028-LF	0.35
SEA-605 / GW-068-LF	1.5
SEA-605 / SEA-605	1
SEA-606 / GW-024-NP	0.35
SEA-606 / GW-069-NP	1.5
SEA-606 / SEA-606	0.26
SEA-607 / GW-025-UI	0.35
SEA-607 / GW-072-UI	1.5
SEA-608 / GW-026-UI	0.35
SEA-608 / GW-073-UI	1.5
SEA-608 / SEA-608	0.28
Average Concentration:	3.00

Table A-16
Samples Used in Lead Modeling
RIDEM SOIL REMOVAL AREA OF NUNES PARCEL

Location ID / Sample ID	Depth (feet)	Pb Concentration (mg/kg)
SO-033-NP / SO-W14-NP	1 - 5	5460
SO-107-NP / SO-107-NP (0-1')	0 - 1	1200
SO-107-NP / SO-107-NP (2-10')	2 - 10	10
SO-108-NP / SO-108-NP (3-8')	3 - 8	1200
SO-033-NP / SO-033-NP	0 - 1	2380

Surface Soil Average Concentration: 1790
Surface + Subsurface Soil Average Concentration: 2050

ARCADIS

Attachment B

Table B-1
Samples Used in Lead Modeling
Site-Wide Groundwater

Location ID / Sample ID	Pb Concentration (ug/L)
GLF-700a / GLF-700a	2
GLF-704 / GLF-704	0.62
GLF-706 / GLF-706	5.1
GLF-706a / GLF-706a	1.2
GNP-705 / GNP-705	13
GNP-705B / GNP-705B	0.24
GNP-707 / GNP-707	0.05
GNP-708 / GNP-708	1.2
GNP-708A / GNP-708A	0.2
GUI-701 / GUI-701	0.38
GUI-702 / GUI-702	0.2
GUI-703 / GUI-703	1.2
GZ-4-1 / GW-013-QW	7.5
GZ-4-1 / GW-079-QW	79.3
MW-106A / GW-009-DF	0.98
MW-106A / GW-074-DF	1.5
MW-106A / MW-106A	0.34
MW-106B / GW-078-DF	1.5
MW-106B / MW-106B	3.6
MW-106C / GW-077-DF	1.5
MW-106C / MW-106C	0.05
MW-108A / GW-010-LF	1.2
MW-108A / GW-046-LF	1.5
MW-108AA / GW-011-LF	0.86
MW-108AA / MW-108AA	0.27
MW-108B / GW-043-LF	1.5
MW-108C / GW-058-LF	1.5
MW-109A / GW-001-LF	0.35
MW-109A / GW-047-LF	1.5
MW-109AA / GW-003-LF	0.81
MW-109AA / GW-048-LF	1.5
MW-109B / GW-042-LF	1.5
MW-109C / GW-041-LF	1.5
MW-110A / GW-004-WT	0.35
MW-110A / GW-045-WT	1.5
MW-110B / GW-005-WT	1.15
MW-110B / GW-044-WT	1.5
MW-110C / GW-053-WT	1.5
MW-111A / GW-016-WT	2.6
MW-111A / GW-051-WT	1.5
MW-111AA / GW-015-WT	0.92
MW-111AA / GW-052-WT	1.5
MW-111B / GW-050-WT	5.8
MW-111C / GW-057-WT	1.5
MW-112A / GW-019-NP	0.72
MW-112A / GW-055-NP	1.5
MW-112A / MW-112A	0.18
MW-112AA / GW-020-NP	0.35
MW-112AA / GW-056-NP	1.5
MW-112AA / MW-112AA	0.24
MW-112B / GW-054-NP	1.5
MW-112B / MW-112B	1.2
MW-112C / GW-049-NP	1.5

Table B-1
Samples Used in Lead Modeling
Site-Wide Groundwater

Location ID / Sample ID	Pb Concentration (ug/L)
MW-112C / MW-112C	0.21
MW-502 / MW-502	0.17
MW-A2 / GW-012-QW	7.5
MW-A2 / GW-080-QW	1.5
MW-A2 / MW-A2	0.34
MW-B1 / GW-008-LF	7.5
MW-B1 / GW-065-LF	3.9
MW-B2 / GW-002-LF	0.35
MW-B2 / GW-066-LF	1.5
MW-C1 / GW-007-LF	0.85
MW-C1 / GW-070-LF	1.5
MW-C1 / MW-C1	0.4
MW-C2 / GW-006-LF	0.35
MW-C2 / GW-071-LF	1.5
MW-C2 / MW-C2	1.1
MW-EA-1 / GW-075-WT	1.5
MW-EA-1 / MW-EA1	0.22
MW-EA-3 / GW-076-WT	1.5
P-7 / GW-014-LF	0.35
P-7 / GW-059-LF	1.5
P-8 / GW-018-LF	1
P-8 / GW-063-LF	1.5
SEA-601 / GW-017-LF	0.35
SEA-601 / GW-060-LF	1.5
SEA-602A / GW-022-LF	0.35
SEA-602A / GW-062-LF	1.5
SEA-602a / SEA-602a	0.4
SEA-602B / GW-023-LF	0.35
SEA-602B / GW-061-LF	1.5
SEA-603 / GW-021-LF	0.35
SEA-603 / GW-064-LF	1.5
SEA-603 / SEA-603	1.5
SEA-604 / GW-027-LF	0.35
SEA-604 / GW-067-LF	1.5
SEA-605 / GW-028-LF	0.35
SEA-605 / GW-068-LF	1.5
SEA-605 / SEA-605	1
SEA-606 / GW-024-NP	0.35
SEA-606 / GW-069-NP	1.5
SEA-606 / SEA-606	0.26
SEA-607 / GW-025-UI	0.35
SEA-607 / GW-072-UI	1.5
SEA-608 / GW-026-UI	0.35
SEA-608 / GW-073-UI	1.5
SEA-608 / SEA-608	0.28
Average Concentration:	2.2

Table B-2
Samples Used in Lead Modeling
OU2 FISH FILLETS

Location ID / Sample ID	Pb Concentration (mg/kg)
BR3-FI-1 / BR3-FI-1-FILL	0.007
BR3-FI-2 / BR3-FI-2-FILL	0.007
BR3-FI-3 / BR3-FI-3-FILL	0.0065
BR3-FI-4 / BR3-FI-4-FILL	0.0075
BR3-FI-5 / BR3-FI-5-FILL	0.007
BR3-FI-6 / BR3-FI-6-FILL	0.0065
BR3-FI-7 / BR3-FI-7-FILL	0.0065
BR3-FI-8 / BR3-FI-8-FILL	0.0065
BR3-FI-9 / BR3-FI-9-FILL	0.0065
BR3-FI-10 / BR3-FI-10-FILL	0.0075
BR3-FI-11 / BR3-FI-11-FILL	0.0065
BR3-FI-12 / BR3-FI-12-FILL	0.007
BR3-FI-13 / BR3-FI-13-FILL	0.007
BR3-FI-14 / BR3-FI-14-FILL	0.008
BR3-FI-15 / BR3-FI-15-FILL	0.006
BR3-FI-16 / BR3-FI-16-FILL	0.007
P1-FI-25 / P1-FI-25-FILL	0.0085
P1-FI-26 / P1-FI-26-FILL	0.0095
P1-FI-27 / P1-FI-27-FILL	0.009
P1-FI-28 / P1-FI-28-FILL	0.0085
P1-FI-29 / P1-FI-29-FILL	0.0095
P1-FI-30 / P1-FI-30-FILL	0.01
P1-FI-31 / P1-FI-31-FILL	0.0095
P1-FI-32 / P1-FI-32-FILL	0.0085
P1-FI-33 / P1-FI-33-FILL	0.0085
P1-FI-34 / P1-FI-34-FILL	0.0095
P1-FI-35 / P1-FI-35-FILL	0.0095
P1-FI-36 / P1-FI-36-FILL	0.0095
P1-FI-37 / P1-FI-37-FILL	0.009
P1-FI-38 / P1-FI-38-FILL	0.009
P1-FI-39 / P1-FI-39-FILL	0.2
P1-FI-40 / P1-FI-40-FILL	0.037
P2-FI-49 / P2-FI-49-FILL	0.007
P2-FI-50 / P2-FI-50-FILL	0.007
P2-FI-51 / P2-FI-51-FILL	0.0065
P2-FI-52 / P2-FI-52-FILL	0.007
P2-FI-53 / P2-FI-53-FILL	0.0065
P2-FI-54 / P2-FI-54-FILL	0.0065
P2-FI-55 / P2-FI-55-FILL	0.0065
P2-FI-56 / P2-FI-56-FILL	0.016
P2-FI-57 / P2-FI-57-FILL	0.007
P2-FI-58 / P2-FI-58-FILL	0.0065
P2-FI-59 / P2-FI-59-FILL	0.0065
P2-FI-60 / P2-FI-60-FILL	0.0065
P2-FI-61 / P2-FI-61-FILL	0.0065
P2-FI-62 / P2-FI-62-FILL	0.0065
P2-FI-63 / P2-FI-63-FILL	0.0065
P2-FI-64 / P2-FI-64-FILL	0.007
Average Concentration:	0.012

Table B-3
Samples Used in Lead Modeling
BR1 FISH FILLETS

Location ID / Sample ID	Pb Concentration (mg/kg)
BR1-FI-113 / BR1-FI-113-FILL	0.011
BR1-FI-114 / BR1-FI-114-FILL	0.0125
BR1-FI-115 / BR1-FI-115-FILL	0.011
BR1-FI-116 / BR1-FI-116-FILL	0.01
BR1-FI-117 / BR1-FI-117-FILL	0.0125
BR1-FI-118 / BR1-FI-118-FILL	0.01
BR1-FI-119 / BR1-FI-119-FILL	0.0115
BR1-FI-120 / BR1-FI-120-FILL	0.024
BR1-FI-121 / BR1-FI-121-FILL	0.0105
BR1-FI-122 / BR1-FI-122-FILL	0.011
BR1-FI-123 / BR1-FI-123-FILL	0.0125
BR1-FI-124 / BR1-FI-124-FILL	0.012
BR1-FI-125 / BR1-FI-125-FILL	0.011
BR1-FI-126 / BR1-FI-126-FILL	0.029
BR1-FI-127 / BR1-FI-127-FILL	0.009
BR1-FI-128 / BR1-FI-128-FILL	0.0095
Average Concentration:	0.013

Table B-4
Samples Used in Lead Modeling
BR2 FISH FILLETS

Location ID / Sample ID	Pb Concentration (mg/kg)
BR2-FI-73 / BR2-FI-73-FILL	0.005
BR2-FI-74 / BR2-FI-74-FILL	0.005
BR2-FI-75 / BR2-FI-75-FILL	0.005
BR2-FI-76 / BR2-FI-76-FILL	0.0055
BR2-FI-77 / BR2-FI-77-FILL	0.0055
BR2-FI-78 / BR2-FI-78-FILL	0.005
BR2-FI-79 / BR2-FI-79-FILL	0.0055
BR2-FI-80 / BR2-FI-80-FILL	0.006
BR2-FI-81 / BR2-FI-81-FILL	0.0055
BR2-FI-82 / BR2-FI-82-FILL	0.0055
BR2-FI-83 / BR2-FI-83-FILL	0.01
BR2-FI-84 / BR2-FI-84-FILL	0.0055
BR2-FI-85 / BR2-FI-85-FILL	0.005
BR2-FI-86 / BR2-FI-86-FILL	0.005
BR2-FI-87 / BR2-FI-87-FILL	0.0055
BR2-FI-88 / BR2-FI-88-FILL	0.005
Average Concentration:	0.0056

Table B-5
Samples Used in Lead Modeling
NUNES PARCEL SURFACE AND SUBSURFACE SOIL

Location ID / Sample ID	Pb Concentration (mg/kg)
SEA-606 / SSO-SPT8-5-NP	NA
SEA-606 / SSO-SPT8-10-NP	NA
SEA-606 / SSO-SPT8-15-NP	NA
SO-034-NP / SO-W13-NP	433
SO-035-NP / SO-W15-NP	2270
SO-036-NP / SSO-01-NP	51
SO-037-NP / SO-W16-NP	20
SO-100-NP / SO-100-NP (2-7')	51
SO-101-NP / SO-101-NP (2-9')	24
SO-102-NP / SO-102-NP (2-8.5')	410
SO-103-NP / SO-103-NP (2-7')	10
SO-104-NP / SO-104-NP (2-3.4')	34
SO-105-NP / SO-105-NP (2-3.4')	200
SO-106-NP / SO-106-NP (2-5')	24
LNP-007 / LNP-007(0-1)	NA
LNP-008 / LNP-008(0-1)	NA
SO-008-NP / SO-008-NP	255
SO-009-NP / SO-009-NP	267
SO-017-NP / SO-017-NP	240
SO-034-NP / SO-034-NP	223
SO-035-NP / SO-035-NP	180
SO-036-NP / SO-036-NP	62
SO-037-NP / SO-037-NP	110
SO-050-NP / SO-050-NP	447
SO-051-NP / SO-051-NP	233
SO-052-NP / SO-052-NP	424
SO-053-NP / SO-053-NP	374
SO-054-NP / SO-054-NP	132
SO-055-NP / SO-055-NP	303
SO-056-NP / SO-056-NP	295
SO-057-NP / SO-057-NP	289
SO-058-WT / SO-058-WT	399
SO-101-NP / SO-101-NP (0-1')	35
SO-102-NP / SO-102-NP (0-1')	28
Average Concentration:	270

Note:

NA = Not analyzed

Table B-6
Samples Used in Lead Modeling
RIDEM SOIL REMOVAL AREA OF NUNES PARCEL

Location ID / Sample ID	Depth (feet)	Pb Concentration (mg/kg)
SO-033-NP / SO-W14-NP	1 - 5	5460
SO-107-NP / SO-107-NP (0-1')	0 - 1	1200
SO-107-NP / SO-107-NP (2-10')	2 - 10	10
SO-108-NP / SO-108-NP (3-8')	3 - 8	1200
SO-033-NP / SO-033-NP	0 - 1	2380

Surface + Subsurface Soil Average Concentration: 2050

Table B-7
Samples Used in Lead Modeling
MACKLAND FARMS SOIL

Location ID / Sample ID	Depth (feet)	Pb Concentration (mg/kg)
SO-072-MF	0 - 1	161
SO-073-MF	0 - 1	82.6
SO-074-MF	0 - 1	60

Average Concentration: 101