February 28, 2002

Addendum to the Risk Assessment Technical Background Document for the Paint and Coatings HazardousWaste Listing Determination

Prepared for

The Office of Solid Waste
U.S. Environmental Protection Agency
401 M Street, SW (5307W)
Washington, DC 20460

EPA Contract Number
68-W-98-085

RTI Project Number
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1.0 Introduction

1.1 Background

The U.S. Environmental Protection Agency (EPA) is required under the Resource Conservation and Recovery Act (RCRA), Section 3001(e)(2), to make hazardous waste listing determinations on certain wastes generated during the manufacture of paints in the United States. These determinations were to be made within 15 months of enactment of the Hazardous Solid Waste Amendment (HSWA) of 1984. In March 1989, the Environmental Defense Fund (EDF) sued EPA for failing to meet that statutory deadline (EDF vs. Browner; Civ. No. 89-0598 D.D.C.). To resolve most of the issues in the case, EDF and EPA entered into a consent decree in 1991 that extended the scope of the waste streams EPA would evaluate. The 1991 consent decree also set out an extensive series of deadlines. This consent decree has since been modified. Under a new agreement, the Agency had to propose a hazardous waste listing determination on wastes generated during paint manufacture no later than January 28, 2001, and finalize these determinations by March 30, 2002.

For listing determinations, three key documents summarize the results of EPA's technical data collection and analysis efforts: a Listing Determination Technical Background Document, an Economics Background Document, and a Risk Assessment Technical Background Document. The Listing Determination Technical Background Document is the "primary" background document. It provides a description of the methodologies EPA employed to characterize the industry and wastes that are the subject of the listing determination, a summary of the data and information collected, and supporting data analyses. The Economics Background Document provides estimates of national industry compliance costs for the proposed listing decisions. The Risk Assessment Technical Background Document provides the results of EPA's human health and ecological risk assessments for the wastes that are the subject of the listing determination. On January 17, 2001, EPA completed the Risk Assessment Technical Background Document for the Paint and Coatings Hazardous Waste Listing Determination to support the proposed rule. This Addendum documents changes made to the risk assessment since the listing determinations were proposed.

1.2 Overview of Changes to the Risk Assessment Methodology

Two major changes were made that affected the risk assessment. First, a correction was made to the shower model used to estimate acceptable target waste concentrations due to inhalation exposures in the shower. The shower model estimates risk from inhalation exposure to contaminants in groundwater that volatilize during shower use. The correction was needed to calculate a time-weighted average air concentration for shower exposures that reflects typical showering behavior.

Second, the waste volume distributions used in the risk assessment were changed as a result of modifications in the statistical development of facility weights from the 3007 survey data. The changes in the weights were made to address two issues: adjusting for nonresponse and correcting for sampling frame error. Two new sets of weights were developed, one that corrects for nonresponse only (and reflects a universe of 884 paint manufacturing facilities) and one that corrects for nonresponse and frame error (and reflects a universe of 1,544 paint manufacturing facilities).

To show the effects of each of the above changes, risk results were calculated for the following three scenarios:

- original weights (884 facilities), corrected shower model;
- weights corrected for nonresponse (884 facilities), corrected shower model; and
- weights corrected for nonresponse and frame error (1,544 facilities), corrected shower model.

1.3 Document Organization

This addendum is organized into the following sections:

- Section 2, Analysis Results, presents a summary of new risk assessment results and the risk-based concentration values that are protective of human health. Results are presented for two waste management scenarios: landfill disposal of emission control dust and landfill disposal of combined solids. Two other waste management scenarios, treatment tank handling of wastewater and surface impoundment handling of wastewater, were not revised. EPA concluded, based on initial risk results, that management of liquid paint wastes in tanks does not present significant risks. In addition, EPA determined that the use of unlined surface impoundments for treatment of paint manufacturing waste liquids has not been demonstrated and does not constitute a plausible management scenario. Therefore, the risk assessment results for these two management scenarios were not revised.
- Section 3, Shower Model Revisions, describes the change made to the shower model and model verification.
- Section 4, Development of Revised Waste Volumes, describes the statistical changes made to the weights, and the changes to the waste volume distributions resulting from the changes to the statistical weights.

Appendixes A through D provide the following supplemental technical information and supporting data:

- A – Revised Risk Results
- B – Revised Shower Model Algorithms
- C – Detailed Statistical Analysis and Revised Weights
- D – Revised Waste Volumes

2.0 Analysis Results

This section provides summaries of human health risk results for the paints listing risk assessment that were affected by the changes described in this Addendum. The primary analysis conducted for the original risk assessment was a probabilistic analysis, the revised results of which are presented in this section and in Appendix A. The original risk assessment also included a deterministic analysis, but that was not revised because the listing determinations were based on the probabilistic analysis. Results for the probabilistic analysis are in terms of protective waste concentrations. These protective concentrations were established to ensure that 90 percent of the time target risk levels of 1 in 100,000 (1×10^{-5}) individual lifetime cancer risk or hazard quotient of 1.0 for noncancer health effects are not exceeded for the waste management scenarios evaluated.

Sections 3 and 4 provide an overview of the changes to the assessment on which these revised results are based (e.g., changes to the shower model). Unless noted as changed in this Addendum, all other analysis methodologies, parameter values, and assumptions are as documented in the original Risk Assessment Technical Background Document (Research Triangle Institute, 2001). This section presents results from the human health risk assessment for two waste management scenarios:

- landfill disposal of combined solid wastes and
- landfill disposal of emission control dust.

Risk results were calculated for three scenarios, to show the effects of each of the changes to the risk assessment. These scenarios are:

- original weights (884 facilities), corrected shower model;
- weights adjusted for nonresponse and misclassification (884 facilities), corrected shower model; and
- weights adjusted for nonresponse, misclassification, and frame error (1,544 facilities), corrected shower model.

Probabilistic results are based on a Monte Carlo simulation in which many model input parameter values are varied over multiple iterations of the model (i.e., 10,000) to yield a statistical distribution of exposures and risks. Results shown in this section are based on the 90^{th} percentile level identified from these distributions. The 90^{th} percentile level means that the waste concentration listed in the results tables will be protective of human health at the specified target risk level for 90 percent of the scenarios in the Monte Carlo analysis. Table 2-1 shows results for landfill disposal of combined solid wastes, while Table 2-2 presents results for emission control dust. Both tables present results for the original weight scenario, the corrected weights for the 884 facilities scenario, and the corrected weights for the 1,544 facilities scenario. Results at other percentile levels are presented in Appendix A.

A summary table format is used to present results for each type of analysis. Tables 2-1 and 2-2 show results for the groundwater pathway only; the above-ground pathway was not revised because it was not the driving pathway in the original analysis, and none of the modifications to the analysis would be expected to change that conclusion. Additionally, the tables show the receptor and pathway that are the basis for the waste concentrations presented. For example, if the 90th percentile waste concentration for a given constituent indicates that child resident ingestion was the limiting receptor and pathway, it means that the child resident receptor exposed via the ingestion pathway had the lowest protective concentration for all receptors and pathways evaluated for a given waste management scenario and constituent. Results for other receptors and pathways are presented in Appendix A.

Table 2-1. Summary of 90th Percentile Target Waste Concentrations in Landfill, Combined Solids, Groundwater Pathway

Constituent	CAS	Target Waste Concentration (mg/kg)			Basis
		Original Weight	884 Facilities	1,544 Facilities	
Acrylamide	79-06-1	4.7E+02	3.7E+02	2.5E+02	AR 1
Acrylonitrile	107-13-1	4.4E+02	3.4E+02	2.2E+02	AR 1
Antimony	7440-36-0	3.2E+03	2.6E+03	1.7E+03	CR 2
Barium	7440-39-3	E	E	E	CR 2
Benzene	71-43-2	4.8E+04	3.7E+04	2.6E+04	AR 1
Butylbenzylphthalate	85-68-7	L	L	L	
Cadmium	7440-43-9	2.8E+05	2.1E+05	1.5E+05	CR 2
Chloroform	67-66-3	E	E	E	CR 2
Chromium (III)	16065-83-1	E	E	E	CR 2
Chromium (VI)	18540-29-9	6.6E+04	4.8E+04	3.4E+04	CR 2
Cobalt	7440-48-4	E	E	E	CR 2
Copper	7440-50-8	E	E	E	NA 5
Cresol, m-	108-39-4	E	E	E	CR 2
Cresol, o-	95-48-7	E	E	E	CR 2
Cresol, p-	106-44-5	E	E	E	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L	L	L	
Dibutylphthalate	84-74-2	L	L	L	
Dichloromethane	75-09-2	3.6E+05	2.9E+05	1.9E+05	AR 1
Dimethylphenol, 2,4-	105-67-9	E	E	E	CR 2

(continued)

Table 2-1. (continued)

Constituent	CAS	Target Waste Concentration (mg/kg)			Basis
		Original Weight	884 Facilities	1,544 Facilities	
Divalent mercury	7439-97-6(d)	E	E	E	CR 2
Ethylbenzene	100-41-4	L	L	L	
Ethylene glycol	107-21-1	E	E	E	CR 2
Formaldehyde	50-00-0	E	E	6.7E+05	CR 2
Lead	7439-92-1	E	E	E	NA 5
Mercury	7439-97-6(e)	E	E	E	NA 3
Methanol	67-56-1	E	E	E	CR 2
Methyl ethyl ketone	78-93-3	E	E	E	CR 2
Methyl isobutyl ketone	108-10-1	E	E	E	NA 3
Methyl methacrylate	80-62-6	E	E	E	NA 3
n-Butyl alcohol	71-36-3	E	E	6.9E+05	CR 2
Nickel	7440-02-0	E	E	E	CR 2
Nickel oxide	1313-99-1	B	B	B	
Pentachlorophenol	87-86-5	1.6E+05	1.3E+05	9.1E+04	AR 1
Phenol	108-95-2	E	E	E	CR 2
Selenium	7782-49-2	3.4E+04	2.8E+04	1.7E+04	CR 2
Silver	7440-22-4	E	E	E	CR 2
Styrene	100-42-5	E	E	E	NA 3
Tetrachloroethylene	127-18-4	4.5E+04	3.6E+04	2.3E+04	AR 1
Tin	7440-31-5	E	E	E	CR 2
Toluene	108-88-3	E	E	E	NA 3
Vinyl acetate	108-05-4	G	G	G	
Xylene (mixed isomers)	1330-20-7	L	L	L	
Zinc	7440-66-6	E	E	E	CR 2

AR = Adult resident.
B = Not evaluated due to no benchmark.
CR = Child resident.
E = The concentration exceeded 1 million ppm.
G = Screened out of pathway due to zero well concentration.
L = Screened out of pathway since there was no constituent concentration in the leachate.
NA = Not applicable to a particular receptor group.

1 = Cancer risk.
2 = HQ ingestion.
3 = HQ inhalation.
4 = Soil Screening Level.
5 = Drinking water action level.

Table 2-2. Summary of 90th Percentile Target Waste Concentrations in Landfill, Dust, Groundwater Pathway

		Target Waste Concentration (mg/kg)			
Constituent	**CAS**	**Original Weight**	**884 Facilities**	**1,544 Facilities**	**Basis**
Acrylamide	79-06-1	3.1E+02	3.5E+02	2.8E+02	AR 1
Acrylonitrile	107-13-1	3.1E+02	3.4E+02	3.1E+02	AR 1
Antimony	7440-36-0	2.3E+03	2.6E+03	2.1E+03	CR 2
Barium	7440-39-3	E	E	E	CR 2
Benzene	71-43-2	3.2E+04	3.4E+04	3.1E+04	AR 1
Butylbenzylphthalate	85-68-7	L	L	L	
Cadmium	7440-43-9	1.3E+05	1.4E+05	1.1E+05	CR 2
Chloroform	67-66-3	E	E	E	CR 2
Chromium (III)	16065-83-1	E	E	E	CR 2
Chromium (VI)	18540-29-9	6.8E+04	7.5E+04	6.0E+04	CR 2
Cobalt	7440-48-4	E	E	E	CR 2
Copper	7440-50-8	E	E	E	NA 5
Cresol, m-	108-39-4	E	E	E	CR 2
Cresol, o-	95-48-7	E	E	E	CR 2
Cresol, p-	106-44-5	E	E	E	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L	L	L	
Dibutylphthalate	84-74-2	L	L	L	
Dichloromethane	75-09-2	2.6E+05	2.8E+05	2.5E+05	AR 1
Dimethylphenol, 2,4-	105-67-9	E	E	E	CR 2
Divalent mercury	7439-97-6(d)	E	E	E	CR 2
Ethylbenzene	100-41-4	L	L	L	
Ethylene glycol	107-21-1	E	E	E	CR 2
Formaldehyde	50-00-0	9.3E+05	E	9.1E+05	CR 2
Lead	7439-92-1	E	E	E	NA 5
Mercury	7439-97-6(e)	E	E	E	NA 3
Methanol	67-56-1	E	E	E	CR 2
Methyl ethyl ketone	78-93-3	E	E	E	CR 2
Methyl isobutyl ketone	108-10-1	E	E	E	NA 3
Methyl methacrylate	80-62-6	E	E	E	NA 3
n-Butyl alcohol	71-36-3	9.7E+05	E	9.2E+05	CR 2
Nickel	7440-02-0	E	E	E	CR 2
Nickel oxide	1313-99-1	B	B	B	
Pentachlorophenol	87-86-5	9.6E+04	1.1E+05	8.8E+04	AR 1
Phenol	108-95-2	E	E	E	CR 2

(continued)

Table 2-2. (continued)

		Target Waste Concentration (mg/kg)			
Constituent	**CAS**	**Original Weight**	**884 Facilities**	**1,544 Facilities**	**Basis**
Selenium	7782-49-2	2.5E+04	2.8E+04	2.4E+04	CR 2
Silver	7440-22-4	E	E	E	CR 2
Styrene	100-42-5	E	E	E	NA 3
Tetrachloroethylene	127-18-4	3.0E+04	3.4E+04	2.8E+04	AR 1
Tin	7440-31-5	E	E	E	CR 2
Toluene	108-88-3	E	E	E	NA 3
Vinyl acetate	108-05-4	G	G	G	
Xylene (mixed isomers)	1330-20-7	L	L	L	
Zinc	7440-66-6	E	E	E	CR 2

AR = Adult resident.
B = Not evaluated due to no benchmark.
CR = Child resident.
E = The concentration exceeded 1 million ppm.
G = Screened out of pathway due to zero well concentration.
L = Screened out of pathway since there was no constituent concentration in the leachate.
NA = Not applicable to a particular receptor group.

1 = Cancer risk.
2 = HQ ingestion.
3 = HQ inhalation.
4 = Soil Screening Level.
5 = Drinking water action level.

3.0 Shower Model Revision

3.1 Introduction

Individuals may be exposed to waste contaminants through inhalation of vapor-phase emissions from groundwater. Such exposure may occur during the time spent in the shower while showering and in the shower stall after showering. To evaluate these exposures, EPA used a model to estimate the average daily constituent air concentration to which a receptor may be exposed due to showering.

A primary assumption of this evaluation is that the vapor-phase concentration of a contaminant results solely from showering activity. Some investigators evaluate emissions due to other household uses of water (for example, use of water in sinks, toilets, washing machines, dishwashers) and risks due to inhalation for time spent in the remainder of the house. However, the risk from inhalation exposures in the remainder of the house has been shown to be significantly lower than the risk from inhalation exposures due to showering (McKone, 1987). In addition, the input data needed to estimate household chemical concentrations from other sources is considered highly uncertain (e.g., house volume, house air exchange rate, time spent at home). Given the low risk due to exposure from the remainder of the house and the uncertainty associated with estimates of household chemical concentrations from other sources, the current version of the shower model has been simplified to focus on the greatest sources of exposure and risk due to use of contaminated water (i.e., showering).

This chapter provides a brief background of the shower model and describes changes made to the shower model since January 2001. The shower model is documented in more detail in Appendix B.

3.2 Background on the Shower Model

The shower model estimates the average daily indoor air concentration of volatile constituents in groundwater to which a receptor may be exposed. The model assumes that the only contribution to the average daily indoor air concentration is from showering. In order to calculate the average daily air concentration, the model first determines the average concentration in the shower stall during and after showering. The average shower stall concentration is time weighted based on the amount of time spent in the shower and the total number of minutes per day to determine the average daily indoor air concentration.

Concentrations in the shower are modeled over short periods of time, or time steps. Over each time step, the model calculates concentration in the shower and then averages over all the time steps. The model consists of three compartments: the shower stall, the bathroom, and the remainder of the house. Air exchange rates between the shower and the bathroom and between the bathroom and the remainder of the house are used to model the movement of volatile constituents in the air between the compartments. The house compartment is essentially treated as a sink in which there is no build-up of chemical concentration in the air. The concentration of contaminant builds up over time in the shower and bathroom compartments. However, the model includes a check to ensure that these concentrations do not exceed equilibrium.

The shower model is based on equations presented by Little (1992) and McKone (1987). These researchers presented models using mass transfer coefficients to estimate the transfer of chemical between the liquid and vapor phases in a shower. McKone (1987) presents an overall mass transfer coefficient. This coefficient is based on the properties of the chemical being modeled, such as the Henry's law constant. Little (1992) used the overall mass transfer coefficient to estimate a dimentionless overall mass transfer coefficient. This dimentionless overall mass transfer coefficient is dependant upon the properties of the water droplets in the shower such as surface area. The shower model used for this study relies upon these mass transfer coefficients to estimate the total mass of chemical emitted from shower droplets during each time step.

3.3 Changes Made to the Shower Model

In the original Paints analysis, adult receptors were exposed to contaminants in the shower via inhalation. Based on a review of the model, it was determined that the air concentration in the shower itself was being divided directly by the noncancer inhalation benchmarks, also known as reference concentrations (RfCs), to calculate a hazard quotient (HQ). Thus, the RfC was being compared to the highest concentration to which an individual may be exposed—a concentration to which an individual would be exposed only for the duration of their shower. However, the RfC is a chronic health benchmark and reflects a concentration in air to which an individual can be continuously exposed without experiencing any adverse health effects. Therefore, the HQ is more appropriately calculated using a time-weighted, daily-average air concentration that reflects conditions a receptor is likely to be exposed to on a daily basis, rather than the peak concentration.

The original version of the shower model was a spreadsheet-based system that used a VisualBasic macro to run the model. Because tracking the equations through the spreadsheet model was a difficult task, it was decided that the model would be recoded as a VisualBasic module. In recoding the model, the HQ calculations were revised to use a time-weighted, daily-average air concentration. In addition, all of the algorithms used in the model were technically reviewed and checked for quality to ensure that the rest of the model was being implemented correctly.

3.4 Model Verification

Upon recoding the shower model, a thorough review of the model was conducted, which included a 100 percent check of all equations in the source code of the model. Based on this review no addition changes needed to be made to equations other than using the time weighted air concentration to calculate hazard quotients. Though there was not an error in the previously calculated cancer-based target waste concentrations, EPA ran all chemicals through the new version of the shower model regardless of the health benchmarks as an additional QA step. Upon review of the cancer based target waste concentrations from the coded shower model versus the spreadsheet version of the model, there were slight differences noted for some chemicals (i.e., ~1%).

The reason for this difference is due to the way in which the coded version and the spreadsheet version of the model estimate air concentrations over the time period of exposure in the shower. The spreadsheet model used the air concentrations from each time step to estimate a mass inhaled and converted the total mass inhaled into an average air concentration based on the total time spent in the shower and the breathing rate of the receptor. The new coded version of the model takes a more straight forward approach by looping over each time step to calculate a running average of the air concentration that the receptor is exposed to in the shower.

Since the model is executed in time steps of 0.2 minutes, the time the person is in the shower will not exactly equal the amount of time being modeled. For example, if the length of time in the shower is input into the model as 8.28 minutes then the last time step executed begins at time 8.2 and ends at 8.4 minutes. In other words, the time in the shower always falls between the beginning and the end of the last time step (e.g., 8.2 > 8.28 > 8.4). This is true of both the coded version of the model and the spreadsheet version.

In this example, the spreadsheet version of the model would convert the mass inhaled to the average air concentration in the shower stall using the total time in the shower of 8.28 minutes. However, the mass inhaled was calculated based on the total amount of time modeled given the time steps (e.g., 8.4 minutes). The coded version of the model avoids this problem entirely by averaging the concentrations directly. If the spreadsheet version of the model used the time modeled according to the time steps the results for carcinogens would have remained exactly the same.

4.0 Development of Revised Waste Volumes

4.1 Background

In February and March 2000, the EPA conducted a survey of paint manufacturing facilities under the authority granted to the EPA in Section 3007 of the Resource Conservation and Recovery Act (RCRA). The objective of the survey was to gather information about waste generation and management practices in the U.S. paint and coatings manufacturing industry in 1998, primarily to support EPA's risk assessment. The July 1999 and December 1999 Dun and Bradstreet (D&B) databases were used to identify individual facilities and estimate the size of each of the paint manufacturers. Due to the scope of the paint industry (approximately 1,000 production facilities) and in consideration of time and resource constraints, EPA selected a stratified random sample of the paint facilities to determine which ones would be recipients of the survey. Under this sampling scheme, the universe of manufacturers of paints and coatings was stratified into 12 categories based on three characteristics:

- paint types
  - architectural or special purpose (SIC 2851-01)
  - original equipment manufacturing (OEM, SIC 2851-02)

- sales
  - <$5 million (Small)
  - $5 to 20 million (Medium)
  - >$20 million (Large)

- TRI status (did or did not report in 1997 on releases to the land-based units of concern).

A simple random sample of facilities was selected in each of the 12 categories, and the sampling was accomplished in two rounds. Due to an error, the facilities sampled from the 12 categories in the first round were facilities located in Ohio and states preceding Ohio alphabetically. To allow representation of facilities in all states, a second round of sampling was performed. Facilities in states that follow Ohio alphabetically were stratified into the 12 categories and, using the same sampling methodology, a simple random sample of facilities was obtained from each category. Hence, there were a total of 24 sampling strata.

After the survey information was received from the facilities, the facility weights were applied to facility waste volume data in order to create distributions of waste volume for the risk assessment. The EPA has received several comments from the public that the weights used to generate the distributions are incorrect and have created errors in the risk assessment. EPA reviewed the calculation of the survey weights, and revised the weights to account for nonresponse and for potentially in-scope facilities that were not included on the sampling frame.

Section 4.2 describes the development of the revised statistical analysis weights. Section 4.3 presents changes to the waste volume distributions as a result of the changed facility weights.

4.2 Revised Facility Weights

This section describes the original sampling and survey weights, the public comments on the sampling and weights, and statistical analysis and revision of survey weights done in response to those comments. Appendix C provides further details on the revision of the survey weights and presents the revised weights.

4.2.1 The RCRA 3007 Sampling Population and Original Survey Weights

The July 1999 Dun and Bradstreet (D&B) database without sales data was used as the base list of facilities. The December 1999 D&B database with sales data was used to append sales data for facility stratification.

From the D&B databases, the EPA identified 1,764 facilities that were classified under SIC 2851. The D&B sales data were used to characterize the facilities as Small, Medium, or Large. The EPA judged that 108 facilities were not paint manufacturers of interest, 40 facilities were duplicate records, and 732 facilities were lacking sufficient data for stratification purposes. Of the 732 facilities that were excluded because of insufficient stratification data, 27 facilities were in the July 1999 D&B database but not in the December 1999 D&B database. It was later determined that these 27 facilities were not eligible for the study. The sampling population thus consisted of the 884 (1,764−108−40−732=884) facilities that were determined to be possible paint manufacturers of interest with sufficient stratification data. A simple random sample was selected without replacement for each of 17 strata because only 17 of the 24 sampling strata contained at least one facility from the sampling population. A total of 299 facilities were selected in the sample.

Of the 299 facilities selected, 7 did not respond; 187 manufactured paint products of interest, and 105 were found to be out-of-scope for the study (i.e., not manufacturing paint products in 1998). Out of the187 facilities manufacturing paint products of interest, 151 generated paint waste streams of concern and 36 recycled all or part of their paint residuals.

The initial survey weights were calculated for each of the 299 facilities included in the sample as the inverse of the probability of selection. (See Appendix C, Section C.1 for more details on calculating initial survey weights.) Because the samples within each stratum were selected independently from other strata, the survey weights were calculated separately for each of the 24 sampling strata. Each sample unit in the same stratum received identical survey weights. The weight represents the number of other facilities the selected facility represents within each of the 24 stratification categories. For the proposed rule, these weights were used to make inferences to the sampling population of 884 facilities, without any adjustments for nonresponse or frame errors.

Since 64 percent (187 of 292) of the sample respondents were paint manufacturers of interest, the EPA inferred that there were 566 paint manufacturers of interest in the sampling population of 884. The EPA relied on a number of data sources to estimate that there are 972 paint manufacturers in the United States. This estimate of 972 was derived by extrapolating through the percentages of SIC 2851 facilities in the D&B database that are represented by the 187 paint manufacturers of interest that were surveyed. The EPA considered this set of 972 paint manufacturers as the universe of U.S. paint manufacturers. Thus, to estimate characteristics of the paint manufacturers universe (e.g., total waste volume), a multiplier of 1.7173 (972 ÷ 566 = 1.7173) was used to extrapolate weighted data from the survey.

4.2.2 Public Comments on Original Survey Weights

Public commenters on the proposed paint manufacturing waste listings determination raised two issues relating to the statistical design and interpretation of the survey data:

1. Some large sales volume facilities were misclassified as small, and some TRI facilities as non-TRI. Public commenters claimed that the weights assigned to those facilities were, therefore, incorrect.

2. The characteristics of the 884 facilities in the sampling population were assumed to be representative of the 705 facilities that were not characterized because of insufficient information in the D&B database. Public commenters claimed that this assumption mischaracterized the universe of paint manufacturers and, with the misclassification of facilities, led to overestimation of waste volumes.

4.2.3 Statistical Analysis in Response to Public Comments

Misclassification of Facilities. Public commenters claimed that four facilities were misclassified—NCA016, TNV346, ILP084, and LAB217. Facilities NCA016 and TNV346 were classified as small, but were claimed to be large by the public commenters. Facilities NCA016, ILP084, and LAB217 were classified as non-TRI, but were claimed to be TRI by the public commenters. These facilities received statistical analysis weights that were higher than the weights they would have received if the classifications reported in the public comments were correct. These classifications had been used to define the sampling strata before the sample facilities were selected.

Misclassification does not make the weights incorrect. Sampling weights are based on the probabilities of selection, which depend on how the facilities were classified for sample selection, not on their true status. Nevertheless, instances can occur in which the correct sampling weights lead to survey estimates that have large variability. That is, if repeated samples were selected using the same sampling design and the same sample size, the survey estimates obtained from these repeated samples would be highly variable. Each sample taken from the sampling frame generates an estimate of the characteristic of interest (e.g., population mean or population total). If several samples are selected from the same sampling frame, using the same sampling design and same sample size, the estimates calculated from these samples will not be identical. The variability of these estimates could be large if the strata are not homogeneous (e.g., there are several large facilities in the small-facility stratum). It is sometimes appropriate to revise the sampling weights to produce less variable survey estimates, even though the initial weights are technically correct.

EPA revised the sampling weights to reduce the variability of the survey estimates. EPA did not recalculate the initial sampling weights by reclassifying the facilities that public commenters claimed were misclassified. That recalculation would be appropriate only if these facilities were the only facilities in their respective strata that had been misclassified. For instance, are the two large facilities that were stratified as small facilities the only large facilities in the small facilities strata, or are these two large facilities representative of other large facilities that were misclassified in the small facilities strata? The revised weighting plan treats them as representative of other large facilities in the small facilities strata.[1]

Frame Error. Because of inadequacies of the sampling frame, there may be no information from some population members that should have been in the sample. Frame error results when the sampling frame does not represent a true cross-section of the population. Undercoverage occurs when groups in the population are left out of the sample selection process.

There were 705 potentially in-scope facilities that were not included on the sampling frame because of insufficient data for characterizing them into one of the strata based on size and/or TRI status. These facilities had no chance of being selected into the sample, hence they are not directly represented by the survey respondents. Poststratification was used to adjust the sampling weights to account for frame error. (See Appendix C for a description of the poststratification process.) Weighting to enable extrapolation is based on the idea of creating groups, called poststrata, placing the facilities not included in the survey into those groups, and claiming that the facilities that were surveyed in those groups represent those that were not surveyed. For instance, there were 46 surveyed facilities in the Large, Listed poststratum. These 46 facilities, in addition to representing the 53 facilities from the sampling population of 884, are also claimed to represent 18 of the facilities that were excluded from the sampling frame.

Nonresponse. Of the 299 sampled facilities, seven did not return their survey questionnaires to the EPA. These facilities were AZT039, FLC144, CAP011, CAA149, GAC173, ORS340 and CAI148. The original sampling weights did not compensate for the lack of data for these seven facilities. Hence, the total waste production for the population was underestimated. The EPA has revised the sampling weights to account for the seven nonresponding facilities.

In summary, the EPA revised the statistical analysis weights to account for the aforementioned issues. Two sets of final statistical analysis weights were produced to allow inference to two populations. One set of weights would allow inference to the sampling population of 884 facilities. The second set of weights would allow extrapolation to the target

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[1] EPA performed a bounding risk analysis using two chemicals to determine how the target waste concentrations would change if these facilities were reclassified, and found that the change in target waste concentrations would be about a factor of two. Results of this bounding analysis are presented in Table A-6 of Appendix A.

population of 1,544 facilities, which includes the 705 facilities that had been excluded from the sampling frame. These weights were produced by making the following adjustments to the original survey weights:

- EPA started with two sets of initial sampling weights. The first set consisted of the survey weights calculated for the 24 sampling strata. The second set was obtained by collapsing the "states through Ohio" strata with the "states after Ohio" strata and recalculating the survey weights. The 24 sampling strata were collapsed into 12 strata to reduce the variability in the weights, thus increasing the precision of survey estimates.

- EPA adjusted the sampling weights to account for the 705 facilities that were excluded from the sampling frame, and the facilities that were claimed to be misclassified by public commenters.

- EPA adjusted the sampling weights to account for the nonresponding facilities.

Appendix C further describes the specific steps that were performed to obtain the final statistical analysis weights.

4.3 Revised Waste Volume Distributions

The two sets of revised facility weights produced two sets of revised waste volumes. Figure 4-1 shows a comparison of the waste volume distributions based on the original weights; the weights adjusted for nonresponse and misclassification (884 facilities); and the weights

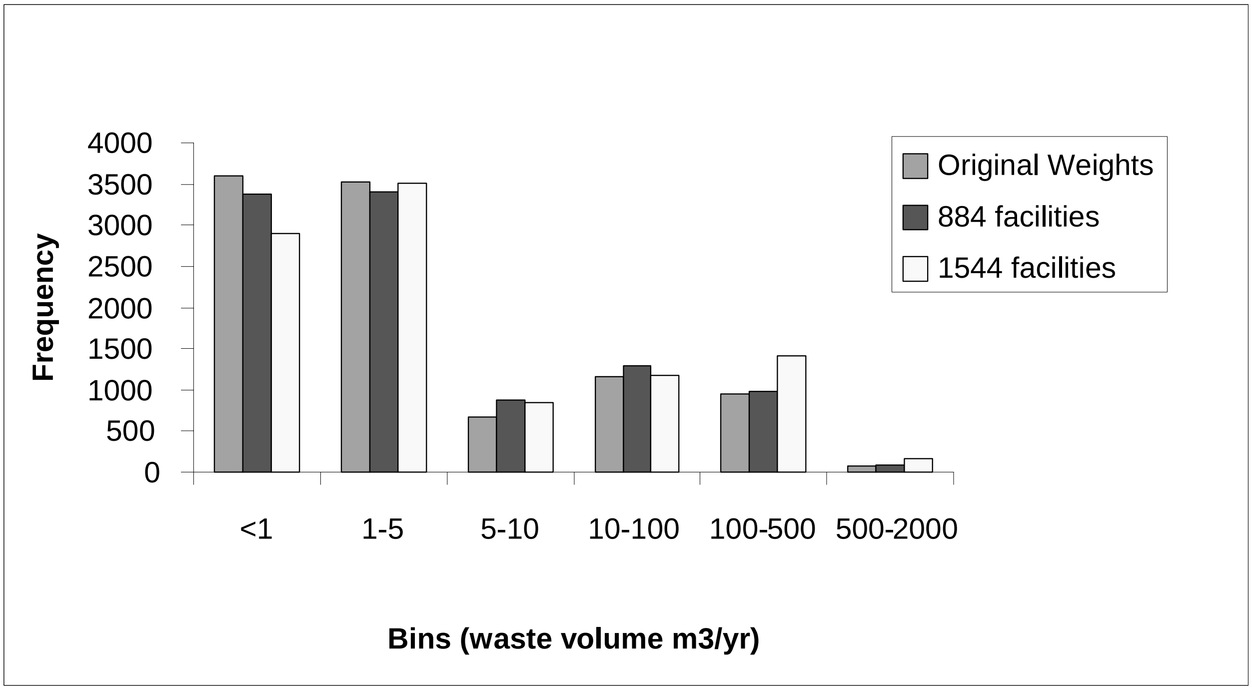

Figure 4-1. Comparison of combined solids waste volume distributions.

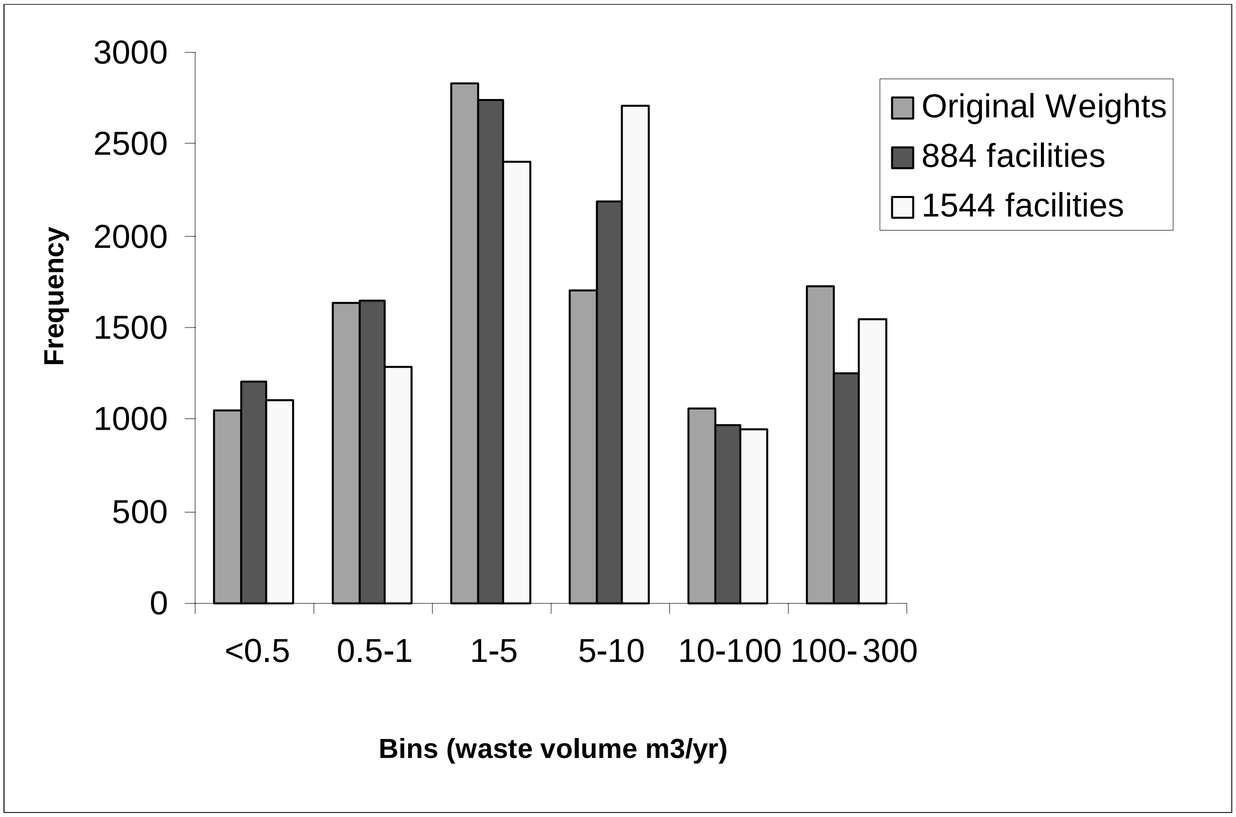

Figure 4-2. Comparison of emission control dust waste volume distributions.

adjusted for nonresponse, misclassification, and frame error (1,544 facilities) for combined solids. Figure 4-2 shows the same comparison for emission control dust. Tables 4-1 and 4-2 show the 50th and 90th percentiles of each of the waste volume distributions for combined solids and emission control dust, respectively. Appendix D presents the complete waste volume distributions for combined solids and emission control dust for all three sets of weights.

Table 4-1. Comparison of Percentiles for Combined Solids Waste Volume Distribution

	Original Weights (from January 2001 Risk Assessment)		Revised Weights Based on 1,544 Facilities in Full Target Population		Weights Based on 884 Facilities in Sampling Framework	
Percentile	**Volume (m^3/yr)**	**Volume (gal/yr)**	**Volume (m^3/yr)**	**Volume (gal/yr)**	**Volume (m^3/yr)**	**Volume (gal/yr)**
50th	1.42	374	1.70	450	1.42	374
90th	163.78	43,266	163.78	43,266	163.78	43,266

Table 4-2. Comparison of Percentiles for Emission Control Dust Waste Volume Distribution

	Original Weights (from January 2001 Risk Assessment)		Revised Weights Based on 1,544 Facilities in Full Target Population		Weights Based on 884 Facilities in Sampling Framework	
Percentile	**Volume (m3/yr)**	**Volume (gal/yr)**	**Volume (m3/yr)**	**Volume (gal/yr)**	**Volume (m3/yr)**	**Volume (gal/yr)**
50th	2.44	643	7.27	1920	2.44	643
90th	220.82	58,333	220.82	58,333	220.82	58,333

5.0 References

Little, John C. 1992a. Applying the two resistance theory to contaminant volatilization in showers. *Environmental Science and Technology* 26: 1341-1349.

McKone, Thomas E. 1987. Human exposure to volatile organic compounds in household tap water: The indoor inhalation pathway. *Environmental Science and Technology* 21: 1194-1201.

Research Triangle Institute. 2001. Risk Assessment Technical Background Document for the Paint and Coatings Hazardouse Waste Listing Determination. Prepared for the U.S. Environmental Protection Agency, Office of Solid Waste, Washington DC, under contract 68-W6-0053. January 17.

Appendix A

Revised Human Health Risk Results

Appendix A

Revised Human Health Risk Results

Table A-1a.	Driving 50th Percentile Target Waste Concentrations Using Original Weights in Landfill	pg A-5
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Table A-5a	90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Original Weights in Landfill	pg A-41
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Note: Each table contains results for both Combined Solids and Dust.

Appendix A

Each table in this appendix presents the results for both combined solids and emission control dust. For example, Table A-1a presents the 50th percentile waste concentrations using the original weights; the first part of this table shows results for combined solids, and the second part shows results for emission control dust. The title on each page indicates which waste stream is presented.

Both protective waste concentrations and protective leachate concentrations are reported. Similar to the protective waste concentrations, protective leachate concentrations are the leachate concentrations that correspond to the target risk levels. As such, they are the maximum leachate concentrations that can be generated by the paint waste before it is diluted by all the other material in the landfill and still be protective of human receptors evaluated in this risk assessment. The protective waste and leachate concentrations for paint waste are provided in the column labeled wastestream. The corresponding concentration in a WMU is also provided. The concentrations in the WMU are estimated using paint waste volumes and the size of the WMU assuming the waste is uniformly mixed and diluted.

Some of the values presented in these tables are greater than 1E+06 ppm (and are marked with the letter "E" for exceedance). Concentrations in excess of 1E+06 ppm are impossible by definition. Therefore, the specific values of those concentrations are not meaningful; they are simply the values the model calculates. Any concentration in excess of 1E+06 ppm, whether it is 2E+06 or 1E+12, would mean that the target risk or hazard quotient cannot be achieved at any possible concentration, and would suggest that the chemical is of little concern in the particular waste stream under the specified scenario and at the specified percentile.

Below is the legend of abbreviations used in the tables in this appendix.

CW	Concentrations in waste
CL	Concentrations in leachate
AR	Adult resident
CR	Child resident
NA	Not applicable to a particular receptor group.
E	The concentration exceeded 1 million ppm.
S	The concentration exceeded solubility checks.
L	Screened out of pathway because there was no constituent concentration in the leachate.
B	Not evaluated due to no benchmark.
G	Screened out of pathway due to zero well concentration.
1	Risk
2	HQ ingestion
3	HQ inhalation
5	Drinking Water Action Level

Table A-1a. Driving 50th Percentile Target Waste Concentrations Using Original Weights in Landfill: Combined Solids

Constituent	CAS	Groundwater					
		Cw (mg/kg)			CL (mg/L)		
		WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	1.9E+01	6.9E+04	AR 1	2.7E-02	1.0E+02	AR 1
Acrylonitrile	107-13-1	1.1E+01	4.0E+04	AR 1	2.3E-01	8.4E+02	AR 1
Antimony	7440-36-0	1.5E+02	5.7E+05	CR 2	4.2E+00	1.6E+04	CR 2
Barium	7440-39-3	1.1E+13 E	1.7E+16 E	CR 2	3.0E+10 E	4.3E+13 E	CR 2
Benzene	71-43-2	2.5E+03	8.1E+06 E	AR 1	2.6E+00	9.3E+03 S	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	6.5E+08 E	1.6E+12 E	CR 2	1.4E+06 E	5.0E+09 E	CR 2
Chloroform	67-66-3	1.8E+08 E	5.1E+11 E	CR 2	5.2E+01	2.1E+05 S	CR 2
Chromium (III)	16065-83-1	1.6E+35 E	1.4E+38 E	CR 2	3.4E+31 E	4.4E+34 E	CR 2
Chromium (VI)	18540-29-9	1.6E+04	7.3E+07 E	CR 2	4.7E+02	2.0E+06 E	CR 2
Cobalt	7440-48-4	2.5E+31 E	1.3E+33 E	CR 2	5.6E+29 E	3.6E+30 E	CR 2
Copper	7440-50-8	3.0E+13 E	5.9E+16 E	NA 5	6.6E+10 E	1.3E+14 E	NA 5
Cresol, m-	108-39-4	2.5E+30 E	9.1E+32 E	CR 2	8.3E+01	3.4E+05 S	CR 2
Cresol, o-	95-48-7	2.5E+30 E	9.1E+32 E	CR 2	8.3E+01	3.4E+05 S	CR 2
Cresol, p-	106-44-5	2.5E+29 E	9.1E+31 E	CR 2	8.3E+00	3.4E+04 S	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	1.2E+04	4.0E+07 E	AR 1	1.5E+01	5.6E+04 S	AR 1
Dimethylphenol, 2,4-	105-67-9	1.0E+31 E	4.0E+34 E	CR 2	1.9E+01	7.7E+04 S	CR 2
Divalent mercury	7439-97-6(d)	2.5E+28 E	1.0E+32 E	CR 2	5.2E+27 E	1.7E+30 E	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	1.5E+05	5.7E+08 E	CR 2	3.3E+03	1.4E+07 E	CR 2
Formaldehyde	50-00-0	3.5E+04	1.4E+08 E	CR 2	3.3E+02	1.4E+06 E	CR 2
Lead	7439-92-1	2.0E+31 E	1.7E+34 E	NA 5	1.5E+28 E	9.2E+30 E	NA 5
Mercury	7439-97-6(e)	8.6E+29 E	4.5E+31 E	NA 3	7.3E+26 E	2.9E+28 E	NA 3
Methanol	67-56-1	1.2E+06 E	4.5E+09 E	CR 2	8.3E+02	3.4E+06 E	CR 2
Methyl ethyl ketone	78-93-3	1.8E+05 S	6.9E+08 E	CR 2	1.0E+03	4.1E+06 E	CR 2
Methyl isobutyl ketone	108-10-1	5.7E+05 S	2.0E+09 E	NA 3	1.1E+02	4.1E+05 S	NA 3
Methyl methacrylate	80-62-6	6.9E+04 S	2.5E+08 E	NA 3	3.5E+02	1.3E+06 E	NA 3
n-Butyl alcohol	71-36-3	4.4E+04	1.6E+08 E	CR 2	1.7E+02	6.8E+05 S	CR 2
Nickel	7440-02-0	1.1E+20 E	1.8E+23 E	CR 2	1.6E+17 E	2.6E+20 E	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	6.9E+27 E	2.6E+29 E	AR 1	1.4E+28 E	3.7E+29 E	CR 1
Phenol	108-95-2	2.1E+08 E	5.8E+11 E	CR 2	1.0E+03	4.1E+06 E	CR 2
Selenium	7782-49-2	9.6E+02	3.6E+06 E	CR 2	2.4E+01	9.6E+04	CR 2
Silver	7440-22-4	4.2E+30 E	8.5E+32 E	CR 2	5.9E+28 E	1.7E+30 E	CR 2
Styrene	100-42-5	6.4E+30 E	1.6E+34 E	NA 3	1.9E+02	7.7E+05 S	CR 2
Tetrachloroethylene	127-18-4	2.1E+03	7.1E+06 E	AR 1	2.3E+00	8.8E+03 S	AR 1
Tin	7440-31-5	2.8E+34 E	4.2E+37 E	CR 2	1.3E+31 E	1.2E+34 E	CR 2
Toluene	108-88-3	1.6E+30 E	1.2E+33 E	NA 3	1.9E+02	7.7E+05 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	4.7E+32 E	2.9E+35 E	CR 2	4.5E+30 E	6.6E+32 E	CR 2

Table A-1a. Driving 50th Percentile Target Waste Concentrations Using Original Weights in Landfill: Dust

Constituent	CAS	Groundwater					
		Cw (mg/kg)			CL (mg/L)		
		WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	1.9E+01	2.8E+04	AR 1	2.7E-02	4.2E+01	AR 1
Acrylonitrile	107-13-1	1.1E+01	1.7E+04	AR 1	2.3E-01	3.6E+02	AR 1
Antimony	7440-36-0	1.5E+02	2.1E+05	CR 2	4.2E+00	6.2E+03	CR 2
Barium	7440-39-3	1.1E+13 E	7.8E+15 E	CR 2	3.0E+10 E	2.2E+13 E	CR 2
Benzene	71-43-2	2.5E+03	3.2E+06 E	AR 1	2.6E+00	3.9E+03 S	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	6.5E+08 E	7.4E+11 E	CR 2	1.4E+06 E	2.0E+09 E	CR 2
Chloroform	67-66-3	1.8E+08 E	1.9E+11 E	CR 2	5.2E+01	6.5E+04 S	CR 2
Chromium (III)	16065-83-1	1.6E+35 E	7.0E+37 E	CR 2	3.4E+31 E	2.0E+34 E	CR 2
Chromium (VI)	18540-29-9	3.1E+04	4.3E+07 E	CR 2	9.8E+02	1.2E+06 E	CR 2
Cobalt	7440-48-4	3.1E+31 E	2.1E+33 E	CR 2	6.0E+29 E	6.4E+30 E	CR 2
Copper	7440-50-8	3.0E+13 E	2.7E+16 E	NA 5	6.6E+10 E	6.4E+13 E	NA 5
Cresol, m-	108-39-4	2.5E+30 E	8.0E+32 E	CR 2	8.3E+01	1.4E+05 S	CR 2
Cresol, o-	95-48-7	2.5E+30 E	8.0E+32 E	CR 2	8.3E+01	1.4E+05 S	CR 2
Cresol, p-	106-44-5	2.5E+29 E	8.0E+31 E	CR 2	8.3E+00	1.4E+04	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	1.2E+04	1.6E+07 E	AR 1	1.5E+01	2.4E+04 S	AR 1
Dimethylphenol, 2,4-	105-67-9	1.0E+31 E	1.8E+34 E	CR 2	1.9E+01	3.2E+04 S	CR 2
Divalent mercury	7439-97-6(d)	2.5E+28 E	4.3E+31 E	CR 2	5.2E+27 E	1.0E+30 E	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	1.5E+05	2.4E+08 E	CR 2	3.3E+03	5.6E+06 E	CR 2
Formaldehyde	50-00-0	3.5E+04	5.6E+07 E	CR 2	3.3E+02	5.6E+05 S	CR 2
Lead	7439-92-1	2.0E+31 E	9.3E+33 E	NA 5	1.5E+28 E	4.5E+30 E	NA 5
Mercury	7439-97-6(e)	8.6E+29 E	4.0E+31 E	NA 3	7.3E+26 E	2.6E+28 E	NA 3
Methanol	67-56-1	1.2E+06 E	1.9E+09 E	CR 2	8.3E+02	1.4E+06 E	CR 2
Methyl ethyl ketone	78-93-3	1.8E+05 S	2.9E+08 E	CR 2	1.0E+03	1.7E+06 E	CR 2
Methyl isobutyl ketone	108-10-1	5.7E+05 S	7.5E+08 E	NA 3	1.1E+02	1.7E+05 S	NA 3
Methyl methacrylate	80-62-6	6.9E+04 S	1.1E+08 E	NA 3	3.5E+02	5.5E+05 S	NA 3
n-Butyl alcohol	71-36-3	4.4E+04	6.7E+07 E	CR 2	1.7E+02	2.8E+05 S	CR 2
Nickel	7440-02-0	5.6E+20 E	3.9E+23 E	CR 2	9.5E+17 E	4.9E+20 E	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	6.9E+27 E	2.3E+29 E	AR 1	1.4E+28 E	3.2E+29 E	CR 1
Phenol	108-95-2	2.1E+08 E	2.1E+11 E	CR 2	1.0E+03	1.7E+06 E	CR 2
Selenium	7782-49-2	9.6E+02	1.4E+06 E	CR 2	2.4E+01	3.7E+04	CR 2
Silver	7440-22-4	4.6E+30 E	8.9E+32 E	CR 2	6.1E+28 E	1.9E+30 E	CR 2
Styrene	100-42-5	6.4E+30 E	6.8E+33 E	NA 3	1.9E+02	3.2E+05 S	CR 2
Tetrachloroethylene	127-18-4	2.1E+03	2.8E+06 E	AR 1	2.3E+00	3.5E+03 S	AR 1
Tin	7440-31-5	2.8E+34 E	2.0E+37 E	CR 2	1.3E+31 E	5.6E+33 E	CR 2
Toluene	108-88-3	1.6E+30 E	6.4E+32 E	NA 3	1.9E+02	3.2E+05 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	4.7E+32 E	2.0E+35 E	CR 2	4.5E+30 E	4.8E+32 E	CR 2

Table A-1b. Driving 50th Percentile Target Waste Concentrations Using Modified Weights Based on 884 Facilities in Landfill: Combined Solids

Constituent	CAS	Groundwater					
		Cw (mg/kg)			CL (mg/L)		
		WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	1.9E+01	4.9E+04	AR 1	2.7E-02	7.5E+01	AR 1
Acrylonitrile	107-13-1	1.1E+01	3.0E+04	AR 1	2.3E-01	6.5E+02	AR 1
Antimony	7440-36-0	1.5E+02	4.1E+05	CR 2	4.2E+00	1.2E+04	CR 2
Barium	7440-39-3	1.1E+13 E	1.5E+16 E	CR 2	3.0E+10 E	4.1E+13 E	CR 2
Benzene	71-43-2	2.5E+03	6.4E+06 E	AR 1	2.6E+00	7.2E+03 S	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	6.5E+08 E	1.4E+12 E	CR 2	1.4E+06 E	3.6E+09 E	CR 2
Chloroform	67-66-3	1.8E+08 E	3.8E+11 E	CR 2	5.2E+01	1.4E+05 S	CR 2
Chromium (III)	16065-83-1	1.6E+35 E	1.1E+38 E	CR 2	3.4E+31 E	3.5E+34 E	CR 2
Chromium (VI)	18540-29-9	1.6E+04	5.3E+07 E	CR 2	4.7E+02	1.5E+06 E	CR 2
Cobalt	7440-48-4	2.5E+31 E	1.1E+33 E	CR 2	5.6E+29 E	3.2E+30 E	CR 2
Copper	7440-50-8	3.0E+13 E	5.1E+16 E	NA 5	6.6E+10 E	1.1E+14 E	NA 5
Cresol, m-	108-39-4	2.5E+30 E	8.1E+32 E	CR 2	8.3E+01	2.6E+05 S	CR 2
Cresol, o-	95-48-7	2.5E+30 E	8.1E+32 E	CR 2	8.3E+01	2.6E+05 S	CR 2
Cresol, p-	106-44-5	2.5E+29 E	8.1E+31 E	CR 2	8.3E+00	2.6E+04 S	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	1.2E+04	3.0E+07 E	AR 1	1.5E+01	4.3E+04 S	AR 1
Dimethylphenol, 2,4-	105-67-9	1.0E+31 E	3.1E+34 E	CR 2	1.9E+01	5.8E+04 S	CR 2
Divalent mercury	7439-97-6(d)	2.5E+28 E	8.2E+31 E	CR 2	5.2E+27 E	1.3E+30 E	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	1.5E+05	4.5E+08 E	CR 2	3.3E+03	1.0E+07 E	CR 2
Formaldehyde	50-00-0	3.5E+04	1.0E+08 E	CR 2	3.3E+02	1.0E+06 E	CR 2
Lead	7439-92-1	2.0E+31 E	1.5E+34 E	NA 5	1.5E+28 E	6.9E+30 E	NA 5
Mercury	7439-97-6(e)	8.6E+29 E	3.7E+31 E	NA 3	7.3E+26 E	2.2E+28 E	NA 3
Methanol	67-56-1	1.2E+06 E	3.4E+09 E	CR 2	8.3E+02	2.6E+06 E	CR 2
Methyl ethyl ketone	78-93-3	1.8E+05 S	5.4E+08 E	CR 2	1.0E+03	3.1E+06 E	CR 2
Methyl isobutyl ketone	108-10-1	5.7E+05 S	1.5E+09 E	NA 3	1.1E+02	3.2E+05 S	NA 3
Methyl methacrylate	80-62-6	6.9E+04 S	1.9E+08 E	NA 3	3.5E+02	1.0E+06 E	NA 3
n-Butyl alcohol	71-36-3	4.4E+04	1.2E+08 E	CR 2	1.7E+02	5.2E+05 S	CR 2
Nickel	7440-02-0	1.1E+20 E	1.9E+23 E	CR 2	1.6E+17 E	2.6E+20 E	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	6.9E+27 E	1.8E+29 E	AR 1	1.4E+28 E	2.5E+29 E	CR 1
Phenol	108-95-2	2.1E+08 E	4.8E+11 E	CR 2	1.0E+03	3.1E+06 E	CR 2
Selenium	7782-49-2	9.6E+02	2.7E+06 E	CR 2	2.4E+01	6.6E+04	CR 2
Silver	7440-22-4	4.2E+30 E	7.3E+32 E	CR 2	5.9E+28 E	1.5E+30 E	CR 2
Styrene	100-42-5	6.4E+30 E	1.3E+34 E	NA 3	1.9E+02	5.8E+05 S	CR 2
Tetrachloroethylene	127-18-4	2.1E+03	5.3E+06 E	AR 1	2.3E+00	6.4E+03 S	AR 1
Tin	7440-31-5	2.8E+34 E	3.2E+37 E	CR 2	1.3E+31 E	9.2E+33 E	CR 2
Toluene	108-88-3	1.6E+30 E	9.8E+32 E	NA 3	1.9E+02	5.8E+05 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	4.7E+32 E	2.5E+35 E	CR 2	4.5E+30 E	5.3E+32 E	CR 2

Table A-1b. Driving 50th Percentile Target Waste Concentrations Using Modified Weights Based on 884 Facilities in Landfill: Dust

Constituent	CAS	Groundwater					
		Cw (mg/kg)			CL (mg/L)		
		WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	1.9E+01	2.8E+04	AR 1	2.7E-02	4.5E+01	AR 1
Acrylonitrile	107-13-1	1.1E+01	1.8E+04	AR 1	2.3E-01	3.8E+02	AR 1
Antimony	7440-36-0	1.5E+02	2.3E+05	CR 2	4.2E+00	6.2E+03	CR 2
Barium	7440-39-3	1.1E+13 E	8.8E+15 E	CR 2	3.0E+10 E	2.3E+13 E	CR 2
Benzene	71-43-2	2.5E+03	3.5E+06 E	AR 1	2.6E+00	4.1E+03 S	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	6.5E+08 E	7.0E+11 E	CR 2	1.4E+06 E	2.3E+09 E	CR 2
Chloroform	67-66-3	1.8E+08 E	1.8E+11 E	CR 2	5.2E+01	6.7E+04 S	CR 2
Chromium (III)	16065-83-1	1.6E+35 E	7.3E+37 E	CR 2	3.4E+31 E	2.3E+34 E	CR 2
Chromium (VI)	18540-29-9	3.1E+04	4.5E+07 E	CR 2	9.8E+02	1.2E+06 E	CR 2
Cobalt	7440-48-4	3.1E+31 E	2.1E+33 E	CR 2	6.0E+29 E	5.7E+30 E	CR 2
Copper	7440-50-8	3.0E+13 E	2.8E+16 E	NA 5	6.6E+10 E	6.4E+13 E	NA 5
Cresol, m-	108-39-4	2.5E+30 E	9.9E+32 E	CR 2	8.3E+01	1.4E+05 S	CR 2
Cresol, o-	95-48-7	2.5E+30 E	1.0E+33 E	CR 2	8.3E+01	1.4E+05 S	CR 2
Cresol, p-	106-44-5	2.5E+29 E	1.0E+32 E	CR 2	8.3E+00	1.4E+04	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	1.2E+04	1.8E+07 E	AR 1	1.5E+01	2.5E+04 S	AR 1
Dimethylphenol, 2,4-	105-67-9	1.0E+31 E	1.9E+34 E	CR 2	1.9E+01	3.4E+04 S	CR 2
Divalent mercury	7439-97-6(d)	2.5E+28 E	4.8E+31 E	CR 2	5.2E+27 E	1.1E+30 E	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	1.5E+05	2.5E+08 E	CR 2	3.3E+03	5.8E+06 E	CR 2
Formaldehyde	50-00-0	3.5E+04	6.1E+07 E	CR 2	3.3E+02	5.8E+05 S	CR 2
Lead	7439-92-1	2.0E+31 E	1.0E+34 E	NA 5	1.5E+28 E	5.0E+30 E	NA 5
Mercury	7439-97-6(e)	8.6E+29 E	4.3E+31 E	NA 3	7.3E+26 E	2.8E+28 E	NA 3
Methanol	67-56-1	1.2E+06 E	1.9E+09 E	CR 2	8.3E+02	1.4E+06 E	CR 2
Methyl ethyl ketone	78-93-3	1.8E+05 S	3.1E+08 E	CR 2	1.0E+03	1.7E+06 E	CR 2
Methyl isobutyl ketone	108-10-1	5.7E+05 S	7.7E+08 E	NA 3	1.1E+02	1.8E+05 S	NA 3
Methyl methacrylate	80-62-6	6.9E+04 S	1.2E+08 E	NA 3	3.5E+02	6.0E+05 S	NA 3
n-Butyl alcohol	71-36-3	4.4E+04	7.3E+07 E	CR 2	1.7E+02	2.9E+05 S	CR 2
Nickel	7440-02-0	5.6E+20 E	5.1E+23 E	CR 2	9.5E+17 E	8.0E+20 E	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	6.9E+27 E	2.5E+29 E	AR 1	1.4E+28 E	3.7E+29 E	CR 1
Phenol	108-95-2	2.1E+08 E	2.2E+11 E	CR 2	1.0E+03	1.7E+06 E	CR 2
Selenium	7782-49-2	9.6E+02	1.5E+06 E	CR 2	2.4E+01	4.0E+04	CR 2
Silver	7440-22-4	4.6E+30 E	9.0E+32 E	CR 2	6.1E+28 E	2.0E+30 E	CR 2
Styrene	100-42-5	6.4E+30 E	7.8E+33 E	NA 3	1.9E+02	3.4E+05 S	CR 2
Tetrachloroethylene	127-18-4	2.1E+03	3.0E+06 E	AR 1	2.3E+00	3.7E+03 S	AR 1
Tin	7440-31-5	2.8E+34 E	2.1E+37 E	CR 2	1.3E+31 E	6.7E+33 E	CR 2
Toluene	108-88-3	1.6E+30 E	7.2E+32 E	NA 3	1.9E+02	3.4E+05 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	4.7E+32 E	2.0E+35 E	CR 2	4.5E+30 E	5.1E+32 E	CR 2

Table A-1c. Driving 50th Percentile Target Waste Concentrations Using Modified Weights Based on 1544 Facilities in Landfill: Combined Solids

		Groundwater					
		Cw (mg/kg)			CL (mg/L)		
Constituent	CAS	WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	1.9E+01	3.9E+04	AR 1	2.7E-02	5.8E+01	AR 1
Acrylonitrile	107-13-1	1.1E+01	2.3E+04	AR 1	2.3E-01	5.0E+02	AR 1
Antimony	7440-36-0	1.5E+02	3.2E+05	CR 2	4.2E+00	8.8E+03	CR 2
Barium	7440-39-3	1.1E+13 E	1.3E+16 E	CR 2	3.0E+10 E	3.7E+13 E	CR 2
Benzene	71-43-2	2.5E+03	4.9E+06 E	AR 1	2.6E+00	5.4E+03 S	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	6.5E+08 E	1.1E+12 E	CR 2	1.4E+06 E	3.8E+09 E	CR 2
Chloroform	67-66-3	1.8E+08 E	2.7E+11 E	CR 2	5.2E+01	1.1E+05 S	CR 2
Chromium (III)	16065-83-1	1.6E+35 E	7.9E+37 E	CR 2	3.4E+31 E	2.6E+34 E	CR 2
Chromium (VI)	18540-29-9	1.6E+04	4.3E+07 E	CR 2	4.7E+02	1.1E+06 E	CR 2
Cobalt	7440-48-4	2.5E+31 E	8.0E+32 E	CR 2	5.6E+29 E	2.5E+30 E	CR 2
Copper	7440-50-8	3.0E+13 E	3.8E+16 E	NA 5	6.6E+10 E	8.2E+13 E	NA 5
Cresol, m-	108-39-4	2.5E+30 E	4.2E+32 E	CR 2	8.3E+01	1.9E+05 S	CR 2
Cresol, o-	95-48-7	2.5E+30 E	4.2E+32 E	CR 2	8.3E+01	1.9E+05 S	CR 2
Cresol, p-	106-44-5	2.5E+29 E	4.2E+31 E	CR 2	8.3E+00	1.9E+04	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	1.2E+04	2.4E+07 E	AR 1	1.5E+01	3.3E+04 S	AR 1
Dimethylphenol, 2,4-	105-67-9	1.0E+31 E	2.5E+34 E	CR 2	1.9E+01	4.5E+04 S	CR 2
Divalent mercury	7439-97-6(d)	2.5E+28 E	5.6E+31 E	CR 2	5.2E+27 E	9.4E+29 E	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	1.5E+05	3.3E+08 E	CR 2	3.3E+03	7.8E+06 E	CR 2
Formaldehyde	50-00-0	3.5E+04	8.1E+07 E	CR 2	3.3E+02	7.8E+05 S	CR 2
Lead	7439-92-1	2.0E+31 E	9.5E+33 E	NA 5	1.5E+28 E	4.8E+30 E	NA 5
Mercury	7439-97-6(e)	8.6E+29 E	2.7E+31 E	NA 3	7.3E+26 E	1.7E+28 E	NA 3
Methanol	67-56-1	1.2E+06 E	2.6E+09 E	CR 2	8.3E+02	1.9E+06 E	CR 2
Methyl ethyl ketone	78-93-3	1.8E+05 S	4.2E+08 E	CR 2	1.0E+03	2.3E+06 E	CR 2
Methyl isobutyl ketone	108-10-1	5.7E+05 S	1.1E+09 E	NA 3	1.1E+02	2.5E+05 S	NA 3
Methyl methacrylate	80-62-6	6.9E+04 S	1.5E+08 E	NA 3	3.5E+02	7.8E+05 S	NA 3
n-Butyl alcohol	71-36-3	4.4E+04	9.6E+07 E	CR 2	1.7E+02	3.9E+05 S	CR 2
Nickel	7440-02-0	1.1E+20 E	1.2E+23 E	CR 2	1.6E+17 E	2.0E+20 E	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	6.9E+27 E	1.3E+29 E	AR 1	1.4E+28 E	1.9E+29 E	CR 1
Phenol	108-95-2	2.1E+08 E	3.5E+11 E	CR 2	1.0E+03	2.3E+06 E	CR 2
Selenium	7782-49-2	9.6E+02	2.0E+06 E	CR 2	2.4E+01	5.4E+04	CR 2
Silver	7440-22-4	4.2E+30 E	5.7E+32 E	CR 2	5.9E+28 E	1.0E+30 E	CR 2
Styrene	100-42-5	6.4E+30 E	9.6E+33 E	NA 3	1.9E+02	4.5E+05 S	CR 2
Tetrachloroethylene	127-18-4	2.1E+03	4.2E+06 E	AR 1	2.3E+00	5.1E+03 S	AR 1
Tin	7440-31-5	2.8E+34 E	2.2E+37 E	CR 2	1.3E+31 E	6.6E+33 E	CR 2
Toluene	108-88-3	1.6E+30 E	6.9E+32 E	NA 3	1.9E+02	4.5E+05 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	4.7E+32 E	1.7E+35 E	CR 2	4.5E+30 E	3.4E+32 E	CR 2

Table A-1c. Driving 50th Percentile Target Waste Concentrations Using Modified Weights Based on 1544 Facilities in Landfill: Dust

		Groundwater					
		Cw (mg/kg)			CL (mg/L)		
Constituent	CAS	WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	1.9E+01	2.2E+04	AR 1	2.7E-02	3.3E+01	AR 1
Acrylonitrile	107-13-1	1.1E+01	1.3E+04	AR 1	2.3E-01	2.9E+02	AR 1
Antimony	7440-36-0	1.5E+02	1.8E+05	CR 2	4.2E+00	4.8E+03	CR 2
Barium	7440-39-3	1.1E+13 E	7.3E+15 E	CR 2	3.0E+10 E	1.8E+13 E	CR 2
Benzene	71-43-2	2.5E+03	2.7E+06 E	AR 1	2.6E+00	3.1E+03 S	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	6.5E+08 E	6.0E+11 E	CR 2	1.4E+06 E	1.7E+09 E	CR 2
Chloroform	67-66-3	1.8E+08 E	1.4E+11 E	CR 2	5.2E+01	4.9E+04 S	CR 2
Chromium (III)	16065-83-1	1.6E+35 E	5.9E+37 E	CR 2	3.4E+31 E	1.8E+34 E	CR 2
Chromium (VI)	18540-29-9	3.1E+04	3.3E+07 E	CR 2	9.8E+02	9.5E+05	CR 2
Cobalt	7440-48-4	3.1E+31 E	2.0E+33 E	CR 2	6.0E+29 E	5.4E+30 E	CR 2
Copper	7440-50-8	3.0E+13 E	2.3E+16 E	NA 5	6.6E+10 E	4.9E+13 E	NA 5
Cresol, m-	108-39-4	2.5E+30 E	9.4E+32 E	CR 2	8.3E+01	1.1E+05 S	CR 2
Cresol, o-	95-48-7	2.5E+30 E	9.4E+32 E	CR 2	8.3E+01	1.1E+05 S	CR 2
Cresol, p-	106-44-5	2.5E+29 E	9.4E+31 E	CR 2	8.3E+00	1.1E+04	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	1.2E+04	1.3E+07 E	AR 1	1.5E+01	1.9E+04 S	AR 1
Dimethylphenol, 2,4-	105-67-9	1.0E+31 E	1.5E+34 E	CR 2	1.9E+01	2.5E+04 S	CR 2
Divalent mercury	7439-97-6(d)	2.5E+28 E	3.5E+31 E	CR 2	5.2E+27 E	9.4E+29 E	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	1.5E+05	1.9E+08 E	CR 2	3.3E+03	4.5E+06 E	CR 2
Formaldehyde	50-00-0	3.5E+04	4.5E+07 E	CR 2	3.3E+02	4.5E+05	CR 2
Lead	7439-92-1	2.0E+31 E	7.7E+33 E	NA 5	1.5E+28 E	4.0E+30 E	NA 5
Mercury	7439-97-6(e)	8.6E+29 E	3.7E+31 E	NA 3	7.3E+26 E	2.4E+28 E	NA 3
Methanol	67-56-1	1.2E+06 E	1.4E+09 E	CR 2	8.3E+02	1.1E+06 E	CR 2
Methyl ethyl ketone	78-93-3	1.8E+05 S	2.3E+08 E	CR 2	1.0E+03	1.4E+06 E	CR 2
Methyl isobutyl ketone	108-10-1	5.7E+05 S	5.7E+08 E	NA 3	1.1E+02	1.4E+05 S	NA 3
Methyl methacrylate	80-62-6	6.9E+04 S	8.5E+07 E	NA 3	3.5E+02	4.6E+05 S	NA 3
n-Butyl alcohol	71-36-3	4.4E+04	5.4E+07 E	CR 2	1.7E+02	2.3E+05 S	CR 2
Nickel	7440-02-0	5.6E+20 E	3.5E+23 E	CR 2	9.5E+17 E	3.8E+20 E	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	6.9E+27 E	2.4E+29 E	AR 1	1.4E+28 E	3.1E+29 E	CR 1
Phenol	108-95-2	2.1E+08 E	1.6E+11 E	CR 2	1.0E+03	1.4E+06 E	CR 2
Selenium	7782-49-2	9.6E+02	1.1E+06 E	CR 2	2.4E+01	2.9E+04	CR 2
Silver	7440-22-4	4.6E+30 E	8.1E+32 E	CR 2	6.1E+28 E	1.9E+30 E	CR 2
Styrene	100-42-5	6.4E+30 E	5.8E+33 E	NA 3	1.9E+02	2.5E+05 S	CR 2
Tetrachloroethylene	127-18-4	2.1E+03	2.3E+06 E	AR 1	2.3E+00	2.9E+03 S	AR 1
Tin	7440-31-5	2.8E+34 E	1.6E+37 E	CR 2	1.3E+31 E	4.9E+33 E	CR 2
Toluene	108-88-3	1.6E+30 E	5.8E+32 E	NA 3	1.9E+02	2.5E+05 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	4.7E+32 E	1.6E+35 E	CR 2	4.5E+30 E	4.4E+32 E	CR 2

Table A-2a. Driving 90th Percentile Target Waste Concentrations Using Original Weights in Landfill: Combined Solids

		Groundwater					
		Cw (mg/kg)			CL (mg/L)		
Constituent	CAS	WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	7.3E-01	4.7E+02	AR 1	1.7E-03	9.7E-01	AR 1
Acrylonitrile	107-13-1	6.9E-01	4.4E+02	AR 1	1.5E-02	9.3E+00	AR 1
Antimony	7440-36-0	3.8E+00	3.2E+03	CR 2	1.0E-01	8.2E+01	CR 2
Barium	7440-39-3	2.6E+04	5.7E+07 E	CR 2	7.3E+01	1.6E+05	CR 2
Benzene	71-43-2	5.2E+01	4.8E+04	AR 1	1.1E-01	8.5E+01	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	1.2E+02	2.8E+05	CR 2	4.5E-01	9.5E+02	CR 2
Chloroform	67-66-3	2.7E+04	3.7E+07 E	CR 2	6.8E-01	4.7E+02	CR 2
Chromium (III)	16065-83-1	2.3E+18 E	6.0E+21 E	CR 2	8.1E+14 E	1.6E+18 E	CR 2
Chromium (VI)	18540-29-9	5.3E+01	6.6E+04	CR 2	1.2E+00	1.5E+03	CR 2
Cobalt	7440-48-4	1.0E+06 E	3.5E+09 E	CR 2	1.2E+03	4.4E+06 E	CR 2
Copper	7440-50-8	3.8E+04 S	1.1E+08 E	NA 5	1.1E+02	2.5E+05	NA 5
Cresol, m-	108-39-4	3.1E+05 S	3.7E+08 E	CR 2	5.6E+00	3.7E+03	CR 2
Cresol, o-	95-48-7	3.0E+06 E	4.3E+09 E	CR 2	5.6E+00	3.7E+03	CR 2
Cresol, p-	106-44-5	3.0E+05 S	4.3E+08 E	CR 2	5.6E-01	3.7E+02	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	4.9E+02	3.6E+05	AR 1	9.2E-01	6.2E+02	AR 1
Dimethylphenol, 2,4-	105-67-9	5.4E+09 E	6.4E+12 E	CR 2	1.2E+00	6.7E+02	CR 2
Divalent mercury	7439-97-6(d)	7.6E+03	2.4E+07 E	CR 2	7.6E+00	3.6E+04	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	9.1E+03	6.2E+06 E	CR 2	2.2E+02	1.5E+05	CR 2
Formaldehyde	50-00-0	2.1E+03	1.4E+06 E	CR 2	2.2E+01	1.5E+04	CR 2
Lead	7439-92-1	2.7E+08 E	8.3E+11 E	NA 5	6.3E+04	2.9E+08 E	NA 5
Mercury	7439-97-6(e)	1.7E+07 E	6.5E+10 E	NA 3	6.4E+03 S	2.2E+07 E	NA 3
Methanol	67-56-1	4.9E+04	3.3E+07 E	CR 2	5.6E+01	3.7E+04	CR 2
Methyl ethyl ketone	78-93-3	1.0E+04	7.0E+06 E	CR 2	6.7E+01	4.4E+04	CR 2
Methyl isobutyl ketone	108-10-1	1.1E+04	9.0E+06 E	NA 3	6.3E+00	4.4E+03	NA 3
Methyl methacrylate	80-62-6	4.6E+03	3.0E+06 E	NA 3	2.6E+01	1.6E+04 S	NA 3
n-Butyl alcohol	71-36-3	2.1E+03	1.5E+06 E	CR 2	1.1E+01	7.4E+03	CR 2
Nickel	7440-02-0	6.4E+04	1.8E+08 E	CR 2	1.2E+02	3.8E+05	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	1.4E+02	1.6E+05	AR 1	1.0E-01	1.2E+02	AR 1
Phenol	108-95-2	6.2E+05 S	5.7E+08 E	CR 2	6.7E+01	4.4E+04	CR 2
Selenium	7782-49-2	4.4E+01	3.4E+04	CR 2	1.2E+00	8.4E+02	CR 2
Silver	7440-22-4	2.8E+05	9.8E+08 E	CR 2	3.6E+02	1.2E+06 E	CR 2
Styrene	100-42-5	2.0E+30 E	3.6E+31 E	NA 3	1.2E+01	6.7E+03 S	CR 2
Tetrachloroethylene	127-18-4	5.6E+01	4.5E+04	AR 1	1.1E-01	7.2E+01	AR 1
Tin	7440-31-5	4.0E+15 E	7.4E+18 E	CR 2	7.6E+11 E	1.6E+15 E	CR 2
Toluene	108-88-3	3.8E+05 S	6.1E+08 E	NA 3	1.2E+01	6.7E+03 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	1.4E+07 E	4.8E+10 E	CR 2	1.3E+04	4.5E+07 E	CR 2

Table A-2a. Driving 90th Percentile Target Waste Concentrations Using Original Weights in Landfill: Dust

		Groundwater					
		Cw (mg/kg)			CL (mg/L)		
Constituent	CAS	WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	7.3E-01	3.1E+02	AR 1	1.7E-03	7.0E-01	AR 1
Acrylonitrile	107-13-1	6.9E-01	3.1E+02	AR 1	1.5E-02	6.6E+00	AR 1
Antimony	7440-36-0	3.8E+00	2.3E+03	CR 2	1.0E-01	5.8E+01	CR 2
Barium	7440-39-3	2.6E+04	2.7E+07 E	CR 2	7.3E+01	9.2E+04	CR 2
Benzene	71-43-2	5.2E+01	3.2E+04	AR 1	1.1E-01	5.6E+01	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	1.2E+02	1.3E+05	CR 2	4.5E-01	5.1E+02	CR 2
Chloroform	67-66-3	2.7E+04	1.9E+07 E	CR 2	6.8E-01	2.8E+02	CR 2
Chromium (III)	16065-83-1	2.3E+18 E	3.1E+21 E	CR 2	8.1E+14 E	9.5E+17 E	CR 2
Chromium (VI)	18540-29-9	9.6E+01	6.8E+04	CR 2	1.6E+00	1.4E+03	CR 2
Cobalt	7440-48-4	1.3E+06 E	1.7E+09 E	CR 2	1.7E+03	2.3E+06 E	CR 2
Copper	7440-50-8	3.8E+04 S	5.0E+07 E	NA 5	1.1E+02	1.3E+05	NA 5
Cresol, m-	108-39-4	3.1E+05 S	1.9E+08 E	CR 2	5.6E+00	2.6E+03	CR 2
Cresol, o-	95-48-7	3.0E+06 E	2.0E+09 E	CR 2	5.6E+00	2.6E+03	CR 2
Cresol, p-	106-44-5	3.0E+05 S	2.0E+08 E	CR 2	5.6E-01	2.6E+02	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	4.9E+02	2.6E+05	AR 1	9.2E-01	4.2E+02	AR 1
Dimethylphenol, 2,4-	105-67-9	5.4E+09 E	3.0E+12 E	CR 2	1.2E+00	4.7E+02	CR 2
Divalent mercury	7439-97-6(d)	7.6E+03	8.9E+06 E	CR 2	7.6E+00	1.2E+04	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	9.1E+03	4.3E+06 E	CR 2	2.2E+02	1.1E+05	CR 2
Formaldehyde	50-00-0	2.1E+03	9.3E+05	CR 2	2.2E+01	1.1E+04	CR 2
Lead	7439-92-1	2.7E+08 E	4.0E+11 E	NA 5	6.3E+04	8.2E+07 E	NA 5
Mercury	7439-97-6(e)	1.7E+07 E	2.9E+10 E	NA 3	6.4E+03 S	9.6E+06 E	NA 3
Methanol	67-56-1	4.9E+04	2.1E+07 E	CR 2	5.6E+01	2.6E+04	CR 2
Methyl ethyl ketone	78-93-3	1.0E+04	4.6E+06 E	CR 2	6.7E+01	3.2E+04	CR 2
Methyl isobutyl ketone	108-10-1	1.1E+04	5.3E+06 E	NA 3	6.3E+00	3.0E+03	NA 3
Methyl methacrylate	80-62-6	4.6E+03	1.9E+06 E	NA 3	2.6E+01	1.2E+04	NA 3
n-Butyl alcohol	71-36-3	2.1E+03	9.7E+05	CR 2	1.1E+01	5.3E+03	CR 2
Nickel	7440-02-0	9.4E+04 S	1.3E+08 E	CR 2	1.7E+02	2.2E+05	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	1.4E+02	9.6E+04	AR 1	1.0E-01	6.6E+01	AR 1
Phenol	108-95-2	6.2E+05 S	3.2E+08 E	CR 2	6.7E+01	3.2E+04	CR 2
Selenium	7782-49-2	4.4E+01	2.5E+04	CR 2	1.2E+00	5.9E+02	CR 2
Silver	7440-22-4	3.7E+05 S	4.4E+08 E	CR 2	4.8E+02	5.5E+05	CR 2
Styrene	100-42-5	2.0E+30 E	3.6E+31 E	NA 3	1.2E+01	4.7E+03 S	CR 2
Tetrachloroethylene	127-18-4	5.6E+01	3.0E+04	AR 1	1.1E-01	4.9E+01	AR 1
Tin	7440-31-5	4.0E+15 E	4.1E+18 E	CR 2	7.6E+11 E	8.9E+14 E	CR 2
Toluene	108-88-3	3.8E+05 S	2.7E+08 E	NA 3	1.2E+01	4.7E+03 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	1.4E+07 E	1.8E+10 E	CR 2	1.3E+04	1.6E+07 E	CR 2

Table A-2b. Driving 90th Percentile Target Waste Concentrations Using Modified Weights Based on 884 Facilities in Landfill: Combined Solids

Constituent	CAS	Groundwater					
		Cw (mg/kg)			CL (mg/L)		
		WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	7.3E-01	3.7E+02	AR 1	1.7E-03	7.4E-01	AR 1
Acrylonitrile	107-13-1	6.9E-01	3.4E+02	AR 1	1.5E-02	7.4E+00	AR 1
Antimony	7440-36-0	3.8E+00	2.6E+03	CR 2	1.0E-01	7.1E+01	CR 2
Barium	7440-39-3	2.6E+04	3.8E+07 E	CR 2	7.3E+01	1.2E+05	CR 2
Benzene	71-43-2	5.2E+01	3.7E+04	AR 1	1.1E-01	6.8E+01	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	1.2E+02	2.1E+05	CR 2	4.5E-01	7.1E+02	CR 2
Chloroform	67-66-3	2.7E+04	2.6E+07 E	CR 2	6.8E-01	3.9E+02	CR 2
Chromium (III)	16065-83-1	2.3E+18 E	4.6E+21 E	CR 2	8.1E+14 E	1.2E+18 E	CR 2
Chromium (VI)	18540-29-9	5.3E+01	4.8E+04	CR 2	1.2E+00	1.3E+03	CR 2
Cobalt	7440-48-4	1.0E+06 E	2.3E+09 E	CR 2	1.2E+03	2.8E+06 E	CR 2
Copper	7440-50-8	3.8E+04 S	7.5E+07 E	NA 5	1.1E+02	2.0E+05	NA 5
Cresol, m-	108-39-4	3.1E+05 S	2.6E+08 E	CR 2	5.6E+00	2.9E+03	CR 2
Cresol, o-	95-48-7	3.0E+06 E	3.1E+09 E	CR 2	5.6E+00	2.9E+03	CR 2
Cresol, p-	106-44-5	3.0E+05 S	3.1E+08 E	CR 2	5.6E-01	2.9E+02	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	4.9E+02	2.9E+05	AR 1	9.2E-01	4.8E+02	AR 1
Dimethylphenol, 2,4-	105-67-9	5.4E+09 E	6.6E+12 E	CR 2	1.2E+00	5.9E+02	CR 2
Divalent mercury	7439-97-6(d)	7.6E+03	1.7E+07 E	CR 2	7.6E+00	2.8E+04	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	9.1E+03	4.8E+06 E	CR 2	2.2E+02	1.1E+05	CR 2
Formaldehyde	50-00-0	2.1E+03	1.1E+06 E	CR 2	2.2E+01	1.1E+04	CR 2
Lead	7439-92-1	2.7E+08 E	6.7E+11 E	NA 5	6.3E+04	1.7E+08 E	NA 5
Mercury	7439-97-6(e)	1.7E+07 E	5.3E+10 E	NA 3	6.4E+03 S	1.7E+07 E	NA 3
Methanol	67-56-1	4.9E+04	2.6E+07 E	CR 2	5.6E+01	2.9E+04	CR 2
Methyl ethyl ketone	78-93-3	1.0E+04	5.2E+06 E	CR 2	6.7E+01	3.4E+04	CR 2
Methyl isobutyl ketone	108-10-1	1.1E+04	6.7E+06 E	NA 3	6.3E+00	3.5E+03	NA 3
Methyl methacrylate	80-62-6	4.6E+03	2.3E+06 E	NA 3	2.6E+01	1.3E+04	NA 3
n-Butyl alcohol	71-36-3	2.1E+03	1.1E+06 E	CR 2	1.1E+01	5.7E+03	CR 2
Nickel	7440-02-0	6.4E+04	1.4E+08 E	CR 2	1.2E+02	2.6E+05	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	1.4E+02	1.3E+05	AR 1	1.0E-01	9.9E+01	AR 1
Phenol	108-95-2	6.2E+05 S	4.4E+08 E	CR 2	6.7E+01	3.4E+04	CR 2
Selenium	7782-49-2	4.4E+01	2.8E+04	CR 2	1.2E+00	6.9E+02	CR 2
Silver	7440-22-4	2.8E+05	5.5E+08 E	CR 2	3.6E+02	7.4E+05	CR 2
Styrene	100-42-5	2.0E+30 E	2.8E+31 E	NA 3	1.2E+01	5.9E+03 S	CR 2
Tetrachloroethylene	127-18-4	5.6E+01	3.6E+04	AR 1	1.1E-01	6.0E+01	AR 1
Tin	7440-31-5	4.0E+15 E	5.7E+18 E	CR 2	7.6E+11 E	1.2E+15 E	CR 2
Toluene	108-88-3	3.8E+05 S	4.1E+08 E	NA 3	1.2E+01	5.9E+03 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	1.4E+07 E	3.3E+10 E	CR 2	1.3E+04	3.2E+07 E	CR 2

Table A-2b. Driving 90th Percentile Target Waste Concentrations Using Modified Weights Based on 884 Facilities in Landfill: Dust

Constituent	CAS	Groundwater Cw (mg/kg) WMU	Groundwater Cw (mg/kg) Wastestream	Groundwater Cw (mg/kg) Basis	Groundwater CL (mg/L) WMU	Groundwater CL (mg/L) Wastestream	Groundwater CL (mg/L) Basis
Acrylamide	79-06-1	7.3E-01	3.5E+02	AR 1	1.7E-03	7.5E-01	AR 1
Acrylonitrile	107-13-1	6.9E-01	3.4E+02	AR 1	1.5E-02	7.1E+00	AR 1
Antimony	7440-36-0	3.8E+00	2.6E+03	CR 2	1.0E-01	6.1E+01	CR 2
Barium	7440-39-3	2.6E+04	2.8E+07 E	CR 2	7.3E+01	9.2E+04	CR 2
Benzene	71-43-2	5.2E+01	3.4E+04	AR 1	1.1E-01	6.0E+01	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	1.2E+02	1.4E+05	CR 2	4.5E-01	5.7E+02	CR 2
Chloroform	67-66-3	2.7E+04	2.2E+07 E	CR 2	6.8E-01	3.4E+02	CR 2
Chromium (III)	16065-83-1	2.3E+18 E	3.1E+21 E	CR 2	8.1E+14 E	1.0E+18 E	CR 2
Chromium (VI)	18540-29-9	9.6E+01	7.5E+04	CR 2	1.6E+00	1.5E+03	CR 2
Cobalt	7440-48-4	1.3E+06 E	1.9E+09 E	CR 2	1.7E+03	2.0E+06 E	CR 2
Copper	7440-50-8	3.8E+04 S	5.3E+07 E	NA 5	1.1E+02	1.4E+05	NA 5
Cresol, m-	108-39-4	3.1E+05 S	2.2E+08 E	CR 2	5.6E+00	2.9E+03	CR 2
Cresol, o-	95-48-7	3.0E+06 E	2.4E+09 E	CR 2	5.6E+00	2.9E+03	CR 2
Cresol, p-	106-44-5	3.0E+05 S	2.4E+08 E	CR 2	5.6E-01	2.9E+02	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	4.9E+02	2.8E+05	AR 1	9.2E-01	4.5E+02	AR 1
Dimethylphenol, 2,4-	105-67-9	5.4E+09 E	3.8E+12 E	CR 2	1.2E+00	5.4E+02	CR 2
Divalent mercury	7439-97-6(d)	7.6E+03	9.9E+06 E	CR 2	7.6E+00	1.1E+04	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	9.1E+03	4.7E+06 E	CR 2	2.2E+02	1.2E+05	CR 2
Formaldehyde	50-00-0	2.1E+03	1.0E+06 E	CR 2	2.2E+01	1.2E+04	CR 2
Lead	7439-92-1	2.7E+08 E	5.3E+11 E	NA 5	6.3E+04	1.1E+08 E	NA 5
Mercury	7439-97-6(e)	1.7E+07 E	3.4E+10 E	NA 3	6.4E+03 S	1.0E+07 E	NA 3
Methanol	67-56-1	4.9E+04	2.4E+07 E	CR 2	5.6E+01	2.9E+04	CR 2
Methyl ethyl ketone	78-93-3	1.0E+04	5.1E+06 E	CR 2	6.7E+01	3.5E+04	CR 2
Methyl isobutyl ketone	108-10-1	1.1E+04	6.1E+06 E	NA 3	6.3E+00	3.1E+03	NA 3
Methyl methacrylate	80-62-6	4.6E+03	2.1E+06 E	NA 3	2.6E+01	1.2E+04	NA 3
n-Butyl alcohol	71-36-3	2.1E+03	1.1E+06 E	CR 2	1.1E+01	5.8E+03	CR 2
Nickel	7440-02-0	9.4E+04 S	1.3E+08 E	CR 2	1.7E+02	2.2E+05	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	1.4E+02	1.1E+05	AR 1	1.0E-01	7.2E+01	AR 1
Phenol	108-95-2	6.2E+05 S	3.9E+08 E	CR 2	6.7E+01	3.5E+04	CR 2
Selenium	7782-49-2	4.4E+01	2.8E+04	CR 2	1.2E+00	6.4E+02	CR 2
Silver	7440-22-4	3.7E+05 S	4.3E+08 E	CR 2	4.8E+02	5.7E+05	CR 2
Styrene	100-42-5	2.0E+30 E	3.3E+31 E	NA 3	1.2E+01	5.4E+03 S	CR 2
Tetrachloroethylene	127-18-4	5.6E+01	3.4E+04	AR 1	1.1E-01	5.5E+01	AR 1
Tin	7440-31-5	4.0E+15 E	3.4E+18 E	CR 2	7.6E+11 E	7.0E+14 E	CR 2
Toluene	108-88-3	3.8E+05 S	3.3E+08 E	NA 3	1.2E+01	5.4E+03 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	1.4E+07 E	1.8E+10 E	CR 2	1.3E+04	1.8E+07 E	CR 2

Table A-2c. Driving 90th Percentile Target Waste Concentrations Using Modified Weights Based on 1544 Facilities in Landfill: Combined Solids

Constituent	CAS	Groundwater					
		Cw (mg/kg)			CL (mg/L)		
		WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	7.3E-01	2.5E+02	AR 1	1.7E-03	5.1E-01	AR 1
Acrylonitrile	107-13-1	6.9E-01	2.2E+02	AR 1	1.5E-02	4.7E+00	AR 1
Antimony	7440-36-0	3.8E+00	1.7E+03	CR 2	1.0E-01	4.5E+01	CR 2
Barium	7440-39-3	2.6E+04	3.1E+07 E	CR 2	7.3E+01	8.7E+04	CR 2
Benzene	71-43-2	5.2E+01	2.6E+04	AR 1	1.1E-01	4.2E+01	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	1.2E+02	1.5E+05	CR 2	4.5E-01	5.2E+02	CR 2
Chloroform	67-66-3	2.7E+04	1.9E+07 E	CR 2	6.8E-01	2.5E+02	CR 2
Chromium (III)	16065-83-1	2.3E+18 E	4.0E+21 E	CR 2	8.1E+14 E	1.0E+18 E	CR 2
Chromium (VI)	18540-29-9	5.3E+01	3.4E+04	CR 2	1.2E+00	8.5E+02	CR 2
Cobalt	7440-48-4	1.0E+06 E	1.8E+09 E	CR 2	1.2E+03	2.2E+06 E	CR 2
Copper	7440-50-8	3.8E+04 S	6.2E+07 E	NA 5	1.1E+02	1.4E+05	NA 5
Cresol, m-	108-39-4	3.1E+05 S	1.8E+08 E	CR 2	5.6E+00	1.8E+03	CR 2
Cresol, o-	95-48-7	3.0E+06 E	2.2E+09 E	CR 2	5.6E+00	1.8E+03	CR 2
Cresol, p-	106-44-5	3.0E+05 S	2.2E+08 E	CR 2	5.6E-01	1.8E+02	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	4.9E+02	1.9E+05	AR 1	9.2E-01	3.0E+02	AR 1
Dimethylphenol, 2,4-	105-67-9	5.4E+09 E	4.2E+12 E	CR 2	1.2E+00	3.6E+02	CR 2
Divalent mercury	7439-97-6(d)	7.6E+03	1.3E+07 E	CR 2	7.6E+00	1.7E+04	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	9.1E+03	3.0E+06 E	CR 2	2.2E+02	7.3E+04	CR 2
Formaldehyde	50-00-0	2.1E+03	6.7E+05	CR 2	2.2E+01	7.3E+03	CR 2
Lead	7439-92-1	2.7E+08 E	5.5E+11 E	NA 5	6.3E+04	1.3E+08 E	NA 5
Mercury	7439-97-6(e)	1.7E+07 E	3.3E+10 E	NA 3	6.4E+03 S	1.1E+07 E	NA 3
Methanol	67-56-1	4.9E+04	1.6E+07 E	CR 2	5.6E+01	1.8E+04	CR 2
Methyl ethyl ketone	78-93-3	1.0E+04	3.3E+06 E	CR 2	6.7E+01	2.2E+04	CR 2
Methyl isobutyl ketone	108-10-1	1.1E+04	4.3E+06 E	NA 3	6.3E+00	2.0E+03	NA 3
Methyl methacrylate	80-62-6	4.6E+03	1.4E+06 E	NA 3	2.6E+01	7.6E+03	NA 3
n-Butyl alcohol	71-36-3	2.1E+03	6.9E+05	CR 2	1.1E+01	3.7E+03	CR 2
Nickel	7440-02-0	6.4E+04	1.0E+08 E	CR 2	1.2E+02	1.9E+05	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	1.4E+02	9.1E+04	AR 1	1.0E-01	6.8E+01	AR 1
Phenol	108-95-2	6.2E+05 S	3.0E+08 E	CR 2	6.7E+01	2.2E+04	CR 2
Selenium	7782-49-2	4.4E+01	1.7E+04	CR 2	1.2E+00	4.3E+02	CR 2
Silver	7440-22-4	2.8E+05 S	5.2E+08 E	CR 2	3.6E+02	5.7E+05	CR 2
Styrene	100-42-5	2.0E+30 E	2.2E+31 E	NA 3	1.2E+01	3.6E+03 S	CR 2
Tetrachloroethylene	127-18-4	5.6E+01	2.3E+04	AR 1	1.1E-01	3.8E+01	AR 1
Tin	7440-31-5	4.0E+15 E	3.2E+18 E	CR 2	7.6E+11 E	8.5E+14 E	CR 2
Toluene	108-88-3	3.8E+05 S	3.0E+08 E	NA 3	1.2E+01	3.6E+03 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	1.4E+07 E	2.5E+10 E	CR 2	1.3E+04	2.6E+07 E	CR 2

Table A-2c. Driving 90th Percentile Target Waste Concentrations Using Modified Weights Based on 1544 Facilities in Landfill: Dust

		Groundwater					
		Cw (mg/kg)			CL (mg/L)		
Constituent	CAS	WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	7.3E-01	2.8E+02	AR 1	1.7E-03	6.7E-01	AR 1
Acrylonitrile	107-13-1	6.9E-01	3.1E+02	AR 1	1.5E-02	6.4E+00	AR 1
Antimony	7440-36-0	3.8E+00	2.1E+03	CR 2	1.0E-01	5.2E+01	CR 2
Barium	7440-39-3	2.6E+04	2.2E+07 E	CR 2	7.3E+01	7.2E+04	CR 2
Benzene	71-43-2	5.2E+01	3.1E+04	AR 1	1.1E-01	5.5E+01	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	1.2E+02	1.1E+05	CR 2	4.5E-01	3.9E+02	CR 2
Chloroform	67-66-3	2.7E+04	1.7E+07 E	CR 2	6.8E-01	2.8E+02	CR 2
Chromium (III)	16065-83-1	2.3E+18 E	2.8E+21 E	CR 2	8.1E+14 E	5.5E+17 E	CR 2
Chromium (VI)	18540-29-9	9.6E+01	6.0E+04	CR 2	1.6E+00	1.3E+03	CR 2
Cobalt	7440-48-4	1.3E+06 E	1.6E+09 E	CR 2	1.7E+03	1.9E+06 E	CR 2
Copper	7440-50-8	3.8E+04 S	4.5E+07 E	NA 5	1.1E+02	1.1E+05	NA 5
Cresol, m-	108-39-4	3.1E+05 S	1.6E+08 E	CR 2	5.6E+00	2.5E+03	CR 2
Cresol, o-	95-48-7	3.0E+06 E	1.9E+09 E	CR 2	5.6E+00	2.5E+03	CR 2
Cresol, p-	106-44-5	3.0E+05 S	1.9E+08 E	CR 2	5.6E-01	2.5E+02	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	4.9E+02	2.5E+05	AR 1	9.2E-01	3.9E+02	AR 1
Dimethylphenol, 2,4-	105-67-9	5.4E+09 E	3.0E+12 E	CR 2	1.2E+00	4.7E+02	CR 2
Divalent mercury	7439-97-6(d)	7.6E+03	8.2E+06 E	CR 2	7.6E+00	1.1E+04	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	9.1E+03	4.1E+06 E	CR 2	2.2E+02	9.9E+04	CR 2
Formaldehyde	50-00-0	2.1E+03	9.1E+05	CR 2	2.2E+01	9.9E+03	CR 2
Lead	7439-92-1	2.7E+08 E	3.2E+11 E	NA 5	6.3E+04	9.6E+07 E	NA 5
Mercury	7439-97-6(e)	1.7E+07 E	2.3E+10 E	NA 3	6.4E+03 S	8.2E+06 E	NA 3
Methanol	67-56-1	4.9E+04	2.1E+07 E	CR 2	5.6E+01	2.5E+04	CR 2
Methyl ethyl ketone	78-93-3	1.0E+04	4.3E+06 E	CR 2	6.7E+01	3.0E+04	CR 2
Methyl isobutyl ketone	108-10-1	1.1E+04	5.2E+06 E	NA 3	6.3E+00	2.8E+03	NA 3
Methyl methacrylate	80-62-6	4.6E+03	1.9E+06 E	NA 3	2.6E+01	1.1E+04	NA 3
n-Butyl alcohol	71-36-3	2.1E+03	9.2E+05	CR 2	1.1E+01	5.0E+03	CR 2
Nickel	7440-02-0	9.4E+04 S	9.4E+07 E	CR 2	1.7E+02	1.7E+05	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	1.4E+02	8.8E+04	AR 1	1.0E-01	6.2E+01	AR 1
Phenol	108-95-2	6.2E+05 S	3.1E+08 E	CR 2	6.7E+01	3.0E+04	CR 2
Selenium	7782-49-2	4.4E+01	2.4E+04	CR 2	1.2E+00	5.4E+02	CR 2
Silver	7440-22-4	3.7E+05 S	4.3E+08 E	CR 2	4.8E+02	5.0E+05	CR 2
Styrene	100-42-5	2.0E+30 E	3.3E+31 E	NA 3	1.2E+01	4.7E+03 S	CR 2
Tetrachloroethylene	127-18-4	5.6E+01	2.8E+04	AR 1	1.1E-01	4.6E+01	AR 1
Tin	7440-31-5	4.0E+15 E	3.5E+18 E	CR 2	7.6E+11 E	6.4E+14 E	CR 2
Toluene	108-88-3	3.8E+05 S	2.2E+08 E	NA 3	1.2E+01	4.7E+03 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	1.4E+07 E	1.7E+10 E	CR 2	1.3E+04	1.5E+07 E	CR 2

Table A-3a. Driving 95th Percentile Target Waste Concentrations Using Original Weights in Landfill: Combined Solids

		Groundwater					
		Cw (mg/kg)			CL (mg/L)		
Constituent	**CAS**	**WMU**	**Wastestream**	**Basis**	**WMU**	**Wastestream**	**Basis**
Acrylamide	79-06-1	4.1E-01	1.2E+02	AR 1	9.7E-04	2.7E-01	AR 1
Acrylonitrile	107-13-1	3.9E-01	1.3E+02	AR 1	8.7E-03	2.8E+00	AR 1
Antimony	7440-36-0	1.7E+00	8.5E+02	CR 2	4.8E-02	1.9E+01	CR 2
Barium	7440-39-3	6.1E+03	7.8E+06 E	CR 2	2.0E+01	2.7E+04	CR 2
Benzene	71-43-2	2.4E+01	1.3E+04	AR 1	6.3E-02	2.3E+01	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	3.5E+01	3.9E+04	CR 2	1.3E-01	1.6E+02	CR 2
Chloroform	67-66-3	7.8E+03	6.7E+06 E	CR 2	4.2E-01	1.2E+02	CR 2
Chromium (III)	16065-83-1	7.7E+12 E	3.0E+16 E	CR 2	1.7E+09 E	8.2E+12 E	CR 2
Chromium (VI)	18540-29-9	2.0E+01	1.3E+04	CR 2	4.5E-01	3.2E+02	CR 2
Cobalt	7440-48-4	6.6E+04	1.7E+08 E	CR 2	9.9E+01	2.5E+05	CR 2
Copper	7440-50-8	8.8E+03	1.4E+07 E	NA 5	2.4E+01	3.8E+04	NA 5
Cresol, m-	108-39-4	8.0E+04	5.7E+07 E	CR 2	3.4E+00	1.0E+03	CR 2
Cresol, o-	95-48-7	4.9E+05 S	4.7E+08 E	CR 2	3.4E+00	1.0E+03	CR 2
Cresol, p-	106-44-5	4.9E+04	4.7E+07 E	CR 2	3.4E-01	1.0E+02	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	2.4E+02	1.1E+05	AR 1	5.4E-01	1.7E+02	AR 1
Dimethylphenol, 2,4-	105-67-9	4.9E+07 E	7.2E+10 E	CR 2	7.6E-01	2.1E+02	CR 2
Divalent mercury	7439-97-6(d)	2.4E+02	3.8E+05	CR 2	3.3E-01	9.2E+02	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	5.7E+03	1.8E+06 E	CR 2	1.4E+02	4.1E+04	CR 2
Formaldehyde	50-00-0	1.3E+03	4.0E+05	CR 2	1.4E+01	4.1E+03	CR 2
Lead	7439-92-1	4.8E+04	1.6E+08 E	NA 5	1.3E+01	5.2E+04	NA 5
Mercury	7439-97-6(e)	3.0E+05 S	6.9E+08 E	NA 3	9.4E+01 S	2.1E+05 S	NA 3
Methanol	67-56-1	2.9E+04	9.4E+06 E	CR 2	3.4E+01	1.0E+04	CR 2
Methyl ethyl ketone	78-93-3	5.9E+03	1.9E+06 E	CR 2	4.1E+01	1.2E+04	CR 2
Methyl isobutyl ketone	108-10-1	5.2E+03	2.1E+06 E	NA 3	3.8E+00	1.2E+03	NA 3
Methyl methacrylate	80-62-6	2.7E+03	8.5E+05	NA 3	1.7E+01	4.6E+03	NA 3
n-Butyl alcohol	71-36-3	1.2E+03	4.0E+05	CR 2	6.8E+00	2.1E+03	CR 2
Nickel	7440-02-0	8.0E+03	1.6E+07 E	CR 2	1.5E+01	3.3E+04	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	5.3E+01	3.2E+04	AR 1	5.0E-02	2.5E+01	AR 1
Phenol	108-95-2	2.2E+05	1.3E+08 E	CR 2	4.1E+01	1.2E+04	CR 2
Selenium	7782-49-2	2.4E+01	9.2E+03	CR 2	6.9E-01	2.2E+02	CR 2
Silver	7440-22-4	1.0E+04	2.7E+07 E	CR 2	1.5E+01	4.1E+04	CR 2
Styrene	100-42-5	1.4E+09 E	3.7E+12 E	CR 2	7.6E+00	2.1E+03 S	CR 2
Tetrachloroethylene	127-18-4	2.8E+01	1.2E+04	AR 1	6.8E-02	2.0E+01	AR 1
Tin	7440-31-5	6.3E+10 E	2.0E+14 E	CR 2	1.7E+07 E	5.6E+10 E	CR 2
Toluene	108-88-3	9.4E+04 S	9.0E+07 E	NA 3	6.9E+00	2.1E+03 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	6.1E+05 S	1.3E+09 E	CR 2	5.0E+02	1.3E+06 E	CR 2

Table A-3a. Driving 95th Percentile Target Waste Concentrations Using Original Weights in Landfill: Dust

Constituent	CAS	Groundwater					
		Cw (mg/kg)			CL (mg/L)		
		WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	4.1E-01	1.0E+02	AR 1	9.7E-04	2.4E-01	AR 1
Acrylonitrile	107-13-1	3.9E-01	1.2E+02	AR 1	8.7E-03	2.3E+00	AR 1
Antimony	7440-36-0	1.7E+00	7.0E+02	CR 2	4.8E-02	1.8E+01	CR 2
Barium	7440-39-3	6.1E+03	4.2E+06 E	CR 2	2.0E+01	1.4E+04	CR 2
Benzene	71-43-2	2.4E+01	1.0E+04	AR 1	6.3E-02	2.0E+01	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	3.5E+01	2.3E+04	CR 2	1.3E-01	9.0E+01	CR 2
Chloroform	67-66-3	7.8E+03	4.2E+06 E	CR 2	4.2E-01	9.3E+01	CR 2
Chromium (III)	16065-83-1	7.7E+12 E	9.4E+15 E	CR 2	1.7E+09 E	2.7E+12 E	CR 2
Chromium (VI)	18540-29-9	3.3E+01	1.7E+04	CR 2	6.1E-01	3.5E+02	CR 2
Cobalt	7440-48-4	9.4E+04	1.1E+08 E	CR 2	1.3E+02	1.3E+05	CR 2
Copper	7440-50-8	8.8E+03	7.7E+06 E	NA 5	2.4E+01	2.0E+04	NA 5
Cresol, m-	108-39-4	8.0E+04	3.7E+07 E	CR 2	3.4E+00	9.0E+02	CR 2
Cresol, o-	95-48-7	4.9E+05 S	2.6E+08 E	CR 2	3.4E+00	9.0E+02	CR 2
Cresol, p-	106-44-5	4.9E+04	2.6E+07 E	CR 2	3.4E-01	9.0E+01	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	2.4E+02	8.6E+04	AR 1	5.4E-01	1.4E+02	AR 1
Dimethylphenol, 2,4-	105-67-9	4.9E+07 E	2.5E+10 E	CR 2	7.6E-01	1.6E+02	CR 2
Divalent mercury	7439-97-6(d)	2.4E+02	1.7E+05	CR 2	3.3E-01	4.6E+02	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	5.7E+03	1.5E+06 E	CR 2	1.4E+02	3.6E+04	CR 2
Formaldehyde	50-00-0	1.3E+03	3.3E+05	CR 2	1.4E+01	3.6E+03	CR 2
Lead	7439-92-1	4.8E+04	6.4E+07 E	NA 5	1.3E+01	2.1E+04	NA 5
Mercury	7439-97-6(e)	3.0E+05 S	2.5E+08 E	NA 3	9.4E+01 S	7.6E+04 S	NA 3
Methanol	67-56-1	2.9E+04	7.5E+06 E	CR 2	3.4E+01	9.0E+03	CR 2
Methyl ethyl ketone	78-93-3	5.9E+03	1.6E+06 E	CR 2	4.1E+01	1.1E+04	CR 2
Methyl isobutyl ketone	108-10-1	5.2E+03	1.6E+06 E	NA 3	3.8E+00	1.1E+03	NA 3
Methyl methacrylate	80-62-6	2.7E+03	7.2E+05	NA 3	1.7E+01	4.0E+03	NA 3
n-Butyl alcohol	71-36-3	1.2E+03	3.1E+05	CR 2	6.8E+00	1.8E+03	CR 2
Nickel	7440-02-0	1.2E+04	1.1E+07 E	CR 2	1.9E+01	2.1E+04	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	5.3E+01	2.0E+04	AR 1	5.0E-02	1.7E+01	AR 1
Phenol	108-95-2	2.2E+05	8.7E+07 E	CR 2	4.1E+01	1.1E+04	CR 2
Selenium	7782-49-2	2.4E+01	8.5E+03	CR 2	6.9E-01	2.0E+02	CR 2
Silver	7440-22-4	1.5E+04	1.7E+07 E	CR 2	2.1E+01	2.3E+04	CR 2
Styrene	100-42-5	1.4E+09 E	1.1E+12 E	CR 2	7.6E+00	1.6E+03 S	CR 2
Tetrachloroethylene	127-18-4	2.8E+01	9.4E+03	AR 1	6.8E-02	1.6E+01	AR 1
Tin	7440-31-5	6.3E+10 E	7.7E+13 E	CR 2	1.7E+07 E	1.9E+10 E	CR 2
Toluene	108-88-3	9.4E+04 S	4.8E+07 E	NA 3	6.9E+00	1.6E+03 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	6.1E+05 S	6.2E+08 E	CR 2	5.0E+02	7.6E+05	CR 2

Table A-3b. Driving 95th Percentile Target Waste Concentrations Using Modified Weights Based on 884 Facilities in Landfill: Combined Solids

		Groundwater					
		Cw (mg/kg)			CL (mg/L)		
Constituent	CAS	WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	4.1E-01	9.4E+01	AR 1	9.7E-04	2.1E-01	AR 1
Acrylonitrile	107-13-1	3.9E-01	9.2E+01	AR 1	8.7E-03	2.0E+00	AR 1
Antimony	7440-36-0	1.7E+00	7.1E+02	CR 2	4.8E-02	1.5E+01	CR 2
Barium	7440-39-3	6.1E+03	6.3E+06 E	CR 2	2.0E+01	1.9E+04	CR 2
Benzene	71-43-2	2.4E+01	9.1E+03	AR 1	6.3E-02	1.8E+01	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	3.5E+01	2.9E+04	CR 2	1.3E-01	1.2E+02	CR 2
Chloroform	67-66-3	7.8E+03	4.8E+06 E	CR 2	4.2E-01	9.9E+01	CR 2
Chromium (III)	16065-83-1	7.7E+12 E	1.9E+16 E	CR 2	1.7E+09 E	5.8E+12 E	CR 2
Chromium (VI)	18540-29-9	2.0E+01	1.0E+04	CR 2	4.5E-01	2.8E+02	CR 2
Cobalt	7440-48-4	6.6E+04	1.1E+08 E	CR 2	9.9E+01	1.6E+05	CR 2
Copper	7440-50-8	8.8E+03	9.7E+06 E	NA 5	2.4E+01	2.6E+04	NA 5
Cresol, m-	108-39-4	8.0E+04	3.7E+07 E	CR 2	3.4E+00	8.4E+02	CR 2
Cresol, o-	95-48-7	4.9E+05 S	3.2E+08 E	CR 2	3.4E+00	8.4E+02	CR 2
Cresol, p-	106-44-5	4.9E+04	3.2E+07 E	CR 2	3.4E-01	8.4E+01	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	2.4E+02	6.8E+04	AR 1	5.4E-01	1.3E+02	AR 1
Dimethylphenol, 2,4-	105-67-9	4.9E+07 E	4.9E+10 E	CR 2	7.6E-01	1.6E+02	CR 2
Divalent mercury	7439-97-6(d)	2.4E+02	2.9E+05	CR 2	3.3E-01	6.7E+02	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	5.7E+03	1.4E+06 E	CR 2	1.4E+02	3.4E+04	CR 2
Formaldehyde	50-00-0	1.3E+03	3.2E+05	CR 2	1.4E+01	3.4E+03	CR 2
Lead	7439-92-1	4.8E+04	1.1E+08 E	NA 5	1.3E+01	4.0E+04	NA 5
Mercury	7439-97-6(e)	3.0E+05 S	4.5E+08 E	NA 3	9.4E+01 S	1.4E+05 S	NA 3
Methanol	67-56-1	2.9E+04	7.2E+06 E	CR 2	3.4E+01	8.4E+03	CR 2
Methyl ethyl ketone	78-93-3	5.9E+03	1.5E+06 E	CR 2	4.1E+01	1.0E+04	CR 2
Methyl isobutyl ketone	108-10-1	5.2E+03	1.5E+06 E	NA 3	3.8E+00	9.2E+02	NA 3
Methyl methacrylate	80-62-6	2.7E+03	6.1E+05	NA 3	1.7E+01	3.5E+03	NA 3
n-Butyl alcohol	71-36-3	1.2E+03	3.3E+05	CR 2	6.8E+00	1.7E+03	CR 2
Nickel	7440-02-0	8.0E+03	1.0E+07 E	CR 2	1.5E+01	2.4E+04	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	5.3E+01	2.6E+04	AR 1	5.0E-02	2.0E+01	AR 1
Phenol	108-95-2	2.2E+05	8.4E+07 E	CR 2	4.1E+01	1.0E+04	CR 2
Selenium	7782-49-2	2.4E+01	7.6E+03	CR 2	6.9E-01	1.8E+02	CR 2
Silver	7440-22-4	1.0E+04	2.0E+07 E	CR 2	1.5E+01	3.1E+04	CR 2
Styrene	100-42-5	1.4E+09 E	2.6E+12 E	CR 2	7.6E+00	1.6E+03 S	CR 2
Tetrachloroethylene	127-18-4	2.8E+01	8.7E+03	AR 1	6.8E-02	1.5E+01	AR 1
Tin	7440-31-5	6.3E+10 E	1.7E+14 E	CR 2	1.7E+07 E	3.5E+10 E	CR 2
Toluene	108-88-3	9.4E+04 S	5.9E+07 E	NA 3	6.9E+00	1.6E+03 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	6.1E+05 S	1.1E+09 E	CR 2	5.0E+02	1.1E+06 E	CR 2

Table A-3b. Driving 95th Percentile Target Waste Concentrations Using Modified Weights Based on 884 Facilities in Landfill: Dust

		Groundwater					
		Cw (mg/kg)			CL (mg/L)		
Constituent	**CAS**	**WMU**	**Wastestream**	**Basis**	**WMU**	**Wastestream**	**Basis**
Acrylamide	79-06-1	4.1E-01	9.6E+01	AR 1	9.7E-04	2.4E-01	AR 1
Acrylonitrile	107-13-1	3.9E-01	1.2E+02	AR 1	8.7E-03	2.4E+00	AR 1
Antimony	7440-36-0	1.7E+00	7.9E+02	CR 2	4.8E-02	1.8E+01	CR 2
Barium	7440-39-3	6.1E+03	5.1E+06 E	CR 2	2.0E+01	1.7E+04	CR 2
Benzene	71-43-2	2.4E+01	1.0E+04	AR 1	6.3E-02	2.0E+01	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	3.5E+01	2.8E+04	CR 2	1.3E-01	9.8E+01	CR 2
Chloroform	67-66-3	7.8E+03	4.5E+06 E	CR 2	4.2E-01	9.3E+01	CR 2
Chromium (III)	16065-83-1	7.7E+12 E	9.4E+15 E	CR 2	1.7E+09 E	3.2E+12 E	CR 2
Chromium (VI)	18540-29-9	3.3E+01	1.9E+04	CR 2	6.1E-01	3.6E+02	CR 2
Cobalt	7440-48-4	9.4E+04	1.1E+08 E	CR 2	1.3E+02	1.6E+05	CR 2
Copper	7440-50-8	8.8E+03	8.0E+06 E	NA 5	2.4E+01	2.3E+04	NA 5
Cresol, m-	108-39-4	8.0E+04	4.0E+07 E	CR 2	3.4E+00	9.9E+02	CR 2
Cresol, o-	95-48-7	4.9E+05 S	2.7E+08 E	CR 2	3.4E+00	9.9E+02	CR 2
Cresol, p-	106-44-5	4.9E+04	2.7E+07 E	CR 2	3.4E-01	9.9E+01	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	2.4E+02	9.0E+04	AR 1	5.4E-01	1.5E+02	AR 1
Dimethylphenol, 2,4-	105-67-9	4.9E+07 E	2.8E+10 E	CR 2	7.6E-01	1.6E+02	CR 2
Divalent mercury	7439-97-6(d)	2.4E+02	1.8E+05	CR 2	3.3E-01	4.4E+02	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	5.7E+03	1.6E+06 E	CR 2	1.4E+02	4.0E+04	CR 2
Formaldehyde	50-00-0	1.3E+03	3.5E+05	CR 2	1.4E+01	4.0E+03	CR 2
Lead	7439-92-1	4.8E+04	7.1E+07 E	NA 5	1.3E+01	2.2E+04	NA 5
Mercury	7439-97-6(e)	3.0E+05 S	3.0E+08 E	NA 3	9.4E+01 S	8.5E+04 S	NA 3
Methanol	67-56-1	2.9E+04	7.4E+06 E	CR 2	3.4E+01	9.9E+03	CR 2
Methyl ethyl ketone	78-93-3	5.9E+03	1.7E+06 E	CR 2	4.1E+01	1.2E+04	CR 2
Methyl isobutyl ketone	108-10-1	5.2E+03	1.6E+06 E	NA 3	3.8E+00	1.1E+03	NA 3
Methyl methacrylate	80-62-6	2.7E+03	7.1E+05	NA 3	1.7E+01	4.0E+03	NA 3
n-Butyl alcohol	71-36-3	1.2E+03	3.5E+05	CR 2	6.8E+00	2.0E+03	CR 2
Nickel	7440-02-0	1.2E+04	1.1E+07 E	CR 2	1.9E+01	2.2E+04	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	5.3E+01	2.2E+04	AR 1	5.0E-02	1.8E+01	AR 1
Phenol	108-95-2	2.2E+05	9.0E+07 E	CR 2	4.1E+01	1.2E+04	CR 2
Selenium	7782-49-2	2.4E+01	9.4E+03	CR 2	6.9E-01	2.1E+02	CR 2
Silver	7440-22-4	1.5E+04	1.9E+07 E	CR 2	2.1E+01	2.6E+04	CR 2
Styrene	100-42-5	1.4E+09 E	1.1E+12 E	CR 2	7.6E+00	1.6E+03 S	CR 2
Tetrachloroethylene	127-18-4	2.8E+01	9.3E+03	AR 1	6.8E-02	1.7E+01	AR 1
Tin	7440-31-5	6.3E+10 E	8.5E+13 E	CR 2	1.7E+07 E	2.1E+10 E	CR 2
Toluene	108-88-3	9.4E+04 S	5.4E+07 E	NA 3	6.9E+00	1.6E+03 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	6.1E+05 S	6.1E+08 E	CR 2	5.0E+02	6.8E+05	CR 2

Table A-3c. Driving 95th Percentile Target Waste Concentrations Using Modified Weights Based on 1544 Facilities in Landfill: Combined Solids

Constituent	CAS	Groundwater					
		Cw (mg/kg)			CL (mg/L)		
		WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	4.1E-01	5.6E+01	AR 1	9.7E-04	1.3E-01	AR 1
Acrylonitrile	107-13-1	3.9E-01	6.2E+01	AR 1	8.7E-03	1.3E+00	AR 1
Antimony	7440-36-0	1.7E+00	4.0E+02	CR 2	4.8E-02	9.4E+00	CR 2
Barium	7440-39-3	6.1E+03	3.4E+06 E	CR 2	2.0E+01	1.3E+04	CR 2
Benzene	71-43-2	2.4E+01	6.1E+03	AR 1	6.3E-02	1.1E+01	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	3.5E+01	2.0E+04	CR 2	1.3E-01	7.1E+01	CR 2
Chloroform	67-66-3	7.8E+03	3.0E+06 E	CR 2	4.2E-01	5.6E+01	CR 2
Chromium (III)	16065-83-1	7.7E+12 E	1.4E+16 E	CR 2	1.7E+09 E	5.3E+12 E	CR 2
Chromium (VI)	18540-29-9	2.0E+01	6.8E+03	CR 2	4.5E-01	1.6E+02	CR 2
Cobalt	7440-48-4	6.6E+04	6.8E+07 E	CR 2	9.9E+01	1.1E+05	CR 2
Copper	7440-50-8	8.8E+03	6.2E+06 E	NA 5	2.4E+01	1.7E+04	NA 5
Cresol, m-	108-39-4	8.0E+04	2.8E+07 E	CR 2	3.4E+00	4.9E+02	CR 2
Cresol, o-	95-48-7	4.9E+05 S	2.2E+08 E	CR 2	3.4E+00	4.9E+02	CR 2
Cresol, p-	106-44-5	4.9E+04	2.2E+07 E	CR 2	3.4E-01	4.9E+01	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	2.4E+02	5.4E+04	AR 1	5.4E-01	8.1E+01	AR 1
Dimethylphenol, 2,4-	105-67-9	4.9E+07 E	2.3E+10 E	CR 2	7.6E-01	9.4E+01	CR 2
Divalent mercury	7439-97-6(d)	2.4E+02	2.0E+05	CR 2	3.3E-01	5.5E+02	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	5.7E+03	8.0E+05	CR 2	1.4E+02	2.0E+04	CR 2
Formaldehyde	50-00-0	1.3E+03	1.8E+05	CR 2	1.4E+01	2.0E+03	CR 2
Lead	7439-92-1	4.8E+04	1.2E+08 E	NA 5	1.3E+01	3.2E+04	NA 5
Mercury	7439-97-6(e)	3.0E+05 S	3.0E+08 E	NA 3	9.4E+01 S	1.0E+05 S	NA 3
Methanol	67-56-1	2.9E+04	4.1E+06 E	CR 2	3.4E+01	4.9E+03	CR 2
Methyl ethyl ketone	78-93-3	5.9E+03	8.9E+05	CR 2	4.1E+01	5.9E+03	CR 2
Methyl isobutyl ketone	108-10-1	5.2E+03	1.0E+06 E	NA 3	3.8E+00	5.6E+02	NA 3
Methyl methacrylate	80-62-6	2.7E+03	3.6E+05	NA 3	1.7E+01	2.2E+03	NA 3
n-Butyl alcohol	71-36-3	1.2E+03	1.9E+05	CR 2	6.8E+00	9.8E+02	CR 2
Nickel	7440-02-0	8.0E+03	6.7E+06 E	CR 2	1.5E+01	1.5E+04	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	5.3E+01	1.5E+04	AR 1	5.0E-02	1.2E+01	AR 1
Phenol	108-95-2	2.2E+05	5.7E+07 E	CR 2	4.1E+01	5.9E+03	CR 2
Selenium	7782-49-2	2.4E+01	4.2E+03	CR 2	6.9E-01	1.0E+02	CR 2
Silver	7440-22-4	1.0E+04	1.2E+07 E	CR 2	1.5E+01	1.8E+04	CR 2
Styrene	100-42-5	1.4E+09 E	1.2E+12 E	NA 3	7.6E+00	9.4E+02 S	CR 2
Tetrachloroethylene	127-18-4	2.8E+01	5.6E+03	AR 1	6.8E-02	9.8E+00	AR 1
Tin	7440-31-5	6.3E+10 E	9.6E+13 E	CR 2	1.7E+07 E	2.5E+10 E	CR 2
Toluene	108-88-3	9.4E+04 S	3.9E+07 E	NA 3	6.9E+00	9.4E+02 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	6.1E+05 S	6.5E+08 E	CR 2	5.0E+02	5.9E+05	CR 2

Table A-3c. Driving 95th Percentile Target Waste Concentrations Using Modified Weights Based on 1544 Facilities in Landfill: Dust

		Groundwater					
		Cw (mg/kg)			CL (mg/L)		
Constituent	CAS	WMU	Wastestream	Basis	WMU	Wastestream	Basis
Acrylamide	79-06-1	4.1E-01	9.2E+01	AR 1	9.7E-04	2.4E-01	AR 1
Acrylonitrile	107-13-1	3.9E-01	1.1E+02	AR 1	8.7E-03	2.5E+00	AR 1
Antimony	7440-36-0	1.7E+00	7.1E+02	CR 2	4.8E-02	1.6E+01	CR 2
Barium	7440-39-3	6.1E+03	4.2E+06 E	CR 2	2.0E+01	1.5E+04	CR 2
Benzene	71-43-2	2.4E+01	1.0E+04	AR 1	6.3E-02	2.0E+01	AR 1
Butylbenzylphthalate	85-68-7	L					
Cadmium	7440-43-9	3.5E+01	2.4E+04	CR 2	1.3E-01	9.1E+01	CR 2
Chloroform	67-66-3	7.8E+03	3.5E+06 E	CR 2	4.2E-01	9.3E+01	CR 2
Chromium (III)	16065-83-1	7.7E+12 E	9.0E+15 E	CR 2	1.7E+09 E	2.7E+12 E	CR 2
Chromium (VI)	18540-29-9	3.3E+01	1.6E+04	CR 2	6.1E-01	3.3E+02	CR 2
Cobalt	7440-48-4	9.4E+04	9.3E+07 E	CR 2	1.3E+02	1.3E+05	CR 2
Copper	7440-50-8	8.8E+03	6.7E+06 E	NA 5	2.4E+01	1.9E+04	NA 5
Cresol, m-	108-39-4	8.0E+04	3.5E+07 E	CR 2	3.4E+00	9.1E+02	CR 2
Cresol, o-	95-48-7	4.9E+05 S	2.6E+08 E	CR 2	3.4E+00	9.1E+02	CR 2
Cresol, p-	106-44-5	4.9E+04	2.6E+07 E	CR 2	3.4E-01	9.1E+01	CR 2
Di(2-ethylhexylphthalate)	117-81-7	L					
Dibutylphthalate	84-74-2	L					
Dichloromethane	75-09-2	2.4E+02	8.6E+04	AR 1	5.4E-01	1.6E+02	AR 1
Dimethylphenol, 2,4-	105-67-9	4.9E+07 E	2.4E+10 E	CR 2	7.6E-01	1.6E+02	CR 2
Divalent mercury	7439-97-6(d)	2.4E+02	1.7E+05	CR 2	3.3E-01	4.1E+02	CR 2
Ethylbenzene	100-41-4	L					
Ethylene glycol	107-21-1	5.7E+03	1.5E+06 E	CR 2	1.4E+02	3.6E+04	CR 2
Formaldehyde	50-00-0	1.3E+03	3.4E+05	CR 2	1.4E+01	3.6E+03	CR 2
Lead	7439-92-1	4.8E+04	6.1E+07 E	NA 5	1.3E+01	1.4E+04	NA 5
Mercury	7439-97-6(e)	3.0E+05 S	2.3E+08 E	NA 3	9.4E+01 S	7.4E+04 S	NA 3
Methanol	67-56-1	2.9E+04	6.8E+06 E	CR 2	3.4E+01	9.1E+03	CR 2
Methyl ethyl ketone	78-93-3	5.9E+03	1.6E+06 E	CR 2	4.1E+01	1.1E+04	CR 2
Methyl isobutyl ketone	108-10-1	5.2E+03	1.5E+06 E	NA 3	3.8E+00	1.1E+03	NA 3
Methyl methacrylate	80-62-6	2.7E+03	6.7E+05	NA 3	1.7E+01	4.0E+03	NA 3
n-Butyl alcohol	71-36-3	1.2E+03	3.2E+05	CR 2	6.8E+00	1.8E+03	CR 2
Nickel	7440-02-0	1.2E+04	9.2E+06 E	CR 2	1.9E+01	2.1E+04	CR 2
Nickel oxide	1313-99-1	B					
Pentachlorophenol	87-86-5	5.3E+01	2.0E+04	AR 1	5.0E-02	1.7E+01	AR 1
Phenol	108-95-2	2.2E+05	8.1E+07 E	CR 2	4.1E+01	1.1E+04	CR 2
Selenium	7782-49-2	2.4E+01	8.1E+03	CR 2	6.9E-01	1.9E+02	CR 2
Silver	7440-22-4	1.5E+04	1.6E+07 E	CR 2	2.1E+01	2.1E+04	CR 2
Styrene	100-42-5	1.4E+09 E	8.9E+11 E	CR 2	7.6E+00	1.6E+03 S	CR 2
Tetrachloroethylene	127-18-4	2.8E+01	8.8E+03	AR 1	6.8E-02	1.7E+01	AR 1
Tin	7440-31-5	6.3E+10 E	6.3E+13 E	CR 2	1.7E+07 E	1.8E+10 E	CR 2
Toluene	108-88-3	9.4E+04 S	4.4E+07 E	NA 3	6.9E+00	1.6E+03 S	CR 2
Vinyl acetate	108-05-4	G					
Xylene (mixed isomers)	1330-20-7	L					
Zinc	7440-66-6	6.1E+05 S	4.8E+08 E	CR 2	5.0E+02	5.4E+05	CR 2

Table A-4a. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Original Weights in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Acrylamide	79-06-1	Noncancer via Ingestion	1.3E+01	6.0E+00	3.0E-02	1.4E-02
		Noncancer via Inhalation	1.5E+06 E		3.5E+03	
		Cancer	7.3E-01	1.1E+00	1.7E-03	2.5E-03
Acrylonitrile	107-13-1	Noncancer via Ingestion	8.9E+00	4.3E+00	2.0E-01	9.3E-02
		Noncancer via Inhalation	7.1E+00		1.5E-01	
		Cancer	6.9E-01	1.3E+00	1.5E-02	2.7E-02
Antimony	7440-36-0	Noncancer via Ingestion	8.1E+00	3.8E+00	2.1E-01	1.0E-01
		Noncancer via Inhalation				
		Cancer				
Barium	7440-39-3	Noncancer via Ingestion	5.3E+04	2.6E+04	1.6E+02	7.3E+01
		Noncancer via Inhalation				
		Cancer				
Benzene	71-43-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer	5.2E+01	1.5E+02	1.1E-01	3.2E-01
Butylbenzylphthalate	85-68-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cadmium	7440-43-9	Noncancer via Ingestion	2.8E+02	1.2E+02	1.0E+00	4.5E-01
		Noncancer via Inhalation				
		Cancer				
Chloroform	67-66-3	Noncancer via Ingestion	5.6E+04 S	2.7E+04	1.5E+00	6.8E-01
		Noncancer via Inhalation	6.1E+04 S		1.5E+00	
		Cancer				
Chromium (III)	16065-83-1	Noncancer via Ingestion	4.4E+18 E	2.3E+18 E	1.6E+15 E	8.1E+14 E
		Noncancer via Inhalation				
		Cancer				
Chromium (VI)	18540-29-9	Noncancer via Ingestion	1.2E+02	5.3E+01	2.4E+00	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Cobalt	7440-48-4	Noncancer via Ingestion	2.4E+06 E	1.0E+06 E	2.7E+03	1.2E+03
		Noncancer via Inhalation				
		Cancer				
Copper	7440-50-8	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cresol, m-	108-39-4	Noncancer via Ingestion	6.3E+05 S	3.1E+05 S	2.9E+01	5.6E+00
		Noncancer via Inhalation				
		Cancer				
Cresol, o-	95-48-7	Noncancer via Ingestion	6.4E+06 E	3.0E+06 E	2.9E+01	5.6E+00
		Noncancer via Inhalation				
		Cancer				
Cresol, p-	106-44-5	Noncancer via Ingestion	6.4E+05 S	3.0E+05 S	2.9E+00	5.6E-01
		Noncancer via Inhalation				
		Cancer				

Table A-4a. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Original Weights in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Di(2-ethylhexylphthalate)	117-81-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dibutylphthalate	84-74-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dichloromethane	75-09-2	Noncancer via Ingestion	6.0E+03	2.8E+03	1.2E+01	5.6E+00
		Noncancer via Inhalation	3.1E+04 S		5.9E+01	
		Cancer	4.9E+02	1.1E+03	9.2E-01	2.0E+00
Dimethylphenol, 2,4-	105-67-9	Noncancer via Ingestion	1.1E+10 E	5.4E+09 E	3.6E+01	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Divalent mercury	7439-97-6(d)	Noncancer via Ingestion	1.5E+04	7.6E+03	1.6E+01	7.6E+00
		Noncancer via Inhalation				
		Cancer				
Ethylbenzene	100-41-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Ethylene glycol	107-21-1	Noncancer via Ingestion	2.0E+04	9.1E+03	4.7E+02	2.2E+02
		Noncancer via Inhalation	3.2E+06 E		7.7E+04	
		Cancer				
Formaldehyde	50-00-0	Noncancer via Ingestion	4.4E+03	2.1E+03	4.7E+01	2.2E+01
		Noncancer via Inhalation				
		Cancer	1.3E+04		1.4E+02	
Lead	7439-92-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Mercury	7439-97-6(e)	Noncancer via Ingestion				
		Noncancer via Inhalation	1.7E+07 E		6.4E+03 S	
		Cancer				
Methanol	67-56-1	Noncancer via Ingestion	1.1E+05	4.9E+04	1.2E+02	5.6E+01
		Noncancer via Inhalation	2.1E+07 E		2.2E+04	
		Cancer				
Methyl ethyl ketone	78-93-3	Noncancer via Ingestion	2.2E+04	1.0E+04	1.4E+02	6.7E+01
		Noncancer via Inhalation	2.4E+04		1.6E+02	
		Cancer				
Methyl isobutyl ketone	108-10-1	Noncancer via Ingestion	3.2E+04 S	1.5E+04	1.9E+01	9.0E+00
		Noncancer via Inhalation	1.1E+04		6.3E+00	
		Cancer				
Methyl methacrylate	80-62-6	Noncancer via Ingestion	4.8E+04 S	2.3E+04 S	2.8E+02	1.3E+02
		Noncancer via Inhalation	4.6E+03		2.6E+01	
		Cancer				
n-Butyl alcohol	71-36-3	Noncancer via Ingestion	4.5E+03	2.1E+03	2.3E+01	1.1E+01
		Noncancer via Inhalation				
		Cancer				

Table A-4a. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Original Weights in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Nickel	7440-02-0	Noncancer via Ingestion	1.4E+05 S	6.4E+04	2.4E+02	1.2E+02
		Noncancer via Inhalation				
		Cancer				
Nickel oxide	1313-99-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Pentachlorophenol	87-86-5	Noncancer via Ingestion	9.0E+03	4.4E+03	6.5E+00	3.0E+00
		Noncancer via Inhalation	4.2E+07 E		2.9E+04 S	
		Cancer	1.4E+02	2.0E+02	1.0E-01	1.4E-01
Phenol	108-95-2	Noncancer via Ingestion	1.2E+06 E	6.2E+05 S	1.6E+02	6.7E+01
		Noncancer via Inhalation				
		Cancer				
Selenium	7782-49-2	Noncancer via Ingestion	9.7E+01	4.4E+01	2.6E+00	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Silver	7440-22-4	Noncancer via Ingestion	6.6E+05 S	2.8E+05	7.4E+02	3.6E+02
		Noncancer via Inhalation				
		Cancer				
Styrene	100-42-5	Noncancer via Ingestion	4.7E+30 E	7.0E+30 E	1.0E+30 E	1.2E+01
		Noncancer via Inhalation	2.0E+30 E		1.0E+30 E	
		Cancer				
Tetrachloroethylene	127-18-4	Noncancer via Ingestion	6.2E+02	2.9E+02	1.3E+00	6.2E-01
		Noncancer via Inhalation	2.0E+03		3.9E+00	
		Cancer	5.6E+01	8.7E+01	1.1E-01	1.9E-01
Tin	7440-31-5	Noncancer via Ingestion	9.0E+15 E	4.0E+15 E	1.8E+12 E	7.6E+11 E
		Noncancer via Inhalation				
		Cancer				
Toluene	108-88-3	Noncancer via Ingestion	1.8E+06 E	8.1E+05 S	7.5E+01	1.2E+01
		Noncancer via Inhalation	3.8E+05 S		1.7E+01	
		Cancer				
Vinyl acetate	108-05-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Xylene (mixed isomers)	1330-20-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Zinc	7440-66-6	Noncancer via Ingestion	2.8E+07 E	1.4E+07 E	2.5E+04	1.3E+04
		Noncancer via Inhalation				
		Cancer				

Table A-4a. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Original Weights in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Acrylamide	79-06-1	Noncancer via Ingestion	1.3E+01	6.0E+00	3.0E-02	1.4E-02
		Noncancer via Inhalation	1.5E+06 E		3.5E+03	
		Cancer	7.3E-01	1.1E+00	1.7E-03	2.5E-03
Acrylonitrile	107-13-1	Noncancer via Ingestion	8.9E+00	4.3E+00	2.0E-01	9.3E-02
		Noncancer via Inhalation	7.1E+00		1.5E-01	
		Cancer	6.9E-01	1.3E+00	1.5E-02	2.7E-02
Antimony	7440-36-0	Noncancer via Ingestion	8.1E+00	3.8E+00	2.1E-01	1.0E-01
		Noncancer via Inhalation				
		Cancer				
Barium	7440-39-3	Noncancer via Ingestion	5.3E+04	2.6E+04	1.6E+02	7.3E+01
		Noncancer via Inhalation				
		Cancer				
Benzene	71-43-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer	5.2E+01	1.5E+02	1.1E-01	3.2E-01
Butylbenzylphthalate	85-68-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cadmium	7440-43-9	Noncancer via Ingestion	2.8E+02	1.2E+02	1.0E+00	4.5E-01
		Noncancer via Inhalation				
		Cancer				
Chloroform	67-66-3	Noncancer via Ingestion	5.6E+04 S	2.7E+04	1.5E+00	6.8E-01
		Noncancer via Inhalation	6.1E+04 S		1.5E+00	
		Cancer				
Chromium (III)	16065-83-1	Noncancer via Ingestion	4.4E+18 E	2.3E+18 E	1.6E+15 E	8.1E+14 E
		Noncancer via Inhalation				
		Cancer				
Chromium (VI)	18540-29-9	Noncancer via Ingestion	2.1E+02	9.6E+01	3.6E+00	1.6E+00
		Noncancer via Inhalation				
		Cancer				
Cobalt	7440-48-4	Noncancer via Ingestion	2.9E+06 E	1.3E+06 E	3.6E+03	1.7E+03
		Noncancer via Inhalation				
		Cancer				
Copper	7440-50-8	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cresol, m-	108-39-4	Noncancer via Ingestion	6.3E+05 S	3.1E+05 S	2.9E+01	5.6E+00
		Noncancer via Inhalation				
		Cancer				
Cresol, o-	95-48-7	Noncancer via Ingestion	6.4E+06 E	3.0E+06 E	2.9E+01	5.6E+00
		Noncancer via Inhalation				
		Cancer				
Cresol, p-	106-44-5	Noncancer via Ingestion	6.4E+05 S	3.0E+05 S	2.9E+00	5.6E-01
		Noncancer via Inhalation				
		Cancer				

Table A-4a. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Original Weights in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Di(2-ethylhexylphthalate)	117-81-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dibutylphthalate	84-74-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dichloromethane	75-09-2	Noncancer via Ingestion	6.0E+03	2.8E+03	1.2E+01	5.6E+00
		Noncancer via Inhalation	3.1E+04 S		5.9E+01	
		Cancer	4.9E+02	1.1E+03	9.2E-01	2.0E+00
Dimethylphenol, 2,4-	105-67-9	Noncancer via Ingestion	1.1E+10 E	5.4E+09 E	3.6E+01	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Divalent mercury	7439-97-6(d)	Noncancer via Ingestion	1.5E+04	7.6E+03	1.6E+01	7.6E+00
		Noncancer via Inhalation				
		Cancer				
Ethylbenzene	100-41-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Ethylene glycol	107-21-1	Noncancer via Ingestion	2.0E+04	9.1E+03	4.7E+02	2.2E+02
		Noncancer via Inhalation	3.2E+06 E		7.7E+04	
		Cancer				
Formaldehyde	50-00-0	Noncancer via Ingestion	4.4E+03	2.1E+03	4.7E+01	2.2E+01
		Noncancer via Inhalation				
		Cancer	1.3E+04		1.4E+02	
Lead	7439-92-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Mercury	7439-97-6(e)	Noncancer via Ingestion				
		Noncancer via Inhalation	1.7E+07 E		6.4E+03 S	
		Cancer				
Methanol	67-56-1	Noncancer via Ingestion	1.1E+05	4.9E+04	1.2E+02	5.6E+01
		Noncancer via Inhalation	2.1E+07 E		2.2E+04	
		Cancer				
Methyl ethyl ketone	78-93-3	Noncancer via Ingestion	2.2E+04	1.0E+04	1.4E+02	6.7E+01
		Noncancer via Inhalation	2.4E+04		1.6E+02	
		Cancer				
Methyl isobutyl ketone	108-10-1	Noncancer via Ingestion	3.2E+04 S	1.5E+04	1.9E+01	9.0E+00
		Noncancer via Inhalation	1.1E+04		6.3E+00	
		Cancer				
Methyl methacrylate	80-62-6	Noncancer via Ingestion	4.8E+04 S	2.3E+04 S	2.8E+02	1.3E+02
		Noncancer via Inhalation	4.6E+03		2.6E+01	
		Cancer				
n-Butyl alcohol	71-36-3	Noncancer via Ingestion	4.5E+03	2.1E+03	2.3E+01	1.1E+01
		Noncancer via Inhalation				
		Cancer				

Table A-4a. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Original Weights in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Nickel	7440-02-0	Noncancer via Ingestion	2.1E+05 S	9.4E+04 S	3.4E+02	1.7E+02
		Noncancer via Inhalation				
		Cancer				
Nickel oxide	1313-99-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Pentachlorophenol	87-86-5	Noncancer via Ingestion	9.0E+03	4.4E+03	6.5E+00	3.0E+00
		Noncancer via Inhalation	4.2E+07 E		2.9E+04 S	
		Cancer	1.4E+02	2.0E+02	1.0E-01	1.4E-01
Phenol	108-95-2	Noncancer via Ingestion	1.2E+06 E	6.2E+05 S	1.6E+02	6.7E+01
		Noncancer via Inhalation				
		Cancer				
Selenium	7782-49-2	Noncancer via Ingestion	9.7E+01	4.4E+01	2.6E+00	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Silver	7440-22-4	Noncancer via Ingestion	8.6E+05 S	3.7E+05 S	1.0E+03	4.8E+02
		Noncancer via Inhalation				
		Cancer				
Styrene	100-42-5	Noncancer via Ingestion	4.7E+30 E	7.0E+30 E	1.0E+30 E	1.2E+01
		Noncancer via Inhalation	2.0E+30 E		1.0E+30 E	
		Cancer				
Tetrachloroethylene	127-18-4	Noncancer via Ingestion	6.2E+02	2.9E+02	1.3E+00	6.2E-01
		Noncancer via Inhalation	2.0E+03		3.9E+00	
		Cancer	5.6E+01	8.7E+01	1.1E-01	1.9E-01
Tin	7440-31-5	Noncancer via Ingestion	9.0E+15 E	4.0E+15 E	1.8E+12 E	7.6E+11 E
		Noncancer via Inhalation				
		Cancer				
Toluene	108-88-3	Noncancer via Ingestion	1.8E+06 E	8.1E+05 S	7.5E+01	1.2E+01
		Noncancer via Inhalation	3.8E+05 S		1.7E+01	
		Cancer				
Vinyl acetate	108-05-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Xylene (mixed isomers)	1330-20-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Zinc	7440-66-6	Noncancer via Ingestion	2.8E+07 E	1.4E+07 E	2.5E+04	1.3E+04
		Noncancer via Inhalation				
		Cancer				

Table A-4b. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Modified Weights Based on 884 Facilities in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Acrylamide	79-06-1	Noncancer via Ingestion	1.3E+01	6.0E+00	3.0E-02	1.4E-02
		Noncancer via Inhalation	1.5E+06 E		3.5E+03	
		Cancer	7.3E-01	1.1E+00	1.7E-03	2.5E-03
Acrylonitrile	107-13-1	Noncancer via Ingestion	8.9E+00	4.3E+00	2.0E-01	9.3E-02
		Noncancer via Inhalation	7.1E+00		1.5E-01	
		Cancer	6.9E-01	1.3E+00	1.5E-02	2.7E-02
Antimony	7440-36-0	Noncancer via Ingestion	8.1E+00	3.8E+00	2.1E-01	1.0E-01
		Noncancer via Inhalation				
		Cancer				
Barium	7440-39-3	Noncancer via Ingestion	5.3E+04	2.6E+04	1.6E+02	7.3E+01
		Noncancer via Inhalation				
		Cancer				
Benzene	71-43-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer	5.2E+01	1.5E+02	1.1E-01	3.2E-01
Butylbenzylphthalate	85-68-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cadmium	7440-43-9	Noncancer via Ingestion	2.8E+02	1.2E+02	1.0E+00	4.5E-01
		Noncancer via Inhalation				
		Cancer				
Chloroform	67-66-3	Noncancer via Ingestion	5.6E+04 S	2.7E+04	1.5E+00	6.8E-01
		Noncancer via Inhalation	6.1E+04 S		1.5E+00	
		Cancer				
Chromium (III)	16065-83-1	Noncancer via Ingestion	4.4E+18 E	2.3E+18 E	1.6E+15 E	8.1E+14 E
		Noncancer via Inhalation				
		Cancer				
Chromium (VI)	18540-29-9	Noncancer via Ingestion	1.2E+02	5.3E+01	2.4E+00	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Cobalt	7440-48-4	Noncancer via Ingestion	2.4E+06 E	1.0E+06 E	2.7E+03	1.2E+03
		Noncancer via Inhalation				
		Cancer				
Copper	7440-50-8	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cresol, m-	108-39-4	Noncancer via Ingestion	6.3E+05 S	3.1E+05 S	2.9E+01	5.6E+00
		Noncancer via Inhalation				
		Cancer				
Cresol, o-	95-48-7	Noncancer via Ingestion	6.4E+06 E	3.0E+06 E	2.9E+01	5.6E+00
		Noncancer via Inhalation				
		Cancer				
Cresol, p-	106-44-5	Noncancer via Ingestion	6.4E+05 S	3.0E+05 S	2.9E+00	5.6E-01
		Noncancer via Inhalation				
		Cancer				

Table A-4b. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Modified Weights Based on 884 Facilities in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater Cw (mg/kg) AR	Groundwater Cw (mg/kg) CR	Groundwater CL (mg/L) AR	Groundwater CL (mg/L) CR
Di(2-ethylhexylphthalate)	117-81-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dibutylphthalate	84-74-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dichloromethane	75-09-2	Noncancer via Ingestion	6.0E+03	2.8E+03	1.2E+01	5.6E+00
		Noncancer via Inhalation	3.1E+04 S		5.9E+01	
		Cancer	4.9E+02	1.1E+03	9.2E-01	2.0E+00
Dimethylphenol, 2,4-	105-67-9	Noncancer via Ingestion	1.1E+10 E	5.4E+09 E	3.6E+01	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Divalent mercury	7439-97-6(d)	Noncancer via Ingestion	1.5E+04	7.6E+03	1.6E+01	7.6E+00
		Noncancer via Inhalation				
		Cancer				
Ethylbenzene	100-41-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Ethylene glycol	107-21-1	Noncancer via Ingestion	2.0E+04	9.1E+03	4.7E+02	2.2E+02
		Noncancer via Inhalation	3.2E+06 E		7.7E+04	
		Cancer				
Formaldehyde	50-00-0	Noncancer via Ingestion	4.4E+03	2.1E+03	4.7E+01	2.2E+01
		Noncancer via Inhalation				
		Cancer	1.3E+04		1.4E+02	
Lead	7439-92-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Mercury	7439-97-6(e)	Noncancer via Ingestion				
		Noncancer via Inhalation	1.7E+07 E		6.4E+03 S	
		Cancer				
Methanol	67-56-1	Noncancer via Ingestion	1.1E+05	4.9E+04	1.2E+02	5.6E+01
		Noncancer via Inhalation	2.1E+07 E		2.2E+04	
		Cancer				
Methyl ethyl ketone	78-93-3	Noncancer via Ingestion	2.2E+04	1.0E+04	1.4E+02	6.7E+01
		Noncancer via Inhalation	2.4E+04		1.6E+02	
		Cancer				
Methyl isobutyl ketone	108-10-1	Noncancer via Ingestion	3.2E+04 S	1.5E+04	1.9E+01	9.0E+00
		Noncancer via Inhalation	1.1E+04		6.3E+00	
		Cancer				
Methyl methacrylate	80-62-6	Noncancer via Ingestion	4.8E+04 S	2.3E+04 S	2.8E+02	1.3E+02
		Noncancer via Inhalation	4.6E+03		2.6E+01	
		Cancer				
n-Butyl alcohol	71-36-3	Noncancer via Ingestion	4.5E+03	2.1E+03	2.3E+01	1.1E+01
		Noncancer via Inhalation				
		Cancer				

Table A-4b. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Modified Weights Based on 884 Facilities in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Nickel	7440-02-0	Noncancer via Ingestion	1.4E+05 S	6.4E+04	2.4E+02	1.2E+02
		Noncancer via Inhalation				
		Cancer				
Nickel oxide	1313-99-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Pentachlorophenol	87-86-5	Noncancer via Ingestion	9.0E+03	4.4E+03	6.5E+00	3.0E+00
		Noncancer via Inhalation	4.2E+07 E		2.9E+04 S	
		Cancer	1.4E+02	2.0E+02	1.0E-01	1.4E-01
Phenol	108-95-2	Noncancer via Ingestion	1.2E+06 E	6.2E+05 S	1.6E+02	6.7E+01
		Noncancer via Inhalation				
		Cancer				
Selenium	7782-49-2	Noncancer via Ingestion	9.7E+01	4.4E+01	2.6E+00	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Silver	7440-22-4	Noncancer via Ingestion	6.6E+05 S	2.8E+05	7.4E+02	3.6E+02
		Noncancer via Inhalation				
		Cancer				
Styrene	100-42-5	Noncancer via Ingestion	4.7E+30 E	7.0E+30 E	1.0E+30 E	1.2E+01
		Noncancer via Inhalation	2.0E+30 E		1.0E+30 E	
		Cancer				
Tetrachloroethylene	127-18-4	Noncancer via Ingestion	6.2E+02	2.9E+02	1.3E+00	6.2E-01
		Noncancer via Inhalation	2.0E+03		3.9E+00	
		Cancer	5.6E+01	8.7E+01	1.1E-01	1.9E-01
Tin	7440-31-5	Noncancer via Ingestion	9.0E+15 E	4.0E+15 E	1.8E+12 E	7.6E+11 E
		Noncancer via Inhalation				
		Cancer				
Toluene	108-88-3	Noncancer via Ingestion	1.8E+06 E	8.1E+05 S	7.5E+01	1.2E+01
		Noncancer via Inhalation	3.8E+05 S		1.7E+01	
		Cancer				
Vinyl acetate	108-05-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Xylene (mixed isomers)	1330-20-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Zinc	7440-66-6	Noncancer via Ingestion	2.8E+07 E	1.4E+07 E	2.5E+04	1.3E+04
		Noncancer via Inhalation				
		Cancer				

Table A-4b. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Modified Weights Based on 884 Facilities in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Acrylamide	79-06-1	Noncancer via Ingestion	1.3E+01	6.0E+00	3.0E-02	1.4E-02
		Noncancer via Inhalation	1.5E+06 E		3.5E+03	
		Cancer	7.3E-01	1.1E+00	1.7E-03	2.5E-03
Acrylonitrile	107-13-1	Noncancer via Ingestion	8.9E+00	4.3E+00	2.0E-01	9.3E-02
		Noncancer via Inhalation	7.1E+00		1.5E-01	
		Cancer	6.9E-01	1.3E+00	1.5E-02	2.7E-02
Antimony	7440-36-0	Noncancer via Ingestion	8.1E+00	3.8E+00	2.1E-01	1.0E-01
		Noncancer via Inhalation				
		Cancer				
Barium	7440-39-3	Noncancer via Ingestion	5.3E+04	2.6E+04	1.6E+02	7.3E+01
		Noncancer via Inhalation				
		Cancer				
Benzene	71-43-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer	5.2E+01	1.5E+02	1.1E-01	3.2E-01
Butylbenzylphthalate	85-68-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cadmium	7440-43-9	Noncancer via Ingestion	2.8E+02	1.2E+02	1.0E+00	4.5E-01
		Noncancer via Inhalation				
		Cancer				
Chloroform	67-66-3	Noncancer via Ingestion	5.6E+04 S	2.7E+04	1.5E+00	6.8E-01
		Noncancer via Inhalation	6.1E+04 S		1.5E+00	
		Cancer				
Chromium (III)	16065-83-1	Noncancer via Ingestion	4.4E+18 E	2.3E+18 E	1.6E+15 E	8.1E+14 E
		Noncancer via Inhalation				
		Cancer				
Chromium (VI)	18540-29-9	Noncancer via Ingestion	2.1E+02	9.6E+01	3.6E+00	1.6E+00
		Noncancer via Inhalation				
		Cancer				
Cobalt	7440-48-4	Noncancer via Ingestion	2.9E+06 E	1.3E+06 E	3.6E+03	1.7E+03
		Noncancer via Inhalation				
		Cancer				
Copper	7440-50-8	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cresol, m-	108-39-4	Noncancer via Ingestion	6.3E+05 S	3.1E+05 S	2.9E+01	5.6E+00
		Noncancer via Inhalation				
		Cancer				
Cresol, o-	95-48-7	Noncancer via Ingestion	6.4E+06 E	3.0E+06 E	2.9E+01	5.6E+00
		Noncancer via Inhalation				
		Cancer				
Cresol, p-	106-44-5	Noncancer via Ingestion	6.4E+05 S	3.0E+05 S	2.9E+00	5.6E-01
		Noncancer via Inhalation				
		Cancer				

Table A-4b. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Modified Weights Based on 884 Facilities in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Di(2-ethylhexylphthalate)	117-81-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dibutylphthalate	84-74-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dichloromethane	75-09-2	Noncancer via Ingestion	6.0E+03	2.8E+03	1.2E+01	5.6E+00
		Noncancer via Inhalation	3.1E+04 S		5.9E+01	
		Cancer	4.9E+02	1.1E+03	9.2E-01	2.0E+00
Dimethylphenol, 2,4-	105-67-9	Noncancer via Ingestion	1.1E+10 E	5.4E+09 E	3.6E+01	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Divalent mercury	7439-97-6(d)	Noncancer via Ingestion	1.5E+04	7.6E+03	1.6E+01	7.6E+00
		Noncancer via Inhalation				
		Cancer				
Ethylbenzene	100-41-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Ethylene glycol	107-21-1	Noncancer via Ingestion	2.0E+04	9.1E+03	4.7E+02	2.2E+02
		Noncancer via Inhalation	3.2E+06 E		7.7E+04	
		Cancer				
Formaldehyde	50-00-0	Noncancer via Ingestion	4.4E+03	2.1E+03	4.7E+01	2.2E+01
		Noncancer via Inhalation				
		Cancer	1.3E+04		1.4E+02	
Lead	7439-92-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Mercury	7439-97-6(e)	Noncancer via Ingestion				
		Noncancer via Inhalation	1.7E+07 E		6.4E+03 S	
		Cancer				
Methanol	67-56-1	Noncancer via Ingestion	1.1E+05	4.9E+04	1.2E+02	5.6E+01
		Noncancer via Inhalation	2.1E+07 E		2.2E+04	
		Cancer				
Methyl ethyl ketone	78-93-3	Noncancer via Ingestion	2.2E+04	1.0E+04	1.4E+02	6.7E+01
		Noncancer via Inhalation	2.4E+04		1.6E+02	
		Cancer				
Methyl isobutyl ketone	108-10-1	Noncancer via Ingestion	3.2E+04 S	1.5E+04	1.9E+01	9.0E+00
		Noncancer via Inhalation	1.1E+04		6.3E+00	
		Cancer				
Methyl methacrylate	80-62-6	Noncancer via Ingestion	4.8E+04 S	2.3E+04 S	2.8E+02	1.3E+02
		Noncancer via Inhalation	4.6E+03		2.6E+01	
		Cancer				
n-Butyl alcohol	71-36-3	Noncancer via Ingestion	4.5E+03	2.1E+03	2.3E+01	1.1E+01
		Noncancer via Inhalation				
		Cancer				

Table A-4b. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Modified Weights Based on 884 Facilities in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Nickel	7440-02-0	Noncancer via Ingestion	2.1E+05 S	9.4E+04 S	3.4E+02	1.7E+02
		Noncancer via Inhalation				
		Cancer				
Nickel oxide	1313-99-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Pentachlorophenol	87-86-5	Noncancer via Ingestion	9.0E+03	4.4E+03	6.5E+00	3.0E+00
		Noncancer via Inhalation	4.2E+07 E		2.9E+04 S	
		Cancer	1.4E+02	2.0E+02	1.0E-01	1.4E-01
Phenol	108-95-2	Noncancer via Ingestion	1.2E+06 E	6.2E+05 S	1.6E+02	6.7E+01
		Noncancer via Inhalation				
		Cancer				
Selenium	7782-49-2	Noncancer via Ingestion	9.7E+01	4.4E+01	2.6E+00	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Silver	7440-22-4	Noncancer via Ingestion	8.6E+05 S	3.7E+05 S	1.0E+03	4.8E+02
		Noncancer via Inhalation				
		Cancer				
Styrene	100-42-5	Noncancer via Ingestion	4.7E+30 E	7.0E+30 E	1.0E+30 E	1.2E+01
		Noncancer via Inhalation	2.0E+30 E		1.0E+30 E	
		Cancer				
Tetrachloroethylene	127-18-4	Noncancer via Ingestion	6.2E+02	2.9E+02	1.3E+00	6.2E-01
		Noncancer via Inhalation	2.0E+03		3.9E+00	
		Cancer	5.6E+01	8.7E+01	1.1E-01	1.9E-01
Tin	7440-31-5	Noncancer via Ingestion	9.0E+15 E	4.0E+15 E	1.8E+12 E	7.6E+11 E
		Noncancer via Inhalation				
		Cancer				
Toluene	108-88-3	Noncancer via Ingestion	1.8E+06 E	8.1E+05 S	7.5E+01	1.2E+01
		Noncancer via Inhalation	3.8E+05 S		1.7E+01	
		Cancer				
Vinyl acetate	108-05-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Xylene (mixed isomers)	1330-20-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Zinc	7440-66-6	Noncancer via Ingestion	2.8E+07 E	1.4E+07 E	2.5E+04	1.3E+04
		Noncancer via Inhalation				
		Cancer				

Table A-4c. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Modified Weights Based on 1544 Facilities in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Acrylamide	79-06-1	Noncancer via Ingestion	1.3E+01	6.0E+00	3.0E-02	1.4E-02
		Noncancer via Inhalation	1.5E+06 E		3.5E+03	
		Cancer	7.3E-01	1.1E+00	1.7E-03	2.5E-03
Acrylonitrile	107-13-1	Noncancer via Ingestion	8.9E+00	4.3E+00	2.0E-01	9.3E-02
		Noncancer via Inhalation	7.1E+00		1.5E-01	
		Cancer	6.9E-01	1.3E+00	1.5E-02	2.7E-02
Antimony	7440-36-0	Noncancer via Ingestion	8.1E+00	3.8E+00	2.1E-01	1.0E-01
		Noncancer via Inhalation				
		Cancer				
Barium	7440-39-3	Noncancer via Ingestion	5.3E+04	2.6E+04	1.6E+02	7.3E+01
		Noncancer via Inhalation				
		Cancer				
Benzene	71-43-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer	5.2E+01	1.5E+02	1.1E-01	3.2E-01
Butylbenzylphthalate	85-68-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cadmium	7440-43-9	Noncancer via Ingestion	2.8E+02	1.2E+02	1.0E+00	4.5E-01
		Noncancer via Inhalation				
		Cancer				
Chloroform	67-66-3	Noncancer via Ingestion	5.6E+04 S	2.7E+04	1.5E+00	6.8E-01
		Noncancer via Inhalation	6.1E+04 S		1.5E+00	
		Cancer				
Chromium (III)	16065-83-1	Noncancer via Ingestion	4.4E+18 E	2.3E+18 E	1.6E+15 E	8.1E+14 E
		Noncancer via Inhalation				
		Cancer				
Chromium (VI)	18540-29-9	Noncancer via Ingestion	1.2E+02	5.3E+01	2.4E+00	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Cobalt	7440-48-4	Noncancer via Ingestion	2.4E+06 E	1.0E+06 E	2.7E+03	1.2E+03
		Noncancer via Inhalation				
		Cancer				
Copper	7440-50-8	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cresol, m-	108-39-4	Noncancer via Ingestion	6.3E+05 S	3.1E+05 S	2.9E+01	5.6E+00
		Noncancer via Inhalation				
		Cancer				
Cresol, o-	95-48-7	Noncancer via Ingestion	6.4E+06 E	3.0E+06 E	2.9E+01	5.6E+00
		Noncancer via Inhalation				
		Cancer				
Cresol, p-	106-44-5	Noncancer via Ingestion	6.4E+05 S	3.0E+05 S	2.9E+00	5.6E-01
		Noncancer via Inhalation				
		Cancer				

Table A-4c. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Modified Weights Based on 1544 Facilities in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Di(2-ethylhexylphthalate)	117-81-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dibutylphthalate	84-74-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dichloromethane	75-09-2	Noncancer via Ingestion	6.0E+03	2.8E+03	1.2E+01	5.6E+00
		Noncancer via Inhalation	3.1E+04 S		5.9E+01	
		Cancer	4.9E+02	1.1E+03	9.2E-01	2.0E+00
Dimethylphenol, 2,4-	105-67-9	Noncancer via Ingestion	1.1E+10 E	5.4E+09 E	3.6E+01	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Divalent mercury	7439-97-6(d)	Noncancer via Ingestion	1.5E+04	7.6E+03	1.6E+01	7.6E+00
		Noncancer via Inhalation				
		Cancer				
Ethylbenzene	100-41-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Ethylene glycol	107-21-1	Noncancer via Ingestion	2.0E+04	9.1E+03	4.7E+02	2.2E+02
		Noncancer via Inhalation	3.2E+06 E		7.7E+04	
		Cancer				
Formaldehyde	50-00-0	Noncancer via Ingestion	4.4E+03	2.1E+03	4.7E+01	2.2E+01
		Noncancer via Inhalation				
		Cancer	1.3E+04		1.4E+02	
Lead	7439-92-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Mercury	7439-97-6(e)	Noncancer via Ingestion				
		Noncancer via Inhalation	1.7E+07 E		6.4E+03 S	
		Cancer				
Methanol	67-56-1	Noncancer via Ingestion	1.1E+05	4.9E+04	1.2E+02	5.6E+01
		Noncancer via Inhalation	2.1E+07 E		2.2E+04	
		Cancer				
Methyl ethyl ketone	78-93-3	Noncancer via Ingestion	2.2E+04	1.0E+04	1.4E+02	6.7E+01
		Noncancer via Inhalation	2.4E+04		1.6E+02	
		Cancer				
Methyl isobutyl ketone	108-10-1	Noncancer via Ingestion	3.2E+04 S	1.5E+04	1.9E+01	9.0E+00
		Noncancer via Inhalation	1.1E+04		6.3E+00	
		Cancer				
Methyl methacrylate	80-62-6	Noncancer via Ingestion	4.8E+04 S	2.3E+04 S	2.8E+02	1.3E+02
		Noncancer via Inhalation	4.6E+03		2.6E+01	
		Cancer				
n-Butyl alcohol	71-36-3	Noncancer via Ingestion	4.5E+03	2.1E+03	2.3E+01	1.1E+01
		Noncancer via Inhalation				
		Cancer				

Table A-4c. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Modified Weights Based on 1544 Facilities in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Nickel	7440-02-0	Noncancer via Ingestion	1.4E+05 S	6.4E+04	2.4E+02	1.2E+02
		Noncancer via Inhalation				
		Cancer				
Nickel oxide	1313-99-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Pentachlorophenol	87-86-5	Noncancer via Ingestion	9.0E+03	4.4E+03	6.5E+00	3.0E+00
		Noncancer via Inhalation	4.2E+07 E		2.9E+04 S	
		Cancer	1.4E+02	2.0E+02	1.0E-01	1.4E-01
Phenol	108-95-2	Noncancer via Ingestion	1.2E+06 E	6.2E+05 S	1.6E+02	6.7E+01
		Noncancer via Inhalation				
		Cancer				
Selenium	7782-49-2	Noncancer via Ingestion	9.7E+01	4.4E+01	2.6E+00	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Silver	7440-22-4	Noncancer via Ingestion	6.6E+05 S	2.8E+05 S	7.4E+02	3.6E+02
		Noncancer via Inhalation				
		Cancer				
Styrene	100-42-5	Noncancer via Ingestion	4.7E+30 E	7.0E+30 E	1.0E+30 E	1.2E+01
		Noncancer via Inhalation	2.0E+30 E		1.0E+30 E	
		Cancer				
Tetrachloroethylene	127-18-4	Noncancer via Ingestion	6.2E+02	2.9E+02	1.3E+00	6.2E-01
		Noncancer via Inhalation	2.0E+03		3.9E+00	
		Cancer	5.6E+01	8.7E+01	1.1E-01	1.9E-01
Tin	7440-31-5	Noncancer via Ingestion	9.0E+15 E	4.0E+15 E	1.8E+12 E	7.6E+11 E
		Noncancer via Inhalation				
		Cancer				
Toluene	108-88-3	Noncancer via Ingestion	1.8E+06 E	8.1E+05 S	7.5E+01	1.2E+01
		Noncancer via Inhalation	3.8E+05 S		1.7E+01	
		Cancer				
Vinyl acetate	108-05-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Xylene (mixed isomers)	1330-20-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Zinc	7440-66-6	Noncancer via Ingestion	2.8E+07 E	1.4E+07 E	2.5E+04	1.3E+04
		Noncancer via Inhalation				
		Cancer				

Table A-4c. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Modified Weights Based on 1544 Facilities in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Acrylamide	79-06-1	Noncancer via Ingestion	1.3E+01	6.0E+00	3.0E-02	1.4E-02
		Noncancer via Inhalation	1.5E+06 E		3.5E+03	
		Cancer	7.3E-01	1.1E+00	1.7E-03	2.5E-03
Acrylonitrile	107-13-1	Noncancer via Ingestion	8.9E+00	4.3E+00	2.0E-01	9.3E-02
		Noncancer via Inhalation	7.1E+00		1.5E-01	
		Cancer	6.9E-01	1.3E+00	1.5E-02	2.7E-02
Antimony	7440-36-0	Noncancer via Ingestion	8.1E+00	3.8E+00	2.1E-01	1.0E-01
		Noncancer via Inhalation				
		Cancer				
Barium	7440-39-3	Noncancer via Ingestion	5.3E+04	2.6E+04	1.6E+02	7.3E+01
		Noncancer via Inhalation				
		Cancer				
Benzene	71-43-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer	5.2E+01	1.5E+02	1.1E-01	3.2E-01
Butylbenzylphthalate	85-68-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cadmium	7440-43-9	Noncancer via Ingestion	2.8E+02	1.2E+02	1.0E+00	4.5E-01
		Noncancer via Inhalation				
		Cancer				
Chloroform	67-66-3	Noncancer via Ingestion	5.6E+04 S	2.7E+04	1.5E+00	6.8E-01
		Noncancer via Inhalation	6.1E+04 S		1.5E+00	
		Cancer				
Chromium (III)	16065-83-1	Noncancer via Ingestion	4.4E+18 E	2.3E+18 E	1.6E+15 E	8.1E+14 E
		Noncancer via Inhalation				
		Cancer				
Chromium (VI)	18540-29-9	Noncancer via Ingestion	2.1E+02	9.6E+01	3.6E+00	1.6E+00
		Noncancer via Inhalation				
		Cancer				
Cobalt	7440-48-4	Noncancer via Ingestion	2.9E+06 E	1.3E+06 E	3.6E+03	1.7E+03
		Noncancer via Inhalation				
		Cancer				
Copper	7440-50-8	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cresol, m-	108-39-4	Noncancer via Ingestion	6.3E+05 S	3.1E+05 S	2.9E+01	5.6E+00
		Noncancer via Inhalation				
		Cancer				
Cresol, o-	95-48-7	Noncancer via Ingestion	6.4E+06 E	3.0E+06 E	2.9E+01	5.6E+00
		Noncancer via Inhalation				
		Cancer				
Cresol, p-	106-44-5	Noncancer via Ingestion	6.4E+05 S	3.0E+05 S	2.9E+00	5.6E-01
		Noncancer via Inhalation				
		Cancer				

Table A-4c. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Modified Weights Based on 1544 Facilities in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater Cw (mg/kg) AR	Groundwater Cw (mg/kg) CR	Groundwater CL (mg/L) AR	Groundwater CL (mg/L) CR
Di(2-ethylhexylphthalate)	117-81-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dibutylphthalate	84-74-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dichloromethane	75-09-2	Noncancer via Ingestion	6.0E+03	2.8E+03	1.2E+01	5.6E+00
		Noncancer via Inhalation	3.1E+04 S		5.9E+01	
		Cancer	4.9E+02	1.1E+03	9.2E-01	2.0E+00
Dimethylphenol, 2,4-	105-67-9	Noncancer via Ingestion	1.1E+10 E	5.4E+09 E	3.6E+01	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Divalent mercury	7439-97-6(d)	Noncancer via Ingestion	1.5E+04	7.6E+03	1.6E+01	7.6E+00
		Noncancer via Inhalation				
		Cancer				
Ethylbenzene	100-41-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Ethylene glycol	107-21-1	Noncancer via Ingestion	2.0E+04	9.1E+03	4.7E+02	2.2E+02
		Noncancer via Inhalation	3.2E+06 E		7.7E+04	
		Cancer				
Formaldehyde	50-00-0	Noncancer via Ingestion	4.4E+03	2.1E+03	4.7E+01	2.2E+01
		Noncancer via Inhalation				
		Cancer	1.3E+04		1.4E+02	
Lead	7439-92-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Mercury	7439-97-6(e)	Noncancer via Ingestion				
		Noncancer via Inhalation	1.7E+07 E		6.4E+03 S	
		Cancer				
Methanol	67-56-1	Noncancer via Ingestion	1.1E+05	4.9E+04	1.2E+02	5.6E+01
		Noncancer via Inhalation	2.1E+07 E		2.2E+04	
		Cancer				
Methyl ethyl ketone	78-93-3	Noncancer via Ingestion	2.2E+04	1.0E+04	1.4E+02	6.7E+01
		Noncancer via Inhalation	2.4E+04		1.6E+02	
		Cancer				
Methyl isobutyl ketone	108-10-1	Noncancer via Ingestion	3.2E+04 S	1.5E+04	1.9E+01	9.0E+00
		Noncancer via Inhalation	1.1E+04		6.3E+00	
		Cancer				
Methyl methacrylate	80-62-6	Noncancer via Ingestion	4.8E+04 S	2.3E+04 S	2.8E+02	1.3E+02
		Noncancer via Inhalation	4.6E+03		2.6E+01	
		Cancer				
n-Butyl alcohol	71-36-3	Noncancer via Ingestion	4.5E+03	2.1E+03	2.3E+01	1.1E+01
		Noncancer via Inhalation				
		Cancer				

Table A-4c. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the WMU Using Modified Weights Based on 1544 Facilities in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Nickel	7440-02-0	Noncancer via Ingestion	2.1E+05 S	9.4E+04 S	3.4E+02	1.7E+02
		Noncancer via Inhalation				
		Cancer				
Nickel oxide	1313-99-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Pentachlorophenol	87-86-5	Noncancer via Ingestion	9.0E+03	4.4E+03	6.5E+00	3.0E+00
		Noncancer via Inhalation	4.2E+07 E		2.9E+04 S	
		Cancer	1.4E+02	2.0E+02	1.0E-01	1.4E-01
Phenol	108-95-2	Noncancer via Ingestion	1.2E+06 E	6.2E+05 S	1.6E+02	6.7E+01
		Noncancer via Inhalation				
		Cancer				
Selenium	7782-49-2	Noncancer via Ingestion	9.7E+01	4.4E+01	2.6E+00	1.2E+00
		Noncancer via Inhalation				
		Cancer				
Silver	7440-22-4	Noncancer via Ingestion	8.6E+05 S	3.7E+05 S	1.0E+03	4.8E+02
		Noncancer via Inhalation				
		Cancer				
Styrene	100-42-5	Noncancer via Ingestion	4.7E+30 E	7.0E+30 E	1.0E+30 E	1.2E+01
		Noncancer via Inhalation	2.0E+30 E		1.0E+30 E	
		Cancer				
Tetrachloroethylene	127-18-4	Noncancer via Ingestion	6.2E+02	2.9E+02	1.3E+00	6.2E-01
		Noncancer via Inhalation	2.0E+03		3.9E+00	
		Cancer	5.6E+01	8.7E+01	1.1E-01	1.9E-01
Tin	7440-31-5	Noncancer via Ingestion	9.0E+15 E	4.0E+15 E	1.8E+12 E	7.6E+11 E
		Noncancer via Inhalation				
		Cancer				
Toluene	108-88-3	Noncancer via Ingestion	1.8E+06 E	8.1E+05 S	7.5E+01	1.2E+01
		Noncancer via Inhalation	3.8E+05 S		1.7E+01	
		Cancer				
Vinyl acetate	108-05-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Xylene (mixed isomers)	1330-20-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Zinc	7440-66-6	Noncancer via Ingestion	2.8E+07 E	1.4E+07 E	2.5E+04	1.3E+04
		Noncancer via Inhalation				
		Cancer				

Table A-5a. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Original Weights in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Acrylamide	79-06-1	Noncancer via Ingestion	7.3E+03	3.5E+03	1.6E+01	7.4E+00
		Noncancer via Inhalation	8.7E+08 E		1.9E+06 E	
		Cancer	4.7E+02	6.3E+02	9.7E-01	1.3E+00
Acrylonitrile	107-13-1	Noncancer via Ingestion	5.5E+03	2.7E+03	1.1E+02	5.3E+01
		Noncancer via Inhalation	4.4E+03		9.0E+01	
		Cancer	4.4E+02	8.0E+02	9.3E+00	1.6E+01
Antimony	7440-36-0	Noncancer via Ingestion	6.4E+03	3.2E+03	1.7E+02	8.2E+01
		Noncancer via Inhalation				
		Cancer				
Barium	7440-39-3	Noncancer via Ingestion	1.2E+08 E	5.7E+07 E	3.5E+05	1.6E+05
		Noncancer via Inhalation				
		Cancer				
Benzene	71-43-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer	4.8E+04	1.3E+05	8.5E+01	2.3E+02
Butylbenzylphthalate	85-68-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cadmium	7440-43-9	Noncancer via Ingestion	5.6E+05	2.8E+05	2.1E+03	9.5E+02
		Noncancer via Inhalation				
		Cancer				
Chloroform	67-66-3	Noncancer via Ingestion	7.8E+07 E	3.7E+07 E	9.7E+02	4.7E+02
		Noncancer via Inhalation	8.8E+07 E		1.2E+03	
		Cancer				
Chromium (III)	16065-83-1	Noncancer via Ingestion	1.2E+22 E	6.0E+21 E	3.4E+18 E	1.6E+18 E
		Noncancer via Inhalation				
		Cancer				
Chromium (VI)	18540-29-9	Noncancer via Ingestion	1.3E+05	6.6E+04	3.4E+03	1.5E+03
		Noncancer via Inhalation				
		Cancer				
Cobalt	7440-48-4	Noncancer via Ingestion	7.0E+09 E	3.5E+09 E	8.8E+06 E	4.4E+06 E
		Noncancer via Inhalation				
		Cancer				
Copper	7440-50-8	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cresol, m-	108-39-4	Noncancer via Ingestion	7.6E+08 E	3.7E+08 E	2.8E+04 S	3.7E+03
		Noncancer via Inhalation				
		Cancer				
Cresol, o-	95-48-7	Noncancer via Ingestion	9.2E+09 E	4.3E+09 E	2.8E+04 S	3.7E+03
		Noncancer via Inhalation				
		Cancer				
Cresol, p-	106-44-5	Noncancer via Ingestion	9.2E+08 E	4.3E+08 E	2.8E+03	3.7E+02
		Noncancer via Inhalation				
		Cancer				

Table A-5a. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Original Weights in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Di(2-ethylhexylphthalate)	117-81-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dibutylphthalate	84-74-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dichloromethane	75-09-2	Noncancer via Ingestion	4.2E+06 E	2.1E+06 E	6.9E+03	3.2E+03
		Noncancer via Inhalation	2.4E+07 E		3.9E+04 S	
		Cancer	3.6E+05	7.4E+05	6.2E+02	1.2E+03
Dimethylphenol, 2,4-	105-67-9	Noncancer via Ingestion	1.3E+13 E	6.4E+12 E	1.2E+05 S	6.7E+02
		Noncancer via Inhalation				
		Cancer				
Divalent mercury	7439-97-6(d)	Noncancer via Ingestion	5.1E+07 E	2.4E+07 E	7.6E+04 S	3.6E+04
		Noncancer via Inhalation				
		Cancer				
Ethylbenzene	100-41-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Ethylene glycol	107-21-1	Noncancer via Ingestion	1.2E+07 E	6.2E+06 E	3.0E+05	1.5E+05
		Noncancer via Inhalation	2.1E+09 E		5.1E+07 E	
		Cancer				
Formaldehyde	50-00-0	Noncancer via Ingestion	2.9E+06 E	1.4E+06 E	3.0E+04	1.5E+04
		Noncancer via Inhalation				
		Cancer	9.8E+06 E		1.0E+05	
Lead	7439-92-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Mercury	7439-97-6(e)	Noncancer via Ingestion				
		Noncancer via Inhalation	6.5E+10 E		2.2E+07 E	
		Cancer				
Methanol	67-56-1	Noncancer via Ingestion	7.1E+07 E	3.3E+07 E	7.4E+04	3.7E+04
		Noncancer via Inhalation	1.3E+10 E		1.5E+07 E	
		Cancer				
Methyl ethyl ketone	78-93-3	Noncancer via Ingestion	1.4E+07 E	7.0E+06 E	8.9E+04	4.4E+04
		Noncancer via Inhalation	1.6E+07 E		1.0E+05	
		Cancer				
Methyl isobutyl ketone	108-10-1	Noncancer via Ingestion	2.6E+07 E	1.2E+07 E	1.3E+04	5.9E+03
		Noncancer via Inhalation	9.0E+06 E		4.4E+03	
		Cancer				
Methyl methacrylate	80-62-6	Noncancer via Ingestion	2.9E+07 E	1.4E+07 E	1.6E+05 S	7.4E+04 S
		Noncancer via Inhalation	3.0E+06 E		1.6E+04 S	
		Cancer				
n-Butyl alcohol	71-36-3	Noncancer via Ingestion	3.1E+06 E	1.5E+06 E	1.5E+04	7.4E+03
		Noncancer via Inhalation				
		Cancer				

Table A-5a. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Original Weights in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Nickel	7440-02-0	Noncancer via Ingestion	4.5E+08 E	1.8E+08 E	7.9E+05	3.8E+05
		Noncancer via Inhalation				
		Cancer				
Nickel oxide	1313-99-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Pentachlorophenol	87-86-5	Noncancer via Ingestion	1.0E+07 E	4.7E+06 E	6.8E+03 S	3.4E+03 S
		Noncancer via Inhalation	4.8E+10 E		3.3E+07 E	
		Cancer	1.6E+05	2.1E+05	1.2E+02	1.5E+02
Phenol	108-95-2	Noncancer via Ingestion	1.2E+09 E	5.7E+08 E	1.1E+05 S	4.4E+04
		Noncancer via Inhalation				
		Cancer				
Selenium	7782-49-2	Noncancer via Ingestion	6.8E+04	3.4E+04	1.7E+03	8.4E+02
		Noncancer via Inhalation				
		Cancer				
Silver	7440-22-4	Noncancer via Ingestion	1.9E+09 E	9.8E+08 E	2.5E+06 E	1.2E+06 E
		Noncancer via Inhalation				
		Cancer				
Styrene	100-42-5	Noncancer via Ingestion	5.7E+31 E	1.7E+33 E	1.0E+30 E	6.7E+03 S
		Noncancer via Inhalation	3.6E+31 E		1.0E+30 E	
		Cancer				
Tetrachloroethylene	127-18-4	Noncancer via Ingestion	4.6E+05	2.2E+05	7.3E+02 S	3.3E+02 S
		Noncancer via Inhalation	1.5E+06 E		2.5E+03 S	
		Cancer	4.5E+04	6.7E+04	7.2E+01	1.1E+02
Tin	7440-31-5	Noncancer via Ingestion	1.4E+19 E	7.4E+18 E	3.1E+15 E	1.6E+15 E
		Noncancer via Inhalation				
		Cancer				
Toluene	108-88-3	Noncancer via Ingestion	2.6E+09 E	1.3E+09 E	1.3E+05 S	6.7E+03 S
		Noncancer via Inhalation	6.1E+08 E		3.0E+04 S	
		Cancer				
Vinyl acetate	108-05-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Xylene (mixed isomers)	1330-20-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Zinc	7440-66-6	Noncancer via Ingestion	9.8E+10 E	4.8E+10 E	9.3E+07 E	4.5E+07 E
		Noncancer via Inhalation				
		Cancer				

Table A-5a. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Original Weights in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Acrylamide	79-06-1	Noncancer via Ingestion	5.2E+03	2.4E+03	1.2E+01	5.4E+00
		Noncancer via Inhalation	5.8E+08 E		1.3E+06 E	
		Cancer	3.1E+02	4.4E+02	7.0E-01	1.0E+00
Acrylonitrile	107-13-1	Noncancer via Ingestion	4.0E+03	1.9E+03	8.0E+01	3.9E+01
		Noncancer via Inhalation	3.1E+03		6.7E+01	
		Cancer	3.1E+02	5.8E+02	6.6E+00	1.2E+01
Antimony	7440-36-0	Noncancer via Ingestion	4.7E+03	2.3E+03	1.3E+02	5.8E+01
		Noncancer via Inhalation				
		Cancer				
Barium	7440-39-3	Noncancer via Ingestion	5.7E+07 E	2.7E+07 E	1.9E+05	9.2E+04
		Noncancer via Inhalation				
		Cancer				
Benzene	71-43-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer	3.2E+04	9.2E+04	5.6E+01	1.6E+02
Butylbenzylphthalate	85-68-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cadmium	7440-43-9	Noncancer via Ingestion	2.6E+05	1.3E+05	1.0E+03	5.1E+02
		Noncancer via Inhalation				
		Cancer				
Chloroform	67-66-3	Noncancer via Ingestion	4.0E+07 E	1.9E+07 E	6.2E+02	2.8E+02
		Noncancer via Inhalation	4.4E+07 E		6.9E+02	
		Cancer				
Chromium (III)	16065-83-1	Noncancer via Ingestion	6.6E+21 E	3.1E+21 E	1.7E+18 E	9.5E+17 E
		Noncancer via Inhalation				
		Cancer				
Chromium (VI)	18540-29-9	Noncancer via Ingestion	1.4E+05	6.8E+04	2.9E+03	1.4E+03
		Noncancer via Inhalation				
		Cancer				
Cobalt	7440-48-4	Noncancer via Ingestion	3.8E+09 E	1.7E+09 E	4.7E+06 E	2.3E+06 E
		Noncancer via Inhalation				
		Cancer				
Copper	7440-50-8	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cresol, m-	108-39-4	Noncancer via Ingestion	4.1E+08 E	1.9E+08 E	1.5E+04	2.6E+03
		Noncancer via Inhalation				
		Cancer				
Cresol, o-	95-48-7	Noncancer via Ingestion	4.0E+09 E	2.0E+09 E	1.5E+04	2.6E+03
		Noncancer via Inhalation				
		Cancer				
Cresol, p-	106-44-5	Noncancer via Ingestion	4.0E+08 E	2.0E+08 E	1.5E+03	2.6E+02
		Noncancer via Inhalation				
		Cancer				

Table A-5a. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Original Weights in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater Cw (mg/kg) AR	Groundwater Cw (mg/kg) CR	Groundwater CL (mg/L) AR	Groundwater CL (mg/L) CR
Di(2-ethylhexylphthalate)	117-81-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dibutylphthalate	84-74-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dichloromethane	75-09-2	Noncancer via Ingestion	3.0E+06 E	1.4E+06 E	4.9E+03	2.3E+03
		Noncancer via Inhalation	1.6E+07 E		2.8E+04 S	
		Cancer	2.6E+05	5.3E+05	4.2E+02	8.7E+02
Dimethylphenol, 2,4-	105-67-9	Noncancer via Ingestion	5.9E+12 E	3.0E+12 E	4.8E+04 S	4.7E+02
		Noncancer via Inhalation				
		Cancer				
Divalent mercury	7439-97-6(d)	Noncancer via Ingestion	2.0E+07 E	8.9E+06 E	2.5E+04	1.2E+04
		Noncancer via Inhalation				
		Cancer				
Ethylbenzene	100-41-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Ethylene glycol	107-21-1	Noncancer via Ingestion	8.8E+06 E	4.3E+06 E	2.1E+05	1.1E+05
		Noncancer via Inhalation	1.5E+09 E		3.5E+07 E	
		Cancer				
Formaldehyde	50-00-0	Noncancer via Ingestion	2.0E+06 E	9.3E+05	2.1E+04	1.1E+04
		Noncancer via Inhalation				
		Cancer	6.4E+06 E		6.9E+04	
Lead	7439-92-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Mercury	7439-97-6(e)	Noncancer via Ingestion				
		Noncancer via Inhalation	2.9E+10 E		9.6E+06 E	
		Cancer				
Methanol	67-56-1	Noncancer via Ingestion	4.6E+07 E	2.1E+07 E	5.3E+04	2.6E+04
		Noncancer via Inhalation	9.0E+09 E		1.0E+07 E	
		Cancer				
Methyl ethyl ketone	78-93-3	Noncancer via Ingestion	9.6E+06 E	4.6E+06 E	6.3E+04	3.2E+04
		Noncancer via Inhalation	1.1E+07 E		7.2E+04	
		Cancer				
Methyl isobutyl ketone	108-10-1	Noncancer via Ingestion	1.5E+07 E	7.4E+06 E	9.1E+03	4.2E+03
		Noncancer via Inhalation	5.3E+06 E		3.0E+03	
		Cancer				
Methyl methacrylate	80-62-6	Noncancer via Ingestion	2.0E+07 E	9.4E+06 E	1.1E+05 S	5.4E+04 S
		Noncancer via Inhalation	1.9E+06 E		1.2E+04	
		Cancer				
n-Butyl alcohol	71-36-3	Noncancer via Ingestion	2.0E+06 E	9.7E+05	1.1E+04	5.3E+03
		Noncancer via Inhalation				
		Cancer				

Table A-5a. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Original Weights in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater Cw (mg/kg) AR	Groundwater Cw (mg/kg) CR	Groundwater CL (mg/L) AR	Groundwater CL (mg/L) CR
Nickel	7440-02-0	Noncancer via Ingestion	2.8E+08 E	1.3E+08 E	4.7E+05	2.2E+05
		Noncancer via Inhalation				
		Cancer				
Nickel oxide	1313-99-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Pentachlorophenol	87-86-5	Noncancer via Ingestion	5.8E+06 E	2.8E+06 E	4.0E+03 S	2.0E+03 S
		Noncancer via Inhalation	2.6E+10 E		1.9E+07 E	
		Cancer	9.6E+04	1.3E+05	6.6E+01	8.9E+01
Phenol	108-95-2	Noncancer via Ingestion	6.9E+08 E	3.2E+08 E	7.8E+04	3.2E+04
		Noncancer via Inhalation				
		Cancer				
Selenium	7782-49-2	Noncancer via Ingestion	5.0E+04	2.5E+04	1.2E+03	5.9E+02
		Noncancer via Inhalation				
		Cancer				
Silver	7440-22-4	Noncancer via Ingestion	9.0E+08 E	4.4E+08 E	1.1E+06 E	5.5E+05
		Noncancer via Inhalation				
		Cancer				
Styrene	100-42-5	Noncancer via Ingestion	6.3E+31 E	1.4E+33 E	1.0E+30 E	4.7E+03 S
		Noncancer via Inhalation	3.6E+31 E		1.0E+30 E	
		Cancer				
Tetrachloroethylene	127-18-4	Noncancer via Ingestion	2.9E+05	1.4E+05	5.1E+02 S	2.4E+02 S
		Noncancer via Inhalation	1.0E+06		1.7E+03 S	
		Cancer	3.0E+04	4.7E+04	4.9E+01	7.8E+01
Tin	7440-31-5	Noncancer via Ingestion	8.7E+18 E	4.1E+18 E	2.0E+15 E	8.9E+14 E
		Noncancer via Inhalation				
		Cancer				
Toluene	108-88-3	Noncancer via Ingestion	1.2E+09 E	5.7E+08 E	5.6E+04 S	4.7E+03 S
		Noncancer via Inhalation	2.7E+08 E		1.3E+04 S	
		Cancer				
Vinyl acetate	108-05-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Xylene (mixed isomers)	1330-20-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Zinc	7440-66-6	Noncancer via Ingestion	4.6E+10 E	1.8E+10 E	3.5E+07 E	1.6E+07 E
		Noncancer via Inhalation				
		Cancer				

Table A-5b. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Modified Weights Based on 884 Facilities in Landfill: Combined Solids

			Groundwater			
			Cw (mg/kg)		CL (mg/L)	
Constituent	CAS	Health Effect	AR	CR	AR	CR
Acrylamide	79-06-1	Noncancer via Ingestion	5.9E+03	2.8E+03	1.3E+01	6.3E+00
		Noncancer via Inhalation	6.8E+08 E		1.5E+06 E	
		Cancer	3.7E+02	5.2E+02	7.4E-01	1.2E+00
Acrylonitrile	107-13-1	Noncancer via Ingestion	4.3E+03	2.1E+03	9.1E+01	4.3E+01
		Noncancer via Inhalation	3.5E+03		7.4E+01	
		Cancer	3.4E+02	6.3E+02	7.4E+00	1.3E+01
Antimony	7440-36-0	Noncancer via Ingestion	5.4E+03	2.6E+03	1.4E+02	7.1E+01
		Noncancer via Inhalation				
		Cancer				
Barium	7440-39-3	Noncancer via Ingestion	8.0E+07 E	3.8E+07 E	2.7E+05	1.2E+05
		Noncancer via Inhalation				
		Cancer				
Benzene	71-43-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer	3.7E+04	1.1E+05	6.8E+01	1.8E+02
Butylbenzylphthalate	85-68-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cadmium	7440-43-9	Noncancer via Ingestion	4.4E+05	2.1E+05	1.5E+03	7.1E+02
		Noncancer via Inhalation				
		Cancer				
Chloroform	67-66-3	Noncancer via Ingestion	5.3E+07 E	2.6E+07 E	8.4E+02	3.9E+02
		Noncancer via Inhalation	5.9E+07 E		9.1E+02	
		Cancer				
Chromium (III)	16065-83-1	Noncancer via Ingestion	8.5E+21 E	4.6E+21 E	2.8E+18 E	1.2E+18 E
		Noncancer via Inhalation				
		Cancer				
Chromium (VI)	18540-29-9	Noncancer via Ingestion	1.0E+05	4.8E+04	2.5E+03	1.3E+03
		Noncancer via Inhalation				
		Cancer				
Cobalt	7440-48-4	Noncancer via Ingestion	4.7E+09 E	2.3E+09 E	5.5E+06 E	2.8E+06 E
		Noncancer via Inhalation				
		Cancer				
Copper	7440-50-8	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cresol, m-	108-39-4	Noncancer via Ingestion	5.7E+08 E	2.6E+08 E	2.2E+04	2.9E+03
		Noncancer via Inhalation				
		Cancer				
Cresol, o-	95-48-7	Noncancer via Ingestion	6.2E+09 E	3.1E+09 E	2.2E+04	2.9E+03
		Noncancer via Inhalation				
		Cancer				
Cresol, p-	106-44-5	Noncancer via Ingestion	6.2E+08 E	3.1E+08 E	2.2E+03	2.9E+02
		Noncancer via Inhalation				
		Cancer				

Table A-5b. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Modified Weights Based on 884 Facilities in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Di(2-ethylhexylphthalate)	117-81-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dibutylphthalate	84-74-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dichloromethane	75-09-2	Noncancer via Ingestion	3.4E+06 E	1.7E+06 E	5.6E+03	2.6E+03
		Noncancer via Inhalation	1.9E+07 E		3.1E+04 S	
		Cancer	2.9E+05	6.1E+05	4.8E+02	9.7E+02
Dimethylphenol, 2,4-	105-67-9	Noncancer via Ingestion	1.2E+13 E	6.6E+12 E	8.3E+04 S	5.9E+02
		Noncancer via Inhalation				
		Cancer				
Divalent mercury	7439-97-6(d)	Noncancer via Ingestion	3.3E+07 E	1.7E+07 E	5.6E+04	2.8E+04
		Noncancer via Inhalation				
		Cancer				
Ethylbenzene	100-41-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Ethylene glycol	107-21-1	Noncancer via Ingestion	1.0E+07 E	4.8E+06 E	2.4E+05	1.1E+05
		Noncancer via Inhalation	1.7E+09 E		4.0E+07 E	
		Cancer				
Formaldehyde	50-00-0	Noncancer via Ingestion	2.3E+06 E	1.1E+06 E	2.4E+04	1.1E+04
		Noncancer via Inhalation				
		Cancer	7.5E+06 E		8.1E+04	
Lead	7439-92-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Mercury	7439-97-6(e)	Noncancer via Ingestion				
		Noncancer via Inhalation	5.3E+10 E		1.7E+07 E	
		Cancer				
Methanol	67-56-1	Noncancer via Ingestion	5.8E+07 E	2.6E+07 E	6.0E+04	2.9E+04
		Noncancer via Inhalation	1.1E+10 E		1.1E+07 E	
		Cancer				
Methyl ethyl ketone	78-93-3	Noncancer via Ingestion	1.1E+07 E	5.2E+06 E	7.2E+04	3.4E+04
		Noncancer via Inhalation	1.2E+07 E		8.0E+04	
		Cancer				
Methyl isobutyl ketone	108-10-1	Noncancer via Ingestion	1.9E+07 E	9.4E+06 E	1.0E+04	4.6E+03
		Noncancer via Inhalation	6.7E+06 E		3.5E+03	
		Cancer				
Methyl methacrylate	80-62-6	Noncancer via Ingestion	2.3E+07 E	1.1E+07 E	1.3E+05 S	6.0E+04 S
		Noncancer via Inhalation	2.3E+06 E		1.3E+04	
		Cancer				
n-Butyl alcohol	71-36-3	Noncancer via Ingestion	2.4E+06 E	1.1E+06 E	1.2E+04	5.7E+03
		Noncancer via Inhalation				
		Cancer				

Table A-5b. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Modified Weights Based on 884 Facilities in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater Cw (mg/kg) AR	Groundwater Cw (mg/kg) CR	Groundwater CL (mg/L) AR	Groundwater CL (mg/L) CR
Nickel	7440-02-0	Noncancer via Ingestion	2.7E+08 E	1.4E+08 E	5.0E+05	2.6E+05
		Noncancer via Inhalation				
		Cancer				
Nickel oxide	1313-99-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Pentachlorophenol	87-86-5	Noncancer via Ingestion	7.9E+06 E	4.0E+06 E	5.8E+03 S	2.9E+03 S
		Noncancer via Inhalation	3.6E+10 E		2.7E+07 E	
		Cancer	1.3E+05	1.9E+05	9.9E+01	1.3E+02
Phenol	108-95-2	Noncancer via Ingestion	8.9E+08 E	4.4E+08 E	9.1E+04 S	3.4E+04
		Noncancer via Inhalation				
		Cancer				
Selenium	7782-49-2	Noncancer via Ingestion	5.5E+04	2.8E+04	1.4E+03	6.9E+02
		Noncancer via Inhalation				
		Cancer				
Silver	7440-22-4	Noncancer via Ingestion	1.1E+09 E	5.5E+08 E	1.4E+06 E	7.4E+05
		Noncancer via Inhalation				
		Cancer				
Styrene	100-42-5	Noncancer via Ingestion	5.2E+31 E	1.4E+33 E	1.0E+30 E	5.9E+03 S
		Noncancer via Inhalation	2.8E+31 E		1.0E+30 E	
		Cancer				
Tetrachloroethylene	127-18-4	Noncancer via Ingestion	3.6E+05	1.7E+05	6.0E+02 S	3.0E+02 S
		Noncancer via Inhalation	1.2E+06 E		2.1E+03 S	
		Cancer	3.6E+04	5.3E+04	6.0E+01	9.4E+01
Tin	7440-31-5	Noncancer via Ingestion	1.1E+19 E	5.7E+18 E	2.4E+15 E	1.2E+15 E
		Noncancer via Inhalation				
		Cancer				
Toluene	108-88-3	Noncancer via Ingestion	1.9E+09 E	9.5E+08 E	9.5E+04 S	5.9E+03 S
		Noncancer via Inhalation	4.1E+08 E		2.3E+04 S	
		Cancer				
Vinyl acetate	108-05-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Xylene (mixed isomers)	1330-20-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Zinc	7440-66-6	Noncancer via Ingestion	6.9E+10 E	3.3E+10 E	7.3E+07 E	3.2E+07 E
		Noncancer via Inhalation				
		Cancer				

Table A-5b. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Modified Weights Based on 884 Facilities in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Acrylamide	79-06-1	Noncancer via Ingestion	5.9E+03	2.7E+03	1.3E+01	5.9E+00
		Noncancer via Inhalation	6.8E+08 E		1.5E+06 E	
		Cancer	3.5E+02	5.0E+02	7.5E-01	1.1E+00
Acrylonitrile	107-13-1	Noncancer via Ingestion	4.2E+03	2.1E+03	9.0E+01	4.3E+01
		Noncancer via Inhalation	3.3E+03		7.1E+01	
		Cancer	3.4E+02	6.4E+02	7.1E+00	1.3E+01
Antimony	7440-36-0	Noncancer via Ingestion	5.5E+03	2.6E+03	1.3E+02	6.1E+01
		Noncancer via Inhalation				
		Cancer				
Barium	7440-39-3	Noncancer via Ingestion	6.1E+07 E	2.8E+07 E	2.1E+05	9.2E+04
		Noncancer via Inhalation				
		Cancer				
Benzene	71-43-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer	3.4E+04	9.7E+04	6.0E+01	1.7E+02
Butylbenzylphthalate	85-68-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cadmium	7440-43-9	Noncancer via Ingestion	3.3E+05	1.4E+05	1.2E+03	5.7E+02
		Noncancer via Inhalation				
		Cancer				
Chloroform	67-66-3	Noncancer via Ingestion	4.7E+07 E	2.2E+07 E	7.4E+02	3.4E+02
		Noncancer via Inhalation	5.1E+07 E		7.7E+02	
		Cancer				
Chromium (III)	16065-83-1	Noncancer via Ingestion	7.1E+21 E	3.1E+21 E	1.9E+18 E	1.0E+18 E
		Noncancer via Inhalation				
		Cancer				
Chromium (VI)	18540-29-9	Noncancer via Ingestion	1.6E+05	7.5E+04	3.1E+03	1.5E+03
		Noncancer via Inhalation				
		Cancer				
Cobalt	7440-48-4	Noncancer via Ingestion	3.8E+09 E	1.9E+09 E	4.1E+06 E	2.0E+06 E
		Noncancer via Inhalation				
		Cancer				
Copper	7440-50-8	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cresol, m-	108-39-4	Noncancer via Ingestion	4.4E+08 E	2.2E+08 E	1.8E+04	2.9E+03
		Noncancer via Inhalation				
		Cancer				
Cresol, o-	95-48-7	Noncancer via Ingestion	4.9E+09 E	2.4E+09 E	1.8E+04	2.9E+03
		Noncancer via Inhalation				
		Cancer				
Cresol, p-	106-44-5	Noncancer via Ingestion	4.9E+08 E	2.4E+08 E	1.8E+03	2.9E+02
		Noncancer via Inhalation				
		Cancer				

Table A-5b. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Modified Weights Based on 884 Facilities in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater Cw (mg/kg) AR	Groundwater Cw (mg/kg) CR	Groundwater CL (mg/L) AR	Groundwater CL (mg/L) CR
Di(2-ethylhexylphthalate)	117-81-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dibutylphthalate	84-74-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dichloromethane	75-09-2	Noncancer via Ingestion	3.3E+06 E	1.6E+06 E	5.5E+03	2.6E+03
		Noncancer via Inhalation	1.6E+07 E		2.9E+04 S	
		Cancer	2.8E+05	5.7E+05	4.5E+02	9.3E+02
Dimethylphenol, 2,4-	105-67-9	Noncancer via Ingestion	7.7E+12 E	3.8E+12 E	4.8E+04 S	5.4E+02
		Noncancer via Inhalation				
		Cancer				
Divalent mercury	7439-97-6(d)	Noncancer via Ingestion	1.9E+07 E	9.9E+06 E	2.6E+04	1.1E+04
		Noncancer via Inhalation				
		Cancer				
Ethylbenzene	100-41-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Ethylene glycol	107-21-1	Noncancer via Ingestion	9.7E+06 E	4.7E+06 E	2.3E+05	1.2E+05
		Noncancer via Inhalation	1.6E+09 E		3.7E+07 E	
		Cancer				
Formaldehyde	50-00-0	Noncancer via Ingestion	2.2E+06 E	1.0E+06 E	2.3E+04	1.2E+04
		Noncancer via Inhalation				
		Cancer	7.2E+06 E		7.4E+04	
Lead	7439-92-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Mercury	7439-97-6(e)	Noncancer via Ingestion				
		Noncancer via Inhalation	3.4E+10 E		1.0E+07 E	
		Cancer				
Methanol	67-56-1	Noncancer via Ingestion	5.2E+07 E	2.4E+07 E	5.9E+04	2.9E+04
		Noncancer via Inhalation	9.8E+09 E		1.1E+07 E	
		Cancer				
Methyl ethyl ketone	78-93-3	Noncancer via Ingestion	1.1E+07 E	5.1E+06 E	7.0E+04	3.5E+04
		Noncancer via Inhalation	1.2E+07 E		7.6E+04	
		Cancer				
Methyl isobutyl ketone	108-10-1	Noncancer via Ingestion	1.9E+07 E	8.8E+06 E	9.7E+03	4.6E+03
		Noncancer via Inhalation	6.1E+06 E		3.1E+03	
		Cancer				
Methyl methacrylate	80-62-6	Noncancer via Ingestion	2.2E+07 E	1.1E+07 E	1.3E+05 S	6.0E+04 S
		Noncancer via Inhalation	2.1E+06 E		1.2E+04	
		Cancer				
n-Butyl alcohol	71-36-3	Noncancer via Ingestion	2.3E+06 E	1.1E+06 E	1.2E+04	5.8E+03
		Noncancer via Inhalation				
		Cancer				

Table A-5b. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Modified Weights Based on 884 Facilities in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Nickel	7440-02-0	Noncancer via Ingestion	2.4E+08 E	1.3E+08 E	4.6E+05	2.2E+05
		Noncancer via Inhalation				
		Cancer				
Nickel oxide	1313-99-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Pentachlorophenol	87-86-5	Noncancer via Ingestion	6.5E+06 E	2.9E+06 E	4.5E+03 S	2.2E+03 S
		Noncancer via Inhalation	2.9E+10 E		2.0E+07 E	
		Cancer	1.1E+05	1.3E+05	7.2E+01	9.6E+01
Phenol	108-95-2	Noncancer via Ingestion	8.4E+08 E	3.9E+08 E	8.4E+04 S	3.5E+04
		Noncancer via Inhalation				
		Cancer				
Selenium	7782-49-2	Noncancer via Ingestion	5.8E+04	2.8E+04	1.3E+03	6.4E+02
		Noncancer via Inhalation				
		Cancer				
Silver	7440-22-4	Noncancer via Ingestion	9.1E+08 E	4.3E+08 E	1.1E+06 E	5.7E+05
		Noncancer via Inhalation				
		Cancer				
Styrene	100-42-5	Noncancer via Ingestion	5.9E+31 E	1.4E+33 E	1.0E+30 E	5.4E+03 S
		Noncancer via Inhalation	3.3E+31 E		1.0E+30 E	
		Cancer				
Tetrachloroethylene	127-18-4	Noncancer via Ingestion	3.4E+05	1.6E+05	5.9E+02 S	2.7E+02 S
		Noncancer via Inhalation	1.1E+06 E		1.8E+03 S	
		Cancer	3.4E+04	4.8E+04	5.5E+01	8.2E+01
Tin	7440-31-5	Noncancer via Ingestion	7.4E+18 E	3.4E+18 E	1.6E+15 E	7.0E+14 E
		Noncancer via Inhalation				
		Cancer				
Toluene	108-88-3	Noncancer via Ingestion	1.4E+09 E	6.9E+08 E	6.7E+04 S	5.4E+03 S
		Noncancer via Inhalation	3.3E+08 E		1.6E+04 S	
		Cancer				
Vinyl acetate	108-05-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Xylene (mixed isomers)	1330-20-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Zinc	7440-66-6	Noncancer via Ingestion	4.1E+10 E	1.8E+10 E	3.5E+07 E	1.8E+07 E
		Noncancer via Inhalation				
		Cancer				

Table A-5c. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Modified Weights Based on 1544 Facilities in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater Cw (mg/kg) AR	Groundwater Cw (mg/kg) CR	Groundwater CL (mg/L) AR	Groundwater CL (mg/L) CR
Acrylamide	79-06-1	Noncancer via Ingestion	3.8E+03	1.7E+03	7.9E+00	3.7E+00
		Noncancer via Inhalation	4.2E+08 E		9.2E+05 S	
		Cancer	2.5E+02	3.3E+02	5.1E-01	6.8E-01
Acrylonitrile	107-13-1	Noncancer via Ingestion	2.5E+03	1.3E+03	5.6E+01	2.8E+01
		Noncancer via Inhalation	2.1E+03		4.4E+01	
		Cancer	2.2E+02	3.7E+02	4.7E+00	8.4E+00
Antimony	7440-36-0	Noncancer via Ingestion	3.3E+03	1.7E+03	9.1E+01	4.5E+01
		Noncancer via Inhalation				
		Cancer				
Barium	7440-39-3	Noncancer via Ingestion	5.8E+07 E	3.1E+07 E	1.9E+05	8.7E+04
		Noncancer via Inhalation				
		Cancer				
Benzene	71-43-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer	2.6E+04	7.2E+04	4.2E+01	1.1E+02
Butylbenzylphthalate	85-68-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cadmium	7440-43-9	Noncancer via Ingestion	3.0E+05	1.5E+05	1.1E+03	5.2E+02
		Noncancer via Inhalation				
		Cancer				
Chloroform	67-66-3	Noncancer via Ingestion	3.7E+07 E	1.9E+07 E	5.6E+02	2.5E+02
		Noncancer via Inhalation	4.2E+07 E		5.8E+02	
		Cancer				
Chromium (III)	16065-83-1	Noncancer via Ingestion	8.3E+21 E	4.0E+21 E	2.3E+18 E	1.0E+18 E
		Noncancer via Inhalation				
		Cancer				
Chromium (VI)	18540-29-9	Noncancer via Ingestion	7.2E+04	3.4E+04	1.6E+03	8.5E+02
		Noncancer via Inhalation				
		Cancer				
Cobalt	7440-48-4	Noncancer via Ingestion	3.9E+09 E	1.8E+09 E	4.8E+06 E	2.2E+06 E
		Noncancer via Inhalation				
		Cancer				
Copper	7440-50-8	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cresol, m-	108-39-4	Noncancer via Ingestion	3.7E+08 E	1.8E+08 E	1.7E+04	1.8E+03
		Noncancer via Inhalation				
		Cancer				
Cresol, o-	95-48-7	Noncancer via Ingestion	4.2E+09 E	2.2E+09 E	1.7E+04	1.8E+03
		Noncancer via Inhalation				
		Cancer				
Cresol, p-	106-44-5	Noncancer via Ingestion	4.2E+08 E	2.2E+08 E	1.7E+03	1.8E+02
		Noncancer via Inhalation				
		Cancer				

Table A-5c. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Modified Weights Based on 1544 Facilities in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Di(2-ethylhexylphthalate)	117-81-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dibutylphthalate	84-74-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dichloromethane	75-09-2	Noncancer via Ingestion	2.2E+06 E	1.0E+06 E	3.5E+03	1.7E+03
		Noncancer via Inhalation	1.2E+07 E		1.8E+04 S	
		Cancer	1.9E+05	3.7E+05	3.0E+02	6.1E+02
Dimethylphenol, 2,4-	105-67-9	Noncancer via Ingestion	7.6E+12 E	4.2E+12 E	6.7E+04 S	3.6E+02
		Noncancer via Inhalation				
		Cancer				
Divalent mercury	7439-97-6(d)	Noncancer via Ingestion	2.9E+07 E	1.3E+07 E	4.2E+04	1.7E+04
		Noncancer via Inhalation				
		Cancer				
Ethylbenzene	100-41-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Ethylene glycol	107-21-1	Noncancer via Ingestion	6.1E+06 E	3.0E+06 E	1.5E+05	7.3E+04
		Noncancer via Inhalation	1.0E+09 E		2.4E+07 E	
		Cancer				
Formaldehyde	50-00-0	Noncancer via Ingestion	1.4E+06 E	6.7E+05	1.5E+04	7.3E+03
		Noncancer via Inhalation				
		Cancer	4.8E+06 E		5.2E+04	
Lead	7439-92-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Mercury	7439-97-6(e)	Noncancer via Ingestion				
		Noncancer via Inhalation	3.3E+10 E		1.1E+07 E	
		Cancer				
Methanol	67-56-1	Noncancer via Ingestion	3.4E+07 E	1.6E+07 E	3.8E+04	1.8E+04
		Noncancer via Inhalation	6.3E+09 E		6.9E+06 E	
		Cancer				
Methyl ethyl ketone	78-93-3	Noncancer via Ingestion	6.7E+06 E	3.3E+06 E	4.5E+04	2.2E+04
		Noncancer via Inhalation	7.8E+06 E		4.9E+04	
		Cancer				
Methyl isobutyl ketone	108-10-1	Noncancer via Ingestion	1.3E+07 E	5.9E+06 E	6.2E+03	2.9E+03
		Noncancer via Inhalation	4.3E+06 E		2.0E+03	
		Cancer				
Methyl methacrylate	80-62-6	Noncancer via Ingestion	1.4E+07 E	6.7E+06 E	8.0E+04 S	3.9E+04 S
		Noncancer via Inhalation	1.4E+06 E		7.6E+03	
		Cancer				
n-Butyl alcohol	71-36-3	Noncancer via Ingestion	1.5E+06 E	6.9E+05	7.5E+03	3.7E+03
		Noncancer via Inhalation				
		Cancer				

Table A-5c. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Modified Weights Based on 1544 Facilities in Landfill: Combined Solids

Constituent	CAS	Health Effect	Groundwater Cw (mg/kg) AR	Groundwater Cw (mg/kg) CR	Groundwater CL (mg/L) AR	Groundwater CL (mg/L) CR
Nickel	7440-02-0	Noncancer via Ingestion	2.0E+08 E	1.0E+08 E	3.9E+05	1.9E+05
		Noncancer via Inhalation				
		Cancer				
Nickel oxide	1313-99-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Pentachlorophenol	87-86-5	Noncancer via Ingestion	5.5E+06 E	2.7E+06 E	4.1E+03 S	2.0E+03 S
		Noncancer via Inhalation	2.4E+10 E		1.9E+07 E	
		Cancer	9.1E+04	1.3E+05	6.8E+01	8.8E+01
Phenol	108-95-2	Noncancer via Ingestion	6.1E+08 E	3.0E+08 E	5.7E+04	2.2E+04
		Noncancer via Inhalation				
		Cancer				
Selenium	7782-49-2	Noncancer via Ingestion	3.6E+04	1.7E+04	9.3E+02	4.3E+02
		Noncancer via Inhalation				
		Cancer				
Silver	7440-22-4	Noncancer via Ingestion	9.9E+08 E	5.2E+08 E	1.2E+06 E	5.7E+05
		Noncancer via Inhalation				
		Cancer				
Styrene	100-42-5	Noncancer via Ingestion	3.8E+31 E	7.8E+32 E	1.0E+30 E	3.6E+03 S
		Noncancer via Inhalation	2.2E+31 E		1.0E+30 E	
		Cancer				
Tetrachloroethylene	127-18-4	Noncancer via Ingestion	2.2E+05	1.1E+05	3.7E+02 S	1.8E+02
		Noncancer via Inhalation	7.6E+05		1.3E+03 S	
		Cancer	2.3E+04	3.2E+04	3.8E+01	5.9E+01
Tin	7440-31-5	Noncancer via Ingestion	7.5E+18 E	3.2E+18 E	1.6E+15 E	8.5E+14 E
		Noncancer via Inhalation				
		Cancer				
Toluene	108-88-3	Noncancer via Ingestion	1.4E+09 E	6.7E+08 E	7.2E+04 S	3.6E+03 S
		Noncancer via Inhalation	3.0E+08 E		1.6E+04 S	
		Cancer				
Vinyl acetate	108-05-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Xylene (mixed isomers)	1330-20-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Zinc	7440-66-6	Noncancer via Ingestion	5.4E+10 E	2.5E+10 E	5.3E+07 E	2.6E+07 E
		Noncancer via Inhalation				
		Cancer				

Table A-5c. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Modified Weights Based on 1544 Facilities in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Acrylamide	79-06-1	Noncancer via Ingestion	4.6E+03	2.2E+03	1.0E+01	5.2E+00
		Noncancer via Inhalation	5.1E+08 E		1.3E+06 E	
		Cancer	2.8E+02	4.2E+02	6.7E-01	9.9E-01
Acrylonitrile	107-13-1	Noncancer via Ingestion	3.6E+03	1.8E+03	7.6E+01	3.7E+01
		Noncancer via Inhalation	2.9E+03		6.2E+01	
		Cancer	3.1E+02	5.5E+02	6.4E+00	1.1E+01
Antimony	7440-36-0	Noncancer via Ingestion	4.5E+03	2.1E+03	1.1E+02	5.2E+01
		Noncancer via Inhalation				
		Cancer				
Barium	7440-39-3	Noncancer via Ingestion	4.7E+07 E	2.2E+07 E	1.6E+05	7.2E+04
		Noncancer via Inhalation				
		Cancer				
Benzene	71-43-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer	3.1E+04	8.7E+04	5.5E+01	1.5E+02
Butylbenzylphthalate	85-68-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cadmium	7440-43-9	Noncancer via Ingestion	2.3E+05	1.1E+05	9.1E+02	3.9E+02
		Noncancer via Inhalation				
		Cancer				
Chloroform	67-66-3	Noncancer via Ingestion	3.6E+07 E	1.7E+07 E	5.5E+02	2.8E+02
		Noncancer via Inhalation	4.0E+07 E		6.3E+02	
		Cancer				
Chromium (III)	16065-83-1	Noncancer via Ingestion	5.6E+21 E	2.8E+21 E	1.2E+18 E	5.5E+17 E
		Noncancer via Inhalation				
		Cancer				
Chromium (VI)	18540-29-9	Noncancer via Ingestion	1.3E+05	6.0E+04	2.6E+03	1.3E+03
		Noncancer via Inhalation				
		Cancer				
Cobalt	7440-48-4	Noncancer via Ingestion	3.4E+09 E	1.6E+09 E	4.0E+06 E	1.9E+06 E
		Noncancer via Inhalation				
		Cancer				
Copper	7440-50-8	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Cresol, m-	108-39-4	Noncancer via Ingestion	3.6E+08 E	1.6E+08 E	1.4E+04	2.5E+03
		Noncancer via Inhalation				
		Cancer				
Cresol, o-	95-48-7	Noncancer via Ingestion	3.8E+09 E	1.9E+09 E	1.4E+04	2.5E+03
		Noncancer via Inhalation				
		Cancer				
Cresol, p-	106-44-5	Noncancer via Ingestion	3.8E+08 E	1.9E+08 E	1.4E+03	2.5E+02
		Noncancer via Inhalation				
		Cancer				

Table A-5c. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Modified Weights Based on 1544 Facilities in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater Cw (mg/kg) AR	Groundwater Cw (mg/kg) CR	Groundwater CL (mg/L) AR	Groundwater CL (mg/L) CR
Di(2-ethylhexylphthalate)	117-81-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dibutylphthalate	84-74-2	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Dichloromethane	75-09-2	Noncancer via Ingestion	2.8E+06 E	1.3E+06 E	4.6E+03	2.2E+03
		Noncancer via Inhalation	1.5E+07 E		2.5E+04 S	
		Cancer	2.5E+05	5.0E+05	3.9E+02	8.0E+02
Dimethylphenol, 2,4-	105-67-9	Noncancer via Ingestion	6.1E+12 E	3.0E+12 E	3.8E+04 S	4.7E+02
		Noncancer via Inhalation				
		Cancer				
Divalent mercury	7439-97-6(d)	Noncancer via Ingestion	1.7E+07 E	8.2E+06 E	2.3E+04	1.1E+04
		Noncancer via Inhalation				
		Cancer				
Ethylbenzene	100-41-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Ethylene glycol	107-21-1	Noncancer via Ingestion	8.3E+06 E	4.1E+06 E	2.0E+05	9.9E+04
		Noncancer via Inhalation	1.4E+09 E		3.5E+07 E	
		Cancer				
Formaldehyde	50-00-0	Noncancer via Ingestion	1.8E+06 E	9.1E+05	2.0E+04	9.9E+03
		Noncancer via Inhalation				
		Cancer	6.1E+06 E		6.9E+04	
Lead	7439-92-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Mercury	7439-97-6(e)	Noncancer via Ingestion				
		Noncancer via Inhalation	2.3E+10 E		8.2E+06 E	
		Cancer				
Methanol	67-56-1	Noncancer via Ingestion	4.1E+07 E	2.1E+07 E	5.0E+04	2.5E+04
		Noncancer via Inhalation	7.8E+09 E		9.9E+06 E	
		Cancer				
Methyl ethyl ketone	78-93-3	Noncancer via Ingestion	8.8E+06 E	4.3E+06 E	6.0E+04	3.0E+04
		Noncancer via Inhalation	1.0E+07 E		7.0E+04	
		Cancer				
Methyl isobutyl ketone	108-10-1	Noncancer via Ingestion	1.5E+07 E	7.3E+06 E	8.4E+03	4.0E+03
		Noncancer via Inhalation	5.2E+06 E		2.8E+03	
		Cancer				
Methyl methacrylate	80-62-6	Noncancer via Ingestion	1.9E+07 E	9.3E+06 E	1.1E+05 S	5.2E+04 S
		Noncancer via Inhalation	1.9E+06 E		1.1E+04	
		Cancer				
n-Butyl alcohol	71-36-3	Noncancer via Ingestion	1.9E+06 E	9.2E+05	1.0E+04	5.0E+03
		Noncancer via Inhalation				
		Cancer				

Table A-5c. 90th Percentile Target Waste Concentrations per Receptor and Health Effect in the Wastestream Using Modified Weights Based on 1544 Facilities in Landfill: Dust

Constituent	CAS	Health Effect	Groundwater			
			Cw (mg/kg)		CL (mg/L)	
			AR	CR	AR	CR
Nickel	7440-02-0	Noncancer via Ingestion	2.1E+08 E	9.4E+07 E	4.0E+05	1.7E+05
		Noncancer via Inhalation				
		Cancer				
Nickel oxide	1313-99-1	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Pentachlorophenol	87-86-5	Noncancer via Ingestion	5.4E+06 E	2.4E+06 E	4.0E+03 S	1.8E+03
		Noncancer via Inhalation	2.3E+10 E		1.7E+07 E	
		Cancer	8.8E+04	1.1E+05	6.2E+01	8.1E+01
Phenol	108-95-2	Noncancer via Ingestion	6.5E+08 E	3.1E+08 E	7.1E+04	3.0E+04
		Noncancer via Inhalation				
		Cancer				
Selenium	7782-49-2	Noncancer via Ingestion	4.9E+04	2.4E+04	1.1E+03	5.4E+02
		Noncancer via Inhalation				
		Cancer				
Silver	7440-22-4	Noncancer via Ingestion	9.4E+08 E	4.3E+08 E	1.0E+06 E	5.0E+05
		Noncancer via Inhalation				
		Cancer				
Styrene	100-42-5	Noncancer via Ingestion	5.6E+31 E	1.5E+33 E	1.0E+30 E	4.7E+03 S
		Noncancer via Inhalation	3.3E+31 E		1.0E+30 E	
		Cancer				
Tetrachloroethylene	127-18-4	Noncancer via Ingestion	2.8E+05	1.4E+05	4.6E+02 S	2.3E+02 S
		Noncancer via Inhalation	9.2E+05		1.6E+03 S	
		Cancer	2.8E+04	4.5E+04	4.6E+01	7.6E+01
Tin	7440-31-5	Noncancer via Ingestion	7.7E+18 E	3.5E+18 E	1.5E+15 E	6.4E+14 E
		Noncancer via Inhalation				
		Cancer				
Toluene	108-88-3	Noncancer via Ingestion	1.1E+09 E	5.0E+08 E	5.4E+04 S	4.7E+03 S
		Noncancer via Inhalation	2.2E+08 E		1.2E+04 S	
		Cancer				
Vinyl acetate	108-05-4	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Xylene (mixed isomers)	1330-20-7	Noncancer via Ingestion				
		Noncancer via Inhalation				
		Cancer				
Zinc	7440-66-6	Noncancer via Ingestion	3.5E+10 E	1.7E+10 E	3.3E+07 E	1.5E+07 E
		Noncancer via Inhalation				
		Cancer				

Table A-6. Summary of 90th-Percentile Target Waste Concentrations— Original Facility Classification vs Revised Facility Classification

Landfill	Constituent	CAS	Original Classification (mg/kg)	Revised Classification (mg/kg)	Ratio: Revised/ Original	Basis Unit
Combined solids	Acrylamide	79-06-1	4.70E+02	8.10E+02	1.72	AR 1
	Antimony	7440-36-0	3.20E+03	5.30E+03	1.66	CR 2
Dust	Acrylamide	79-06-1	3.10E+02	6.90E+02	2.23	AR 1
	Antimony	7440-36-0	2.30E+03	4.60E+03	2.00	CR 2

Appendix B

Revised Shower Model Algorithms

Appendix B

Revised Shower Model Algorithms

Individuals may be exposed to waste contaminants through inhalation of vapor-phase emissions from groundwater. Such exposure may occur during the time spent in the shower while showering and in the shower stall after showering. To evaluate these exposures, EPA used a model to estimate the average daily constituent air concentration to which a receptor may be exposed due to showering.

A primary assumption of this evaluation is that the vapor-phase concentration of a contaminant results solely from showering activity. Some investigators evaluate emissions due to other household uses of water (for example, use of water in sinks, toilets, washing machines, dishwashers) and risks due to inhalation for time spent in the remainder of the house. However, the risk from inhalation exposures in the remainder of the house has been shown to be significantly lower than the risk from inhalation exposures due to showering (McKone, 1987). In addition, the input data needed to estimate household chemical concentrations from other sources is considered highly uncertain (e.g., house volume, house air exchange rate, time spent at home). Given the low risk due to exposure from the remainder of the house and the uncertainty associated with estimates of household chemical concentrations from other sources, the current version of the shower model has been simplified to focus on the greatest sources of exposure and risk due to use of contaminated water (i.e., showering).

The following section provides a general overview of the model. Tables B-1 through B-10 present the equations in detail. Table B-11 provides the model input parameters (e.g., exposure time, shower properties).

B.1 Model Description

The shower model estimates the average daily indoor air concentration of volatile constituents in groundwater to which a receptor may be exposed (see Table B-1). The model assumes that the only contribution to the average daily indoor air concentration is from showering. In order to calculate the average daily air concentration, the model first determines the average concentration in the shower stall during and after showering. The average shower stall concentration is time weighted based on the amount of time spent in the shower (see Table B-2) and the total number of minutes in a day to determine the average daily indoor air concentration. Again, this calculation assumes that a receptor is only exposed to chemicals due to showering.

To estimate the average concentration while showering, the model assumes that concentration in the shower is zero at the beginning of the shower. Concentrations in the shower are then modeled over short periods of time, or time steps. Over each time step, the model calculates the mass of chemical emitted from the shower. The model consists of three compartments to which the mass emitted from the shower can travel: the shower stall, the bathroom, and the remainder of the house. Air exchange rates between the shower and the bathroom and between the bathroom and the remainder of the house are used to model the movement of volatile constituents in the air between the compartments.

Given the mass emitted from the shower, the air exchange rates, and the volume of each compartment, the model estimates concentrations in the shower stall (see Table B-3) and the bathroom (see Table B-4). The concentration in the house compartment is assumed to remain de minimus and is therefore set to zero. In other words, the house compartment is essentially treated as a sink in which there is no build-up of chemical concentration in the air. However, the concentration of contaminant can build up over time in the shower and bathroom compartments.

Depending on the properties of the chemical being modeled, the shower air concentration may reach equilibrium with the shower water concentration at some point during the shower. However, the shower air concentration should not exceed the equilibrium concentration. To ensure this does not happen, the model calculates the potential mass emitted based on the chemical concentration in the shower water, and the maximum mass of chemical that could be emitted without exceeding the equilibrium concentration (see Table B-5). If the potential mass emitted during a time step exceeds the maximum mass that may be emitted without exceeding equilibrium concentration, then the mass emitted for that time step is set to the maximum mass that can be emitted without exceeding equilibrium. This has the effect of capping the concentration in the shower stall at the equilibrium concentration.

To determine the potential mass emitted during a time step, the model considers the total mass of the chemical in the shower water during a given time step (i.e., concentration in the shower water times the shower rate times the length of the time step) and multiplies that by the fraction of chemical that is emitted from a droplet of water (see Table B-6). The equation for calculating the fraction of chemical that is emitted from a droplet of water was derived based on Little (1992a). Little (1992a) presents a model for estimating emissions from shower water. As stated by Little, the amount of mass emitted while a droplet falls through the shower stall is "proportional to the concentration driving force between the water and the air." Thus, the fraction of mass emitted from a droplet takes into account how close the concentration in the shower is to equilibrium (see Table B-7).

The fraction of mass emitted from a droplet also is based on a dimensionless overall mass transfer coefficient (see Table B-8). This equation was also derived based on Little (1992a). The dimensionless overall mass transfer coefficient is based on the amount of time each drop of water spends in the shower and the surface area available for mass transfer between the water and the air. The dimensionless form of the overall mass transfer coefficient uses an overall mass transfer coefficient based on the properties of the chemical being modeled, such as Henry's law constant (see Table B-9). The equation for the overall mass transfer coefficient is from McKone (1987). The equation includes a proportionality constant that was not provided by McKone (1987). A value of 216 was derived using data for benzene. The model was tested using the value of 216; modeled results compared favorably to experimental data for several organic compounds of varying volatility (Coburn, 1996). It should be noted that in McKone (1987) the proportionality constant was given as being a dimensionless parameter. However, in a correspondence to the editor, Little (1992) noted that this parameter is not dimensionless. The correct units are noted in Table B-9.

References

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Table B-1. Average Daily Concentration in Indoor Air

Shower

$$C_{air\_indoor} = \frac{\left(C_{air\_shower} \times ShowerResTime\right)}{1440}$$

$$C_{air\_shower} = \frac{\sum\left[\left(y_{s,t+ts} + y_{s,t}\right)/2\right] \times 1000}{n_s}$$

Name	Description	Value
C_{air_indoor}	Average daily concentration in indoor air (mg/m3)	Calculated above
C_{air_shower}	Average concentration in shower (mg/m3)	Calculated above
ShowerResTime	Total time spent in shower stall (min)	Calculated in Table B-2
$y_{s.\ t}$	Vapor-phase constituent concentration in the shower at the beginning of time step (mg/L)	Calculated from last time step
$y_{s,\ t+ts}$	Vapor-phase constituent concentration in the shower at the end of time step (mg/L)	Calculated in Table B-3
n_s	Number of time steps corresponding to time spent in the shower (dimensionless)	Summed in model code
1440	Minutes per day (min)	
1000	Conversion factor (L/m3)	

The above equations are used to calculate the time-weighted average daily indoor air concentration to which a receptor is exposed. The equation assumes that receptors are only exposed to contaminants in the shower.

Table B-2. Total Time Spent in Shower Stall

Shower

$$ShowerResTime = ShowerStallTime + ShowerTime$$

Name	Description	Value
ShowerResTime	Total time spent in shower stall (min)	Calculated above
ShowerStallTime	Time in shower stall after showering (min)	Provided in Table B-11
ShowerTime	Duration of shower (min)	Provided in Table B-11

This equation calculates the total time that a receptor is exposed to vapors in the shower stall.

Table B-3. Vapor-Phase Constituent Concentration in the Shower at End of Time Step

Shower

$$y_{s,\,t+ts} = y_{s,\,t} + \frac{\left[E_s - \left(Q_{sb} \times \left(y_{s,\,t} - y_{b,\,t}\right) \times ts\right)\right]}{V_s \times 1000}$$

Name	Description	Value
$y_{s,\,t+ts}$	Vapor-phase constituent concentration in the shower at end of time step (mg/L)	Calculated above
$y_{s.\,t}$	Vapor-phase constituent concentration in the shower at the beginning of time step (mg/L)	Calculated from last time step
$y_{b,\,t}$	Vapor-phase constituent concentration in the bathroom at the beginning of time step (mg/L)	Calculated from last time step
E_s	Mass emitted in the shower for a given time step (mg)	Calculated in Table B-5
Q_{sb}	Volumetric exchange rate between the shower and the bathroom (L/min)	Provided in Table B-11
V_s	Volume of shower (m3)	Provided in Table B-11
ts	Time step (min)	0.2
1000	Conversion factor (L/m3)	

This equation is used to calculate the vapor-phase constituent concentration in the shower at end of time step. The equation is derived from Equation 9 in Little (1992a).

Table B-4. Vapor-Phase Constituent Concentration in the Bathroom at End of Time Step

Shower

$$y_{b,\ t+ts} = y_{b,\ t} + \frac{\left[\left(Q_{sb} \times \left(y_{s,\ t+ts} - y_{b,\ t}\right) - Q_{bh} \times \left(y_{b,\ t} - y_{h,\ t}\right)\right)\right] \times ts}{V_b \times 1000}$$

Name	Description	Value
$y_{b,\ t+ts}$	Vapor-phase constituent concentration in the bathroom at end of time step (mg/L)	Calculated above
$y_{b,\ t}$	Vapor-phase constituent concentration in the bathroom at the beginning of time step (mg/L)	Calculated from last time step
$y_{s,\ t+ts}$	Vapor-phase constituent concentration in the shower at the end of time step (mg/L)	Calculated in Table B-3
$y_{h,\ t}$	Vapor-phase constituent concentration in the house at the beginning of time step (mg/L)	Assumed deminimus, zero
Q_{sb}	Volumetric exchange rate between the shower and the bathroom (L/min)	Provided in Table B-11
Q_{bh}	Volumetric exchange rate between the bathroom and the house (L/min)	Provided in Table B-11
V_b	Volume of bathroom (m3)	Provided in Table B-11
ts	Time step (min)	0.2
1000	Conversion factor (L/m3)	

This equation is used to calculate the vapor-phase constituent concentration in the bathroom at end of time step. The equation is derived from Equation 10 in Little (1992a).

Table B-5. Contaminant Mass Emitted in the Shower for a Given Time Step

Shower

For $E_t > E_{max}$, $$E_s = E_{max}$$

For $E_t \leq E_{max}$, $$E_s = E_t$$

Where,

$$E_t = Cin \times ShowerRate \times ts \times fem$$

$$E_{max} = (y_{eq} - y_{s,t}) \times V_s \times 1000$$

Name	Description	Value
E_s	Contaminant mass emitted in the shower for a given time step (mg)	Calculated above
E_{max}	Maximum possible mass of constituent emitted from shower during time step (mg)	Calculated above
E_t	Potential mass of constituent emitted from shower during time step (mg)	Calculated above
y_{eq}	Vapor-phase contaminant concentration in equilibrium between water and air (mg/L)	Hprime x Cin
$y_{s.\,t}$	Vapor-phase constituent concentration in the shower at the beginning of time step (mg/L)	Calculated from last time step
V_s	Volume of shower (m3)	Provided in Table B-11
Cin	Liquid-phase constituent concentration in the incoming water (mg/L)	Provided in Table B-11
ShowerRate	Rate of flow from showerhead (L/min)	Provided in Table B-11
ts	Time step (min)	0.2
fem	Fraction of constituent emitted from a droplet (dimensionless)	Calculated in Table B-6
Hprime	Dimensionless Henry's law constant (dimensionless)	Calculated in Table B-10
1000	Conversion factor (L/m3)	

The above equations are used to determine the mass of contaminant emitted for a given time step. The equilibrium concentration in air (y_eq) is calculated from Equation 1 in Little (1992a). If the mass emitted based on the mass transfer coefficient (Et) is greater than the amount emitted to reach equilibrium (Emax), the mass is set to the amount that results in the air concentration at equilibrium.

Table B-6. Fraction of Constituent Emitted from a Droplet

Shower

$$fem = (1 - Fsat) \times (1 - e^{-N})$$

Name	Description	Value
fem	Fraction of constituent emitted from a droplet (dimensionless)	Calculated above
Fsat	Fraction of gas-phase saturation (dimensionless)	Calculated in Table B-7
N	Dimensionless overall mass transfer coefficient (dimensionless)	Calculated in Table B-8

This equation is used to calculate the fraction of a given chemical emitted from a droplet of water in the shower. The equation is based on Equation 5 in Little (1992a). The above equation is obtained by rearranging the equation in Little given that ys_max/m = Cin and f_sat = ys/ys_max = ys/(m x Cin).

Table B-7. Fraction of Vapor-Phase Saturation in Shower

Shower

$$Fsat = \frac{y_{s,t}}{y_{eq}}$$

Name	Description	Value
Fsat	Fraction of Vapor-phase saturation in shower (dimensionless)	Calculated above
y_{eq}	Vapor-phase contaminant concentration in equilibrium between water and air (mg/L)	Hprime x Cin
$y_{s.\ t}$	Vapor-phase constituent concentration in the shower at the beginning of time step (mg/L)	Calculated from last time step
Hprime	Dimensionless Henry's law constant (dimensionless)	Calculated in Table B-10
Cin	Constituent concentration in incoming water (mg/L)	Provided in Table B-11

This equation is used to calculate the fraction of vapor-phase saturation in shower for each time step. The equilibrium concentration in air (y_eq) is calculated from Equation 1 in Little (1992a).

Table B-8. Dimensionless Overall Mass Transfer Coefficient

Shower

$$N = Kol \times AVRatio \times DropResTime$$

$$AVRatio = \frac{6}{DropDiam}$$

$$DropResTime = \frac{NozHeight \times 100}{DropVel}$$

Name	Description	Value
N	Dimensionless overall mass transfer coefficient (dimensionless)	Calculated above
AVRatio	Area-to-volume ratio for a sphere (cm2/cm3)	Calculated above
Kol	Overall mass transfer coefficient (cm/s)	Calculated in Table B-9
DropResTime	Residence time for falling drops (s)	Calculated above
DropDiam	Drop diameter (cm)	Provided in Table B-11
NozHeight	Nozzle height (m)	Provided in Table B-11
DropVel	Drop terminal velocity (cm/s)	Provided in Table B-11
100	Conversion factor (cm/m)	

This equation calculates the dimensionless overall mass transfer coefficient. The above equation is based on Little (1992a), which provides the equation as N = Kol x A/Ql where A is surface area and Ql is flow in volume per time.

Table B-9. Overall Mass Transfer Coefficient

Shower

$$Kol = \beta \times \left(\frac{2.5}{D_w^{2/3}} + \frac{1}{D_a^{2/3} \times Hprime} \right)^{-1}$$

Name	Description	Value
Kol	Overall mass transfer coefficient (cm/s)	Calculated above
β	Proportionality constant (cm-s^-1/3)	216
D_w	Diffusion coefficient in water (cm2/s)	Chemical-specific
D_a	Diffusion coefficient in air (cm2/s)	Chemical-specific
Hprime	Dimensionless Henry's law constant (dimensionless)	Calculated in Table B-10

This equation calculates the overall mass transfer coefficient. The above equation corresponds to Equation 17 in McKone (1987) and was modified to use the dimensionless Henry's law constant. The value for beta was derived based on data for benzene and verified for chemicals of varying volatility (Coburn, 1996).

Table B-10. Dimensionless Henry's Law Constant

Shower

$$Hprime = HLCcoef \times HLC$$

$$HLCcoef = \frac{1}{R \times Temp}$$

Name	Description	Value
Hprime	Dimensionless Henry's law constant (dimensionless)	Calculated above
HLCcoef	Coefficient to Henry's law constant (dimensionless)	Calculated above
HLC	Henry's law constant (atm-m3/mol)	Chemical-specific
R	Ideal Gas constant (atm-m3/K-Mol)	0.00008206
Temp	Temperature (K)	298

This equation calculates the dimensionless form of Henry's law constant.

Table B-11. Model Parameters for Exposure

Name	Description	Value	Reference	Comments
Bathroom properties				
Vb	Volume of the bathroom (m^3)	10	McKone, T., 1987	
Exchange rate				
Qbh	Volumetric exchange rate between the bathroom and the house (L/min)	300	RTI-derived value	Estimated from the volume and flow rate in McKone (1987) such that the exchange rate equals the volume divided by the residence time (e.g., 10,000L/30 min).
Qsb	Volumetric exchange rate between the shower and the bathroom (L/min)	100	RTI-derived value	Estimated from the volume and flow rate in McKone (1987) such that the exchange rate equals the volume divided by the residence time (e.g., 2000L/20 min).
Exposure time				
ShowerStallTime	Time in shower stall after showering (min)	5	U.S. EPA, 1997a	Table 15-23. 50th percentile overall
ShowerTime	duration of shower (min)	Run Specific	U.S. EPA, 1997a	Gamma distribution, scale = 5.89, shape = 2.83, minimum = 1 minute, maximum = 60 minutes.
Shower properties				
DropDiam	Diameter of shower water drop (cm)	0.098	RTI-derived value	Estimated as a function of terminal velocity<=600cm/sec (Coburn, 1996).
DropVel	Terminal velocity of water drop (cm/s)	400	RTI-derived value	Selected value by correlating to existing data.
NozHeight	Height of shower head (m)	1.8	Little, J., 1992a	Selected based on the maximum height reported in Table 1, a summary of five studies.
ShowerRate	Rate of water flow from shower head (L/min)	5.5	RTI-derived value	Calculated based on droplet diameter and nozzle velocity.
Vs	Volume of shower (m^3)	2	McKone, T., 1987	
Groundwater				
Cin	Constituent concentration in incoming water (mg/L)	Source Specific	NA	Concentrations generated from groundwater model

Appendix C

Detailed Statistical Analysis and Revised Weights

Appendix C

Detailed Statistical Analysis and Revised Weights

This appendix provides additional technical details about the statistical analysis and revisions to the survey weights done in response to public comments. The revised weights are presented for two scenarios: correction of nonresponse (884 facilities) and correction of nonresponse and sampling frame error (1,544 facilities).

This appendix is divided into three parts. Section C.1 is an overview of the statistical methods used in this analysis, including an introduction to standard survey weighting procedures. Section C.2 describes the specific steps that were performed to obtain the final statistical analysis weights, and Section C.3 presents the mathematical details of the calculations involved in the process.

C.1 Overview of Statistical Procedures

C.1.1 Standard Weighting Procedures

In survey sampling, statistical analysis weights are assigned to each sample member to produce unbiased estimates of linear statistics, such as population totals and population means. These weights are used whenever the sample members were not all selected with the same probabilities (e.g., different sampling rates were used for different strata). They compensate for the fact that sampled members may be selected at unequal sampling rates and have different probabilities of responding to the survey, and that some population members may have been excluded from the sampling frame. Weighting reduces bias due to nonresponse and frame errors by making each respondent represent a different fraction of the population.

Weighting is typically performed in three stages. The first stage involves producing base, or initial, sampling weights. Each member of the population has a known probability of being selected into the sample. Once the sample is selected, each sample member gets an initial weight which is equal to the inverse or reciprocal of the selection probability. For example, in a simple random sample of size n selected without replacement from a population of N members, each unit in the population has a selection probability equal to n/N. Hence, the initial weight for each sample member would be N/n. This means that each of the n sample members represents N/n population members. The sum of the initial weights of all the sample members is equal to N, the population size.

The second stage of weighting involves adjusting the initial weights for nonresponse. A nonresponse adjustment factor is calculated; this adjustment factor is multiplied by the initial weight to produce the nonresponse-adjusted weight. The adjustment factor is calculated by "redistributing" the initial weights for the nonrespondents among the respondents. For nonrespondents, the adjustment factor is zero; hence, the nonresponse-adjusted weight for nonrespondents is zero. For respondents, the adjustment factor is one or more, making the adjusted weights higher than the initial weights for them. This allows the respondents to represent the nonrespondents. The sum of the nonresponse-adjusted weights is still equal to the known population size, *N*.

The third stage of weighting involves poststratification. Poststratification partially corrects for frame errors; it involves adjusting the weights to control totals (i.e., totals estimated from a census or much larger survey, if such data are available). In poststratification, the population members are partitioned into categories, or poststrata, for which more reliable population totals are known than those generated by the survey. A poststratification adjustment factor is calculated, and is then multiplied by the current weights. The sum of the poststratification-adjusted weights within each of the poststrata should be equal to the population totals. Poststratification can also improve the accuracy of estimators by reducing their variability.

The unequal weighting effect (UWE) is a measure of the variability of the different weights assigned to the sample members. It reflects how much the variance of an estimate is inflated by using a sampling design that results in unequal weights as compared to the variance obtained by using a simple random sample. For a stratified random sampling design that results in unequal weights, the UWE is calculated as the ratio of the variance of an estimate under the stratified random sampling design and the variance of the estimate under a simple random sampling design.

C.1.2 Survey Estimates and Standard Errors

This section discusses the statistical analysis procedures used to compute point estimates of population totals, their standard errors, and confidence interval estimates. All the estimates and standard errors were produced using SUDAAN® software[1] for analysis of data from complex sample surveys.

Point Estimates. If Y_i denotes a measured quantity for the *i*-th facility (e.g., kilograms of liquid waste residual), then the population total for characteristic Y_i is estimated as

$$\hat{Y} = \sum_i w_i Y_i$$

where w_i denotes the statistical analysis weight and Σ denotes summation over all facilities in the sample.

[1] SUDAAN® is a statistical software package developed at RTI. It computes standard error estimates that fully account for unequal weighting, stratification, and without-replacement sampling (finite population correction).

Standard Errors. The standard error of an estimate is a common statistical measure of its precision. It is the standard deviation of the sampling distribution of the estimate or, alternatively, is the square root of the variance of the estimate. That is, if one were to replicate the sample selection and data collection procedures many times in exactly the same way and with exactly the same population, the standard error of the estimate is the standard deviation of the values of that estimate that would be generated by those samples.

Because the number of facilities in the sample is a non-negligible fraction of the number of facilities in the population for many sampling strata, calculation of standard errors includes a finite population correction (fpc) factor that accounts for sampling without replacement from a finite population. The fpc factor is appropriate so long as all inferences are restricted to the population of facilities that were manufacturing paints and coatings in 1998. Use of the fpc factor results in much smaller standard errors when inferences are restricted to this finite population.

Confidence Intervals. The point estimates and their standard errors are used to compute confidence interval estimates of population totals. If we let $\hat{Y}$ represent an estimated total, an approximate 100(1-α) percent confidence interval estimate of the true population total is calculated as

$$\left(\hat{Y} - t_{df,1-\alpha/2}\, SE(\hat{Y}),\ \hat{Y} + t_{df,1-\alpha/2}\, SE(\hat{Y})\right)$$

where *t* is the 100(1-α/2) percentile of the Student's *t* distribution with *df* degrees of freedom and $SE(\hat{Y})$ is the standard error of the estimate. The appropriate degrees of freedom is

$$df = \sum_{h=1}^{H} (r_h - 1)$$

where *h* represents the sampling strata and r_h is the number of responding facilities in analysis stratum *h*. If *df>30*, then $t_{df,1-\alpha/2}$ can be approximated by the 100(1-α/2) percentile of the standard normal distribution. For instance, when *df>30*, a 95 percent confidence interval estimate is calculated as

$$\left(\hat{\theta} - 1.96\, SE(\hat{\theta}),\ \hat{\theta} + 1.96\, SE(\hat{\theta})\right).$$

The confidence interval provides an interval estimate of a population parameter (e.g., the population total) with a known probability that the true value of the population parameter will be included in the interval. For example, a 95 percent confidence interval estimate of a population total is an interval that will contain the true value of the population total in 95 percent of all samples that could be selected with a given sampling design.

These confidence intervals are valid so long as the number of facilities contributing to the estimated total is large enough that the sampling distribution of the sample total is approximately a Student's *t* distribution.

C.2 Calculating the Final Statistical Analysis Weights

The **sampling population** consists of the 884 facilities that were sampled in the RCRA 3007 survey. The **target population** consists of 1,544 facilities, including the 884 facilities in the sampling population and 660 of the 705 facilities that were deleted due to insufficient stratification information. The remaining 45 of the 705 facilities were subsequently identified as duplicates.

We produced six sets of weights defined by crossing the number of strata (24 sampling strata and 12 collapsed strata) with the following sets of weights: initial sampling weights, analysis weights for the sampling population of 884 facilities, and analysis weights for the target population of 1,544 facilities.

Usually, the initial sampling weights are not used to produce population estimates because they underestimate population totals. They also are likely to result in biased estimates of other population parameters (e.g., means and proportions) because they fail to account for survey nonresponse. Hence, adjustments are made for nonresponse and for possible frame errors. The final statistical analysis weights are the appropriate weights to use for inference.

We calculated point estimates and standard errors of the total number of facilities in subpopulations of interest to demonstrate use of the analysis weights.

C.2.1 Recalculating the Weights for the Sampling Population

The analysis weights calculated in this section will allow inferences to be made to the sampling population of 884 facilities, accounting for nonresponse. The weights also are poststratified to account for known frame errors.

The partition into 24, rather than 12 strata, was unintentional and the partition by states (through or after Ohio, alphabetically) probably has no bearing on the survey outcomes. If we believe that the alphabetical position of the states within strata bears no relationship to the survey outcomes, then it would be reasonable that the strata be collapsed for computing the sampling weights without introducing any bias. The advantage of collapsing the strata is that the variability in the weights is reduced, which will increase the precision of survey estimates.

We developed the initial weights using the 24 original strata ("through Ohio" and "after Ohio," each with 12 strata) and, separately, using the 12 collapsed strata. The initial weights for the 24 strata were the analysis weights used in the original analysis, equal to N_h/n_h , where N_h is the population size of stratum h and n_h is the sample stratum size. The initial weights for the 12 collapsed strata were recalculated separately for each of the new (collapsed) strata, using the new sample stratum size (n_h*) and population stratum size (N_h*). The recalculated initial weights are equal to N_h^*/n_h^*. Only the 299 facilities in the sample have initial weights. The sum of the initial weights over all 299 facilities equals the total number of facilities in the sampling population, 884.

Table C-1 summarizes the initial weights for the different initial strata, as well as the unequal weighting effect (UWE) for each set of initial weights. The UWE for the initial weights from the 24 original strata are larger than the UWE for the 12 collapsed strata. This suggests that using the 12 collapsed strata instead of the 24 original strata will improve the precision of the estimates.

Table C-1. Initial Weights

Strata			Using the 24 Original Strata						Using the 12 Collapsed Strata		
			Through Ohio			After Ohio					
Size	TRI Status	SIC 2851	No. of Facilities in Sampling Population	No. of Facilities in Sample	Initial Weight	No. of Facilities in Sampling Population	No. of Facilities in Sample	Initial Weight	No. of Facilities in Sampling Population	No. of Facilities in Sample	Initial Weight
Large	Listed	-01	2	2	**1.0000**				2	2	**1.0000**
		-02									
	Not listed	-01	25	24	**1.0417**	9	4	**2.2500**	34	28	**1.2143**
		-02	21	20	**1.0500**	2	2	**1.0000**	23	22	**1.0455**
Medium	Listed	-01									
		-02									
	Not listed	-01	49	41	**1.1951**	13	7	**1.8571**	62	48	**1.2917**
		-02	34	28	**1.2143**	13	6	**2.1667**	47	34	**1.3824**
Small	Listed	-01	4	4	**1.0000**	2	2	**1.0000**	6	6	**1.0000**
		-02	6	6	**1.0000**	1	1	**1.0000**	7	7	**1.0000**
	Not listed	-01	255	63	**4.0476**	124	14	**8.8571**	379	77	**4.9221**
		-02	225	62	**3.6290**	99	13	**7.6154**	324	75	**4.3200**
Total			621	250		263	49		884	299	
Unequal weighting effect			1.5069						1.3356		

Poststratification. Using available information about the sampling population, we created poststrata and classified all the 884 facilities in the sampling population into these poststrata. We were then able to obtain the population totals for each of the poststrata. The initial weights were adjusted to these poststratum totals.

The sample of 299 facilities represents all 884 facilities in the sampling population. The survey respondents represent the facilities that were in business in the spring of 2000 that were willing to respond, if asked. We do not know which of the facilities in the sampling frame were actually in business in spring 2000 (and, hence, were potential responders). Therefore, we performed the poststratification adjustments before the nonresponse adjustments.

Several factors were considered in developing the poststrata. First, we had to construct poststrata from data that were available for all 884 facilities in the sampling population. Second, we needed to form poststrata for which the outcomes (e.g., waste volumes) of all facilities (within each poststratum) would be as similar as possible. Third, each poststratum had to contain a reasonable number of sample facilities. Poststratification of the weights for a particular cell (poststratum) amounts to adjusting the survey estimate of the population total for that cell to a "known" total that comes from sources that can provide a more reliable estimate of that total (e.g., D&B files) and thereby reduce the bias due to frame errors. Bias is reduced when the survey outcomes (e.g., waste volumes) are as homogeneous as possible within poststrata, which suggests forming relatively small poststrata. However, the price paid for this potential reduction in bias is variance inflation. If cells with small sample sizes are poststratified, the variance inflation is likely to be so large (especially if the adjustments are substantial) that the net effect is an increase in mean square error (variance plus squared bias). Hence, a common guideline is that each poststratum should contain at least 20 sample members. The only sampling strata that required poststratification adjustment were those for the 703 facilities that were stratified as small (based on D&B annual sales data) and not listed on the TRI (in 1997). Hence, the above principles were applied to the formation of poststrata within these sampling strata. We considered SIC category, number of employees, annual sales (zero or positive), and different ways of determining size of the facility based on sales or number of employees. The other 181 facilities retained their original stratum classification as their poststratum. Table C-2 presents the final poststrata developed for the sampling population of 884 facilities.

We found six facilities among the 884 that were incorrectly classified into the wrong original size class based on their D&B annual sales figures. Five of the six facilities were selected into the sample. These facilities were classified into the correct poststrata, although their original classifications were not changed. These six facilities were the only facilities in the sampling population that were misclassified according to their reported D&B annual sales. The four facilities that public commenters claimed were misclassified because of incorrect sales and TRI information were classified into poststrata based on the D&B database information and the 1997 TRI information on chemical releases to land, not on the information reported by public commenters. We did not simply reclassify the strata of the two facilities that were miscategorized due to incorrect D&B sales volume information; their stratum status must be based on how they were classified when the sample was selected. Furthermore, we did not move them to another poststratum because other nonsurveyed facilities may be similarly miscategorized in the same database. Unless accurate sales data can also be obtained for all other facilities in the full target population, it is inappropriate to simply reclassify the two facilities with verified data. The three facilities that the public commenters argued should have been classified into TRI instead of non-TRI categories did not report any chemical releases to land-based management units in 1997. Therefore, we did not reclassify them into TRI categories.

The poststratification adjustment involves adjusting the initial weights so that the sum of the poststratification-adjusted weights in each poststratum equals the population count in that poststratum. The sum of all the poststratification-adjusted weights for the sampled facilities equals 884.

Table C-2. Poststrata for the Sampling Population of 884 Facilities

Sales	TRI Status	SIC Category	Sales2	Number of Employees	Poststratum Index	Population Count	Sample Size
Large (>$20M)	Listed	2851-01			1	2	2
		2851-02			2		
	Not listed	2851-01			3	32	26
		2851-02			4	21	20
Medium ($5M - $20M)	Listed	2851-01			5	1	1
		2851-02			6		
	Not listed	2851-01			7	64	50
		2851-02			8	50	36
Small (<$5M, $0, blank sales)	Listed	2851-01			9	5	5
		2851-02			10	7	7
	Not listed		Zero	Small[a] (0-6, blank)	11	100	21
				Large (7+)	12	108	22
			Positive	Small (0-4)	13	185	37
				Medium (5-9)	14	133	30
				Large (10+)	15	176	42
Total						884	229

[a] All 24 facilities with zero sales and zero employees in the D & B database were assigned to this stratum.

Adjustment for Nonresponse. The poststratification-adjusted weights were further adjusted for nonresponse. Nonresponse adjustments to the weights were performed in two stages. First, we adjusted the poststratified weights for lack of information regarding eligibility (of the seven nonresponding facilities) for the survey. Then, we adjusted for nonresponse among those sample facilities that were known to be eligible for the survey.

A facility was eligible for the survey if it was potentially a manufacturer of paints and coatings in SIC 2851 during 1998. The seven nonresponding facilities were classified as eligible or ineligible for the survey based on whether or not they were in business in 1998. (Note: We do not need to know if they were actually a paint manufacturer to determine eligibility for the survey; that was one of the survey outcomes.) Facility FLC144 has unknown eligibility because we are not sure if it was in business in 1998. The other six nonrespondents were classified as eligible for the survey because we know that they were all in business in 1998. The six nonrespondents were CAP011, AZT039, CAI148, CAA149, GAC173, and ORS340. Using these eligibility assumptions, we computed the nonresponse adjustment for the 299 sample facilities. After applying the nonresponse adjustment, only the 292 respondents have positive statistical analysis weights, while the seven nonresponding facilities have zero weights. The sum of the final analysis weights over all responding facilities in poststratum *s* is identical to the sum of the poststratified weights over all eligible facilities in poststratum *s*, just as if all eligible facilities had responded.

Tables C-3A and C-3B summarize the calculations involved in revising the weights for the sampling population based on the 24 original strata and the 12 collapsed strata, respectively.

The following notations are used in Tables C-3A and C-3B:

w1 = initial sampling weight
w2 = poststratification adjustment factor
w3 = poststratification-adjusted weight
w4 = adjustment for lack of information about eligibility
w5 = nonresponse adjustment factor
w6 = final analysis weight

w3 = w1*w2
w6 = w3*w4*w5 if responding facility
    = 0 if nonresponding facility

Note: The highlighted strata in Tables C-3A and C-3B contain the five sample facilities that were classified into incorrect size classes, based on the reported D&B sales data. These facilities were poststratified into the appropriate size classes.

Table C-3A. Revised Weights for the Sampling Population, Starting with the 24 Original Strata

Poststratum	Sampling Stratum (Original Stratum)	Responding Facility?	w1	w2	w3	w4	w5	w6	Number of Facilities in Sample
Large, TRI, SIC 2851 01	Thru OH, Large, TRI, SIC 2851 01	Y	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	2
Large, non-TRI, SIC 2851 01	Thru OH, Large, non-TRI, SIC 2851 01	Y	1.0417	1.0026	1.0444	1.0000	1.0000	1.0444	22
Large, non-TRI, SIC 2851 01	After OH, Large, non-TRI, SIC 2851 01	Y	2.2500	1.0026	2.2558	1.0000	1.0000	2.2558	4
Large, non-TRI, SIC 2851 02	Thru OH, Large, non-TRI, SIC 2851 02	Y	1.0500	1.0048	1.0550	1.0000	1.0000	1.0550	18
Large, non-TRI, SIC 2851 02	After OH, Large, non-TRI, SIC 2851 02	Y	1.0000	1.0048	1.0048	1.0000	1.0000	1.0048	2
Medium, TRI, SIC 2851 01	Thru OH, Small, TRI, SIC 2851 01	Y	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1
Medium, non-TRI, SIC 2851 01	Thru OH, Large, non-TRI, SIC 2851 01	Y	1.0417	0.9987	1.0404	1.0000	1.0000	1.0404	2
Medium, non-TRI, SIC 2851 01	Thru OH, Medium, non-TRI, SIC 2851 01	Y	1.1951	0.9987	1.1936	1.0000	1.0000	1.1936	41
Medium, non-TRI, SIC 2851 01	After OH, Medium, non-TRI, SIC 2851 01	Y	1.8571	0.9987	1.8547	1.0000	1.0000	1.8547	7
Medium, non-TRI, SIC 2851 02	Thru OH, Large, non-TRI, SIC 2851 02	Y	1.0500	1.0183	1.0692	1.0000	1.0000	1.0692	2
Medium, non-TRI, SIC 2851 02	Thru OH, Medium, non-TRI, SIC 2851 02	Y	1.2143	1.0183	1.2365	1.0000	1.0000	1.2365	28
Medium, non-TRI, SIC 2851 02	After OH, Medium, non-TRI, SIC 2851 02	Y	2.1667	1.0183	2.2064	1.0000	1.0000	2.2064	6
Small, TRI, SIC 2851 01	Thru OH, Small, TRI, SIC 2851 01	Y	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	3
Small, TRI, SIC 2851 01	After OH, Small, TRI, SIC 2851 01	Y	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	2
Small, TRI, SIC 2851 02	Thru OH, Small, TRI, SIC 2851 02	Y	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	6
Small, TRI, SIC 2851 02	After OH, Small, TRI, SIC 2851 02	Y	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1
Small, non-TRI, 0 Sales, 0-6 emp	Thru OH, Small, non-TRI, SIC 2851 01	N	4.0476	1.0498	4.2492	1.0000	1.0877	0.0000	1
Small, non-TRI, 0 Sales, 0-6 emp	Thru OH, Small, non-TRI, SIC 2851 01	Y	4.0476	1.0498	4.2492	1.0000	1.0877	4.6216	10
Small, non-TRI, 0 Sales, 0-6 emp	Thru OH, Small, non-TRI, SIC 2851 02	N	3.6290	1.0498	3.8097	1.0000	1.0877	0.0000	1
Small, non-TRI, 0 Sales, 0-6 emp	Thru OH, Small, non-TRI, SIC 2851 02	Y	3.6290	1.0498	3.8097	1.0000	1.0877	4.1437	6
Small, non-TRI, 0 Sales, 0-6 emp	After OH, Small, non-TRI, SIC 2851 01	Y	8.8571	1.0498	9.2982	1.0000	1.0877	10.1132	2
Small, non-TRI, 0 Sales, 0-6 emp	After OH, Small, non-TRI, SIC 2851 02	Y	7.6154	1.0498	7.9947	1.0000	1.0877	8.6954	1

(continued)

Table C-3A. (continued)

Poststratum	Sampling Stratum (Original Stratum)	Responding Facility?	w1	w2	w3	w4	w5	w6	Number of Facilities in Sample
Small, non-TRI, 0 Sales, 7+ emp	Thru OH, Small, non-TRI, SIC 2851 01	Y	4.0476	1.1108	4.4962	1.0000	1.0388	4.6705	10
Small, non-TRI, 0 Sales, 7+ emp	Thru OH, Small, non-TRI, SIC 2851 02	N	3.6290	1.1108	4.0312	1.0000	1.0388	0.0000	1
Small, non-TRI, 0 Sales, 7+ emp	Thru OH, Small, non-TRI, SIC 2851 02	Y	3.6290	1.1108	4.0312	1.0000	1.0388	4.1875	8
Small, non-TRI, 0 Sales, 7+ emp	After OH, Small, non-TRI, SIC 2851 01	Y	8.8571	1.1108	9.8387	1.0000	1.0388	10.2202	1
Small, non-TRI, 0 Sales, 7+ emp	After OH, Small, non-TRI, SIC 2851 02	Y	7.6154	1.1108	8.4594	1.0000	1.0388	8.7874	2
Small, non-TRI, + Sales, 0-4 emp	Thru OH, Small, non-TRI, SIC 2851 01	N	4.0476	1.1294	4.5713	1.0227	1.0876	0.0000	1
Small, non-TRI, + Sales, 0-4 emp	Thru OH, Small, non-TRI, SIC 2851 01	Y	4.0476	1.1294	4.5713	1.0227	1.0876	5.0845	16
Small, non-TRI, + Sales, 0-4 emp	Thru OH, Small, non-TRI, SIC 2851 02	N	3.6290	1.1294	4.0986	1.0227	1.0876	0.0000	1
Small, non-TRI, + Sales, 0-4 emp	Thru OH, Small, non-TRI, SIC 2851 02	Y	3.6290	1.1294	4.0986	1.0227	1.0876	4.5587	14
Small, non-TRI, + Sales, 0-4 emp	After OH, Small, non-TRI, SIC 2851 01	N	8.8571	1.1294	10.0032	1.0227	1.0876	0.0000	1
Small, non-TRI, + Sales, 0-4 emp	After OH, Small, non-TRI, SIC 2851 01	Y	8.8571	1.1294	10.0032	1.0227	1.0876	11.1262	1
Small, non-TRI, + Sales, 0-4 emp	After OH, Small, non-TRI, SIC 2851 02	Y	7.6154	1.1294	8.6008	1.0227	1.0876	9.5664	3
Small, non-TRI, + Sales, 5-9 emp	Thru OH, Small, non-TRI, SIC 2851 01	Y	4.0476	0.9481	3.8375	1.0000	1.0266	3.9394	9
Small, non-TRI, + Sales, 5-9 emp	Thru OH, Small, non-TRI, SIC 2851 02	N	3.6290	0.9481	3.4406	1.0000	1.0266	0.0000	1
Small, non-TRI, + Sales, 5-9 emp	Thru OH, Small, non-TRI, SIC 2851 02	Y	3.6290	0.9481	3.4406	1.0000	1.0266	3.5320	14
Small, non-TRI, + Sales, 5-9 emp	After OH, Small, non-TRI, SIC 2851 01	Y	8.8571	0.9481	8.3974	1.0000	1.0266	8.6204	3
Small, non-TRI, + Sales, 5-9 emp	After OH, Small, non-TRI, SIC 2851 02	Y	7.6154	0.9481	7.2201	1.0000	1.0266	7.4119	3
Small, non-TRI, + Sales, 10+ emp	Thru OH, Small, non-TRI, SIC 2851 01	Y	4.0476	0.8526	3.4509	1.0000	1.0000	3.4509	16
Small, non-TRI, + Sales, 10+ emp	Thru OH, Small, non-TRI, SIC 2851 02	Y	3.6290	0.8526	3.0940	1.0000	1.0000	3.0940	16
Small, non-TRI, + Sales, 10+ emp	After OH, Small, non-TRI, SIC 2851 01	Y	8.8571	0.8526	7.5515	1.0000	1.0000	7.5515	6
Small, non-TRI, + Sales, 10+ emp	After OH, Small, non-TRI, SIC 2851 02	Y	7.6154	0.8526	6.4928	1.0000	1.0000	6.4928	4

Table C-3B. Revised Weights for the Sampling Population, Starting with the 12 Collapsed Strata

Poststratum	Sampling Stratum (Collapsed Stratum)	Responding Facility?	w1	w2	w3	w4	w5	w6	Number of Facilities in Sample
Large, TRI, SIC 2851 01	Large, TRI, SIC 2851 01	Y	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	2
Large, non-TRI, SIC 2851 01	Large, non-TRI, SIC 2851 01	Y	1.2143	1.0136	1.2308	1.0000	1.0000	1.2308	26
Large, non-TRI, SIC 2851 02	Large, non-TRI, SIC 2851 02	Y	1.0455	1.0043	1.0500	1.0000	1.0000	1.0500	20
Medium, TRI, SIC 2851 01	Small, TRI, SIC 2851 01	Y	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1
Medium, non-TRI, SIC 2851 01	Large, non-TRI, SIC 2851 01	Y	1.2143	0.9933	1.2062	1.0000	1.0000	1.2062	2
Medium, non-TRI, SIC 2851 01	Medium, non-TRI, SIC 2851 01	Y	1.2917	0.9933	1.2831	1.0000	1.0000	1.2831	48
Medium, non-TRI, SIC 2851 02	Large, non-TRI, SIC 2851 02	Y	1.0455	1.0185	1.0648	1.0000	1.0000	1.0648	2
Medium, non-TRI, SIC 2851 02	Medium, non-TRI, SIC 2851 02	Y	1.3824	1.0185	1.4080	1.0000	1.0000	1.4080	34
Small, TRI, SIC 2851 01	Small, TRI, SIC 2851 01	Y	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	5
Small, TRI, SIC 2851 02	Small, TRI, SIC 2851 02	Y	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	7
Small, non-TRI, 0 Sales, 0-6 emp	Small, non-TRI, SIC 2851 01	N	4.9221	1.0147	4.9947	1.0000	1.1035	0.0000	1
Small, non-TRI, 0 Sales, 0-6 emp	Small, non-TRI, SIC 2851 01	Y	4.9221	1.0147	4.9947	1.0000	1.1035	5.5115	12
Small, non-TRI, 0 Sales, 0-6 emp	Small, non-TRI, SIC 2851 02	N	4.3200	1.0147	4.3837	1.0000	1.1035	0.0000	1
Small, non-TRI, 0 Sales, 0-6 emp	Small, non-TRI, SIC 2851 02	Y	4.3200	1.0147	4.3837	1.0000	1.1035	4.8373	7
Small, non-TRI, 0 Sales, 7+ emp	Small, non-TRI, SIC 2851 01	Y	4.9221	1.0623	5.2289	1.0000	1.0444	5.4610	11
Small, non-TRI, 0 Sales, 7+ emp	Small, non-TRI, SIC 2851 02	N	4.3200	1.0623	4.5893	1.0000	1.0444	0.0000	1
Small, non-TRI, 0 Sales, 7+ emp	Small, non-TRI, SIC 2851 02	Y	4.3200	1.0623	4.5893	1.0000	1.0444	4.7929	10
Small, non-TRI, + Sales, 0-4 emp	Small, non-TRI, SIC 2851 01	N	4.9221	1.0801	5.3164	1.0259	1.0627	0.0000	2
Small, non-TRI, + Sales, 0-4 emp	Small, non-TRI, SIC 2851 01	Y	4.9221	1.0801	5.3164	1.0259	1.0627	5.7957	17
Small, non-TRI, + Sales, 0-4 emp	Small, non-TRI, SIC 2851 02	N	4.3200	1.0801	4.6660	1.0259	1.0627	0.0000	1
Small, non-TRI, + Sales, 0-4 emp	Small, non-TRI, SIC 2851 02	Y	4.3200	1.0801	4.6660	1.0259	1.0627	5.0867	17
Small, non-TRI, + Sales, 5-9 emp	Small, non-TRI, SIC 2851 01	Y	4.9221	0.9720	4.7845	1.0000	1.0326	4.9405	12
Small, non-TRI, + Sales, 5-9 emp	Small, non-TRI, SIC 2851 02	N	4.3200	0.9720	4.1992	1.0000	1.0326	0.0000	1
Small, non-TRI, + Sales, 5-9 emp	Small, non-TRI, SIC 2851 02	Y	4.3200	0.9720	4.1992	1.0000	1.0326	4.3361	17
Small, non-TRI, + Sales, 10+ emp	Small, non-TRI, SIC 2851 01	Y	4.9221	0.9040	4.4497	1.0000	1.0000	4.4497	22
Small, non-TRI, + Sales, 10+ emp	Small, non-TRI, SIC 2851 02	Y	4.3200	0.9040	3.9054	1.0000	1.0000	3.9054	20

C.2.2 Recalculating the Weights for the Target Population

The analysis weights calculated in this section will allow inferences to be made to the target population of 1,544 facilities by using poststratification to extrapolate the inferences beyond the 884 facilities on the sampling frame.

The same sets of initial weights are used for the target population as were used for the sampling population, as shown in Table C-1.

Because limited information was available for the additional 660 facilities (beyond the 884 facilities in the sampling frame), we created another set of poststrata and classified all the facilities in the target population into these poststrata. We needed to use information that was available for all the 1,544 facilities in order to obtain the population total for each poststratum.

To develop the poststrata, we reclassified the 703 facilities in the original small, non-TRI categories, as well as the additional 660 facilities that were originally excluded from the survey, to obtain more accurate population stratum totals. The other 181 facilities retained their original stratum classification as their poststratum. We considered several possible variables to use for creating the poststrata. We considered number of employees, annual sales (zero or positive), and different ways of determining size of the facility based on sales or number of employees. We looked for the classifications that yielded sufficient poststratum sample sizes (i.e., poststrata with a minimum of 20 sample facilities). Table C-4 presents the final poststrata developed for the target population of 1,544 facilities.

The poststratification adjustment involves adjusting the initial weights so that the sum of the poststratification-adjusted weights in each poststratum equals the population count in that poststratum. The population stratum counts now reflect the stratification of the 1,544 facilities in the target population. The sum of all the poststratification-adjusted weights for the sampled facilities equals 1,544.

The poststratification-adjusted weights were further adjusted for nonresponse. As with the sampling population, nonresponse adjustments to the weights were performed in two stages. First, we adjusted the poststratified weights for lack of information regarding eligibility (of the seven nonresponding facilities) for the survey. Then, we adjusted for nonresponse among those sample facilities that were known to be eligible for the survey. The nonresponse adjustment factor calculations were the same as the calculations for the sampling population. After applying the nonresponse adjustment, only the 292 respondents have positive statistical analysis weights, while the seven nonresponding facilities have zero weights. The sum of the final analysis weights over all responding facilities in poststratum *s* is identical to the sum of the poststratified weights over all eligible facilities in poststratum *s*, just as if all eligible facilities had responded.

Table C-4. Poststrata for the Target Population of 1,544 Facilities

Sales	TRI Status	Sales2	Number of Employees	Poststratum Index	Population Count			Sample Size
					From 884	From 660	Total	
Large (>$20M)	Listed			1	2	4	6	2
	Not listed			2	53	18	71	46
Medium ($5M - $20M)	Listed			3	1	1	2	1
	Not listed			4	114	45	159	86
Small (<$5M, $0, blank sales)	Listed			5	12	25	37	12
	Not listed	Zero	Small[a] (0-6, blank)	6	100	135	235	21
			Large (7+)	7	108	157	265	22
		Positive	Small (0-4)	8	185	126	311	37
			Medium (5-9)	9	133	68	201	30
			Large (10+)	10	176	81	257	42
Total					884	660	1544	299

[a] All facilities with zero sales and zero employees, or blank sales or blank employees, in the D & B file were assigned to this stratum.

Tables C-5A and C-5B summarize the calculations involved in revising the weights for the sampling population based on the 24 original strata and the 12 collapsed strata, respectively.

The following notations are used in Tables C-5A and C-5B:

w1 = initial sampling weight
w2 = poststratification adjustment factor
w3 = poststratification-adjusted weight
w4 = adjustment for lack of information about eligibility
w5 = nonresponse adjustment factor
w6 = final analysis weight

w3 = w1*w2
w6 = w3*w4*w5 if responding facility
= 0 if nonresponding facility

Note: The highlighted strata in Tables C-5A and C-5B contain the five sample facilities that were classified into incorrect size classes, based on the reported D&B sales data. These facilities were poststratified into the appropriate size classes.

Table C-5A. Revised Weights for the Target Population, Starting with the 24 Original Strata

Poststratum	Sampling Stratum (Original Stratum)	Responding Facility?	w1	w2	w3	w4	w5	w6	Number of Facilities in Sample
Large, TRI	Thru OH, Large, TRI, SIC 2851 01	Y	1.0000	3.0000	3.0000	1.0000	1.0000	3.0000	2
Large, non-TRI	Thru OH, Large, non-TRI, SIC 2851 01	Y	1.0417	1.3443	1.4003	1.0000	1.0000	1.4003	22
Large, non-TRI	Thru OH, Large, non-TRI, SIC 2851 02	Y	1.0500	1.3443	1.4115	1.0000	1.0000	1.4115	18
Large, non-TRI	After OH, Large, non-TRI, SIC 2851 01	Y	2.2500	1.3443	3.0246	1.0000	1.0000	3.0246	4
Large, non-TRI	After OH, Large, non-TRI, SIC 2851 02	Y	1.0000	1.3443	1.3443	1.0000	1.0000	1.3443	2
Medium, TRI	Thru OH, Small, TRI, SIC 2851 01	Y	1.0000	2.0000	2.0000	1.0000	1.0000	2.0000	1
Medium, non-TRI	Thru OH, Large, non-TRI, SIC 2851 01	Y	1.0417	1.4048	1.4634	1.0000	1.0000	1.4634	2
Medium, non-TRI	Thru OH, Medium, non-TRI, SIC 2851 01	Y	1.1951	1.4048	1.6789	1.0000	1.0000	1.6789	41
Medium, non-TRI	Thru OH, Large, non-TRI, SIC 2851 02	Y	1.0500	1.4048	1.4750	1.0000	1.0000	1.4750	2
Medium, non-TRI	Thru OH, Medium, non-TRI, SIC 2851 02	Y	1.2143	1.4048	1.7059	1.0000	1.0000	1.7059	28
Medium, non-TRI	After OH, Medium, non-TRI, SIC 2851 01	Y	1.8571	1.4048	2.6089	1.0000	1.0000	2.6089	7
Medium, non-TRI	After OH, Medium, non-TRI, SIC 2851 02	Y	2.1667	1.4048	3.0438	1.0000	1.0000	3.0438	6
Small, TRI	Thru OH, Small, TRI, SIC 2851 01	Y	1.0000	3.0833	3.0833	1.0000	1.0000	3.0833	3
Small, TRI	Thru OH, Small, TRI, SIC 2851 02	Y	1.0000	3.0833	3.0833	1.0000	1.0000	3.0833	6
Small, TRI	After OH, Small, TRI, SIC 2851 01	Y	1.0000	3.0833	3.0833	1.0000	1.0000	3.0833	2
Small, TRI	After OH, Small, TRI, SIC 2851 02	Y	1.0000	3.0833	3.0833	1.0000	1.0000	3.0833	1
Small, non-TRI, 0 Sales, 0-6 emp	Thru OH, Small, non-TRI, SIC 2851 01	N	4.0476	2.4670	9.9856	1.0000	1.0877	0.0000	1
Small, non-TRI, 0 Sales, 0-6 emp	Thru OH, Small, non-TRI, SIC 2851 01	Y	4.0476	2.4670	9.9856	1.0000	1.0877	10.8608	10
Small, non-TRI, 0 Sales, 0-6 emp	Thru OH, Small, non-TRI, SIC 2851 02	N	3.6290	2.4670	8.9529	1.0000	1.0877	0.0000	1
Small, non-TRI, 0 Sales, 0-6 emp	Thru OH, Small, non-TRI, SIC 2851 02	Y	3.6290	2.4670	8.9529	1.0000	1.0877	9.7376	6
Small, non-TRI, 0 Sales, 0-6 emp	After OH, Small, non-TRI, SIC 2851 01	Y	8.8571	2.4670	21.8507	1.0000	1.0877	23.7660	2
Small, non-TRI, 0 Sales, 0-6 emp	After OH, Small, non-TRI, SIC 2851 02	Y	7.6154	2.4670	18.7874	1.0000	1.0877	20.4342	1
Small, non-TRI, 0 Sales, 7+ emp	Thru OH, Small, non-TRI, SIC 2851 01	Y	4.0476	2.7256	11.0323	1.0000	1.0388	11.4601	10
Small, non-TRI, 0 Sales, 7+ emp	Thru OH, Small, non-TRI, SIC 2851 02	N	3.6290	2.7256	9.8913	1.0000	1.0388	0.0000	1

(continued)

Table C-5A. (continued)

Poststratum	Sampling Stratum (Original Stratum)	Responding Facility?	w1	w2	w3	w4	w5	w6	Number of Facilities in Sample
Small, non-TRI, 0 Sales, 7+ emp	Thru OH, Small, non-TRI, SIC 2851 02	Y	3.6290	2.7256	9.8913	1.0000	1.0388	10.2749	8
Small, non-TRI, 0 Sales, 7+ emp	After OH, Small, non-TRI, SIC 2851 01	Y	8.8571	2.7256	24.1413	1.0000	1.0388	25.0773	1
Small, non-TRI, 0 Sales, 7+ emp	After OH, Small, non-TRI, SIC 2851 02	Y	7.6154	2.7256	20.7568	1.0000	1.0388	21.5616	2
Small, non-TRI, + Sales, 0-4 emp	Thru OH, Small, non-TRI, SIC 2851 01	N	4.0476	1.8986	7.6848	1.0227	1.0876	0.0000	1
Small, non-TRI, + Sales, 0-4 emp	Thru OH, Small, non-TRI, SIC 2851 01	Y	4.0476	1.8986	7.6848	1.0227	1.0876	8.5475	16
Small, non-TRI, + Sales, 0-4 emp	Thru OH, Small, non-TRI, SIC 2851 02	N	3.6290	1.8986	6.8900	1.0227	1.0876	0.0000	1
Small, non-TRI, + Sales, 0-4 emp	Thru OH, Small, non-TRI, SIC 2851 02	Y	3.6290	1.8986	6.8900	1.0227	1.0876	7.6636	14
Small, non-TRI, + Sales, 0-4 emp	After OH, Small, non-TRI, SIC 2851 01	N	8.8571	1.8986	16.8161	1.0227	1.0876	0.0000	1
Small, non-TRI, + Sales, 0-4 emp	After OH, Small, non-TRI, SIC 2851 01	Y	8.8571	1.8986	16.8161	1.0227	1.0876	18.7040	1
Small, non-TRI, + Sales, 0-4 emp	After OH, Small, non-TRI, SIC 2851 02	Y	7.6154	1.8986	14.4586	1.0227	1.0876	16.0819	3
Small, non-TRI, + Sales, 5-9 emp	Thru OH, Small, non-TRI, SIC 2851 01	Y	4.0476	1.4328	5.7996	1.0000	1.0266	5.9536	9
Small, non-TRI, + Sales, 5-9 emp	Thru OH, Small, non-TRI, SIC 2851 02	N	3.6290	1.4328	5.1998	1.0000	1.0266	0.0000	1
Small, non-TRI, + Sales, 5-9 emp	Thru OH, Small, non-TRI, SIC 2851 02	Y	3.6290	1.4328	5.1998	1.0000	1.0266	5.3379	14
Small, non-TRI, + Sales, 5-9 emp	After OH, Small, non-TRI, SIC 2851 01	Y	8.8571	1.4328	12.6908	1.0000	1.0266	13.0278	3
Small, non-TRI, + Sales, 5-9 emp	After OH, Small, non-TRI, SIC 2851 02	Y	7.6154	1.4328	10.9116	1.0000	1.0266	11.2014	3
Small, non-TRI, + Sales, 10+ emp	Thru OH, Small, non-TRI, SIC 2851 01	Y	4.0476	1.2450	5.0392	1.0000	1.0000	5.0392	16
Small, non-TRI, + Sales, 10+ emp	Thru OH, Small, non-TRI, SIC 2851 02	Y	3.6290	1.2450	4.5180	1.0000	1.0000	4.5180	16
Small, non-TRI, + Sales, 10+ emp	After OH, Small, non-TRI, SIC 2851 01	Y	8.8571	1.2450	11.0269	1.0000	1.0000	11.0269	6
Small, non-TRI, + Sales, 10+ emp	After OH, Small, non-TRI, SIC 2851 02	Y	7.6154	1.2450	9.4810	1.0000	1.0000	9.4810	4

Table C-5B. Revised Weights for the Target Population, Starting with the 12 Collapsed Strata

Poststratum	Sampling Stratum (Collapsed Stratum)	Responding Facility?	w1	w2	w3	w4	w5	w6	Number of Facilities in Sample
Large, TRI	Large, TRI, SIC 2851 01	Y	1.0000	3.0000	3.0000	1.0000	1.0000	3.0000	2
Large, non-TRI	Large, non-TRI, SIC 2851 01	Y	1.2143	1.3528	1.6428	1.0000	1.0000	1.6428	26
Large, non-TRI	Large, non-TRI, SIC 2851 02	Y	1.0455	1.3528	1.4144	1.0000	1.0000	1.4144	20
Medium, TRI	Small, TRI, SIC 2851 01	Y	1.0000	2.0000	2.0000	1.0000	1.0000	2.0000	1
Medium, non-TRI	Large, non-TRI, SIC 2851 01	Y	1.2143	1.4006	1.7007	1.0000	1.0000	1.7007	2
Medium, non-TRI	Medium, non-TRI, SIC 2851 01	Y	1.2917	1.4006	1.8092	1.0000	1.0000	1.8092	48
Medium, non-TRI	Large, non-TRI, SIC 2851 02	Y	1.0455	1.4006	1.4643	1.0000	1.0000	1.4643	2
Medium, non-TRI	Medium, non-TRI, SIC 2851 02	Y	1.3824	1.4006	1.9362	1.0000	1.0000	1.9362	34
Small, TRI	Small, TRI, SIC 2851 01	Y	1.0000	3.0833	3.0833	1.0000	1.0000	3.0833	5
Small, TRI	Small, TRI, SIC 2851 02	Y	1.0000	3.0833	3.0833	1.0000	1.0000	3.0833	7
Small, non-TRI, 0 Sales, 0-6 emp	Small, non-TRI, SIC 2851 01	N	4.9221	2.3846	11.7374	1.0000	1.1035	0.0000	1
Small, non-TRI, 0 Sales, 0-6 emp	Small, non-TRI, SIC 2851 01	Y	4.9221	2.3846	11.7374	1.0000	1.1035	12.9521	12
Small, non-TRI, 0 Sales, 0-6 emp	Small, non-TRI, SIC 2851 02	N	4.3200	2.3846	10.3017	1.0000	1.1035	0.0000	1
Small, non-TRI, 0 Sales, 0-6 emp	Small, non-TRI, SIC 2851 02	Y	4.3200	2.3846	10.3017	1.0000	1.1035	11.3678	7
Small, non-TRI, 0 Sales, 7+ emp	Small, non-TRI, SIC 2851 01	Y	4.9221	2.6066	12.8302	1.0000	1.0444	13.3996	11
Small, non-TRI, 0 Sales, 7+ emp	Small, non-TRI, SIC 2851 02	N	4.3200	2.6066	11.2607	1.0000	1.0444	0.0000	1
Small, non-TRI, 0 Sales, 7+ emp	Small, non-TRI, SIC 2851 02	Y	4.3200	2.6066	11.2607	1.0000	1.0444	11.7605	10
Small, non-TRI, + Sales, 0-4 emp	Small, non-TRI, SIC 2851 01	N	4.9221	1.8157	8.9373	1.0259	1.0627	0.0000	2
Small, non-TRI, + Sales, 0-4 emp	Small, non-TRI, SIC 2851 01	Y	4.9221	1.8157	8.9373	1.0259	1.0627	9.7430	17
Small, non-TRI, + Sales, 0-4 emp	Small, non-TRI, SIC 2851 02	N	4.3200	1.8157	7.8440	1.0259	1.0627	0.0000	1
Small, non-TRI, + Sales, 0-4 emp	Small, non-TRI, SIC 2851 02	Y	4.3200	1.8157	7.8440	1.0259	1.0627	8.5512	17
Small, non-TRI, + Sales, 5-9 emp	Small, non-TRI, SIC 2851 01	Y	4.9221	1.4690	7.2307	1.0000	1.0326	7.4664	12
Small, non-TRI, + Sales, 5-9 emp	Small, non-TRI, SIC 2851 02	N	4.3200	1.4690	6.3462	1.0000	1.0326	0.0000	1
Small, non-TRI, + Sales, 5-9 emp	Small, non-TRI, SIC 2851 02	Y	4.3200	1.4690	6.3462	1.0000	1.0326	6.5531	17
Small, non-TRI, + Sales, 10+ emp	Small, non-TRI, SIC 2851 01	Y	4.9221	1.3201	6.4975	1.0000	1.0000	6.4975	22
Small, non-TRI, + Sales, 10+ emp	Small, non-TRI, SIC 2851 02	Y	4.3200	1.3201	5.7027	1.0000	1.0000	5.7027	20

C.2.3 Estimates of Population Sizes and their Standard Errors

We calculated the unequal weighting effects (UWE) for all four sets of final statistical analysis weights to see how much improvement in precision was achieved by collapsing the 24 original strata into 12. The UWEs are summarized in Table C-6. The smaller UWEs for the weights based on the 12 collapsed strata show that variances of estimates can be reduced if we use the 12 collapsed strata instead of the 24 original strata.

Table C-6. Unequal Weighting Effects for the RCRA 3007 Survey of Manufacturers of Paints and Coatings (SIC 2851)

Weight	Domain	Based on 24 Original Strata	Based on 12 Collapsed Strata
Initial weights	All 299 sample members	1.5069	1.3356
Final analysis weights for the sampling population	All 292 respondents	1.5372	1.3744
	187 respondents who were paint manufacturers in 1999	1.6164	1.4415
	151 respondents who generated waste streams of interest in 1999	1.7189	1.4993
Final analysis weights for the target population	All 292 respondents	1.7294	1.5497
	187 respondents who were paint manufacturers in 1999	1.8480	1.6452
	151 respondents who generated waste streams of interest in 1999	2.0447	1.7597

We used SUDAAN® statistical software to estimate the population sizes and the standard errors of the estimates for the subpopulations of (1) paint manufacturers and (2) paint manufacturers that have waste streams of interest for risk assessment (i.e., do not recycle all wastes of interest). The estimated size for a subpopulation is obtained by summing the analysis weights for the surveyed facilities that belong to the subpopulation. Typically, standard errors for stratified sampling schemes are calculated based on the sampling strata. Since the additional 660 facilities in the target population were not assigned to sampling strata, we also calculated the standard errors based on the poststrata. The results are given in Table C-7. The results show that the differences between the standard errors using the sampling strata and the poststrata are small.

Table C-7. Estimated Population Sizes based on the RCRA 3007 Survey of Manufacturers of Paints and Coatings (SIC 2851)

Analysis Weight	Analysis Domain (Subpopulation of Interest)	Estimated Population Size	Standard Error Based on:	
			Sampling Strata[a]	Poststrata[b]
Based on the 24 original strata	Paint manufacturers in the sampling population in 1998	493	27.54	28.30
	Paint manufacturers in the sampling population who generated waste streams of interest in 1998	361	26.86	25.83
	Paint manufacturers in the target population in 1998[c]	846	53.87	55.43
	Paint manufacturers in the target population who generated waste streams of interest in 1998[c]	628	53.55	50.36
Based on the 12 collapsed strata	Paint manufacturers in the sampling population in 1998	494	25.55	25.33
	Paint manufacturers in the sampling population who generated waste streams of interest in 1998	354	24.32	22.49
	Paint manufacturers in the target population in 1998[c]	847	49.16	50.09
	Paint manufacturers in the target population who generated waste streams of interest in 1998[c]	615	47.43	43.34

[a] Variance computed using the 12 or 24 strata, corresponding to the weights used, and incorporating a finite population correction (fpc) for selection without replacement from finite strata.

[b] Variance computed using the 15 or 10 poststrata, corresponding to the weights used, and incorporating a finite population correction (fpc) for selection without replacement from finite strata.

[c] Extrapolation to the target population leads to additional uncertainty that is not reflected by the standard errors.

C.2.4 Conclusions and Recommendations

The unequal weighting effects in Table C-6 and the standard errors in Table C-7 both show that variances can be reduced by collapsing the 24 original strata to the 12 collapsed strata. We recommend that the analysis weights based on the 12 collapsed strata be used to compute survey estimates and their corresponding standard errors. Table C-7 also shows that there is not much difference in the standard errors using the poststrata, so we recommend using the sampling strata to calculate standard errors of the survey estimates.

C.2.5 Weights for the 299 Sampled Facilities

Tables C-8 and C-9 (see pages C-27 through C-46) summarize the different sets of weights calculated for the 299 sampled facilities. Table C-8 provides the weights based on calculations for the survey population of 884 facilities. Table C-9 provides the weights based on calculations for the target population of 1,544 facilities.

C.3 Mathematical Details

C.3.1 Development of Weights for the Sampling Population of 884 Facilities

Recalculating the Initial Weights. The initial weights for the original 24 strata were the analysis weights used in the original analysis, equal to N_h/n_h , where N_h is the population size of stratum h and n_h is the sample stratum size. The initial weights for the 12 collapsed strata were recalculated separately for each of the new (collapsed) strata, using the new sample stratum size (n_h*) and population stratum size (N_h*). The recalculated initial weights are equal to N_h*/n_h*. We calculated the unequal weighting effects for both sets of initial weights to see how much improvement in precision was achieved by collapsing the strata from 24 to 12. The formula for the UWE is as follows:

$$UWE = \sum_h \left(\frac{\hat{N}_h}{\hat{N}}\right)^2 \left(\frac{n_+}{n_h}\right) UWE_h$$

where

$$\hat{N}_h = \sum_i w_{hi}\,,\;\; \hat{N} = \sum_h \sum_i w_{hi}\,,\; n_+ = \sum_h n_h \;\;, and\;\; UWE_h = \frac{n_h \sum_i w_{hi}{}^2}{\left(\sum_h \sum_i w_{hi}\right)^2}$$

and w_{hi} refers to the weight for the i^{th} facility in stratum h. The subscript h indexes the strata (h=1,2,...,24 for the original strata ; h=1,2,...,12 for the collapsed strata). The subscript i indexes the facilities within each stratum.

Poststratification. Let $w_1(h,i)$ denote the initial sampling weight (as summarized in Table C-1) for facility i in stratum h, where h = 1, 2, ..., H indexes the sampling strata (H=24 with the original strata or H=12 with the collapsed strata), and i = 1, 2, ..., n_h indexes the sample facilities selected from stratum h.

Let $s = 1, 2, ..., 15$ index the poststrata for which population totals are known for all 884 facilities on the sampling frame.

Classify all the 884 facilities in the sampling population into the 15 poststrata defined in Table C-2. Let N_s = the number of facilities in the sampling population of 884 that belong to poststratum s.

Then, the poststratification weight adjustment factor was computed for poststratum *s* as follows:

$$w_2(s) = \frac{N_s}{\sum_{h=1}^{H}\sum_{i=1}^{n_h} w_1(h,i)I(s,h,i)}$$

where $I(s,h,i) = 1$ if the *i*-th facility in stratum *h* belongs to poststratum *s*
$= 0$ otherwise.

The poststratification weight adjustment factor was applied to all sampled facilities. The poststratified sampling weight was computed for each facility in poststratum *s*, as follows:

$$w_3(s,h,i) = w_1(h,i)w_2(s)$$

The sum of the weights $w_3(s,h,i)$ over all sample facilities in a poststratum is identical to the known population total for that poststratum.

Nonresponse adjustments. Nonresponse adjustments to the weights were performed in two stages. First, we adjusted the poststratified weights $w_3(s,h,i)$ for lack of information regarding eligibility (of the seven nonresponding facilities) for the survey. Then, we adjusted for nonresponse among those sample facilities that were known to be eligible for the survey.

We adjusted for lack of information regarding eligibility status, as follows:

Let $I_k(s,h,i) = 1$ if the eligibility status of the *i*-th sample facility is known[2]
$= 0$ otherwise.

The adjustment factor for lack of information regarding eligibility status for each poststratum *s* was calculated as follows:

$$w_4(s) = \frac{\sum_{h=1}^{H}\sum_{i=1}^{n_h} w_3(s,h,i)I(s,h,i)}{\sum_{h=1}^{H}\sum_{i=1}^{n_h} w_3(s,h,i)I(s,h,i)I_k(s,h,i)}$$

The sum of the revised weights, represented by the product of w_3 and w_4 over the sample facilities in poststratum *s* with known eligibility status, is identical to the sum of the weights $w_3(s,h,i)$ of *all* sample facilities in poststratum *s*, just as if eligibility status were known for all sample facilities.

[2] We know whether or not the *i*-th sample facility was in business in 1998 and could have responded to the questionnaire at the time of the survey in spring 2000.

Next, we adjusted for nonresponse among sample facilities known to be eligible for the survey. As it turned out, all 298 facilities in the sample with known eligibility status are known to be eligible.

Let $I_e(s,h,i)$ = 1 if the *i*-th facility is known to be eligible for the study[3]
= 0 otherwise.

Let $I_r(s,h,i)$ = 1 if the *i*-th facility is a respondent[4]
= 0 otherwise.

Then, the adjustment factor for nonresponse among sample facilities known to be eligible for the survey was computed for each poststratum, *s*, as follows:

$$w_5(s) = \frac{\sum_{h=1}^{H}\sum_{i=1}^{n_h} w_3(s,h,i)w_4(s)I(s,h,i)I_e(s,h,i)}{\sum_{h=1}^{H}\sum_{i=1}^{n_h} w_3(s,h,i)w_4(s)I(s,h,i)I_r(s,h,i)}$$

The statistical analysis weight, adjusted for survey nonresponse, was then calculated as follows:

$$w_6(s,h,i) = w_3(s,h,i)w_4(s)w_5(s)\,I_r(s,h,i)$$

Note that only the 292 respondents have positive statistical analysis weights, while the seven nonresponding facilities have zero weights. The sum of the weights $w_6(s,h,i)$ over all responding facilities in poststratum *s* is identical to the sum of the poststratified weights $w_3(s,h,i)$ over all eligible facilities in poststratum *s*, just as if all eligible facilities had responded.

Final Statistical Analysis Weights. The final statistical analysis weights for the 299 sample facilities are the weights $w_6(s,h,i)$. There are two sets of analysis weights for the sampling population: one obtained with the initial weights from the 24 original strata, and the other obtained with the weights from the 12 collapsed strata. These are shown in Table C-3A (for the 24 strata) and Table C-3B (for the 12 strata).

Estimates for subpopulations of special interest are obtained by multiplying the statistical analysis weights, $w_6(s,h,i)$, by (0,1)-indicators of membership in these subpopulations. Such subpopulations include (1) paint manufacturers (187 facilities in the sample), and (2) paint manufacturers that have waste streams of interest for risk assessment—i.e., do not recycle all

[3] We know that the *i*-th sample facility was in business and could have responded to the questionnaire at the time of the survey.

[4] The *i*-th sample facility was in business and responded to the questionnaire, irrespective of whether or not it was a manufacturer of paints or coatings.

wastes of interest—(151 in the sample). For example, to estimate the total waste generated by paint manufacturers with waste streams of interest for risk assessment, sum the analysis weights given by:

$$w_6^*(s,h,i) = w_6(s,h,i) * I_m$$

where I_m = 1 if the sampled facility is a paint manufacturer with waste streams of interest
= 0 otherwise.

C.3.2 Development of Weights for the Full Target Population of 1,544 Facilities

The target population consists of the 884 facilities in the sampling population and the 705 facilities that were deleted due to insufficient stratification information, less the facilities that were subsequently identified as duplicates. We deleted facilities among the 705 that have been identified as duplicates. These were either duplicate records in the dataset of 705, or facilities in the 705 that were determined to be duplicates of facilities among the 884. A total of 660 facilities were retained, resulting in a total of 1,554 facilities in the target population.

Recalculating the Initial Weights. We began with the same two sets of initial sampling weights (from the 24 original strata, and from the 12 collapsed strata) that are summarized in Table C-1.

Poststratification. Because we had to use information that was available for all 1,544 facilities, we developed another set of poststrata based on annual sales from Dun and Bradstreet information (zero or positive) and number of employees. The resulting poststrata are shown in Table C-4.

We developed poststratification adjustments and poststratified weights based on the above totals, using the procedures described in Section C.3.1.

Nonresponse Adjustments. The nonresponse adjustments were calculated and applied, as described in Section C.3.1.

Final Statistical Analysis Weights. The final statistical analysis weights were calculated as described in Section C.3.1. As before, the statistical analysis weights for the subpopulations of (1) paint manufacturers and (2) paint manufacturers that have waste streams of interest for risk assessment (i.e., do not recycle all wastes of interest) are obtained by multiplying the final statistical analysis weights of the sample facilities by (0,1)-indicators of membership in these subpopulations.

References

Brick, J.M. and G. Kalton (1996). Handling missing data in survey research. *Statistical Methods in Medical Research* 5:215-238.

Cochran, W.G. (1977). *Sampling Techniques*, 3rd ed. New York: John Wiley and Sons.

Research Triangle Institute (2001). *SUDAAN Software for the Statistical Analysis of Correlated Data.* Research Triangle Park, NC. Website at http://www.rti.org/SUDAAN/home.cfm

The following notations and codes are used in Tables C-8 and C-9.

Survey Facility ID

STRAT12 — Stratification based on 12 collapsed strata (1-12)

1	Large, TRI, SIC 2851 01	7	Large, TRI, SIC 2851 02
2	Medium, TRI, SIC 2851 01	8	Medium, TRI, SIC 2851 02
3	Small, TRI, SIC 2851 01	9	Small, TRI, SIC 2851 02
4	Large, non-TRI, SIC 2851 01	10	Large, non-TRI, SIC 2851 02
5	Medium, non-TRI, SIC 2851 01	11	Medium, non-TRI, SIC 2851 02
6	Small, non-TRI, SIC 2851 01	12	Small, non-TRI, SIC 2851 02

STRAT24 — Stratification based on 24 original sampling strata (1-24)

1	Thru OH, Large, TRI, SIC 2851 01	13	After OH, Large, TRI, SIC 2851 01
2	Thru OH, Medium, TRI, SIC 2851 01	14	After OH, Medium, TRI, SIC 2851 01
3	Thru OH, Small, TRI, SIC 2851 01	15	After OH, Small, TRI, SIC 2851 01
4	Thru OH, Large, non-TRI, SIC 2851 01	16	After OH, Large, non-TRI, SIC 2851 01
5	Thru OH, Medium, non-TRI, SIC 2851 01	17	After OH, Medium, non-TRI, SIC 2851 01
6	Thru OH, Small, non-TRI, SIC 2851 01	18	After OH, Small, non-TRI, SIC 2851 01
7	Thru OH, Large, TRI, SIC 2851 02	19	After OH, Large, TRI, SIC 2851 02
8	Thru OH, Medium, TRI, SIC 2851 02	20	After OH, Medium, TRI, SIC 2851 02
9	Thru OH, Small, TRI, SIC 2851 02	21	After OH, Small, TRI, SIC 2851 02
10	Thru OH, Large, non-TRI, SIC 2851 02	22	After OH, Large, non-TRI, SIC 2851 02
11	Thru OH, Medium, non-TRI, SIC 2851 02	23	After OH, Medium, non-TRI, SIC 2851 02
12	Thru OH, Small, non-TRI, SIC 2851 02	24	After OH, Small, non-TRI, SIC 2851 02

POSTSTRAT1 – Poststratification Categories for the Survey Population of 884 Facilities (1-15)

Category	Size (Based on Sales)	TRI Status	SIC Category	Sales	No. of Employees
1	Large	Listed	2851-01		
2	Large	Listed	2851-02		
3	Large	Not listed	2851-01		
4	Large	Not listed	2851-02		
5	Medium	Listed	2851-01		
6	Medium	Listed	2851-02		
7	Medium	Not listed	2851-01		
8	Medium	Not listed	2851-02		
9	Small	Listed	2851-01		
10	Small	Listed	2851-02		
11	Small	Not listed		Zero	Small (0-6)
12	Small	Not listed		Zero	Large (7+)
13	Small	Not listed		Positive	Small (0-4)
14	Small	Not listed		Positive	Medium (5-9)
15	Small	Not listed		Positive	Large (10+)

POSTSTRAT2 – Poststratification Categories for the Target Population of 1,544 Facilities (1-10)

Category	Size (Based on Sales)	TRI Status	Sales	No. of Employees
1	Large	Listed		
2	Large	Not listed		
3	Medium	Listed		
4	Medium	Not listed		
5	Small	Listed		
6	Small	Not listed	Zero	Small (0-6)
7	Small	Not listed	Zero	Large (7+)
8	Small	Not listed	Positive	Small (0-4)
9	Small	Not listed	Positive	Medium (5-9)
10	Small	Not listed	Positive	Large (10+)

Table C-8. Weights for the 299 Sampled Facilities, Based on the Survey Population of 884 Facilities

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 1	S12WGT	S24WGT	P12WGT	P24WGT
ALP135	12	12	14	4.3200	3.6290	4.3361	3.5320
ARD182	12	12	15	4.3200	3.6290	3.9054	3.0940
ARI053	6	6	13	4.9221	4.0476	5.7957	5.0845
ARN235	10	10	4	1.0455	1.0500	1.0500	1.0550
ARP192	12	12	14	4.3200	3.6290	4.3361	3.5320
AZC019	6	6	11	4.9221	4.0476	5.5115	4.6216
AZM015	6	6	13	4.9221	4.0476	5.7957	5.0845
AZM025	6	6	15	4.9221	4.0476	4.4497	3.4509
AZN140	12	12	15	4.3200	3.6290	3.9054	3.0940
AZP032	6	6	15	4.9221	4.0476	4.4497	3.4509
AZP060	6	6	14	4.9221	4.0476	4.9405	3.9394
AZT039	6	6	13	4.9221	4.0476	0.0000	0.0000
AZV171	12	12	14	4.3200	3.6290	4.3361	3.5320
CAA023	6	6	12	4.9221	4.0476	5.4610	4.6705
CAA149	12	12	11	4.3200	3.6290	0.0000	0.0000
CAB115	4	4	3	1.2143	1.0417	1.2308	1.0444
CAC026	6	6	13	4.9221	4.0476	5.7957	5.0845
CAC119	4	4	3	1.2143	1.0417	1.2308	1.0444
CAD054	6	6	13	4.9221	4.0476	5.7957	5.0845
CAD118	4	4	3	1.2143	1.0417	1.2308	1.0444
CAD205	11	11	8	1.3824	1.2143	1.4080	1.2365
CAD234	10	10	4	1.0455	1.0500	1.0500	1.0550
CAE155	12	12	15	4.3200	3.6290	3.9054	3.0940
CAF014	6	6	11	4.9221	4.0476	5.5115	4.6216
CAF134	1	1	1	1.0000	1.0000	1.0000	1.0000
CAF142	12	12	14	4.3200	3.6290	4.3361	3.5320
CAF169	12	12	11	4.3200	3.6290	4.8373	4.1437
CAF242	10	10	4	1.0455	1.0500	1.0500	1.0550
CAH096	5	5	7	1.2917	1.1951	1.2831	1.1936
CAI148	12	12	12	4.3200	3.6290	0.0000	0.0000

(continued)

Table C-8. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 1	S12WGT	S24WGT	P12WGT	P24WGT
CAJ137	12	12	15	4.3200	3.6290	3.9054	3.0940
CAJ194	12	12	15	4.3200	3.6290	3.9054	3.0940
CAL098	5	5	7	1.2917	1.1951	1.2831	1.1936
CAM221	11	11	8	1.3824	1.2143	1.4080	1.2365
CAN112	4	4	3	1.2143	1.0417	1.2308	1.0444
CAN172	12	12	12	4.3200	3.6290	4.7929	4.1875
CAP011	6	6	11	4.9221	4.0476	0.0000	0.0000
CAP170	12	12	13	4.3200	3.6290	5.0867	4.5587
CAP174	12	12	15	4.3200	3.6290	3.9054	3.0940
CAP211	11	11	8	1.3824	1.2143	1.4080	1.2365
CAR038	6	6	12	4.9221	4.0476	5.4610	4.6705
CAR190	12	12	15	4.3200	3.6290	3.9054	3.0940
CAS003	6	6	12	4.9221	4.0476	5.4610	4.6705
CAS029	6	6	13	4.9221	4.0476	5.7957	5.0845
CAS033	6	6	13	4.9221	4.0476	5.7957	5.0845
CAS108	4	4	3	1.2143	1.0417	1.2308	1.0444
CAS114	4	4	3	1.2143	1.0417	1.2308	1.0444
CAS160	12	12	14	4.3200	3.6290	4.3361	3.5320
CAT175	12	12	11	4.3200	3.6290	4.8373	4.1437
CAV121	4	4	3	1.2143	1.0417	1.2308	1.0444
COI187	12	12	12	4.3200	3.6290	4.7929	4.1875
CTD218	11	11	8	1.3824	1.2143	1.4080	1.2365
CTE062	6	6	12	4.9221	4.0476	5.4610	4.6705
CTM147	12	12	13	4.3200	3.6290	5.0867	4.5587
CTM224	11	11	8	1.3824	1.2143	1.4080	1.2365
DEW127	4	4	3	1.2143	1.0417	1.2308	1.0444
FLA042	6	6	11	4.9221	4.0476	5.5115	4.6216
FLA104	5	5	7	1.2917	1.1951	1.2831	1.1936
FLB021	6	6	15	4.9221	4.0476	4.4497	3.4509
FLB245	9	9	10	1.0000	1.0000	1.0000	1.0000

(continued)

Table C-8. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 1	S12WGT	S24WGT	P12WGT	P24WGT
FLB252	6	6	13	4.9221	4.0476	5.7957	5.0845
FLC143	12	12	15	4.3200	3.6290	3.9054	3.0940
FLC144	12	12	13	4.3200	3.6290	0.0000	0.0000
FLC181	12	12	13	4.3200	3.6290	5.0867	4.5587
FLD018	6	6	14	4.9221	4.0476	4.9405	3.9394
FLD059	6	6	14	4.9221	4.0476	4.9405	3.9394
FLD082	5	5	7	1.2917	1.1951	1.2831	1.1936
FLD202	11	11	8	1.3824	1.2143	1.4080	1.2365
FLF201	11	11	8	1.3824	1.2143	1.4080	1.2365
FLI005	6	6	14	4.9221	4.0476	4.9405	3.9394
FLI057	6	6	13	4.9221	4.0476	5.7957	5.0845
FLI058	6	6	11	4.9221	4.0476	5.5115	4.6216
FLJ083	5	5	7	1.2917	1.1951	1.2831	1.1936
FLK180	12	12	15	4.3200	3.6290	3.9054	3.0940
FLP191	12	12	11	4.3200	3.6290	4.8373	4.1437
FLR075	5	5	7	1.2917	1.1951	1.2831	1.1936
FLS072	5	5	7	1.2917	1.1951	1.2831	1.1936
FLS105	4	4	7	1.2143	1.0417	1.2062	1.0404
FLS124	4	4	3	1.2143	1.0417	1.2308	1.0444
FLT010	6	6	15	4.9221	4.0476	4.4497	3.4509
FLT070	5	5	7	1.2917	1.1951	1.2831	1.1936
GAB090	5	5	7	1.2917	1.1951	1.2831	1.1936
GAC173	12	12	14	4.3200	3.6290	0.0000	0.0000
GAP046	6	6	15	4.9221	4.0476	4.4497	3.4509
GAS034	6	6	15	4.9221	4.0476	4.4497	3.4509
GAS100	5	5	7	1.2917	1.1951	1.2831	1.1936
GAT207	11	11	8	1.3824	1.2143	1.4080	1.2365
GAT237	10	10	4	1.0455	1.0500	1.0500	1.0550
GAU004	6	6	13	4.9221	4.0476	5.7957	5.0845
GAW111	4	4	3	1.2143	1.0417	1.2308	1.0444

(continued)

Table C-8. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 1	S12WGT	S24WGT	P12WGT	P24WGT
IAA228	10	10	4	1.0455	1.0500	1.0500	1.0550
IAJ017	6	6	12	4.9221	4.0476	5.4610	4.6705
IAV117	4	4	3	1.2143	1.0417	1.2308	1.0444
IDI159	12	12	11	4.3200	3.6290	4.8373	4.1437
IDP132	3	3	5	1.0000	1.0000	1.0000	1.0000
ILA164	12	12	15	4.3200	3.6290	3.9054	3.0940
ILA176	12	12	15	4.3200	3.6290	3.9054	3.0940
ILB048	6	6	12	4.9221	4.0476	5.4610	4.6705
ILB249	9	9	10	1.0000	1.0000	1.0000	1.0000
ILC087	5	5	7	1.2917	1.1951	1.2831	1.1936
ILC103	5	5	7	1.2917	1.1951	1.2831	1.1936
ILC186	12	12	15	4.3200	3.6290	3.9054	3.0940
ILE179	12	12	14	4.3200	3.6290	4.3361	3.5320
ILG097	5	5	7	1.2917	1.1951	1.2831	1.1936
ILH222	11	11	8	1.3824	1.2143	1.4080	1.2365
ILM156	12	12	14	4.3200	3.6290	4.3361	3.5320
ILN089	5	5	7	1.2917	1.1951	1.2831	1.1936
ILN223	11	11	8	1.3824	1.2143	1.4080	1.2365
ILP084	5	5	7	1.2917	1.1951	1.2831	1.1936
ILP248	9	9	10	1.0000	1.0000	1.0000	1.0000
ILR122	4	4	3	1.2143	1.0417	1.2308	1.0444
ILR126	4	4	3	1.2143	1.0417	1.2308	1.0444
ILS116	4	4	3	1.2143	1.0417	1.2308	1.0444
ILS230	10	10	4	1.0455	1.0500	1.0500	1.0550
ILT238	10	10	4	1.0455	1.0500	1.0500	1.0550
ILU208	11	11	8	1.3824	1.2143	1.4080	1.2365
ILV037	6	6	15	4.9221	4.0476	4.4497	3.4509
ILV129	3	3	9	1.0000	1.0000	1.0000	1.0000
INA146	12	12	13	4.3200	3.6290	5.0867	4.5587
IND067	5	5	7	1.2917	1.1951	1.2831	1.1936

(continued)

Table C-8. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 1	S12WGT	S24WGT	P12WGT	P24WGT
INE092	5	5	7	1.2917	1.1951	1.2831	1.1936
INE219	11	11	8	1.3824	1.2143	1.4080	1.2365
INP012	6	6	15	4.9221	4.0476	4.4497	3.4509
INP076	5	5	7	1.2917	1.1951	1.2831	1.1936
INQ044	6	6	15	4.9221	4.0476	4.4497	3.4509
INR125	4	4	3	1.2143	1.0417	1.2308	1.0444
INS138	12	12	12	4.3200	3.6290	4.7929	4.1875
INV246	9	9	10	1.0000	1.0000	1.0000	1.0000
KSD052	6	6	15	4.9221	4.0476	4.4497	3.4509
KSV145	12	12	12	4.3200	3.6290	4.7929	4.1875
KYB047	6	6	15	4.9221	4.0476	4.4497	3.4509
KYB107	4	4	3	1.2143	1.0417	1.2308	1.0444
KYD106	4	4	7	1.2143	1.0417	1.2062	1.0404
KYK066	5	5	7	1.2917	1.1951	1.2831	1.1936
KYK199	11	11	8	1.3824	1.2143	1.4080	1.2365
KYM079	5	5	7	1.2917	1.1951	1.2831	1.1936
KYP247	9	9	10	1.0000	1.0000	1.0000	1.0000
KYS022	6	6	11	4.9221	4.0476	5.5115	4.6216
KYT185	12	12	13	4.3200	3.6290	5.0867	4.5587
LAB217	11	11	8	1.3824	1.2143	1.4080	1.2365
LAC036	6	6	15	4.9221	4.0476	4.4497	3.4509
LAC141	12	12	12	4.3200	3.6290	4.7929	4.1875
LAP163	12	12	14	4.3200	3.6290	4.3361	3.5320
LAP197	11	11	8	1.3824	1.2143	1.4080	1.2365
MAB131	3	3	9	1.0000	1.0000	1.0000	1.0000
MAC120	4	4	3	1.2143	1.0417	1.2308	1.0444
MAC188	12	12	13	4.3200	3.6290	5.0867	4.5587
MAC220	11	11	8	1.3824	1.2143	1.4080	1.2365
MAD031	6	6	15	4.9221	4.0476	4.4497	3.4509
MAK051	6	6	13	4.9221	4.0476	5.7957	5.0845

(continued)

Table C-8. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 1	S12WGT	S24WGT	P12WGT	P24WGT
MAP150	12	12	13	4.3200	3.6290	5.0867	4.5587
MAS236	10	10	4	1.0455	1.0500	1.0500	1.0550
MAT043	6	6	11	4.9221	4.0476	5.5115	4.6216
MDB113	4	4	3	1.2143	1.0417	1.2308	1.0444
MDL074	5	5	7	1.2917	1.1951	1.2831	1.1936
MDM109	4	4	3	1.2143	1.0417	1.2308	1.0444
MIA154	12	12	11	4.3200	3.6290	4.8373	4.1437
MIF177	12	12	15	4.3200	3.6290	3.9054	3.0940
MIF178	12	12	14	4.3200	3.6290	4.3361	3.5320
MIH064	5	5	7	1.2917	1.1951	1.2831	1.1936
MII183	12	12	14	4.3200	3.6290	4.3361	3.5320
MIK258	12	12	13	4.3200	3.6290	5.0867	4.5587
MIL209	11	11	8	1.3824	1.2143	1.4080	1.2365
MIM166	12	12	12	4.3200	3.6290	4.7929	4.1875
MIN055	6	6	13	4.9221	4.0476	5.7957	5.0845
MIP068	5	5	7	1.2917	1.1951	1.2831	1.1936
MIR073	5	5	7	1.2917	1.1951	1.2831	1.1936
MIR102	5	5	7	1.2917	1.1951	1.2831	1.1936
MIS158	12	12	13	4.3200	3.6290	5.0867	4.5587
MIS198	11	11	8	1.3824	1.2143	1.4080	1.2365
MIU094	5	5	7	1.2917	1.1951	1.2831	1.1936
MNA203	11	11	8	1.3824	1.2143	1.4080	1.2365
MNC095	5	5	7	1.2917	1.1951	1.2831	1.1936
MNC157	12	12	13	4.3200	3.6290	5.0867	4.5587
MND232	10	10	4	1.0455	1.0500	1.0500	1.0550
MNF028	6	6	13	4.9221	4.0476	5.7957	5.0845
MNH165	12	12	13	4.3200	3.6290	5.0867	4.5587
MOB229	10	10	4	1.0455	1.0500	1.0500	1.0550
MOC027	6	6	15	4.9221	4.0476	4.4497	3.4509
MOC152	12	12	14	4.3200	3.6290	4.3361	3.5320

(continued)

Table C-8. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 1	S12WGT	S24WGT	P12WGT	P24WGT
MOC240	10	10	4	1.0455	1.0500	1.0500	1.0550
MOD080	5	5	7	1.2917	1.1951	1.2831	1.1936
MOF225	10	10	8	1.0455	1.0500	1.0648	1.0692
MOH193	12	12	14	4.3200	3.6290	4.3361	3.5320
MOJ030	6	6	14	4.9221	4.0476	4.9405	3.9394
MOM001	6	6	15	4.9221	4.0476	4.4497	3.4509
MOM069	5	5	7	1.2917	1.1951	1.2831	1.1936
MON161	12	12	11	4.3200	3.6290	4.8373	4.1437
MOS009	6	6	12	4.9221	4.0476	5.4610	4.6705
MOS049	6	6	11	4.9221	4.0476	5.5115	4.6216
MOT099	5	5	7	1.2917	1.1951	1.2831	1.1936
MOT133	1	1	1	1.0000	1.0000	1.0000	1.0000
MOT241	10	10	4	1.0455	1.0500	1.0500	1.0550
NCA016	6	6	12	4.9221	4.0476	5.4610	4.6705
NCC077	5	5	7	1.2917	1.1951	1.2831	1.1936
NCC212	11	11	8	1.3824	1.2143	1.4080	1.2365
NCG200	11	11	8	1.3824	1.2143	1.4080	1.2365
NCN050	6	6	14	4.9221	4.0476	4.9405	3.9394
NCP007	6	6	11	4.9221	4.0476	5.5115	4.6216
NCS213	11	11	8	1.3824	1.2143	1.4080	1.2365
NCV250	9	9	10	1.0000	1.0000	1.0000	1.0000
NEE184	12	12	14	4.3200	3.6290	4.3361	3.5320
NET091	5	5	7	1.2917	1.1951	1.2831	1.1936
NHH040	6	6	15	4.9221	4.0476	4.4497	3.4509
NJB130	3	3	9	1.0000	1.0000	1.0000	1.0000
NJC210	11	11	8	1.3824	1.2143	1.4080	1.2365
NJC253	5	5	7	1.2917	1.1951	1.2831	1.1936
NJD006	6	6	14	4.9221	4.0476	4.9405	3.9394
NJH013	6	6	11	4.9221	4.0476	5.5115	4.6216
NJH196	12	12	15	4.3200	3.6290	3.9054	3.0940

(continued)

Table C-8. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 1	S12WGT	S24WGT	P12WGT	P24WGT
NJJ226	10	10	8	1.0455	1.0500	1.0648	1.0692
NJR168	12	12	13	4.3200	3.6290	5.0867	4.5587
NJR206	11	11	8	1.3824	1.2143	1.4080	1.2365
NJS243	10	10	4	1.0455	1.0500	1.0500	1.0550
NJT162	12	12	14	4.3200	3.6290	4.3361	3.5320
NJT216	11	11	8	1.3824	1.2143	1.4080	1.2365
NJT227	10	10	4	1.0455	1.0500	1.0500	1.0550
NJT239	10	10	4	1.0455	1.0500	1.0500	1.0550
NJU071	5	5	7	1.2917	1.1951	1.2831	1.1936
NJV151	12	12	15	4.3200	3.6290	3.9054	3.0940
NJW024	6	6	12	4.9221	4.0476	5.4610	4.6705
NJW233	10	10	4	1.0455	1.0500	1.0500	1.0550
NMC035	6	6	13	4.9221	4.0476	5.7957	5.0845
NMD061	6	6	11	4.9221	4.0476	5.5115	4.6216
NVA110	4	4	3	1.2143	1.0417	1.2308	1.0444
NVT167	12	12	12	4.3200	3.6290	4.7929	4.1875
NYA008	6	6	13	4.9221	4.0476	5.7957	5.0845
NYA045	6	6	13	4.9221	4.0476	5.7957	5.0845
NYA215	11	11	8	1.3824	1.2143	1.4080	1.2365
NYC020	6	6	13	4.9221	4.0476	5.7957	5.0845
NYC041	6	6	14	4.9221	4.0476	4.9405	3.9394
NYD153	12	12	15	4.3200	3.6290	3.9054	3.0940
NYG093	5	5	7	1.2917	1.1951	1.2831	1.1936
NYH204	11	11	8	1.3824	1.2143	1.4080	1.2365
NYJ195	12	12	13	4.3200	3.6290	5.0867	4.5587
NYM056	6	6	12	4.9221	4.0476	5.4610	4.6705
NYM081	5	5	7	1.2917	1.1951	1.2831	1.1936
NYM231	10	10	4	1.0455	1.0500	1.0500	1.0550
NYN078	5	5	7	1.2917	1.1951	1.2831	1.1936
NYO244	10	10	4	1.0455	1.0500	1.0500	1.0550

(continued)

Table C-8. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 1	S12WGT	S24WGT	P12WGT	P24WGT
NYS085	5	5	7	1.2917	1.1951	1.2831	1.1936
NYS088	5	5	7	1.2917	1.1951	1.2831	1.1936
NYS123	4	4	3	1.2143	1.0417	1.2308	1.0444
OHA065	5	5	7	1.2917	1.1951	1.2831	1.1936
OHD063	6	6	14	4.9221	4.0476	4.9405	3.9394
OHD139	12	12	12	4.3200	3.6290	4.7929	4.1875
OHG214	11	11	8	1.3824	1.2143	1.4080	1.2365
OHP101	5	5	7	1.2917	1.1951	1.2831	1.1936
OHR189	12	12	13	4.3200	3.6290	5.0867	4.5587
OHT128	4	4	3	1.2143	1.0417	1.2308	1.0444
OKG318	11	23	8	1.3824	2.1667	1.4080	2.2064
OKH321	5	17	7	1.2917	1.8571	1.2831	1.8547
ORA301	6	18	12	4.9221	8.8571	5.4610	10.2202
ORR338	12	24	13	4.3200	7.6154	5.0867	9.5664
ORS340	6	18	13	4.9221	8.8571	0.0000	0.0000
ORT341	6	18	15	4.9221	8.8571	4.4497	7.5515
PAC309	5	17	7	1.2917	1.8571	1.2831	1.8547
PAC310	11	23	8	1.3824	2.1667	1.4080	2.2064
PAC313	11	23	8	1.3824	2.1667	1.4080	2.2064
PAK324	4	16	3	1.2143	2.2500	1.2308	2.2558
PAO333	12	24	15	4.3200	7.6154	3.9054	6.4928
PAP335	12	24	12	4.3200	7.6154	4.7929	8.7874
PAP336	6	18	15	4.9221	8.8571	4.4497	7.5515
PAP337	3	15	9	1.0000	1.0000	1.0000	1.0000
PAU344	10	22	4	1.0455	1.0000	1.0500	1.0048
PAV347	9	21	10	1.0000	1.0000	1.0000	1.0000
RIC308	12	24	14	4.3200	7.6154	4.3361	7.4119
RIG319	12	24	15	4.3200	7.6154	3.9054	6.4928
RIM325	6	18	14	4.9221	8.8571	4.9405	8.6204
SCA303	6	18	15	4.9221	8.8571	4.4497	7.5515

(continued)

Table C-8. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 1	S12WGT	S24WGT	P12WGT	P24WGT
SCT342	11	23	8	1.3824	2.1667	1.4080	2.2064
TNC306	11	23	8	1.3824	2.1667	1.4080	2.2064
TNV346	12	24	12	4.3200	7.6154	4.7929	8.7874
TXA302	5	17	7	1.2917	1.8571	1.2831	1.8547
TXC305	6	18	14	4.9221	8.8571	4.9405	8.6204
TXC307	5	17	7	1.2917	1.8571	1.2831	1.8547
TXC314	12	24	14	4.3200	7.6154	4.3361	7.4119
TXG317	5	17	7	1.2917	1.8571	1.2831	1.8547
TXI322	10	22	4	1.0455	1.0000	1.0500	1.0048
TXM328	6	18	11	4.9221	8.8571	5.5115	10.1132
TXM329	6	18	11	4.9221	8.8571	5.5115	10.1132
TXM330	12	24	15	4.3200	7.6154	3.9054	6.4928
TXV345	3	15	9	1.0000	1.0000	1.0000	1.0000
VAB304	5	17	7	1.2917	1.8571	1.2831	1.8547
VAS339	5	17	7	1.2917	1.8571	1.2831	1.8547
VTH320	12	24	15	4.3200	7.6154	3.9054	6.4928
WAA300	11	23	8	1.3824	2.1667	1.4080	2.2064
WAC311	4	16	3	1.2143	2.2500	1.2308	2.2558
WAE315	12	24	13	4.3200	7.6154	5.0867	9.5664
WAF316	6	18	15	4.9221	8.8571	4.4497	7.5515
WAJ323	12	24	14	4.3200	7.6154	4.3361	7.4119
WAM327	6	18	13	4.9221	8.8571	5.7957	11.1262
WAP334	4	16	3	1.2143	2.2500	1.2308	2.2558
WAT343	12	24	13	4.3200	7.6154	5.0867	9.5664
WAV348	12	24	11	4.3200	7.6154	4.8373	8.6954
WIM326	4	16	3	1.2143	2.2500	1.2308	2.2558
WIM331	6	18	15	4.9221	8.8571	4.4497	7.5515
WIN332	6	18	14	4.9221	8.8571	4.9405	8.6204
WVC312	6	18	15	4.9221	8.8571	4.4497	7.5515

Table C-9. Weights for 299 Sampled Facilities, Based on the Target Population of 1,544 Facilities

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 2	S12WGT	S24WGT	P12WGT	P24WGT
ALP135	12	12	9	4.3200	3.6290	6.5531	5.3379
ARD182	12	12	10	4.3200	3.6290	5.7027	4.5180
ARI053	6	6	8	4.9221	4.0476	9.7430	8.5475
ARN235	10	10	2	1.0455	1.0500	1.4144	1.4115
ARP192	12	12	9	4.3200	3.6290	6.5531	5.3379
AZC019	6	6	6	4.9221	4.0476	12.9521	10.8608
AZM015	6	6	8	4.9221	4.0476	9.7430	8.5475
AZM025	6	6	10	4.9221	4.0476	6.4975	5.0392
AZN140	12	12	10	4.3200	3.6290	5.7027	4.5180
AZP032	6	6	10	4.9221	4.0476	6.4975	5.0392
AZP060	6	6	9	4.9221	4.0476	7.4664	5.9536
AZT039	6	6	8	4.9221	4.0476	0.0000	0.0000
AZV171	12	12	9	4.3200	3.6290	6.5531	5.3379
CAA023	6	6	7	4.9221	4.0476	13.3996	11.4601
CAA149	12	12	6	4.3200	3.6290	0.0000	0.0000
CAB115	4	4	2	1.2143	1.0417	1.6428	1.4003
CAC026	6	6	8	4.9221	4.0476	9.7430	8.5475
CAC119	4	4	2	1.2143	1.0417	1.6428	1.4003
CAD054	6	6	8	4.9221	4.0476	9.7430	8.5475
CAD118	4	4	2	1.2143	1.0417	1.6428	1.4003
CAD205	11	11	4	1.3824	1.2143	1.9362	1.7059
CAD234	10	10	2	1.0455	1.0500	1.4144	1.4115
CAE155	12	12	10	4.3200	3.6290	5.7027	4.5180
CAF014	6	6	6	4.9221	4.0476	12.9521	10.8608
CAF134	1	1	1	1.0000	1.0000	3.0000	3.0000
CAF142	12	12	9	4.3200	3.6290	6.5531	5.3379
CAF169	12	12	6	4.3200	3.6290	11.3678	9.7376
CAF242	10	10	2	1.0455	1.0500	1.4144	1.4115
CAH096	5	5	4	1.2917	1.1951	1.8092	1.6789

(continued)

Table C-9. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 2	S12WGT	S24WGT	P12WGT	P24WGT
CAI148	12	12	7	4.3200	3.6290	0.0000	0.0000
CAJ137	12	12	10	4.3200	3.6290	5.7027	4.5180
CAJ194	12	12	10	4.3200	3.6290	5.7027	4.5180
CAL098	5	5	4	1.2917	1.1951	1.8092	1.6789
CAM221	11	11	4	1.3824	1.2143	1.9362	1.7059
CAN112	4	4	2	1.2143	1.0417	1.6428	1.4003
CAN172	12	12	7	4.3200	3.6290	11.7605	10.2749
CAP011	6	6	6	4.9221	4.0476	0.0000	0.0000
CAP170	12	12	8	4.3200	3.6290	8.5512	7.6636
CAP174	12	12	10	4.3200	3.6290	5.7027	4.5180
CAP211	11	11	4	1.3824	1.2143	1.9362	1.7059
CAR038	6	6	7	4.9221	4.0476	13.3996	11.4601
CAR190	12	12	10	4.3200	3.6290	5.7027	4.5180
CAS003	6	6	7	4.9221	4.0476	13.3996	11.4601
CAS029	6	6	8	4.9221	4.0476	9.7430	8.5475
CAS033	6	6	8	4.9221	4.0476	9.7430	8.5475
CAS108	4	4	2	1.2143	1.0417	1.6428	1.4003
CAS114	4	4	2	1.2143	1.0417	1.6428	1.4003
CAS160	12	12	9	4.3200	3.6290	6.5531	5.3379
CAT175	12	12	6	4.3200	3.6290	11.3678	9.7376
CAV121	4	4	2	1.2143	1.0417	1.6428	1.4003
COI187	12	12	7	4.3200	3.6290	11.7605	10.2749
CTD218	11	11	4	1.3824	1.2143	1.9362	1.7059
CTE062	6	6	7	4.9221	4.0476	13.3996	11.4601
CTM147	12	12	8	4.3200	3.6290	8.5512	7.6636
CTM224	11	11	4	1.3824	1.2143	1.9362	1.7059
DEW127	4	4	2	1.2143	1.0417	1.6428	1.4003
FLA042	6	6	6	4.9221	4.0476	12.9521	10.8608
FLA104	5	5	4	1.2917	1.1951	1.8092	1.6789
FLB021	6	6	10	4.9221	4.0476	6.4975	5.0392

(continued)

Table C-9. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 2	S12WGT	S24WGT	P12WGT	P24WGT
FLB245	9	9	5	1.0000	1.0000	3.0833	3.0833
FLB252	6	6	8	4.9221	4.0476	9.7430	8.5475
FLC143	12	12	10	4.3200	3.6290	5.7027	4.5180
FLC144	12	12	8	4.3200	3.6290	0.0000	0.0000
FLC181	12	12	8	4.3200	3.6290	8.5512	7.6636
FLD018	6	6	9	4.9221	4.0476	7.4664	5.9536
FLD059	6	6	9	4.9221	4.0476	7.4664	5.9536
FLD082	5	5	4	1.2917	1.1951	1.8092	1.6789
FLD202	11	11	4	1.3824	1.2143	1.9362	1.7059
FLF201	11	11	4	1.3824	1.2143	1.9362	1.7059
FLI005	6	6	9	4.9221	4.0476	7.4664	5.9536
FLI057	6	6	8	4.9221	4.0476	9.7430	8.5475
FLI058	6	6	6	4.9221	4.0476	12.9521	10.8608
FLJ083	5	5	4	1.2917	1.1951	1.8092	1.6789
FLK180	12	12	10	4.3200	3.6290	5.7027	4.5180
FLP191	12	12	6	4.3200	3.6290	11.3678	9.7376
FLR075	5	5	4	1.2917	1.1951	1.8092	1.6789
FLS072	5	5	4	1.2917	1.1951	1.8092	1.6789
FLS105	4	4	4	1.2143	1.0417	1.7007	1.4634
FLS124	4	4	2	1.2143	1.0417	1.6428	1.4003
FLT010	6	6	10	4.9221	4.0476	6.4975	5.0392
FLT070	5	5	4	1.2917	1.1951	1.8092	1.6789
GAB090	5	5	4	1.2917	1.1951	1.8092	1.6789
GAC173	12	12	9	4.3200	3.6290	0.0000	0.0000
GAP046	6	6	10	4.9221	4.0476	6.4975	5.0392
GAS034	6	6	10	4.9221	4.0476	6.4975	5.0392
GAS100	5	5	4	1.2917	1.1951	1.8092	1.6789
GAT207	11	11	4	1.3824	1.2143	1.9362	1.7059
GAT237	10	10	2	1.0455	1.0500	1.4144	1.4115
GAU004	6	6	8	4.9221	4.0476	9.7430	8.5475

(continued)

Table C-9. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 2	S12WGT	S24WGT	P12WGT	P24WGT
GAW111	4	4	2	1.2143	1.0417	1.6428	1.4003
IAA228	10	10	2	1.0455	1.0500	1.4144	1.4115
IAJ017	6	6	7	4.9221	4.0476	13.3996	11.4601
IAV117	4	4	2	1.2143	1.0417	1.6428	1.4003
IDI159	12	12	6	4.3200	3.6290	11.3678	9.7376
IDP132	3	3	3	1.0000	1.0000	2.0000	2.0000
ILA164	12	12	10	4.3200	3.6290	5.7027	4.5180
ILA176	12	12	10	4.3200	3.6290	5.7027	4.5180
ILB048	6	6	7	4.9221	4.0476	13.3996	11.4601
ILB249	9	9	5	1.0000	1.0000	3.0833	3.0833
ILC087	5	5	4	1.2917	1.1951	1.8092	1.6789
ILC103	5	5	4	1.2917	1.1951	1.8092	1.6789
ILC186	12	12	10	4.3200	3.6290	5.7027	4.5180
ILE179	12	12	9	4.3200	3.6290	6.5531	5.3379
ILG097	5	5	4	1.2917	1.1951	1.8092	1.6789
ILH222	11	11	4	1.3824	1.2143	1.9362	1.7059
ILM156	12	12	9	4.3200	3.6290	6.5531	5.3379
ILN089	5	5	4	1.2917	1.1951	1.8092	1.6789
ILN223	11	11	4	1.3824	1.2143	1.9362	1.7059
ILP084	5	5	4	1.2917	1.1951	1.8092	1.6789
ILP248	9	9	5	1.0000	1.0000	3.0833	3.0833
ILR122	4	4	2	1.2143	1.0417	1.6428	1.4003
ILR126	4	4	2	1.2143	1.0417	1.6428	1.4003
ILS116	4	4	2	1.2143	1.0417	1.6428	1.4003
ILS230	10	10	2	1.0455	1.0500	1.4144	1.4115
ILT238	10	10	2	1.0455	1.0500	1.4144	1.4115
ILU208	11	11	4	1.3824	1.2143	1.9362	1.7059
ILV037	6	6	10	4.9221	4.0476	6.4975	5.0392
ILV129	3	3	5	1.0000	1.0000	3.0833	3.0833
INA146	12	12	8	4.3200	3.6290	8.5512	7.6636

(continued)

Table C-9. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 2	S12WGT	S24WGT	P12WGT	P24WGT
IND067	5	5	4	1.2917	1.1951	1.8092	1.6789
INE092	5	5	4	1.2917	1.1951	1.8092	1.6789
INE219	11	11	4	1.3824	1.2143	1.9362	1.7059
INP012	6	6	10	4.9221	4.0476	6.4975	5.0392
INP076	5	5	4	1.2917	1.1951	1.8092	1.6789
INQ044	6	6	10	4.9221	4.0476	6.4975	5.0392
INR125	4	4	2	1.2143	1.0417	1.6428	1.4003
INS138	12	12	7	4.3200	3.6290	11.7605	10.2749
INV246	9	9	5	1.0000	1.0000	3.0833	3.0833
KSD052	6	6	10	4.9221	4.0476	6.4975	5.0392
KSV145	12	12	7	4.3200	3.6290	11.7605	10.2749
KYB047	6	6	10	4.9221	4.0476	6.4975	5.0392
KYB107	4	4	2	1.2143	1.0417	1.6428	1.4003
KYD106	4	4	4	1.2143	1.0417	1.7007	1.4634
KYK066	5	5	4	1.2917	1.1951	1.8092	1.6789
KYK199	11	11	4	1.3824	1.2143	1.9362	1.7059
KYM079	5	5	4	1.2917	1.1951	1.8092	1.6789
KYP247	9	9	5	1.0000	1.0000	3.0833	3.0833
KYS022	6	6	6	4.9221	4.0476	12.9521	10.8608
KYT185	12	12	8	4.3200	3.6290	8.5512	7.6636
LAB217	11	11	4	1.3824	1.2143	1.9362	1.7059
LAC036	6	6	10	4.9221	4.0476	6.4975	5.0392
LAC141	12	12	7	4.3200	3.6290	11.7605	10.2749
LAP163	12	12	9	4.3200	3.6290	6.5531	5.3379
LAP197	11	11	4	1.3824	1.2143	1.9362	1.7059
MAB131	3	3	5	1.0000	1.0000	3.0833	3.0833
MAC120	4	4	2	1.2143	1.0417	1.6428	1.4003
MAC188	12	12	8	4.3200	3.6290	8.5512	7.6636
MAC220	11	11	4	1.3824	1.2143	1.9362	1.7059
MAD031	6	6	10	4.9221	4.0476	6.4975	5.0392

(continued)

Table C-9. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 2	S12WGT	S24WGT	P12WGT	P24WGT
MAK051	6	6	8	4.9221	4.0476	9.7430	8.5475
MAP150	12	12	8	4.3200	3.6290	8.5512	7.6636
MAS236	10	10	2	1.0455	1.0500	1.4144	1.4115
MAT043	6	6	6	4.9221	4.0476	12.9521	10.8608
MDB113	4	4	2	1.2143	1.0417	1.6428	1.4003
MDL074	5	5	4	1.2917	1.1951	1.8092	1.6789
MDM109	4	4	2	1.2143	1.0417	1.6428	1.4003
MIA154	12	12	6	4.3200	3.6290	11.3678	9.7376
MIF177	12	12	10	4.3200	3.6290	5.7027	4.5180
MIF178	12	12	9	4.3200	3.6290	6.5531	5.3379
MIH064	5	5	4	1.2917	1.1951	1.8092	1.6789
MII183	12	12	9	4.3200	3.6290	6.5531	5.3379
MIK258	12	12	8	4.3200	3.6290	8.5512	7.6636
MIL209	11	11	4	1.3824	1.2143	1.9362	1.7059
MIM166	12	12	7	4.3200	3.6290	11.7605	10.2749
MIN055	6	6	8	4.9221	4.0476	9.7430	8.5475
MIP068	5	5	4	1.2917	1.1951	1.8092	1.6789
MIR073	5	5	4	1.2917	1.1951	1.8092	1.6789
MIR102	5	5	4	1.2917	1.1951	1.8092	1.6789
MIS158	12	12	8	4.3200	3.6290	8.5512	7.6636
MIS198	11	11	4	1.3824	1.2143	1.9362	1.7059
MIU094	5	5	4	1.2917	1.1951	1.8092	1.6789
MNA203	11	11	4	1.3824	1.2143	1.9362	1.7059
MNC095	5	5	4	1.2917	1.1951	1.8092	1.6789
MNC157	12	12	8	4.3200	3.6290	8.5512	7.6636
MND232	10	10	2	1.0455	1.0500	1.4144	1.4115
MNF028	6	6	8	4.9221	4.0476	9.7430	8.5475
MNH165	12	12	8	4.3200	3.6290	8.5512	7.6636
MOB229	10	10	2	1.0455	1.0500	1.4144	1.4115
MOC027	6	6	10	4.9221	4.0476	6.4975	5.0392

(continued)

Table C-9. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 2	S12WGT	S24WGT	P12WGT	P24WGT
MOC152	12	12	9	4.3200	3.6290	6.5531	5.3379
MOC240	10	10	2	1.0455	1.0500	1.4144	1.4115
MOD080	5	5	4	1.2917	1.1951	1.8092	1.6789
MOF225	10	10	4	1.0455	1.0500	1.4643	1.4750
MOH193	12	12	9	4.3200	3.6290	6.5531	5.3379
MOJ030	6	6	9	4.9221	4.0476	7.4664	5.9536
MOM001	6	6	10	4.9221	4.0476	6.4975	5.0392
MOM069	5	5	4	1.2917	1.1951	1.8092	1.6789
MON161	12	12	6	4.3200	3.6290	11.3678	9.7376
MOS009	6	6	7	4.9221	4.0476	13.3996	11.4601
MOS049	6	6	6	4.9221	4.0476	12.9521	10.8608
MOT099	5	5	4	1.2917	1.1951	1.8092	1.6789
MOT133	1	1	1	1.0000	1.0000	3.0000	3.0000
MOT241	10	10	2	1.0455	1.0500	1.4144	1.4115
NCA016	6	6	7	4.9221	4.0476	13.3996	11.4601
NCC077	5	5	4	1.2917	1.1951	1.8092	1.6789
NCC212	11	11	4	1.3824	1.2143	1.9362	1.7059
NCG200	11	11	4	1.3824	1.2143	1.9362	1.7059
NCN050	6	6	9	4.9221	4.0476	7.4664	5.9536
NCP007	6	6	6	4.9221	4.0476	12.9521	10.8608
NCS213	11	11	4	1.3824	1.2143	1.9362	1.7059
NCV250	9	9	5	1.0000	1.0000	3.0833	3.0833
NEE184	12	12	9	4.3200	3.6290	6.5531	5.3379
NET091	5	5	4	1.2917	1.1951	1.8092	1.6789
NHH040	6	6	10	4.9221	4.0476	6.4975	5.0392
NJB130	3	3	5	1.0000	1.0000	3.0833	3.0833
NJC210	11	11	4	1.3824	1.2143	1.9362	1.7059
NJC253	5	5	4	1.2917	1.1951	1.8092	1.6789
NJD006	6	6	9	4.9221	4.0476	7.4664	5.9536
NJH013	6	6	6	4.9221	4.0476	12.9521	10.8608

(continued)

Table C-9. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 2	S12WGT	S24WGT	P12WGT	P24WGT
NJH196	12	12	10	4.3200	3.6290	5.7027	4.5180
NJJ226	10	10	4	1.0455	1.0500	1.4643	1.4750
NJR168	12	12	8	4.3200	3.6290	8.5512	7.6636
NJR206	11	11	4	1.3824	1.2143	1.9362	1.7059
NJS243	10	10	2	1.0455	1.0500	1.4144	1.4115
NJT162	12	12	9	4.3200	3.6290	6.5531	5.3379
NJT216	11	11	4	1.3824	1.2143	1.9362	1.7059
NJT227	10	10	2	1.0455	1.0500	1.4144	1.4115
NJT239	10	10	2	1.0455	1.0500	1.4144	1.4115
NJU071	5	5	4	1.2917	1.1951	1.8092	1.6789
NJV151	12	12	10	4.3200	3.6290	5.7027	4.5180
NJW024	6	6	7	4.9221	4.0476	13.3996	11.4601
NJW233	10	10	2	1.0455	1.0500	1.4144	1.4115
NMC035	6	6	8	4.9221	4.0476	9.7430	8.5475
NMD061	6	6	6	4.9221	4.0476	12.9521	10.8608
NVA110	4	4	2	1.2143	1.0417	1.6428	1.4003
NVT167	12	12	7	4.3200	3.6290	11.7605	10.2749
NYA008	6	6	8	4.9221	4.0476	9.7430	8.5475
NYA045	6	6	8	4.9221	4.0476	9.7430	8.5475
NYA215	11	11	4	1.3824	1.2143	1.9362	1.7059
NYC020	6	6	8	4.9221	4.0476	9.7430	8.5475
NYC041	6	6	9	4.9221	4.0476	7.4664	5.9536
NYD153	12	12	10	4.3200	3.6290	5.7027	4.5180
NYG093	5	5	4	1.2917	1.1951	1.8092	1.6789
NYH204	11	11	4	1.3824	1.2143	1.9362	1.7059
NYJ195	12	12	8	4.3200	3.6290	8.5512	7.6636
NYM056	6	6	7	4.9221	4.0476	13.3996	11.4601
NYM081	5	5	4	1.2917	1.1951	1.8092	1.6789
NYM231	10	10	2	1.0455	1.0500	1.4144	1.4115
NYN078	5	5	4	1.2917	1.1951	1.8092	1.6789

(continued)

Table C-9. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 2	S12WGT	S24WGT	P12WGT	P24WGT
NYO244	10	10	2	1.0455	1.0500	1.4144	1.4115
NYS085	5	5	4	1.2917	1.1951	1.8092	1.6789
NYS088	5	5	4	1.2917	1.1951	1.8092	1.6789
NYS123	4	4	2	1.2143	1.0417	1.6428	1.4003
OHA065	5	5	4	1.2917	1.1951	1.8092	1.6789
OHD063	6	6	9	4.9221	4.0476	7.4664	5.9536
OHD139	12	12	7	4.3200	3.6290	11.7605	10.2749
OHG214	11	11	4	1.3824	1.2143	1.9362	1.7059
OHP101	5	5	4	1.2917	1.1951	1.8092	1.6789
OHR189	12	12	8	4.3200	3.6290	8.5512	7.6636
OHT128	4	4	2	1.2143	1.0417	1.6428	1.4003
OKG318	11	23	4	1.3824	2.1667	1.9362	3.0438
OKH321	5	17	4	1.2917	1.8571	1.8092	2.6089
ORA301	6	18	7	4.9221	8.8571	13.3996	25.0773
ORR338	12	24	8	4.3200	7.6154	8.5512	16.0819
ORS340	6	18	8	4.9221	8.8571	0.0000	0.0000
ORT341	6	18	10	4.9221	8.8571	6.4975	11.0269
PAC309	5	17	4	1.2917	1.8571	1.8092	2.6089
PAC310	11	23	4	1.3824	2.1667	1.9362	3.0438
PAC313	11	23	4	1.3824	2.1667	1.9362	3.0438
PAK324	4	16	2	1.2143	2.2500	1.6428	3.0246
PAO333	12	24	10	4.3200	7.6154	5.7027	9.4810
PAP335	12	24	7	4.3200	7.6154	11.7605	21.5616
PAP336	6	18	10	4.9221	8.8571	6.4975	11.0269
PAP337	3	15	5	1.0000	1.0000	3.0833	3.0833
PAU344	10	22	2	1.0455	1.0000	1.4144	1.3443
PAV347	9	21	5	1.0000	1.0000	3.0833	3.0833
RIC308	12	24	9	4.3200	7.6154	6.5531	11.2014
RIG319	12	24	10	4.3200	7.6154	5.7027	9.4810
RIM325	6	18	9	4.9221	8.8571	7.4664	13.0278

(continued)

Table C-9. (continued)

Survey Facility ID	STRAT12	STRAT24	POSTSTRAT 2	S12WGT	S24WGT	P12WGT	P24WGT
SCA303	6	18	10	4.9221	8.8571	6.4975	11.0269
SCT342	11	23	4	1.3824	2.1667	1.9362	3.0438
TNC306	11	23	4	1.3824	2.1667	1.9362	3.0438
TNV346	12	24	7	4.3200	7.6154	11.7605	21.5616
TXA302	5	17	4	1.2917	1.8571	1.8092	2.6089
TXC305	6	18	9	4.9221	8.8571	7.4664	13.0278
TXC307	5	17	4	1.2917	1.8571	1.8092	2.6089
TXC314	12	24	9	4.3200	7.6154	6.5531	11.2014
TXG317	5	17	4	1.2917	1.8571	1.8092	2.6089
TXI322	10	22	2	1.0455	1.0000	1.4144	1.3443
TXM328	6	18	6	4.9221	8.8571	12.9521	23.7660
TXM329	6	18	6	4.9221	8.8571	12.9521	23.7660
TXM330	12	24	10	4.3200	7.6154	5.7027	9.4810
TXV345	3	15	5	1.0000	1.0000	3.0833	3.0833
VAB304	5	17	4	1.2917	1.8571	1.8092	2.6089
VAS339	5	17	4	1.2917	1.8571	1.8092	2.6089
VTH320	12	24	10	4.3200	7.6154	5.7027	9.4810
WAA300	11	23	4	1.3824	2.1667	1.9362	3.0438
WAC311	4	16	2	1.2143	2.2500	1.6428	3.0246
WAE315	12	24	8	4.3200	7.6154	8.5512	16.0819
WAF316	6	18	10	4.9221	8.8571	6.4975	11.0269
WAJ323	12	24	9	4.3200	7.6154	6.5531	11.2014
WAM327	6	18	8	4.9221	8.8571	9.7430	18.7040
WAP334	4	16	2	1.2143	2.2500	1.6428	3.0246
WAT343	12	24	8	4.3200	7.6154	8.5512	16.0819
WAV348	12	24	6	4.3200	7.6154	11.3678	20.4342
WIM326	4	16	2	1.2143	2.2500	1.6428	3.0246
WIM331	6	18	10	4.9221	8.8571	6.4975	11.0269
WIN332	6	18	9	4.9221	8.8571	7.4664	13.0278
WVC312	6	18	10	4.9221	8.8571	6.4975	11.0269

Appendix D

Revised Waste Volume Distributions

Appendix D

Revised Waste Volume Distributions

Table D-1a	Waste Volume and Bulk density Distribution Using Original Weights for Combined Solids	pg D-4
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Table D-2b	Waste Volume and Bulk density Distribution Using Modified Weights Based on 884 Facilities for Emission Control Dust	pg D-9
Table D-3a	Waste Volume and Bulk density Distribution Using Modified Weights Based on 1544 Facilities for Combined Solids	pg D-10
Table D-3b	Waste Volume and Bulk density Distribution Using Modified Weights Based on 1544 Facilities for Emission Control Dust	pg D-12

Table D-1a. Discrete Waste Volume Distribution Using Original Weights for Combined Solids

Facility ID	Weighting Factor	Volume (gal/yr)	Volume (m3/yr)	Bulk Density (lb/gal)	Bulk Density (g/cm3)	Percent Weight (%)
ALP135	3.6290	5.00	0.02	12	1.44	2.71
WIN332	8.8571	5.00	0.02	12.34	1.48	6.62
MNC095	1.1951	40.00	0.15	30	3.59	0.89
ILS230	1.0500	45.00	0.17	27	3.24	0.78
PAV347	1.0000	55.00	0.21	18.68	2.24	0.75
KSD052	4.0476	69.79	0.26	8.32	1.00	3.02
WAE315	7.6154	74.81	0.28	20	2.40	5.69
CAS108	1.0417	100.00	0.38	18.68	2.24	0.78
OHP101	1.1951	110.00	0.42	7.6	0.91	0.89
SCA303	8.8571	126.00	0.48	9.5	1.14	6.62
ILA164	3.6290	172.00	0.65	11.66	1.40	2.71
OHA065	1.1951	214.13	0.81	18.68	2.24	0.89
WAA300	2.1667	220.00	0.83	3	0.36	1.62
MIR073	1.1951	224.42	0.85	26.7	3.20	0.89
VAB304	1.8571	225.00	0.85	20	2.40	1.39
FLC181	3.6290	269.27	1.02	14.85	1.78	2.71
NJB130	1.0000	297.00	1.12	18.68	2.24	0.75
FLD202	1.2143	300.00	1.14	2	0.24	0.91
FLB245	1.0000	330.00	1.25	18.68	2.24	0.75
NCA016	4.0476	330.00	1.25	20	2.40	3.02
WIM326	2.2500	330.00	1.25	10	1.20	1.68
NCS213	1.2143	374.03	1.42	2.77	0.33	0.91
WVC312	8.8571	374.03	1.42	0.51	0.06	6.62
MOT133	1.0000	448.00	1.70	9	1.08	0.75
WAP334	2.2500	450.00	1.70	5	0.60	1.68
CAV121	1.0417	470.00	1.78	13	1.56	0.78
LAC036	4.0476	500.00	1.89	12	1.44	3.02
TXI322	1.0000	550.00	2.08	10	1.20	0.75
ILN089	1.1951	600.00	2.27	18.7	2.24	0.89
ARN235	1.0500	668.00	2.53	2	0.24	0.78
CAV121	1.0417	805.00	3.05	13	1.56	0.78
ORT341	8.8571	917.00	3.47	9.11	1.09	6.62
WAA300	2.1667	1,100.00	4.16	10.9	1.31	1.62
PAU344	1.0000	1,543.00	5.84	19.18	2.30	0.75
FLS072	1.1951	1,560.00	5.91	22.5	2.70	0.89
MOM069	1.1951	1,660.00	6.28	10.06	1.21	0.89
ILB249	1.0000	1,980.00	7.50	5.45	0.65	0.75
CAS114	1.0417	2,053.33	7.77	6	0.72	0.78
ILG097	1.1951	2,066.67	7.82	15	1.80	0.89
FLJ083	1.1951	2,236.67	8.47	18.63	2.23	0.89
KYK066+KYM079+KYP247*	1.1951	2,289.93	8.67	10.78	1.29	0.89
MIU094	1.1951	2,857.14	10.82	1.82	0.22	0.89
LAP197	1.2143	3,545.23	13.42	8.18	0.98	0.91
ILB249	1.0000	4,039.00	15.29	9.5	1.14	0.75
NYS123	1.0417	4,076.88	15.43	14.94	1.79	0.78

Table D-1a. Discrete Waste Volume Distribution Using Original Weights for Combined Solids

Facility ID	Weighting Factor	Volume (gal/yr)	Volume (m3/yr)	Bulk Density (lb/gal)	Bulk Density (g/cm3)	Percent Weight (%)
NYS088	1.1951	4,523.31	17.12	14.37	1.72	0.89
MOM069	1.1951	5,260.00	19.91	10.02	1.20	0.89
SCT342	2.1667	7,180.25	27.18	13.93	1.67	1.62
MDB113	1.0417	7,650.00	28.96	9	1.08	0.78
GAT237	1.0500	13,459.88	50.95	5.2	0.62	0.78
WAP334	2.2500	15,072.00	57.05	11	1.32	1.68
CAS114	1.0417	15,935.50	60.32	12	1.44	0.78
MOT099	1.1951	19,099.00	72.30	9.8	1.17	0.89
NCA016	4.0476	43,266.00	163.78	20.15	2.41	3.02
TNV346	7.6154	67,000.00	253.62	3	0.36	5.69
ILP084	1.1951	128,150.00	485.10	19.59	2.35	0.89
TXV345	1.0000	426,738.53	1,615.38	12.16	1.46	0.75

* These three facilities all send their waste to the same landfill. Therefore, they were combined, and the highest weight of the three was used.

Table D-1b. Discrete Waste Volume Distribution Using Original Weights for Emission Control Dust

Facility ID	Weighting Factor	Volume (gal/yr)	Volume (m3/yr)	Bulk Density (lb/gal)	Bulk Density (g/cm3)	Percent Weight (%)
MNC095	1.1951	40.00	0.15	30	3.59	2.36
ILS230	1.0500	45.00	0.17	27	3.24	2.08
PAV347	1.0000	55.00	0.21	18.68	2.24	1.98
NYS123	1.0417	82.29	0.31	12	1.44	2.06
CAS108	1.0417	100.00	0.38	18.68	2.24	2.06
ILA164	3.6290	172.00	0.65	11.66	1.40	7.18
OHA065	1.1951	214.13	0.81	18.68	2.24	2.36
WAA300	2.1667	220.00	0.83	3	0.36	4.28
MIR073	1.1951	224.42	0.85	26.7	3.20	2.36
NJB130	1.0000	297.00	1.12	18.68	2.24	1.98
FLD202	1.2143	300.00	1.14	2	0.24	2.40
FLB245	1.0000	330.00	1.25	18.68	2.24	1.98
WIM326	2.2500	330.00	1.25	10	1.20	4.45
ILG097	1.1951	400.00	1.51	15	1.80	2.36
WAP334	2.2500	450.00	1.70	5	0.60	4.45
TXI322	1.0000	550.00	2.08	10	1.20	1.98
ILN089	1.1951	600.00	2.27	18.7	2.24	2.36
FLJ083	1.1951	643.32	2.44	3.6	0.43	2.36
ARN235	1.0500	668.00	2.53	2	0.24	2.08
PAU344	1.0000	907.00	3.43	22.1	2.65	1.98
FLS072	1.1951	1,560.00	5.91	22.5	2.70	2.36
NCA016	4.0476	1,920.00	7.27	22	2.64	8.00
ILB249	1.0000	1,980.00	7.50	5.45	0.65	1.98
CAS114	1.0417	2,053.33	7.77	6	0.72	2.06
KYK066+KYM079+KYP247*	1.1951	2,289.93	8.67	10.78	1.29	2.36
MIU094	1.1951	2,857.14	10.82	1.82	0.22	2.36
SCT342	2.1667	3,211.99	12.16	18.68	2.24	4.28
TXV345	1.0000	5,000.00	18.93	18.68	2.24	1.98
GAT237	1.0500	8,196.72	31.03	2.44	0.29	2.08
TNV346	7.6154	58,333.33	220.82	3	0.36	15.06
ILP084	1.1951	78,650.00	297.72	25	3.00	2.36

* These three facilities all send their waste to the same landfill. Therefore, they were combined, and the highest weight of the three was used.

Table D-2a. Discrete Waste Volume Distribution Using Modified Weights Based on 884 Facilities for Combined Solids

Facility ID	Weighting Factor	Volume (gal/yr)	Volume (m3/yr)	Bulk Density (lb/gal)	Bulk Density (g/cm3)	Percent Weight (%)
ALP135	4.3361	5.00	0.02	12	1.44	3.78
WIN332	4.9405	5.00	0.02	12.34	1.48	4.30
MNC095	1.2831	40.00	0.15	30	3.59	1.12
ILS230	1.0500	45.00	0.17	27	3.24	0.91
PAV347	1.0000	55.00	0.21	18.68	2.24	0.87
KSD052	4.4497	69.79	0.26	8.32	1.00	3.87
WAE315	5.0867	74.81	0.28	20	2.40	4.43
CAS108	1.2308	100.00	0.38	18.68	2.24	1.07
OHP101	1.2831	110.00	0.42	7.6	0.91	1.12
SCA303	4.4497	126.00	0.48	9.5	1.14	3.87
ILA164	3.9054	172.00	0.65	11.66	1.40	3.40
OHA065	1.2831	214.13	0.81	18.68	2.24	1.12
WAA300	1.4080	220.00	0.83	3	0.36	1.23
MIR073	1.2831	224.42	0.85	26.7	3.20	1.12
VAB304	1.2831	225.00	0.85	20	2.40	1.12
FLC181	5.0867	269.27	1.02	14.85	1.78	4.43
NJB130	1.0000	297.00	1.12	18.68	2.24	0.87
FLD202	1.4080	300.00	1.14	2	0.24	1.23
FLB245	1.0000	330.00	1.25	18.68	2.24	0.87
NCA016	5.4610	330.00	1.25	20	2.40	4.75
WIM326	1.2308	330.00	1.25	10	1.20	1.07
NCS213	1.4080	374.03	1.42	2.77	0.33	1.23
WVC312	4.4497	374.03	1.42	0.51	0.06	3.87
MOT133	1.0000	448.00	1.70	9	1.08	0.87
WAP334	1.2308	450.00	1.70	5	0.60	1.07
CAV121	1.2308	470.00	1.78	13	1.56	1.07
LAC036	4.4497	500.00	1.89	12	1.44	3.87
TXI322	1.0500	550.00	2.08	10	1.20	0.91
ILN089	1.2831	600.00	2.27	18.7	2.24	1.12
ARN235	1.0500	668.00	2.53	2	0.24	0.91
CAV121	1.2308	805.00	3.05	13	1.56	1.07
ORT341	4.4497	917.00	3.47	9.11	1.09	3.87
WAA300	1.4080	1,100.00	4.16	10.9	1.31	1.23
PAU344	1.0500	1,543.00	5.84	19.18	2.30	0.91
FLS072	1.2831	1,560.00	5.91	22.5	2.70	1.12
MOM069	1.2831	1,660.00	6.28	10.06	1.21	1.12
ILB249	1.0000	1,980.00	7.50	5.45	0.65	0.87
CAS114	1.2308	2,053.33	7.77	6	0.72	1.07
ILG097	1.2831	2,066.67	7.82	15	1.80	1.12
FLJ083	1.2831	2,236.67	8.47	18.63	2.23	1.12
KYK066+KYM079+KYP247*	1.2831	2,289.93	8.67	10.78	1.29	1.12
MIU094	1.2831	2,857.14	10.82	1.82	0.22	1.12
LAP197	1.4080	3,545.23	13.42	8.18	0.98	1.23
ILB249	1.0000	4,039.00	15.29	9.5	1.14	0.87
NYS123	1.2308	4,076.88	15.43	14.94	1.79	1.07

Table D-2a. Discrete Waste Volume Distribution Using Modified Weights Based on 884 Facilities for Combined Solids

Facility ID	Weighting Factor	Volume (gal/yr)	Volume (m3/yr)	Bulk Density (lb/gal)	Bulk Density (g/cm3)	Percent Weight (%)
NYS088	1.2831	4,523.31	17.12	14.37	1.72	1.12
MOM069	1.2831	5,260.00	19.91	10.02	1.20	1.12
SCT342	1.4080	7,180.25	27.18	13.93	1.67	1.23
MDB113	1.2308	7,650.00	28.96	9	1.08	1.07
GAT237	1.0500	13,459.88	50.95	5.2	0.62	0.91
WAP334	1.2308	15,072.00	57.05	11	1.32	1.07
CAS114	1.2308	15,935.50	60.32	12	1.44	1.07
MOT099	1.2831	19,099.00	72.30	9.8	1.17	1.12
NCA016	5.4610	43,266.00	163.78	20.15	2.41	4.75
TNV346	4.7929	67,000.00	253.62	3	0.36	4.17
ILP084	1.2831	128,150.00	485.10	19.59	2.35	1.12
TXV345	1.0000	391,943.81	1,483.67	12.16	1.46	0.87

* These three facilities all send their waste to the same landfill. Therefore, they were combined, and the highest weight of the three was used.

Table D-2b. Discrete Waste Volume Distribution Using Modified Weights Based on 884 Facilities for Emission Control Dust

Facility ID	Weighting Factor	Volume (gal/yr)	Volume (m3/yr)	Bulk Density (lb/gal)	Bulk Density (g/cm3)	Percent Weight (%)
MNC095	1.2831	40.00	0.15	30	3.59	2.69
ILS230	1.0500	45.00	0.17	27	3.24	2.21
PAV347	1.0000	55.00	0.21	18.68	2.24	2.10
NYS123	1.2308	82.29	0.31	12	1.44	2.58
CAS108	1.2308	100.00	0.38	18.68	2.24	2.58
ILA164	3.9054	172.00	0.65	11.66	1.40	8.20
OHA065	1.2831	214.13	0.81	18.68	2.24	2.69
WAA300	1.4080	220.00	0.83	3	0.36	2.96
MIR073	1.2831	224.42	0.85	26.7	3.20	2.69
NJB130	1.0000	297.00	1.12	18.68	2.24	2.10
FLD202	1.4080	300.00	1.14	2	0.24	2.96
FLB245	1.0000	330.00	1.25	18.68	2.24	2.10
WIM326	1.2308	330.00	1.25	10	1.20	2.58
ILG097	1.2831	400.00	1.51	15	1.80	2.69
WAP334	1.2308	450.00	1.70	5	0.60	2.58
TXI322	1.0500	550.00	2.08	10	1.20	2.21
ILN089	1.2831	600.00	2.27	18.7	2.24	2.69
FLJ083	1.2831	643.32	2.44	3.6	0.43	2.69
ARN235	1.0500	668.00	2.53	2	0.24	2.21
PAU344	1.0500	907.00	3.43	22.1	2.65	2.21
FLS072	1.2831	1,560.00	5.91	22.5	2.70	2.69
NCA016	5.4610	1,920.00	7.27	22	2.64	11.47
ILB249	1.0000	1,980.00	7.50	5.45	0.65	2.10
CAS114	1.2308	2,053.33	7.77	6	0.72	2.58
KYK066+KYM079+KYP247*	1.2831	2,289.93	8.67	10.78	1.29	2.69
MIU094	1.2831	2,857.14	10.82	1.82	0.22	2.69
SCT342	1.4080	3,211.99	12.16	18.68	2.24	2.96
TXV345	1.0000	5,000.00	18.93	18.68	2.24	2.10
GAT237	1.0500	8,196.72	31.03	2.44	0.29	2.21
TNV346	4.7929	58,333.33	220.82	3	0.36	10.07
ILP084	1.2831	78,650.00	297.72	25	3.00	2.69

* These three facilities all send their waste to the same landfill. Therefore, they were combined, and the highest weight of the three was used.

Table D-3a. Discrete Waste Volume Distribution Using Modified Weights Based on 1544 Facilities for Combined Solids

Facility ID	Weighting Factor	Volume (gal/yr)	Volume (m3/yr)	Bulk Density (lb/gal)	Bulk Density (g/cm3)	Percent Weight (%)
ALP135	6.5531	5.00	0.02	12	1.44	3.37
WIN332	7.4664	5.00	0.02	12.34	1.48	3.83
MNC095	1.8092	40.00	0.15	30	3.59	0.93
ILS230	1.4144	45.00	0.17	27	3.24	0.73
PAV347	3.0833	55.00	0.21	18.68	2.24	1.58
KSD052	6.4975	69.79	0.26	8.32	1.00	3.34
WAE315	8.5512	74.81	0.28	20	2.40	4.39
CAS108	1.6428	100.00	0.38	18.68	2.24	0.84
OHP101	1.8092	110.00	0.42	7.6	0.91	0.93
SCA303	6.4975	126.00	0.48	9.5	1.14	3.34
ILA164	5.7027	172.00	0.65	11.66	1.40	2.93
OHA065	1.8092	214.13	0.81	18.68	2.24	0.93
WAA300	1.9362	220.00	0.83	3	0.36	0.99
MIR073	1.8092	224.42	0.85	26.7	3.20	0.93
VAB304	1.8092	225.00	0.85	20	2.40	0.93
FLC181	8.5512	269.27	1.02	14.85	1.78	4.39
NJB130	3.0833	297.00	1.12	18.68	2.24	1.58
FLD202	1.9362	300.00	1.14	2	0.24	0.99
FLB245	3.0833	330.00	1.25	18.68	2.24	1.58
NCA016	13.3996	330.00	1.25	20	2.40	6.88
WIM326	1.6428	330.00	1.25	10	1.20	0.84
NCS213	1.9362	374.03	1.42	2.77	0.33	0.99
WVC312	6.4975	374.03	1.42	0.51	0.06	3.34
MOT133	3.0000	448.00	1.70	9	1.08	1.54
WAP334	1.6428	450.00	1.70	5	0.60	0.84
CAV121	1.6428	470.00	1.78	13	1.56	0.84
LAC036	6.4975	500.00	1.89	12	1.44	3.34
TXI322	1.4144	550.00	2.08	10	1.20	0.73
ILN089	1.8092	600.00	2.27	18.7	2.24	0.93
ARN235	1.4144	668.00	2.53	2	0.24	0.73
CAV121	1.6428	805.00	3.05	13	1.56	0.84
ORT341	6.4975	917.00	3.47	9.11	1.09	3.34
WAA300	1.9362	1,100.00	4.16	10.9	1.31	0.99
PAU344	1.4144	1,543.00	5.84	19.18	2.30	0.73
FLS072	1.8092	1,560.00	5.91	22.5	2.70	0.93
MOM069	1.8092	1,660.00	6.28	10.06	1.21	0.93
ILB249	3.0833	1,980.00	7.50	5.45	0.65	1.58
CAS114	1.6428	2,053.33	7.77	6	0.72	0.84
ILG097	1.8092	2,066.67	7.82	15	1.80	0.93
FLJ083	1.8092	2,236.67	8.47	18.63	2.23	0.93
KYK066+KYM079+KYP247*	3.0833	2,289.93	8.67	10.78	1.29	1.58
MIU094	1.8092	2,857.14	10.82	1.82	0.22	0.93
LAP197	1.9362	3,545.23	13.42	8.18	0.98	0.99
ILB249	3.0833	4,039.00	15.29	9.5	1.14	1.58
NYS123	1.6428	4,076.88	15.43	14.94	1.79	0.84

Table D-3a. Discrete Waste Volume Distribution Using Modified Weights Based on 1544 Facilities for Combined Solids

Facility ID	Weighting Factor	Volume (gal/yr)	Volume (m3/yr)	Bulk Density (lb/gal)	Bulk Density (g/cm3)	Percent Weight (%)
NYS088	1.8092	4,523.31	17.12	14.37	1.72	0.93
MOM069	1.8092	5,260.00	19.91	10.02	1.20	0.93
SCT342	1.9362	7,180.25	27.18	13.93	1.67	0.99
MDB113	1.6428	7,650.00	28.96	9	1.08	0.84
GAT237	1.4144	13,459.88	50.95	5.2	0.62	0.73
WAP334	1.6428	15,072.00	57.05	11	1.32	0.84
CAS114	1.6428	15,935.50	60.32	12	1.44	0.84
MOT099	1.8092	19,099.00	72.30	9.8	1.17	0.93
NCA016	13.3996	43,266.00	163.78	20.15	2.41	6.88
TNV346	11.7605	67,000.00	253.62	3	0.36	6.04
ILP084	1.8092	128,150.00	485.10	19.59	2.35	0.93
TXV345	3.0833	391,943.81	1,483.67	12.16	1.46	1.58

* These three facilities all send their waste to the same landfill. Therefore, they were combined, and the highest weight of the three was used.

Table D-3b. Discrete Waste Volume Distribution Using Modified Weights Based on 1544 Facilities for Emission Control Dust

Facility ID	Weighting Factor	Volume (gal/yr)	Volume (m3/yr)	Bulk Density (lb/gal)	Bulk Density (g/cm3)	Percent Weight (%)
MNC095	1.8092	40.00	0.15	30	3.59	2.09
ILS230	1.4144	45.00	0.17	27	3.24	1.63
PAV347	3.0833	55.00	0.21	18.68	2.24	3.55
NYS123	1.6428	82.29	0.31	12	1.44	1.89
CAS108	1.6428	100.00	0.38	18.68	2.24	1.89
ILA164	5.7027	172.00	0.65	11.66	1.40	6.57
OHA065	1.8092	214.13	0.81	18.68	2.24	2.09
WAA300	1.9362	220.00	0.83	3	0.36	2.23
MIR073	1.8092	224.42	0.85	26.7	3.20	2.09
NJB130	3.0833	297.00	1.12	18.68	2.24	3.55
FLD202	1.9362	300.00	1.14	2	0.24	2.23
FLB245	3.0833	330.00	1.25	18.68	2.24	3.55
WIM326	1.6428	330.00	1.25	10	1.20	1.89
ILG097	1.8092	400.00	1.51	15	1.80	2.09
WAP334	1.6428	450.00	1.70	5	0.60	1.89
TXI322	1.4144	550.00	2.08	10	1.20	1.63
ILN089	1.8092	600.00	2.27	18.7	2.24	2.09
FLJ083	1.8092	643.32	2.44	3.6	0.43	2.09
ARN235	1.4144	668.00	2.53	2	0.24	1.63
PAU344	1.4144	907.00	3.43	22.1	2.65	1.63
FLS072	1.8092	1,560.00	5.91	22.5	2.70	2.09
NCA016	13.3996	1,920.00	7.27	22	2.64	15.45
ILB249	3.0833	1,980.00	7.50	5.45	0.65	3.55
CAS114	1.6428	2,053.33	7.77	6	0.72	1.89
KYK066+KYM079+KYP247*	3.0833	2,289.93	8.67	10.78	1.29	3.55
MIU094	1.8092	2,857.14	10.82	1.82	0.22	2.09
SCT342	1.9362	3,211.99	12.16	18.68	2.24	2.23
TXV345	3.0833	5,000.00	18.93	18.68	2.24	3.55
GAT237	1.4144	8,196.72	31.03	2.44	0.29	1.63
TNV346	11.7605	58,333.33	220.82	3	0.36	13.56
ILP084	1.8092	78,650.00	297.72	25	3.00	2.09

* These three facilities all send their waste to the same landfill. Therefore, they were combined, and the highest weight of the three was used.