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TETRA TECH

November 8, 2012

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Subject: Site Reassessment Report, Route 66 State Park (formerly known as the Times Beach Dioxin Site), Eureka, Missouri
U.S. EPA Region 7 START 3, Contract No. EP-S7-06-01, Task Order No. 0293
Task Monitor: David Williams, EPA Region 7 On-Scene Coordinator

Dear Mr. Williams:

Tetra Tech EM Inc. is submitting the enclosed Site Reassessment Report regarding the Route 66 State Park site reevaluation activities in Eureka, Missouri. If you have any questions or comments regarding this submittal, please contact the project manager Dave Kinroth at (314) 395-3157.

Sincerely,


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Enclosures

cc: Roy Crossland, START Project Officer (cover letter only)

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US EPA ARCHIVE DOCUMENT

SITE REASSESSMENT REPORT

ROUTE 66 STATE PARK
(formerly known as the Times Beach Dioxin Site)
EUREKA, MISSOURI
CERCLIS ID: MOD980685226

Superfund Technical Assessment and Response Team (START)
Contract No. EP-S7-06-01, Task Order 0293

Prepared For:

U.S. Environmental Protection Agency
Region 7
Superfund Division
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November 8, 2012

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1.0 INTRODUCTION

The Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) was tasked by the U.S. Environmental Protection Agency (EPA) Region 7 Superfund Division to assist with development of a Quality Assurance Project Plan (QAPP) for reevaluation sampling of Route 66 State Park (formerly known as the Times Beach Dioxin site) in Eureka, Missouri. This investigation was to involve sampling and analysis of soil to characterize the site for any potential contamination from 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and related dioxins and furans at concentrations that may pose a threat to human health and the environment. The QAPP identified site-specific features and addresses elements of the sampling strategy and analytical methods proposed for the reevaluation. Upon approval of the QAPP, START was tasked to assist with sampling efforts including: procurement of subcontract laboratory services for analysis of the samples by Method 1613B for dioxin toxicity equivalents (TEQ) dioxin/furan compounds; sample collection, processing, and packaging for delivery to the laboratory; and sample data management. START was requested to provide the sample data in a suitable electronic data deliverable (EDD) format, and to prepare an overall site reassessment/reevaluation report documenting site activities and current site conditions regarding detected concentrations of dioxin TEQ compounds on site.

2.0 SITE LOCATION

The Route 66 State Park encompasses approximately 1 square mile, about 20 miles southwest of St. Louis near Eureka, Saint Louis County, Missouri (see Appendix A, Figure 1). The geographic coordinates of the approximate center of the site are 38.50833 degrees north latitude and 90.60166 degrees west longitude.

3.0 SITE DESCRIPTION

The former Times Beach site has been developed as Route 66 State Park. Currently, the park consists of a visitor center/museum; picnic areas and shelters; restrooms; and hiking, biking, and equestrian trails. Most of the site lies within the 25-year floodplain of the Meramec River. The population within a 0.5-mile radius of the site is approximately 2,000 and includes the community of Crescent and a portion of Eureka. The site is within a mixed-use residential and agricultural area (EPA 2010a).

4.0 SITE HISTORY

The Times Beach site was formerly an incorporated city (Times Beach) where unpaved roads were sprayed with waste oil for dust control in the early 1970s. An investigation by EPA in 1982 revealed that the oil was contaminated with dioxin. During the same period, the nearby Meramec River flooded the City of Times Beach, and residents were forced to evacuate their homes. Following the 1982 flood, the Centers for Disease Control (CDC) recommended permanent relocation of the residents who had been evacuated, as well as those who had remained or returned. In 1983, EPA transferred funds to the Federal Emergency Management Agency (FEMA) for permanent relocation of residents and businesses. By the end of 1986, all residents had been relocated. Upon completion of the permanent relocation, title to the site was conveyed to the State of Missouri. Comprehensive assessment and cleanup of the site was completed by 1997, including excavation and on-site incineration of dioxin-contaminated soils. The site was then developed as the current Route 66 State Park, which opened in 1999 (EPA 2010a).

5.0 PREVIOUS INVESTIGATIONS/REMEDIAL ACTIONS

In November and early December 1982, EPA sampled roads and right-of-ways in the City of Times Beach. EPA expedited the sample analyses and found dioxin at levels from less than 1 part per billion (ppb) up to 127 ppb. Soon afterward, the Meramec River flooded the City. As a result, CDC issued a health advisory on December 23, 1982, recommending that people who had relocated from Times Beach due to the flooding should stay away, and that those remaining should leave. In January 1983, EPA sampled soils to determine if floodwaters had spread contamination to residential properties within the community (EPA 1983).

In 1983, EPA prepared a Remedial Action Master Plan outlining the investigations needed to determine the full extent of cleanup required at Times Beach. Subsequent remedial action for the site included:

Relocation: This phase addressed permanent relocation of residents and businesses, and acquisition of all remaining properties. In 1983, EPA provided \$30 million to FEMA to conduct this phase of the cleanup. FEMA, the State of Missouri, the trustee for the former City of Times Beach, and St. Louis County entered into a four-party contract for permanent relocation. By the end of 1986, all residents had been relocated permanently. Ownership of the properties has been conveyed to the State, in accordance with the four-party agreement (EPA 2010a).

Stabilization: To stabilize the site and limit erosion of contaminated soils, spur levees were constructed to control water velocity during future flooding. In 1985, EPA raised an existing levee constructed by the

Missouri Highway Department as the first phase of the three-phase spur levee project. In 1989, the second and third phases of the spur levee project were completed.

Cleanup of Soil, Structures, and Debris: This phase of the cleanup included excavation and thermal treatment of contaminated soil, and disposal of structures and debris. Cleanup activities included: demolition and disposal of uncontaminated structures and debris in a manner meeting solid waste disposal requirements; construction of a ring levee to protect a temporary thermal treatment unit from a 100-year flood; mobilization of a temporary transportable thermal treatment unit to Times Beach; excavation of all dioxin-contaminated soils at Times Beach exceeding levels that presented a threat to human health and the environment; thermal treatment of excavated soils to destroy contaminants; and on-site disposal of treatment residue (ash) in a manner meeting solid waste management requirements. Under the terms of a 1990 Consent Decree, EPA was responsible for excavation and transportation to Times Beach of dioxin-contaminated soils from 27 eastern Missouri sites. The potentially responsible parties were responsible for demolition and disposal of structures and debris, operation of the thermal treatment facility, and restoration of the site. Design and construction activities involved in demolition and disposal of uncontaminated structures and debris were completed in 1992. Excavation and interim on-site storage of dioxin-contaminated soils pending final treatment were completed in fall 1994. Operation of an on-site incinerator to treat dioxin-contaminated wastes (including material excavated from other sites in Missouri) began in March 1996 and was completed in June 1997. In all, more than 265,000 tons of dioxin-contaminated material from 27 eastern Missouri dioxin sites was transported to the Times Beach incinerator for treatment. Following its operation, the incinerator was demobilized, and the site was restored to a State Park.

6.0 SITE REASSESSMENT SAMPLING ACTIVITIES

Reevaluation of the former Times Beach site was deemed necessary to determine if conditions remain protective for visitors and workers at the park, in consideration of a newly released dioxin reference screening dose (RfD). The purpose of this investigation is to build upon the available data and information generated during previous studies and removal actions, to establish a comprehensive data set that will support a valid assessment of human health risks to park visitors and workers, and to serve as a pilot study for characterization of contamination patterns and variability along roadways and at former residential lots. The purpose of the pilot study is to improve understanding of contaminant distribution in these areas.

Proposed sampling was to occur within the following seven areas of interest at the Route 66 State Park property:

- Background Areas/South Outer Road (SOR)
- Public Use Areas (PUA) including picnic areas and shelters, playground, and proposed dog park area
- Park trails and trail margins
- Along three underground utility lines and three aboveground utility areas
- Two outfalls on the Meramec River
- Along selected roadways
- Selected former residential lots.

The investigation was to include collection of surface soil samples using an incremental sampling protocol (described below).

EPA obtained access to the site from the State, and sampling was conducted in June 2012. Field activities (June 1 to June 21, 2012) included initial marking and delineation of sampling cells/decision units (DU), sample collection, processing and submittal of samples to the lab, and surveying of defined sample areas for production of site maps by EPA Geographic Information System (GIS) mapping personnel. A team of Tetra Tech START team members (STM) and EPA Region 7 staff performed the activities described in this report.

Where applicable, the standard operating procedures (SOP) and chain-of-custody (COC) procedures specified in the QAPP were followed throughout the sampling activities to maintain the integrity of the samples from the time of collection until submittal to the laboratory for analysis. Disposal of investigation-derived wastes (IDW) and procedures for equipment and personal decontamination were addressed in the site-specific Health and Safety Plans (HASP) prepared by EPA and START. Most IDW consisted of disposable sampling supplies (gloves, paper towels, etc.), and was disposed of off site as uncontaminated solid waste in the EPA or START office dumpsters.

Surface soil samples were collected using an incremental sampling strategy involving collection of many increments from a defined area that are composited for analysis. In this strategy, composite samples representing an entire decision unit (DU) undergo an initial analysis. Analyses of retained collected soil samples from smaller quadrants (sampling units [SU]) within the DU are to occur if the overall DU

sample exceeds a level of concern. This approach provides greater assurance than collection of discrete samples that potential hot spots are not missed, because many sample increments are collected across the entire DU and combined for analysis. This approach involves more resource-intensive sample collection, but economizes analytical costs because samples collected from smaller quadrants within larger DUs are analyzed only if the initial sample representing the entire DU indicates potential presence of contamination exceeding a level of concern.

Incremental soil sampling involves use of techniques to ensure that the sample collection procedures provide data that are scientifically appropriate for the project. A suite of reference SOPs of sample collection and processing techniques is applied that addresses heterogeneity of soil contamination to ensure correct decision making. Incremental-based sample processing reduces the chance of misleading results stemming from sample heterogeneity (as measured by laboratory duplicates and split samples). At larger spatial scales on the order of many square yards to acres, incremental soil sampling addresses field heterogeneity and sample-to-sample variation via high-density sample (increment) collection.

The sample collection and processing techniques are described in the *User Guide – Uniform Federal Policy QAPP Template for Soils Assessment of Dioxin Sites* (September 2011). All surface soil samples were collected from 0 to 2 inches below ground surface (bgs), using clean, dedicated, stainless steel spoons or equivalent sampling tools; placed in clean, disposable aluminum pie pans; and manually disaggregated by hand. Particle sizes in the disaggregated samples ranged approximately from 2 to 10 millimeters. Samples were not sieved (except for a small subset of samples to be discussed later) because decontamination procedures applied to sieved samples would not have been adequate to eliminate trace contamination at the detection level (approximately 1 to 10 parts per trillion [ppt]). The soil samples were allowed to completely air dry. They were then homogenized and processed using what is known as the “Japanese Slabcake Method” prior to sample packaging. To eliminate laboratory sub-sampling errors, the sample quantity provided to the laboratory in 4-ounce (oz.) amber glass jars was limited to approximately 15 grams of soil (as weighed on a digital tabletop scale in the field). The lab was instructed to use the entire volume of sample for extraction for analysis. Pertinent data, including sample locations and analyses to be performed, were recorded on a field sheet for each sample. Sketches of the DUs indicating sample locations were prepared in the field, and all sampling areas were subsequently surveyed by EPA GIS mapping personnel for production of the site maps documenting the sampling locations (see Appendix A, Figures 1-8). The 32 surveyed DU areas, numbered 1 to 32, are depicted on these figures and referenced in the remainder of this report.

Appropriate containers and physical/chemical preservation techniques were employed during the field activities to help ensure acquisition of representative analytical results. All samples were maintained at or below a temperature of 4 degrees Celsius (°C) until they were submitted to the START-contracted laboratory (Cape Fear Analytical LLC [CFA] in Wilmington, North Carolina). Submittal of all samples collected during this effort was completed by June 21, 2012. All samples were analyzed according to SOPs and methods (1613B Dioxin TEQ dioxin/furan compounds) presented in the QAPP. Standard turnaround times (3 weeks) and detection limits (1 to 10 ppt) specified by those methods were adequate for this project.

6.1 BACKGROUND SAMPLES/SOUTH OUTER ROAD AREAS

Surface soil samples were collected from two former residential lots and from four roadway shoulder strip DUs on the south side of the road shoulder along a segment of the SOR (see Figure 2, Appendix A). This area was considered a potential “background” area on site because (1) it was paved with concrete and (2) the SOR is believed to have been unaffected by spraying with the dioxin-contaminated waste oil in the 1970s. This “background” sampling was conducted to allow comparisons to site-specific contaminant concentrations, and to add to the database of local and regional dioxin background levels—important information because Superfund response authority is limited to areas where contamination exceeds background or naturally occurring levels.

Surface soil samples were collected from the two former residential lots (DUs 1 and 2) near the SOR using an incremental soil sampling approach. Selection of these lots during the investigation was based on historical data and accessibility (see Figure 2, Appendix A). Each former residential lot (approximately 100 by 100 feet) was considered a DU and divided into four SUs or quadrants (approximately 50 by 50 feet). A composite sample consisting of nine increments was collected in each quadrant and processed as described in Section 6.0. The samples from the quadrants were transferred to 4-oz. jars and stored. A portion of the sample collected from each quadrant was combined and homogenized to represent one composite sample for the entire DU. The overall DU incremental composite samples were transferred to 4-oz. jars and submitted to the contracted laboratory for analysis for 1613B dioxin/furan TEQ compounds.

Soil samples were also collected from four roadway shoulder DUs—four sections (DUs 3A through 3D—each 10 feet wide by 1000 feet long) on the south side of the road shoulder along a segment of the SOR (see Figure 2, Appendix A). Along each “background” roadway segment DU, one 30-increment composite sample was collected. Increments were collected at equally spaced (linear) locations along the

entire length of the DUs. After processing as described in Section 6.0, each 30-increment composite sample was transferred to a 4-oz. jar and submitted to the contracted laboratory for analysis for 1613B dioxin/furan TEQ compounds.

6.2 PUBLIC USE AREAS

PUsAs included surface soils at the playground, areas surrounding the playground, the proposed off-leash dog park area, the main picnic areas, and the Dogwood and Forest picnic shelters. These areas were also sampled using an incremental approach (designated as DUs 4 through 11, as depicted on Figures 3 through 6 in Appendix A). The mulched area of the playground was sampled as one DU (9), the strip areas surrounding the mulched area of the playground constituted another DU (10), the proposed dog park was sampled as one DU (11), the Dogwood and Forest Shelters were each sampled as individual DUs (4 and 5, respectively), and the picnic area was divided into three DUs (6, 7, and 8). The layout or orientation of each DU area was determined in the field, and each DU was divided into SUs/quadrants. A composite sample consisting of nine increments was collected from each SU/quadrant. After processing as described in Section 6.0, the samples from each quadrant were transferred to 4-oz. jars and stored. A portion of each sample collected from the SUs/quadrants was combined and homogenized to represent one composite sample for the entire DU. Each DU sample was then transferred to a 4-oz. jar and submitted to the contracted laboratory for analysis for 1613B dioxin/furan TEQ compounds.

6.3 PARK TRAILS

A modification to the sampling design specified in the QAPP for the park trails was implemented in the field because the soil under the gravel pathways and along the trail shoulders was extremely hard. Because of this condition, the length of the trail segments sampled was reduced from the proposed 1,000 feet, the number of increments per sample was reduced, and only one sample (instead of three) was collected under the packed gravel at the center of the trail segments sampled. Park trails were sampled by selecting 500-foot-long sampling areas along paths and path shoulders from each of the four designated trail segments identified on Figures 3, 6, and 8 in Appendix A. Trail segments sampled included portions of the West Trail (DUs 12, 12A, 12B, 12C), the “Park” (DUs 13 and 13A-C) and “Beach” (DUs 14 and 14A-C) interior loop trails, and the “Riverside” exterior loop trail (DUs 15 and 15A-C), as indicated in the figures. Each trail center segment represented one DU, and three sections from both sides of each trail segment (trail shoulder or margin sections) were combined to form one DU each. The width of each trail margin section was about half of the width of the trail. One 10-increment composite sample was collected at equally spaced, linear increment locations from the trail center segments, and three

20-increment composite samples (A, B and C segments) were collected from both sides of the shoulder areas combined. Therefore, each trail area consisted of four DU samples; one 10-increment composite sample from the center section, and three 20-increment composite samples from the shoulder sections (as depicted in Appendix A, Figures 3, 6, and 8). After processing as described above, a portion of each composite sample was combined and homogenized to represent one composite sample for the entire DU. Each DU sample was transferred to a 4-oz. jar and submitted to the contracted laboratory for analysis for 1613B dioxin/furan TEQ compounds.

6.4 UNDERGROUND UTILITY LINES

Areas where underground utility lines had been installed under previously remediated roadways were divided into three DUs (each approximately 630 to 1,000 feet in length) for surface soil sampling (DUs 18, 19, and 20—see Figures 3 and 4, Appendix A). Three 30-increment composites from each DU (designated as A, B and C segments for each DU) were collected at equally spaced (linear) locations along the utility lines. In addition, an incremental composite surface soil sample was collected from three areas of high soil disturbance (designated as DU 21, where several aboveground utility boxes and manhole accesses are near the south end of the main picnic area and behind the Forest and Dogwood shelters). These areas were designated three SUs, and a composite sample consisting of nine increments was collected from each SU (see Figures 3, 4, and 6, Appendix A). After processing as described in Section 6.0, the nine-increment composite samples were transferred to 4-oz. jars. A portion of each sample collected from the three SUs was combined and disaggregated to represent one composite sample for the entire DU (21). This DU sample was transferred to one 4-oz. jar and submitted to the contracted laboratory for analysis for 1613B dioxin/furan TEQ compounds. Each 30-increment linear composite sample for DUs 18, 19 and 20 (nine samples total) was transferred to a 4-oz. jar and submitted for analysis for dioxin/furan TEQ compounds.

6.5 OUTFALLS

Sediment/soil samples were collected at the two outfalls where stormwater surface runoff from the site discharges to the Meramec River (DUs 16 and 17—see Figures 3 and 7, Appendix A). A five-point composite sample was collected from 0 to 6 inches bgs within the depositional area under each outfall, using a clean, dedicated, stainless steel spoon, or equivalent. Each five-point composite sample consisted of five increments collected in a “4 corners and 1 center” configuration over a 4-square-foot area below the outfall. After processing as described in Section 6.0, the samples were transferred to 4-oz. jars and submitted to the contracted laboratory for analysis for 1613B dioxin/furan TEQ compounds.

6.6 FORMER ROADWAYS

Sampling was conducted along three roadway segments on site (each ranging from approximately 600 to 1,000 feet in length) that were selected in the field. The roadway segments included: the former Grove Roadway segment between former Orchid and Woodland Roads (approximately 1,000 feet), the former Oak Roadway segment from Dahlia to Blakey (approximately 750 feet), and the former Maple Roadway segment from Dahlia to Beach (approximately 600 feet) (see Figures 7 and 8, Appendix A). Selection of roadway segments was based on accessibility (avoiding areas of saturated ground, standing water, vegetative overgrowth, etc.) and historical pre-remediation contaminant concentrations (selecting a representative range of roadway segments with moderate and more elevated pre-remediation concentrations).

Samples were collected from eight strip DU sections paralleling both sides of each roadway segment (four sections on each side of the roadway segments), for a total of 24 DU samples. At two of the roadway segments (Grove, DUs 22A to 22H, and Oak, 23A to 23H), the section widths were 10 feet each. At the third roadway segment (Maple, DUs 24A to 24H), section widths were 20 feet each. Selection of the Maple roadway segment with 20-foot-wide segments was based on more elevated pre-remediation contaminant concentrations and opportunity for off-road migration (terrain, slope, vegetation, etc.). The former roadway beds themselves were not sampled, because they had previously been capped with clean soil during the remedial actions. The sampling strip sections began approximately 5 feet outside the road cap areas (based on visual assessment). This provided a buffer zone between the road cap and the sampling sections in an effort to ensure native soil would be sampled and not the soil used for the road cap.

At the Grove and Oak roadway segments, one 30-increment composite sample was collected at equally spaced (linear) locations along each DU, as shown on Figures 7 and 8 of Appendix A. At the Maple roadway segment, one 30-increment composite sample was collected at equally spaced locations along the DUs on the south side of the roadway segment. On the north side of the Maple roadway segment, three 10-increment surface soil samples (replicate samples) were collected in each of the four DU strips. In addition, six five-point discrete area composite samples were collected from locations evenly spaced along one DU (24F) on the north side of Maple. Each five-point composite sample consisted of five increments in a “4 corners and 1 center” configuration, covering a 4-square-foot area. The more intensive sampling was performed along the north side of the Maple roadway to further assess distribution patterns and variability of potential residual contaminant levels. This roadside sampling area was selected based on more elevated pre-remediation contaminant concentrations, accessibility, and opportunity for off-road

migration. After processing as described previously, the samples from each five-point composite, each 10-increment sample, and each 30-increment composite sample were transferred to 4-oz. jars and submitted to the laboratory for analysis of 1613B dioxin/furan TEQ compounds.

6.7 FORMER RESIDENTIAL LOTS

Surface soil from eight former residential lots was also sampled using an incremental soil sampling approach. The lots were selected during the investigation, based on historical data, location relative to former sprayed roadways, and accessibility. Each lot was considered a DU (approximately 100 by 100 feet each). The DUs were divided into four SUs as described previously. These eight former residential lots/DUs included: DU 25, a lot at the southwest corner of Forest and Orchid; DU 26, on the north side of Grove 250 feet west of Orchid; DU 27, southwest corner of Ivy and Park; DU 28, northwest corner of Ivy and Park; DU 29, north side of Maple 170 feet east of Dahlia; DU 30, south side of Maple 170 feet east of Dahlia; DU 31, north side of Oak about 200 feet east of Dahlia; and DU 32, on the north side of Oak about 300 feet east of Dahlia (see Figures 5, 7 and 8, Appendix A). A composite sample consisting of nine increments was collected in each SU/quadrant and processed as described in Section 6.0. A triplicate set of samples was collected from one lot (DU 29) for quality assurance/quality control (QA/QC) purposes, and to provide further data for assessment of variability of potential residual contaminant levels. The samples from the SUs/quadrants were transferred to 4-oz. jars and stored. Respective portions of each sample collected from the SUs/quadrants were combined and homogenized to represent one composite sample for the entire DU. The overall DU samples were then transferred to 4-oz. jars and submitted to the contracted laboratory for analysis for 1613B dioxin/furan TEQ compounds.

6.8 QA/QC AND PILOT VARIABILITY STUDY SAMPLES

Standard field duplicate soil samples were collected from seven locations during sample collection and processing to cover a range of the sub-area categories sampled across the site, as described in the above sections. One duplicate sample was collected from each of randomly selected DUs at each of the following sub-areas sampled on site: the SOR shoulder strip DU 3D; the Main Picnic Area Northeast DU 8; the Riverside Trail DU 15C; Underground Utilities Lines DU 20C; the surface Utility Areas DU 21; Outfall Area #2 DU 17; and Residential Lot DU 28.

The former roadways “strip sampling” portion of the pilot variability study involved the collection of eight field QC samples. In addition to the original samples collected from the four DUs along the north perimeter of Maple Road, two additional (QC) composite samples were collected at each of these DUs, resulting in a set of 3 “triplicate” samples from each of these DUs. Park trails and underground utility

lines strip sampling also included collection of triplicate field composites along the lengths of each segment. The triplicate sets of field composite samples allowed for determination of total measurement precision (sampling + analytical), expressed as standard deviation (SD). These triplicates were intended to take the place of additional field duplicates. The triplicate data sets would also support calculation of an Upper Confidence Level (UCL) TEQ concentration for a DU, if desired for comparison with site decision point criteria or “action levels” (i.e., the calculated risk assessment Site Screening Levels [SSL] or Levels of Concern [LOC]).

As mentioned previously in Section 6.6, six five-point discrete area composite samples were collected from locations spaced along the 600-foot length of DU 24F on the north side of the Maple roadway. Each five-point composite sample consisted of five increments in a “4 corners and 1 center” configuration, covering a 4-square-foot area. The more intensive sampling was performed along the north side of the Maple roadway to further assess distribution patterns (both perpendicular and parallel to the former roadway) and variability of potential residual contaminant levels. This roadside sampling area was selected based on more elevated pre-remediation contaminant concentrations, accessibility, and opportunity for off-road migration.

Additional samples were collected and analyzed to assess potential sources of data variability at the field sample collection level and at the sample homogenization/processing level. For this purpose, one residential lot (DU 29) was also triplicate-sampled in the field, with one of these field triplicate samples further broken down at the sample processing table into three additional split triplicate samples. Because the final dried and processed sample volume of each sample submitted to the lab during this effort was 15 grams, the laboratory was not instructed to conduct additional sample splits in-house for analysis.

Finally, a set of four samples from roadside strip sampling DUs (22B, 22C, 22F, and 22G along Grove) was selected for comparing data from samples processed by the previously described “slabcake method” without sieving to data from split samples processed identically except using a #10 (2 mm) sieve to remove the larger debris from the sample material.

7.0 ANALYTICAL RESULTS

A total of 103 surface soil samples (including all QA/QC samples and Pilot/Variability Study samples) were collected on site during this effort. All samples were submitted to CFA for analysis for dioxin/furan TEQ compounds (list of 17 congeners) by EPA Method 1613B. The three Level II data deliverable packages were provided to START and EPA as requested in .pdf and EDD formats. The data packages were then forwarded to EPA Region 7 Environmental Services Assistance Team (ESAT) for QA/QC

review. Overall data quality and completeness were deemed acceptable by ESAT, START, and the EPA On-Scene Coordinator (OSC) for this project. Copies of the Level II raw data packages and EPA/ESAT QA/QC review memo are at the back of Appendix D along with the sample collection information field sheets.

The QA/QC'd raw data packages were then forwarded to Deanna Crumbling, Sampling Statistician with EPA Headquarters (HQ) in Washington, D.C., for calculation of the Kaplan-Meier TEQ values and subsequent evaluation of the data for the QA/QC and Pilot Variability Study sample results. The TEQ concentration accounts for the relative toxicity of the 17 dioxin-like congeners/compounds present in each sample using toxicity equivalence factors (TEF) (EPA, 2010b), which are weighting factors reflecting the relative potency of each compound in terms of 2,3,7,8-tetrachlorodibenzo-p-dioxin. Specifically, the concentration of each of the dioxin and furan congeners is multiplied by its TEF, and the adjusted concentrations of all the congeners in a given sample are then combined/summed to give the overall TEQ concentration in that sample. The EPA Advanced Kaplan-Meier TEQ Calculator (KM Calculator), a macro-driven Excel spreadsheet, was used for the TEQ calculations. The KM Calculator was chosen to facilitate the mathematical computations involved with handling nondetect and estimated values in the calculation of representative means and standard deviations. The KM Calculator was developed by the EPA to support the calculation of TEQs and upper confidence limits for those TEQs, based on the mathematical techniques of Helsel (2005). Table 1 in Appendix D is a summary of the calculated KM TEQ value concentrations in all 103 soil samples collected from Route 66 State Park during this effort. The KM TEQ Calculator worksheets are also included in Appendix D. An overall range of KM TEQ concentrations from 0.4 to 573.1 ppt was found in the 103 samples collected across the entire site.

The KM TEQ concentrations were the basis for reassessment/reevaluation of the site for potential health concerns regarding park visitors and workers. The TEQ data were used by EPA toxicologists to calculate SSLs and LOCs for exposure risk assessment using protocols described in Appendix B ("Evaluation of Potential Health Concerns Regarding Park Visitors and Workers, Route 66 State Park, St. Louis County, Missouri.")

For the risk assessment, scenarios were considered for use frequencies by recreational park visitors ranging from a reasonable maximum exposure (RME) of 250 days per year and 4 hours/visit (someone in the park nearly five times per week walking, hiking, biking, etc.), to an RME for a visitor who may be in the park only four times per year. The calculated SSL/LOC range for non-cancer effects was 639 to 4,419 ppt, and for cancer effects 1,638 to 39,273 ppt. The scenario for park workers was 225 days per year working 8 hours/day outdoors in the park with calculated SSLs/LOCs of 664 ppt for non-cancer

effects and 2,041 ppt for cancer effects. The highest TEQ level found on site in any one sample was below all these levels of concern at 573.1 ppt, and the overall site average among all samples collected was well below these ranges at 87.5 ppt. The report subsections below summarize the sample data (presenting ranges and averages of TEQ concentrations) and discusses the results by various subareas sampled on site.

7.1 BACKGROUND/SOUTH OUTER ROAD AREA SAMPLE RESULTS

Surface soil samples were collected from two former residential lots and from four roadway shoulder strip DUs along the south side of the SOR on site as described previously in Section 6.1. The overall range of dioxin TEQ concentrations among the SOR Area samples was 16.2 to 123.8 ppt, with a mean of 34.1 ppt (see Figure 2, Appendix A). The two former residential lots (DUs 1 and 2) were 24.9 and 16.2 ppt, respectively. The SOR roadside sections (DUs 3A to 3D) results ranged from 17.4 to 123.8 ppt, with the highest concentration exhibited within the first 10-foot strip closest to the SOR road shoulder (DU 3A at 123.8 ppt). The remaining three sequential strip samples (DUs 3B to 3D), collected 20 to 40 feet south of the road shoulder, were 17.4 to 19.5 ppt—closer to expected “background levels” of ~20 ppt. Published “background levels” across North America document remote rural area TEQ levels ranging from 0 to 57 ppt, with a mean as high as 5.7 ppt (EPA 2007).

The SOR area was originally considered a potential “background area” on site because it was paved, and this area was believed unaffected by spraying with the dioxin-contaminated waste oil in the 1970s. Concentrations of dioxin TEQ found at the SOR areas were all within the ranges of published background levels that could be expected in North America, except at DU 3A, the 1000- by 10-foot strip section closest to the road (5 to 15 feet south of the road edge). A possible explanation for the finding at DU 3A is that reference studies have shown the greatest amount of automobile exhaust deposition occurs within 0-5 meters of the roadside (Shashank and Prasad 2010), and that it contains dioxin/furan compounds, including 2,3,7,8-TCDD (Ren, Peng, et al 2007). It should be noted that Interstate I-44 also parallels the north side of the SOR, with interstate traffic in closer proximity to DU 3A than the other DUs sampled here. Moreover, vehicles traveling over other areas of the site may have contributed to the higher levels found in DU 3A by tracking contamination over the years prior to site remediation.

7.2 PUBLIC USE AREAS SAMPLE RESULTS

Surface soil samples were collected from nine PUAs on site (as previously described in Section 6.2), including: the Dogwood and Forest picnic shelters (DUs 4 and 5, respectively), the main picnic areas (DUs 6, 7, and 8), the playground (DU 9), the combined areas surrounding the playground (DU 10), and

the proposed off-leash dog park area (DU 11). The range of TEQ concentrations found at all of these areas was 1.2 to 218.6 ppt, with a mean of 53.2 ppt. These areas, along with their respective TEQ concentrations, are depicted on Figures 3 through 6 in Appendix A.

The highest TEQ concentration of 218.6 ppt was found in DU 7, the main picnic area (northwest section) closest to the old “Ring Levee” area where the temporary incinerator previously operated on site. This area is also in close proximity to the former haul route (Hawthorne) for delivery of contaminated dirt to the incinerator during the remediation, and DU 7 is also adjacent to a former remediated roadbed (Grove). The proposed off-leash dog park area (DU 11) was the PUA with the next highest detected TEQ at 60.3 ppt. This area is near the park entrance drive, in close proximity to the Old Route 66 Highway, and closer to the current I-44—again indicative of potential contributions to the TEQ concentrations by vehicle exhaust and possible tracking from other areas of the site over the years prior to the site remediation. All other remaining PUAs sampled had less than 50 ppt TEQ.

7.3 PARK TRAILS SAMPLE RESULTS

Four 500-foot segments of park trails were sampled as described in Section 6.3, including: a portion of the West Trail (DUs 12, 12A, 12B, and 12C), the “Park” Trail (DUs 13 and 13A-C) and the “Beach” Trail (DUs 14 and 14A-C) interior loop trails, and the “Riverside” exterior loop trail (DUs 15 and 15A-C), as indicated on Figures 3, 6, and 8 in Appendix A. The range of TEQ concentrations found for all trail segment DUs was 0.4 to 73.4 ppt, with a mean of 17.1 ppt. These concentrations at each DU are also presented on the figures in Appendix A, with the range and mean for each of the four trail segments as follows:

- The West Trail (DUs 12-12C) – Range 11.2 to 31.8 ppt, with a mean of 21.3 ppt
- The Park Trail (DUs 13-13C) – Range 0.4 to 10.5 ppt, with a mean of 4.1 ppt
- The Beach Trail (DUs 14-14C) – Range 2.6 to 21 ppt, with a mean of 12.1 ppt
- The Riverside Trail (DUs 15-15C) – Range 2 to 73.4 ppt, with a mean of 30.8 ppt.

These trail segments sampled are all formerly remediated roadway sections on site. In three out of four of the roadway segments, TEQ concentrations were found to increase with distance from the trail center (where remediation and soil/gravel capping had occurred) out to the A, B, and C trail margin sections (as depicted on the figures). Except for DU 15C on the outer margin of the Riverside Trail (with a TEQ concentration of 73.4 ppt), all trail segment DU samples had TEQ concentrations below 50 ppt.

7.4 UNDERGROUND UTILITY AREAS SAMPLE RESULTS

Areas where underground utility lines were installed along previously remediated roadways were also sampled as described in Section 6.4 (DUs 18, 19, and 20—see Figures 3 and 4, Appendix A). Another incremental composite sample was collected from three areas of high soil disturbance (DU 21, where numerous utility boxes are near the south end of the main picnic area and behind the Forest and Dogwood Shelters—see Figures 3, 4, and 6, Appendix A). The range of TEQ concentrations found for all utility area DUs was 6.8 to 350.6 ppt, with a mean of 68.3 ppt. These concentrations at each DU are also presented on the figures in Appendix A, with the range and mean for each of these areas as follows:

- Utility Line 1 (UTL-1=DUs 18A-C) – along Forest 1000 feet to southeast of Beach Trail – Range 29.2 to 63.2, with a mean of 43.2 ppt
- Utility Line 2 (UTL-2=DUs 19A-C) – along Forest 630 feet to northwest of Beach Trail – Range 6.8 to 11 ppt, with a mean of 8.8 ppt
- Utility Line 3 (UTL-3=DUs 20A-C) – along Dogwood 1000 feet to south east of Beach Trail - Range 120.8 to 350.6 ppt, with a mean of 207.3 ppt
- Utility Areas (UTA = DU 21) – combined surface utility areas from main picnic area, Dogwood and Forest Shelters – one incremental composite sample for all three SUs at 14.1 ppt.

The sample results from these areas were highly variable. Utility Lines (UTL1-3; DUs 18-20) installed along previously remediated roadway sections of Forest and Dogwood exhibited a wide range of residual surface soil TEQ concentrations; however, concentrations in all samples were below calculated risk assessment SSLs/LOCs. The combined sample from the three surface utility substation areas (UTA; DU 21) had only 14.1 ppt.

7.5 OUTFALL AREAS SAMPLE RESULTS

Sediment/soil samples were collected at the two outfalls where stormwater surface runoff from the site discharges to the Meramec River (DUs 16 and 17—see Figures 1, 3, and 7, Appendix A). These were not incremental composite DU samples (although they were assigned sequential DU area numbers in the same fashion as other sample areas), but rather five-point composite samples collected from discrete locations within the depositional area under each outfall. The sample from Outfall 1 (DU16) along the north perimeter of the site had a TEQ concentration of 8.1 ppt, and the sample from Outfall 2 (DU 17) on the southeast had 93.4 ppt, indicating presence of higher levels of dioxin TEQ compounds in the runoff sediment load discharging from that area of the site.

7.6 FORMER ROADWAY SEGMENTS SAMPLE RESULTS

Sampling along three roadway segments on site is described in Section 6.6. These roadway segments included: the former Grove Roadway Segment 1 between former Orchid and Woodland Roads (RDW1 - DUs 22A to 22H—approximately 1,000 feet in length); the former Oak Roadway Segment 2 from Dahlia to Blakey (RDW-2 - DUs 23A to 23H—approximately 750 feet); and the former Maple Roadway Segment 3 from Dahlia to Beach (RDW3 - DUs 24A to 24H—approximately 600 feet) (see Figures 7 and 8, Appendix A). As mentioned previously, selection of roadway segments occurred in the field based on accessibility (avoiding areas of saturated ground, standing water, vegetative overgrowth, etc.) and historical pre-remediation contaminant concentrations (selecting a representative range of roadway segments with moderate and more elevated pre-remediation concentrations). More intensive sampling occurred along the north side of the Maple Roadway to further assess distribution patterns and variability of potential residual contaminant levels. This roadside sampling area was selected based on more elevated pre-remediation contaminant concentrations, accessibility, and opportunity for off-road migration. Discussion of the Pilot Study/Variability Assessment sampling and results appears in Appendix C and Section 7.8 of this report.

The overall range of TEQ concentrations found in all three roadway segment samples was 8.3 to 573.1 ppt, with a mean of 112.8 ppt. Concentrations at each DU are also presented on the figures in Appendix A, with the range and mean for each of these areas as follows:

- Roadway Segment 1 (RDW-1=DUs 22A-H) – Grove between former Orchid and Woodland Roads – Range 48.8 to 158.4, with a mean of 85.2 ppt
- Roadway Segment 2 (RDW-2=DUs 23A-H) – Oak from Dahlia to Blakey – Range 39.2 to 229.6 ppt, with a mean of 76.6 ppt
- Roadway Segment 3 (RDW-3=DUs 24A-H) – Maple from Dahlia to Beach – Range 8.3 to 573.1 ppt, with a mean of 176.7 ppt.

As with the utility line area samples, also collected at areas along former remediated roadways, residual surface soil TEQ concentrations found at the roadway shoulder segment DUs varied significantly. Again, however, all samples TEQ results are below calculated risk assessment SSLs/LOCs ranges.

7.7 FORMER RESIDENTIAL LOTS SAMPLE RESULTS

Surface soil samples were also collected from eight former residential lots (DUs) according to the process described in Section 6.7. These eight former residential lots/DUs included: DU 25, a lot at the southwest corner Forest and Orchid; DU 26, on the north side of Grove 250 feet west of Orchid; DU 27, southwest

corner of Ivy and Park; DU 28, northwest corner of Ivy and Park; DU 29, north side of Maple 170 feet east of Dahlia; DU 30, south side of Maple 170 feet east of Dahlia; DU 31, north side of Oak about 200 feet east of Dahlia; and DU 32, on the north side of Oak about 300 feet east of Dahlia (see Figures 5, 7, and 8, Appendix A). The overall range of TEQ concentrations found in the residential lot DUs samples was 28.4 to 190.9 ppt, with a mean of 88.3 ppt. Concentrations at all DUs are also presented on the figures in Appendix A. Once again, the TEQ results for all the former residential lot samples are below calculated risk assessment SSLs/LOCs ranges for the site.

7.8 QA/QC AND PILOT VARIABILITY STUDY SAMPLE RESULTS

As previously indicated, the raw data packages for this sampling effort were forwarded to Deanna Crumblin, Sampling Statistician with EPA HQ in Washington, D.C., for calculation of the Kaplan-Meier TEQ values, and for evaluation of the QA/QC and Pilot Variability Study sample results. A detailed summary of the QA/QC and variability study data review was prepared and is included as Appendix C, "Summary of Dioxin Data Collected from Route 66 State Park," Technical Memorandum dated October 1, 2012. A brief synopsis of the pilot variability study and QA/QC sample data findings appears below. Please refer to the Technical Memorandum summary document in Appendix C for full details and findings of this data review.

Generalized Conclusions drawn from the Pilot Variability Study sampling results:

All dioxin TEQ concentrations in 103 samples collected on site during this effort were less than the remedial action level of 1 part per billion ($<1 \text{ ppb} = < 1,000 \text{ ppt}$), showing that the past remedial actions on site were effective in meeting the cleanup goals.

Dioxin TEQ concentration patterns for roadside residual contamination from former road spraying are not predictable. Concentration patterns moving perpendicular from a sprayed road do not consistently show increasing, decreasing, or static trends. The concentrations in incremental samples representing the DU strips parallel to roads were highly variable, and showed little or no distribution pattern with distance from the road.

Influence of roadside strip DU concentration on the overall residential lot concentration also was not predictable, even where the strips covered a large portion of the front of the lot (as for the two lots bordering Maple). This high degree of variability in residual dioxin concentrations both parallel and perpendicular to sprayed roads indicates that each residential lot may have a unique dioxin concentration and pattern. It is not possible to predict whether an individual lot along a formerly sprayed roadway will

have a concentration closer to 20 ppt or 200 ppt. However, where past cleanup has occurred, concentrations are likely to be well below 1,000 ppt.

Summary of QA/QC sampling results:

Subsampling and sample processing during this project occurred in the field according to the “Japanese Slabcake Method.” To ensure that homogenization and subsampling procedures were conducted adequately, subsampling replicate samples were prepared periodically. Overall, variability from sampling and processing procedures was shown to be very low. For example, a full triplicate set was taken from one of the field incremental samples from a residential lot on the north perimeter of Maple Road (DU 29). The results were 107, 97, and 109 ppt, with a mean of 104 ppt, a SD of 6, and an RSD of 6%. This is excellent precision. In addition, seven sets of standard field duplicate samples were collected. The RSD for these ranged from 0.5 to 12%, which is also excellent.

Four sets of the samples associated with the Grove roadway DU strip sampling were processed using a #10 (2mm) sieve in addition to the standard sample processing method performed on all samples without the sieve, so that results of sieved and unsieved samples could be compared. No essential difference was found in the results of sieved vs. unsieved samples.

Again, please refer to the Technical Memorandum summary document in Appendix C for full details and findings of this data review.

8.0 SUMMARY

A team of Tetra Tech START Contractor and EPA Region 7 Superfund Division personnel conducted site reevaluation sampling at the Route 66 State Park Site (formerly known as the Times Beach Dioxin site) in Eureka, Missouri, in June 2012. A QAPP prepared for this activity identified site-specific features and addressed elements of the sampling strategy and analytical methods for the investigation, which was planned to determine if TCDD and related dioxins and furans are present in soil at concentrations that may present a threat to human health and the environment. This reassessment of the site was requested in light of the recently released, more stringent toxicity RfD values for dioxin, as well as the more sensitive analytical methods (EPA 1613B) and improved incremental composite sampling (ICS) methodologies available today.

Upon approval of the QAPP, START assisted with sampling efforts including: procurement of subcontract laboratory services for analysis of the samples by Method 1613B for dioxin/furan TEQ compounds; sample collection and processing for delivery to the lab; and sample data management.

START provided the sample data to EPA for calculation of the KM dioxin TEQ values and review of the data for evaluation of the QA/QC and Pilot Variability Study sample results. The KM TEQ concentrations were subsequently used by EPA Region 7 toxicologists as the basis for reassessment of the site for potential health concerns regarding park visitors and workers. The TEQ data were used to calculate SSLs/ LOCs for 2,3,7,8-TCDD exposure using risk assessment protocols (described in Appendix B – “Evaluation of Potential Health Concerns for Park Visitors and Workers, Route 66 State Park, St. Louis County, Missouri.”)

Sampling activities were completed on site between June 1 and 21, 2012. A total of 103 surface soil samples were collected using ICS techniques and processed using the “Japanese Slabcake Method.” All samples were submitted to a subcontract laboratory for EPA Method 1613B analysis for 17 dioxin/furans TEQ compounds, and the data were submitted to EPA HQ for calculation of KM TEQ values. A summary of the range of dioxin TEQ values and mean values observed for the various sub-areas sampled on site is as follows:

- South Outer Road/Background Area Samples – 16.2 to 123.8, mean 34.1 ppt
- Eight Public Use Areas – 1.2 to 218.6, mean 53.2 ppt
- Four Park Trail Segments – 0.4 to 73.4, mean 17.1 ppt
- Four Underground Utilities Lines/Areas – 6.8 to 350.6, mean 68.3 ppt
- Two Park Drainage Outfalls – Outfall #1 8.1 and Outfall #2 93.4 ppt
- Three Former Roadway Shoulder Segments – 8.3 to 573.1, mean 112.8 ppt
- Eight Former Residential Lots – 28.4 to 190.9, mean 88.3 ppt.

An overall range of KM TEQ concentrations from 0.4 to 573.1 ppt was found for the 103 samples collected across the entire site, with a mean of 87.5 ppt.

For the risk assessment, scenarios were considered over a range of site use frequencies by recreational park visitors—from an RME of 250 days per year and 4 hours/visit to a visitor who may be in the park only four times per year. The calculated SSL/LOC range for non-cancer effects was 639 to 4,419 ppt and for cancer effects 1,638 to 39,273 ppt. The scenario for park workers was 225 days per year working 8-hours/day outdoors in the park, with calculated SSLs/LOCs of 664 ppt for non-cancer effects and 2,041 ppt for cancer effects. The highest TEQ level found on site in any one sample was below all these levels of concern at 573.1 ppt, and the overall site average was well below these ranges at 87.5 ppt. Based on the current site data generated using ICS sampling techniques and more sensitive analytical methods, and applying the new, more stringent toxicity values for dioxin, the EPA Region 7 Superfund Division has determined that current use of the Route 66 State Park does not pose significant health risks to public visitors or park workers.

A detailed summary of the QA/QC and Pilot Variability Study data review was prepared by soil sampling statisticians at EPA Headquarters in Washington, D.C., and is included as Appendix C, "Summary of Dioxin Data Collected from Route 66 State Park," Technical Memorandum dated October 1, 2012. In general, the dioxin TEQ concentration patterns observed across the site are highly variable and are not predictable at any particular location. Overall variability from the sampling and processing procedures employed was shown to be very low. All dioxin TEQ concentrations in the 103 samples collected on site during this effort were less than the action level of 1 ppb ($<1 \text{ ppb} = < 1,000 \text{ ppt}$) in effect at the time the remedial action occurred, showing that the past remedial actions on site were effective in meeting the cleanup goals.

9.0 REFERENCES

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APPENDIX A
FIGURES

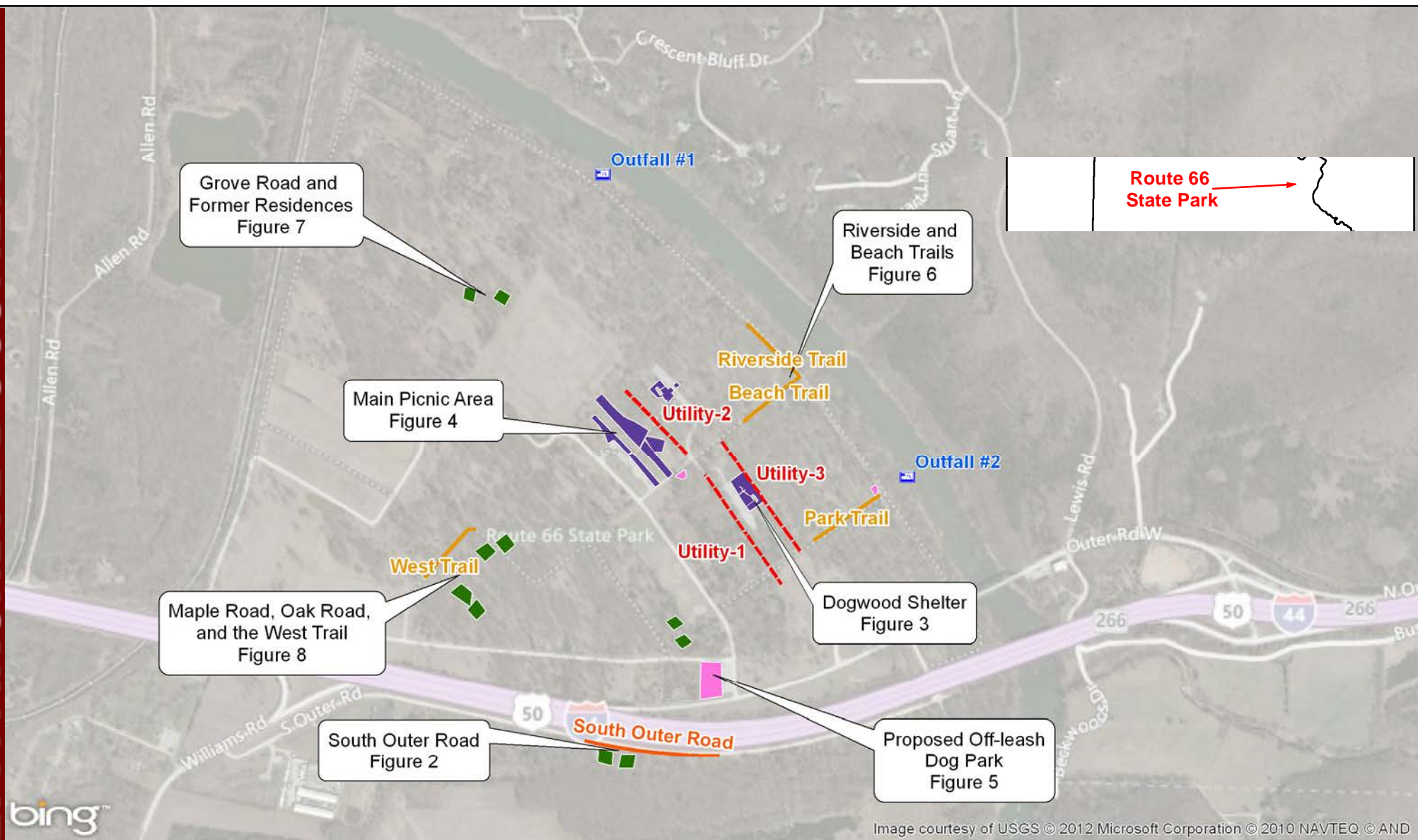


Image courtesy of USGS © 2012 Microsoft Corporation © 2010 NAVTEQ © AND

- Stormwater Outfalls
- Former Residences
- Picnic, Play, and Shelter Areas
- Utility and Other Areas
- Roadway Sampling
- Trail Sampling
- Utility Sampling

Data Sources:
EPA Field Sampling: July, 2012



0 375 750 1,500
Feet

October 9, 2012

Dioxin Reassessment Sampling Route 66 State Park Eureka, Missouri Site Map

Figure 1

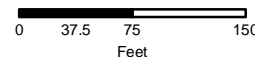
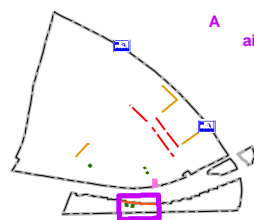


- Stormwater Outfalls
- Former Residences
- Picnic, Play, and Shelter Areas
- Utility and Other Areas

- Roadway Sampling
- Trail Sampling
- Utility Sampling

*Dioxin Toxicity Equivalence (TEQ)
in parts per trillion (ppt)*

*Data Sources:
EPA Field Sampling: July, 2012
1 foot USGS Urban Aerial Image, March, 2008*



October 9, 2012

**Dioxin Reassessment
Sampling
Route 66 State Park
Eureka, Missouri
South Outer Road**

Figure 2

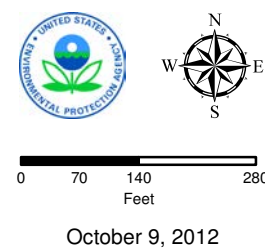
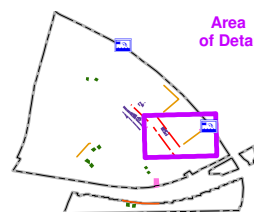


- Stormwater Outfalls
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- Roadway Sampling
- Trail Sampling
- Utility Sampling

Dioxin Toxicity Equivalence (TEQ)
in parts per trillion (ppt)

Data Sources:
EPA Field Sampling: July, 2012
1 foot USGS Urban Aerial Image, March, 2008



**Dioxin Reassessment
Sampling
Route 66 State Park
Eureka, Missouri
Dogwood Shelter**

Figure 3

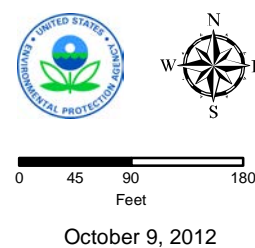
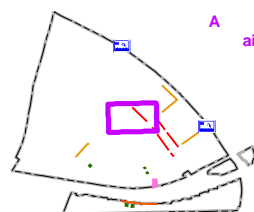


- Stormwater Outfalls
- Former Residences
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- Utility and Other Areas

- Roadway Sampling
- Trail Sampling
- Utility Sampling

*Dioxin Toxicity Equivalence (TEQ)
 in parts per trillion (ppt)*

*Data Sources:
 EPA Field Sampling: July, 2012
 1 foot USGS Urban Aerial Image, March, 2008*



**Dioxin Reassessment
 Sampling
 Route 66 State Park
 Eureka, Missouri**





Main Picnic Area




Figure 4



Proposed Dog Park	
Decision Unit	Dioxin TEQ (ppt)
11	60.3

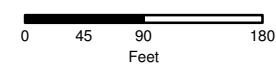
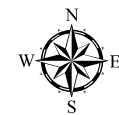
Former Residences	
Decision Unit	Dioxin TEQ (ppt)
27	28.4
28	82.5
28 (dup)	79.5

-  Stormwater Outfalls
-  Former Residences
-  Picnic, Play, and Shelter Areas
-  Utility and Other Areas

-  Roadway Sampling
-  Trail Sampling
-  Utility Sampling

*Dioxin Toxicity Equivalence (TEQ)
in parts per trillion (ppt)*

*Data Sources:
EPA Field Sampling: July, 2012
1 foot USGS Urban Aerial Image, March, 2008*



October 9, 2012

**Dioxin Reassessment
Sampling
Route 66 State Park
Eureka, Missouri**

Proposed Off-leash Dog Park

Figure 5

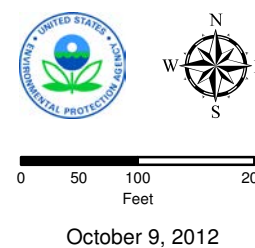
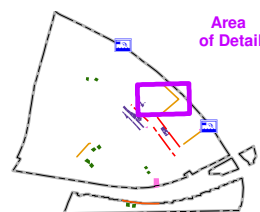


- Stormwater Outfalls
- Former Residences
- Picnic, Play, and Shelter Areas
- Utility and Other Areas

- Roadway Sampling
- Trail Sampling
- Utility Sampling

Dioxin Toxicity Equivalence (TEQ)
in parts per trillion (ppt)

Data Sources:
EPA Field Sampling: July, 2012
1 foot USGS Urban Aerial Image, March, 2008



**Dioxin Reassessment
Sampling
Route 66 State Park
Eureka, Missouri**
Riverside and Beach Trails

Figure 6

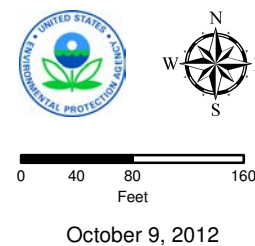


- Stormwater Outfalls
- Former Residences
- Picnic, Play, and Shelter Areas
- Utility and Other Areas

- Roadway Sampling
- Trail Sampling
- Utility Sampling

Dioxin Toxicity Equivalence (TEQ)
in parts per trillion (ppt)

Data Sources:
EPA Field Sampling: July, 2012
1 foot USGS Urban Aerial Image, March, 2008

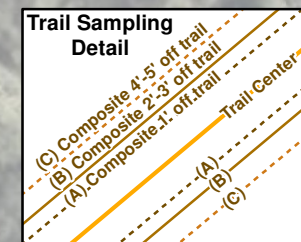


**Dioxin Reassessment
Sampling
Route 66 State Park
Eureka, Missouri**

Grove Road and
Former Residences
Figure 7

Maple Road	
Decision Unit	Dioxin TEQ (ppt)
24A	39.9
24B	246.3
24C	81.9
24D	69.5
24E	39.1
24E (dup)	18.3
24E (trip)	20.2
24F	40.7
24F (dup)	84.2
24F (trip)	191.8
24G	222.0
24G (dup)	299.7
24G (trip)	256.4
24H	524.1
24H (dup)	395.2
24H (trip)	179.2

Oak Road	
Decision Unit	Dioxin TEQ (ppt)
23A	74.2
23B	61.7
23C	57.9
23D	39.2
23E	229.6
23F	57.3
23G	43.3
23H	49.4



West Trail	
Decision Unit	Dioxin TEQ (ppt)
12 (center)	11.2
12A	14.8
12B	27.3
12C	31.8

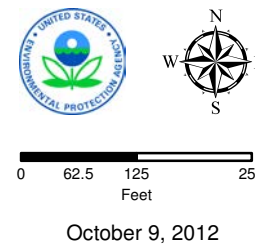
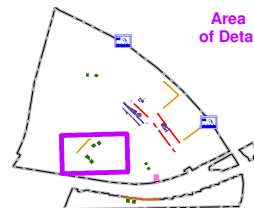
Former Residences	
Decision Unit	Dioxin TEQ (ppt)
29	118.2
29 (dup)	144.3
30	46.7
31	62.7
32	190.9

- Stormwater Outfalls
- Former Residences
- Picnic, Play, and Shelter Areas
- Utility and Other Areas

- Roadway Sampling
- Trail Sampling
- Utility Sampling

Dioxin Toxicity Equivalence (TEQ)
in parts per trillion (ppt)

Data Sources:
EPA Field Sampling: July, 2012
1 foot USGS Urban Aerial Image, March, 2008



Dioxin Reassessment Sampling
Route 66 State Park
Eureka, Missouri
Maple Road, Oak Road
and the West Trail
Figure 8

APPENDIX B

**EVALUATION OF POTENTIAL HEALTH CONCERNS REGARDING PARK VISITORS AND
WORKERS, ROUTE 66 STATE PARK, ST. LOUIS COUNTY, MISSOURI**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7

11201 Renner Boulevard
Lenexa, Kansas 66219

NOV - 7 2012

MEMORANDUM

SUBJECT: Evaluation of Potential Health Risks for Park Visitors and Workers
Route 66 State Park
St. Louis County, Missouri

FROM: Kelly Schumacher *Kelly Schumacher*
Toxicologist
ENSV/EAMB

THRU: Mike Beringer *Mike Beringer*
Branch Chief
ENSV/EAMB

TO: Dave Williams
On-Scene Coordinator
SUPR/ERNB/PPNS

On January 5, 2012, the Missouri Department of Natural Resources requested that the U.S. Environmental Protection Agency conduct a site-specific risk assessment for the Route 66 State Park, located in St. Louis County, Missouri, to determine whether current use of the park poses health concerns for public visitors or park workers. Although the EPA and the MDNR conducted an extensive dioxin cleanup at the Route 66 State Park (formerly Times Beach, Missouri) in the 1990s, new toxicity information and sampling techniques have been developed for dioxin. Reassessment of the park was requested to evaluate whether there are significant health risks using our improved understanding of dioxin.

In response to the MDNR's request, the EPA collected soil samples from the Route 66 State Park in June 2012. The samples were analyzed for 2,3,7,8-tetrachlorodibenzo-p-dioxin and other related dioxins and furans. To account for the relative toxicity of the various dioxin-like compounds present, dioxin toxicity equivalence concentrations were calculated for each sample. The dioxin concentrations reported for the soil samples were as follows. The trails ranged from 0.4 to 73.4 parts per trillion dioxin TEQ. The public use areas, including the shelters, open picnic areas, playgrounds, and proposed location for an off-leash dog park, ranged from 1.2 to 218 ppt dioxin TEQ. Areas where underground utility lines have been installed ranged from 6.8 to 350.6 ppt dioxin TEQ. The former roadways ranged from 17.4 to 524.1 ppt dioxin TEQ. Former residential lots ranged from 16.2 to 190.9 ppt dioxin TEQ.

Following applicable EPA risk assessment guidance and using a combination of site-specific information from the most recent MDNR State Park Visitor Study, default exposure parameters, current toxicity values, and best professional judgment, multiple levels of concern were derived to reflect the



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different use patterns of Route 66 State Park visitors and workers. The most stringent level of concern derived for recreational visitors is 640 ppt dioxin TEQ, reflecting frequent exposure of approximately five days per week by those regularly using the park trails for exercise. The most stringent level of concern derived for park workers is 660 ppt dioxin TEQ, based on exposure to outdoor workers involved in maintenance and landscaping duties. The concentrations of dioxin detected in the soil samples were all lower than these levels of concern. We conclude that current use of the Route 66 State Park does not pose significant health risks to public visitors or park workers. If you have questions or need further assistance, please contact me at x7963.

**Evaluation of Potential Health Risks for Park Visitors and Workers
Route 66 State Park
St. Louis County, Missouri**

1.0 INTRODUCTION

1.1 Background

The Route 66 State Park is located on the site of the former town of Times Beach, Missouri. In the early 1970s, waste oil contaminated with 2,3,7,8-tetrachlorodibenzo-p-dioxin was sprayed on unpaved roads in Times Beach to control dust. The site was under investigation in the 1980s when the Meramec River flooded the town, and residents of Times Beach were first evacuated and then permanently relocated. The Times Beach Record of Decision and Explanation of Significant Differences were signed by the EPA in 1988 and 1990, respectively (USEPA, 1988; USEPA, 1990). Together, they called for remediation of the site by excavation and incineration of soils contaminated with dioxin at greater than 5,000 to 10,000 parts per trillion (ppt), placement of a one-foot soil cover over the site where dioxin levels exceeded 1,000 ppt, and demolition and on-site disposal of treatment residues and of structures and debris remaining at Times Beach. To address concerns over scour and erosion caused by flooding of the Meramec River, spur levees were constructed at the site and remain in place. Remediation of Times Beach was completed in 1997. The site was acquired by the State of Missouri and developed into the Route 66 State Park, which opened in 1999.

The ability to quantify levels of dioxin in the environment and the overall understanding of health effects associated with dioxin exposure have continued to improve since Times Beach was cleaned up. For example, the EPA finalized a new non-cancer reference dose of 7×10^{-10} mg/kg-day for 2,3,7,8-tetrachlorodibenzo-p-dioxin. In January 2012, the Missouri Department of Natural Resources requested that the EPA reassess the Route 66 State Park, using the latest applicable technological and scientific developments.

1.2 Purpose and Approach of this Evaluation

The purpose of this evaluation is to determine whether residual dioxin at the Route 66 State Park poses a significant health risk to current public visitors or park workers. We compared the concentrations of 2,3,7,8-tetrachlorodibenzo-p-dioxin and other related dioxins and furans detected in soil samples collected from the park to levels of concern based on a 1×10^{-4} excess individual lifetime cancer risk (i.e., the upper end of the EPA's target cancer risk range as directed by the National Contingency Plan, USEPA, 1991a) and a non-cancer hazard quotient of 1. We derived multiple levels of concern reflecting different use patterns for Route 66 State Park visitors, based on site-specific information obtained from the MDNR State Park Visitor Study conducted from December 1, 2005 to November 30, 2006 (MDNR, 2007). We also used EPA's standard exposure assumptions for outdoor workers to derive levels of concern for park workers, including park rangers and employees involved in outdoor maintenance and landscaping.

2.0 SUMMARY OF DATA USED IN THIS EVALUATION

2.1 Data Collection

Surface soil samples were collected from the Route 66 State Park in June 2012 using an incremental-composite sampling (ICS) approach and analyzed for 2,3,7,8-tetrachlorodibenzo-p-dioxin and other related dioxin and furan congeners. In accordance with the Quality Assurance Project Plan (USEPA, 2012), samples were collected from locations selected in order to satisfy two objectives: 1) to evaluate potential health risks for current public visitors and park workers, as requested by the MDNR, and 2) to characterize remaining contaminant concentrations, distribution, and variability along former roads and residential lots sprayed with contaminated oil in the 1970s and remediated as part of the Times Beach cleanup. The sampling locations included park trails, shelters, picnic areas, playground, proposed location for an off-leash dog park, locations where underground utility lines were installed, former roadways, former residential lots, and two outfalls on the Meramec River.

Following the incremental-composite sampling protocol, each of the sampling locations was divided into decision units, with the exception of the outfalls. A decision unit (DU) is defined in the Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP) for dioxin sites as “the volume of soil over which a mean concentration value is obtained for comparison to a regulatory threshold value or other type of action level or for using in risk assessment calculations” (USEPA, 2011). Using risk assessment terminology, the DU is equivalent to an exposure unit (EU), and the analytical result for a DU is equal to an exposure point concentration (EPC), which is the average contaminant concentration that an individual is exposed to over a defined period of time. Many small samples (or increments) were collected and combined (or composited) into a single sample for each DU. In addition, some of the DUs, including those at the playground, shelters, picnic areas, and former residential lots, were further divided into subunits called sampling units (SUs). Here, many increments were collected from each SU and composited into a single sample representative of the mean concentration in that SU, and then a portion of each of the Sampling unit samples was then composited into a single sample representative of the mean concentration in the DU. SU samples were archived for later analysis, in case additional detail was needed regarding contaminant distribution across a DU. The advantage of ICS over traditional sampling methods is that a larger number of samples are collected, which provides a better estimate of the true mean concentration within each DU.

From the trails, 16 composite DU samples were collected. As shown in Figure 1, four 500 foot long trail segments were sampled: the West Trail, Park Trail, Beach Trail, and Riverside Trail. Four DU samples were collected per trail segment. One of these consisted of 10 increments of surface material collected down the center of each of the segments. The three additional DU samples per segment were collected off the sides of the four trails, to make up the remaining 12 DU samples. For these, 20 increments were collected, 10 from both sides of the trail, at 1 foot, 2 – 3 feet, and 4 – 5 feet off the edges. Figures 3, 6, and 8 show how the four decision units were defined for each of the trail segments.

From other areas commonly used by the public, eight composite DU samples were collected: one from the Dogwood Shelter, one from the Forest Shelter, three from separate picnic areas, one from the playground, one from the perimeter of the playground, and one from the proposed site for an off-leash dog park (Figures 1, 3, 4, and 5). Each of these decision units was approximately one acre in size and was split into four SUs. Nine increments of surface soil were collected and homogenized to represent each SU, and portions of each SU sample were then homogenized so that each of the DU samples for these the public use areas consisted of 36 increments.

Three areas where workers have installed underground utility lines were sampled, each approximately 630 to 1,000 feet long (Figures 3 and 4). Each of the three lines was split into three DUs (the center, and 3 to 5 feet from the center on both sides); so in total, nine composite DU samples were collected from utility line areas. Each of these nine DU samples consisted of 30 increments of surface soil collected down the length of the line.

Figure 1 shows the location of two park drainage outfall areas that were sampled. From each of these areas, a single 5-aliquot composite sediment sample was collected (i.e., ICS was not used).

Four roadway segments were sampled, each approximately 600 to 1,000 feet in length. From the main part of the park, the former Grove, Maple, and Oak Roads were sampled, and from south of I-44, the South Outer Road was sampled. The roads themselves were not sampled because they were previously covered with clean soil. Along the Grove and Oak Road segments, samples were collected from eight sections parallel to the roadways, four 10-foot wide sections on either side, starting approximately five feet outside the road cap (Figures 7 and 8). Each of these sections was defined as a DU and consisted of 30 increments of surface soil. Four sections (DUs) on the southwest side of the Maple Road segment and four sections (DUs) on the south side of the South Outer Road (Figure 2) were sampled in the same manner; however, the strip section DUs along Maple Road were 20 feet wide, rather than 10 feet. A different sampling procedure was used on the Northeast side of the Maple Road segment, which was split into four sections (DUs, each 20 feet wide) parallel to the road (Figure 8). Here, three replicates consisting of 10 increments of surface soil were collected at each of the four DUs. Additionally, six five-point discrete locational samples (each consisting of "4 corners and 1 center," covering a 4 ft² area) were collected along the third DU out from the northeast side of the Maple Road segment, in order to characterize contaminant dispersion or variation along the length of a DU relative to the overall average of the multi-aliquot linear composite samples (Appendix C).

Finally, ten DU composite samples were collected from former residential lots (Figure 1). Two lots were located south of the South Outer Road, two were located on the northeastern side of Oak, two were located on either side of Maple, two were located on the northeastern side of Grove, and two were located northeast of the parking lot and proposed location for the dog park. Each of the lots was divided into four SUs. Nine increments of surface soil were collected from each SU, so that each residential lot DU composite consisted of 36 increments.

2.2 Sample Results

Appendix D.1 contains the dioxin toxicity equivalence (TEQ) concentrations for the soil samples collected from the Route 66 State Park in June 2012. The TEQ concentration accounts for the relative toxicity of the various dioxin-like compounds present in each sample using toxicity equivalence factors (TEFs) (USEPA, 2010), which are weighting factors reflecting the relative potency of each compound in terms of 2,3,7,8-tetrachlorodibenzo-p-dioxin. Specifically, the concentration of each of the dioxin and furan congeners is multiplied by its TEF, and the adjusted concentrations of all the congeners in a given sample are then combined to give the TEQ concentration for that sample. The EPA Advanced Kaplan-Meier TEQ Calculator (KM Calculator), a macro-driven Excel spreadsheet, was used for the TEQ calculations. The KM Calculator was chosen to facilitate the mathematical computations involved with handling non-detect and estimated values in the calculation of representative means and standard deviations. The KM Calculator was developed by the EPA to support the calculation of TEQs and upper confidence limits for those TEQs, based on the mathematical techniques of Helsel (2005).

3.0 EXPOSURE

3.1 Exposure Scenarios

The Route 66 State Park is a nearly 419 acre day use park that includes a visitor center and museum, shelters and other open picnic areas, a playground, and trails used for walking, hiking, and horseback riding. A boat ramp is located at the park, which allows access to the Meramec River. The park is open to the public year-round, with the exception of the visitor center, which is open March through November. Based on the most recent MO State Park Visitor Study (MDNR, 2007), the types of activities that visitors most often engage in during a typical visit include walking (59% of visitors), going to the visitor center (54%), viewing wildlife (51%), bicycling (31%), hiking (27%) and picnicking (25%). Other activities include studying nature, walking dogs, fishing, swimming, boating/canoeing/kayaking, running/jogging, and horseback riding.

The two main types of current receptors at the park include adults and children visiting the park for recreational purposes and park workers such as park rangers and employees involved in outdoor maintenance and landscaping. These receptors may be exposed to dioxin-contaminated surface soil at the park, as well as particulates generated by wind erosion, via incidental ingestion, dermal contact, and inhalation.

3.2 Equations and Exposure Parameters

This section discusses the specific equations and exposure parameters used to derive levels of concern for 2,3,7,8-tetrachlorodibenzo-p-dioxin in surface soil at Route 66 State Park, for use in evaluating potential health risks for recreational visitors and park workers. The levels of concern are based on a 1×10^{-4} excess individual lifetime cancer risk (i.e., the upper end of the EPA's target cancer risk range as directed by the National Contingency Plan, USEPA, 1991a) and a non-cancer hazard quotient of 1. In general, the equations used to calculate aggregate exposure, incidental ingestion, and dermal contact were obtained from the Risk Assessment Guidance for Superfund, Volume I, Part B (USEPA, 1991b), while those for inhalation exposure were taken from the Risk Assessment Guidance for Superfund, Volume I, Part F (USEPA, 2009) and from the EPA's Supplemental Soil Screening Guidance (USEPA, 2002). The exposure parameters were selected to best represent reasonable maximum exposure scenarios. A reasonable maximum exposure (RME) is the highest exposure that is reasonably expected to occur at a site (USEPA, 1989). The definitions, values, and references for the exposure parameters used in this document are provided in Table 1, and the dioxin toxicity values are discussed in Section 4.0.

3.2.1 Recreational Visitors

Children and adult visitors to the Route 66 State Park are assumed to contact dioxin-contaminated surface soil and dust generated by wind erosion while walking, hiking, studying nature, picnicking, horse-back riding, playing, and participating in other activities described in Section 3.1. Sections 3.2.1.1 and 3.2.1.2 provide the equations used to derive the carcinogenic and non-carcinogenic levels of concern, respectively, for recreational park visitors. Default exposure factors are not generally available for recreational receptors, so the exposure factors used in these equations were derived using best professional judgment and are based on site-specific information and default values for residential receptors. Because park use may change with time, depending on the condition and amenities of the park, characteristics of the nearby population, and other factors, site-specific information was primarily obtained from the most recent 2005 – 2006 State Park Visitor Study conducted by the Missouri

Department of Natural Resources (MDNR, 2007). The *2000 Route 66 State Park Visitor Survey* (MDNR, 2001) was also referenced.

The most recent attendance figures reported by the MDNR indicate that there were 183,070 visitors to the Route 66 State Park in January through December 2011 (MDNR, 2012). Of the Route 66 State Park survey respondents in the 2001 and 2007 MDNR studies, 60.9% (n = 197) and 49% (n = 491), respectively, were repeat visitors. For these, the 2001 and 2007 studies reported an average of 29.3 visits per year (n = 115) and 19 visits per year (n = 184), respectively. These averages may have been skewed by a few individuals, since maximums of >101 visits per year (MDNR, 2001) and 250 visits per year (MDNR, 2007) were reported. The median days visited per year, more reflective of a typical visitor, were 6 - 10 visits per year (MDNR, 2001) and 4 visits per year (MDNR, 2007). The average length of park visit reported in the 2007 study was 1.39 days (n = 494), with a median stay of 1 day. The maximum length of visit reported was 30 days, but these individuals were likely vacationers, who would visit the Route 66 State Park a single time in a year, over a period of several days to weeks. For regular visitors, we assumed that one park visit lasted one day. Because we did not have site-specific information from the MDNR studies, we used an exposure time of 4 hours per visit, consistent with recreational scenarios evaluated at other Region 7 sites.

Four exposure frequencies (EFs) were selected to derive multiple levels of concern for recreational park visitors: 4, 19, 250, and 26 days/year. From the most recent site-specific data (MDNR, 2007), we used the median, mean, and maximum number of visits reported for the year. The median value of 4 visits per year was used for both children and adult visitors as a central tendency estimate, which is more reflective of a typical visitor than an RME scenario. The mean value of 19 visits per year was used for both children and adult visitors as more of an upper-end value, since it may be skewed by frequent use by a few park visitors. The maximum value of 250 visits per year was used to derive an upper-end level of concern for adult visitors only, such as for those using the park trails for regular exercise, as described below. Using the maximum exposure frequency together with other high-end exposure parameters (e.g., soil ingestion rate) may reflect a higher exposure than ever occurs for a recreational receptor at the park. Due to uncertainties in the available site-specific data, we also used an exposure frequency of 26 visits per year, in which we assumed that children and adults will visit the park once a week during the six warmer months of the year, consistent with similar scenarios evaluated by Region 7. This value is between the mean values reported in both the 2001 and 2007 studies and is approximately the 90th percentile value of respondents in the 2001 study, including the first-time visitors. (The 2007 study does not provide enough information to calculate the percentile reflected by 26 visits per year.)

The EPA's default values for residential receptors were used for most of the remaining recreational visitor exposure parameters. These include the averaging times (AT_{ca} , AT_{nc-a} , and AT_{nc-c}), exposure durations (ED_a , ED_c , and ED_{rec}), soil ingestion rates (IRS_a and IRS_c), body weights (BW_a and BW_c), available skin surface areas (SA_a and SA_c), soil adherence factors (AF_a and AF_c), and particulate emission factor (PEF). Under an RME scenario, we assumed that residents living nearby are more likely to visit the Route 66 State Park on a regular basis than visitors from out-of-town and/or on vacation. Because these residents may regularly visit the park as long as they live nearby, we used the EPA's default residential exposure duration of 30 years, which is the length of time that residents are expected to live in one place. Given that the 2007 study does not specify the exact ages of visitors that visit the site (only age groups), we used the default residential assumption that exposure will occur for 6 years as a child and 24 years as an adult when deriving levels of concern based on EFs of 4, 19, and 26 visits per year. The child- and adult-specific soil ingestion rates, body weights, skin surface areas, and soil

adherence factors are based on this age grouping. We have generally assumed that on the days recreational users visit the park, they receive their entire daily soil intake (that they would otherwise receive at home) at the park.

Because children spend a portion of the year in school or childcare, on vacation, stay home due to inclement weather, or participate in other activities, we believe the most frequent users of Route 66 State Park (e.g., those visiting 250 days/year) are adults. Therefore, when deriving a level of concern based on an EF of 250 visits per year (i.e., the maximum value reported in the 2007 MDNR study), we only used adult-specific values for body weight, skin surface area, rate of soil ingestion, and the soil adherence factor.

3.2.1.1 Carcinogenic Level of Concern for Recreational Visitors

Equation 1 was used to derive the level of 2,3,7,8-tetrachlorodibenzo-p-dioxin in surface soil that represents a target cancer risk (TR) of 1×10^{-4} to a recreational park visitor exposed via incidental ingestion, dermal contact, and inhalation of particulates.

$$LOC_{rec-total-ca} (mg/kg) = \frac{1}{\frac{1}{LOC_{rec-ing-ca}} + \frac{1}{LOC_{rec-der-ca}} + \frac{1}{LOC_{rec-inh-ca}}} \quad (1)$$

When equation 1 was used to derive levels of concern based on an exposure frequency (EF_{rec}) of 4, 19, or 26 days per year by both children and adults, equations 2 (incidental ingestion), 4 (dermal absorption), and 6 (inhalation of particulates) were used to derive route-specific levels of concern using equations 3 (age-adjusted soil ingestion rate) and 5 (age-adjusted dermal contact factor) to account for differences between children and adults.

$$LOC_{rec-ing-ca} (mg/kg) = \frac{TR \cdot AT_{ca}}{CSF_o \cdot EF_{rec} \cdot IRS_{rec-adj} \cdot 10^{-6} \frac{kg}{mg}} \quad (2)$$

$$IRS_{rec-adj} \left(\frac{mg \cdot yr}{kg \cdot day} \right) = \frac{ED_c \cdot IRS_c}{BW_c} + \frac{ED_a \cdot IRS_a}{BW_a} \quad (3)$$

$$LOC_{rec-der-ca} (mg/kg) = \frac{TR \cdot AT_{ca}}{\frac{CSF_o}{GLABS} \cdot EF_{rec} \cdot DFS_{rec-adj} \cdot ABS_d \cdot 10^{-6} \frac{kg}{mg}} \quad (4)$$

$$DFS_{rec-adj} \left(\frac{mg \cdot yr}{kg \cdot day} \right) = \frac{ED_c \cdot SA_c \cdot AF_c}{BW_c} + \frac{ED_a \cdot SA_a \cdot AF_a}{BW_a} \quad (5)$$

$$LOC_{rec-inh-ca} (mg/kg) = \frac{TR \cdot AT_{ca}}{EF_{rec} \cdot ED_{rec} \cdot ET_{rec} \cdot \frac{1day}{24hrs} \cdot IUR \cdot 1000 \frac{\mu g}{mg} \cdot \frac{1}{PEF}} \quad (6)$$

When equation 1 was used to derive levels based on an exposure frequency (EF_{rec}) of 250 days per year by adults only, equations 7 (incidental ingestion), 8 (dermal absorption), and 9 (inhalation of particulates) were used to derive route-specific levels of concern. Child-specific adjustments were not used to derive a level of concern when using an exposure frequency of 250 days/year by an adult visitor.

$$LOC_{rec-ing-ca-a} (mg/kg) = \frac{TR \cdot AT_{ca} \cdot BW_a}{EF_{rec} \cdot ED_{rec} \cdot CSF_o \cdot IRS_a \cdot 10^{-6} \frac{kg}{mg}} \quad (7)$$

$$LOC_{rec-der-ca-a} (mg/kg) = \frac{TR \cdot AT_{ca} \cdot BW_a}{EF_{rec} \cdot ED_{rec} \cdot \frac{CSF_o}{GIABS} \cdot SA_a \cdot AF_a \cdot ABS_d \cdot 10^{-6} \frac{kg}{mg}} \quad (8)$$

$$LOC_{rec-inh-ca-a} (mg/kg) = \frac{TR \cdot AT_{ca}}{EF_{rec} \cdot ED_{rec} \cdot \frac{ET_{rec}}{24hrs} \cdot IUR \cdot 1000 \frac{\mu g}{mg} \cdot \frac{1}{PEF}} \quad (9)$$

3.2.1.2 Non-carcinogenic Level of Concern for Recreational Visitors

Equation 10 was used to derive the level of 2,3,7,8-tetrachlorodibenzo-p-dioxin in surface soil that represents a target non-cancer hazard quotient (THQ) of 1 to a recreational park visitor exposed via incidental ingestion, dermal absorption, and inhalation of particulates.

$$LOC_{rec-total-nc} (mg/kg) = \frac{1}{\frac{1}{LOC_{rec-ing-nc}} + \frac{1}{LOC_{rec-der-nc}} + \frac{1}{LOC_{rec-inh-nc}}} \quad (10)$$

When equation 10 was used to derive levels based on an exposure frequency (EF_{rec}) of 4, 19, or 26 days per year by children and adults, equations 11 (incidental ingestion), 12 (dermal absorption), and 13 (inhalation of particulates) were used to derive route-specific levels of concern. These equations assume an exposure duration (ED_c) of 6 years as a child only, which accounts for young children less than 7 years in age. Because the non-cancer level of concern is based on an average daily dose and children have a higher soil intake per body mass compared to adults, a non-cancer level of concern based on exposure as a child only is lower (i.e., more health-protective) than a non-cancer level of concern based on exposure as both an adult and a child. Note that the six year exposure duration represents the shortest time period that is considered a chronic exposure.

$$LOC_{rec-ing-nc} (mg/kg) = \frac{THQ \cdot AT_{rec-nc-c} \cdot BW_c}{EF_{rec} \cdot ED_c \cdot \frac{1}{RfD} \cdot IRS_c \cdot 10^{-6} \frac{kg}{mg}} \quad (11)$$

$$LOC_{rec-der-nc} (mg/kg) = \frac{THQ \cdot AT_{rec-nc-c} \cdot BW_c}{EF_{rec} \cdot ED_c \cdot \frac{1}{RfD \cdot GIABS} \cdot SA_c \cdot AF_c \cdot ABS_d \cdot 10^{-6} \frac{kg}{mg}} \quad (12)$$

$$LOC_{rec-inh-nc} (mg / kg) = \frac{THQ \cdot AT_{rec-nc-c}}{EF_{rec} \cdot ED_c \cdot ET_{rec} \cdot \frac{1day}{24hrs} \cdot \frac{1}{RfC} \cdot \frac{1}{PEF}} \quad (13)$$

When equation 10 was used to derive a level of concern for adults only, based on an exposure frequency (EF_{rec}) of 250 days per year, equations 14 (incidental ingestion), 15 (dermal absorption), and 16 (inhalation of particulates) were used to derive route-specific levels of concern. These are based on a 30 year exposure duration as an adult only and do not include child-specific parameters.

$$LOC_{rec-ing-nc} (mg / kg) = \frac{THQ \cdot AT_{rec-nc-a} \cdot BW_a}{EF_{rec} \cdot ED_{rec} \cdot \frac{1}{RfD} \cdot IRS_a \cdot 10^{-6} \frac{kg}{mg}} \quad (14)$$

$$LOC_{rec-der-nc} (mg / kg) = \frac{THQ \cdot AT_{rec-nc-a} \cdot BW_a}{EF_{rec} \cdot ED_{rec} \cdot \frac{1}{RfD \cdot GIABS} \cdot SA_a \cdot AF_a \cdot ABS_d \cdot 10^{-6} \frac{kg}{mg}} \quad (15)$$

$$LOC_{rec-inh-nc} (mg / kg) = \frac{THQ \cdot AT_{rec-nc-a}}{EF_{rec} \cdot ED_{rec} \cdot ET_{rec} \cdot \frac{1day}{24hrs} \cdot \frac{1}{RfC} \cdot \frac{1}{PEF}} \quad (16)$$

3.2.2 Park Workers

Consistent with the EPA guidance, Route 66 State Park workers, including park rangers and other employees, are assumed to contact on-site surface and shallow subsurface soils (0 - 2 feet below ground surface) 225 days per year, for 25 years, via incidental ingestion, dermal absorption, and inhalation of particulates. Although workers employed by the park include indoor workers (e.g., workers at the visitor center), an outdoor worker exposure scenario was conservatively used to derive the levels of concern for park workers, because outdoor workers have greater direct contact with soil than indoor workers. Typical activities that may result in direct contact with soil up to two feet below ground surface include landscaping and outdoor maintenance (USEPA, 2002). However, a majority of the exposure by the Route 66 State Park workers, if not all, will be to soils in the top 2 centimeters of soil, given that landscaping and outdoor maintenance are not likely routine daily activities at this park, especially for soils below the surface.

Sections 3.2.2.1 and 3.2.2.2 provide the equations used to derive the carcinogenic and non-carcinogenic levels of concern, respectively, for park workers. All of the exposure parameters used in these equations are the EPA's default values for an outdoor worker RME scenario.

3.2.2.1 Carcinogenic Level of Concern for Park Workers

Equation 17 was used to derive the level of 2,3,7,8-tetrachlorodibenzo-p-dioxin in surface soil that represents a target cancer risk of 1×10^{-4} to Route 66 State Park workers exposed via incidental ingestion (equation 18), dermal contact (equation 19), and inhalation of particulates (equation 20).

$$LOC_{work-total-ca} (mg/kg) = \frac{1}{\frac{1}{LOC_{work-ing-ca}} + \frac{1}{LOC_{work-der-ca}} + \frac{1}{LOC_{work-inh-ca}}} \quad (17)$$

$$LOC_{work-ing-ca} (mg/kg) = \frac{TR \cdot AT_{ca} \cdot BW_a}{EF_{work} \cdot ED_{work} \cdot CSF_o \cdot IRS_a \cdot 10^{-6} \frac{kg}{mg}} \quad (18)$$

$$LOC_{work-der-ca} (mg/kg) = \frac{TR \cdot AT_{ca} \cdot BW_a}{EF_{work} \cdot ED_{work} \cdot \frac{CSF_o}{GIABS} \cdot SA_{work} \cdot AF_{work} \cdot ABS_d \cdot 10^{-6} \frac{kg}{mg}} \quad (19)$$

$$LOC_{work-inh-ca} (mg/kg) = \frac{TR \cdot AT_{ca}}{EF_{work} \cdot ED_{work} \cdot ET_{work} \cdot \frac{1day}{24hrs} \cdot IUR \cdot 1000 \frac{\mu g}{mg} \cdot \frac{1}{PEF}} \quad (20)$$

3.2.2.2 Non-carcinogenic Level of Concern for Park Workers

Equation 21 was used to derive the level of 2,3,7,8-tetrachlorodibenzo-p-dioxin in surface soil that represents a target non-cancer hazard quotient of 1 to Route 66 State Park workers exposed via incidental ingestion (equation 22), dermal contact (equation 23), and inhalation of particulates (equation 24).

$$LOC_{work-total-nc} (mg/kg) = \frac{1}{\frac{1}{LOC_{work-ing-nc}} + \frac{1}{LOC_{work-der-nc}} + \frac{1}{LOC_{work-inh-nc}}} \quad (21)$$

$$LOC_{work-ing-nc} (mg/kg) = \frac{THQ \cdot AT_{work-nc} \cdot BW_a}{EF_{work} \cdot ED_{work} \cdot \frac{1}{RfD} \cdot IRS_a \cdot 10^{-6} \frac{kg}{mg}} \quad (22)$$

$$LOC_{work-der-nc} (mg/kg) = \frac{THQ \cdot AT_{work-nc} \cdot BW_a}{EF_{work} \cdot ED_{work} \cdot \frac{1}{RfD \cdot GIABS} \cdot SA_{work} \cdot AF_{work} \cdot ABS_d \cdot 10^{-6} \frac{kg}{mg}} \quad (23)$$

$$LOC_{work-inh-nc} (mg/kg) = \frac{THQ \cdot AT_{work-nc}}{EF_{work} \cdot ED_{work} \cdot ET_{work} \cdot \frac{1day}{24hrs} \cdot \frac{1}{RfC} \cdot \frac{1}{PEF}} \quad (24)$$

Table 1. Exposure Parameters Used to Calculate Levels of Concern for Dioxin.

Parameter	Definition	Units	Value	Reference
ABS _d	Fraction of dioxin absorbed dermally from soil	-	0.03	USEPA, 2004
AF _a	Soil adherence factor – adult visitor	mg/cm ²	0.07	BPJ; USEPA, 2002
AF _c	Soil adherence factor – child visitor	mg/cm ²	0.2	BPJ; USEPA, 2002
AF _{work}	Soil adherence factor – outdoor park worker	mg/cm ²	0.2	USEPA, 2002
AT _{ca}	Averaging time – all receptors, cancer	days	25,550	USEPA, 1989
AT _{rec-nc-a}	Averaging time – recreational visitor, non-cancer, adults only (see Section 3.2.1.2)	days	10,950	BPJ; USEPA, 1989
AT _{rec-nc-c}	Averaging time – recreational visitor, non-cancer, children only (see Section 3.2.1.2)	days	2,190	BPJ; USEPA, 1989
AT _{work-nc}	Averaging time – park worker, non-cancer	days	9,125	USEPA, 1989
BW _a	Body weight – adult	kg	70	USEPA, 1991c
BW _c	Body weight – child	kg	15	USEPA, 1991c
DFS _{rec-adj}	Dermal contact factor for soil – age-adjusted for child/adult visitors	mg-yr/kg-day	361	Equation 5
ED _a	Exposure duration – adult visitor	years	24	BPJ; USEPA, 1991c
ED _c	Exposure duration – child visitor	years	6	BPJ; USEPA, 1991c
ED _{rec}	Exposure duration – total duration for a recreational visitor	years	30	BPJ; USEPA, 1991c
ED _{work}	Exposure duration – park worker	years	25	USEPA, 1991c
EF _{rec}	Exposure frequency – recreational visitor	days/yr	(see text)	MDNR, 2007; BPJ
EF _{work}	Exposure frequency – park worker	days/yr	225	USEPA, 1991c
ET _{rec}	Exposure time – recreational visitor	hrs/day	4	BPJ
ET _{work}	Exposure time – park worker	hrs/day	8	USEPA, 2009
GIABS	Fraction of dioxin absorbed in gastrointestinal tract	-	1	USEPA, 2004
IRS _a	Ingestion rate of soil – adult	mg/day	100	USEPA, 2002
IRS _c	Ingestion rate of soil – child	mg/day	200	USEPA, 2002
IRS _{rec-adj}	Ingestion rate of soil – age adjusted for child/adult visitors	mg-yr/kg-day	114	Equation 3
PEF	Particulate emission factor – recreational visitors and park workers	m ³ /kg	1.36 x 10 ⁹	USEPA, 2002
SA _a	Skin surface area for dermal contact – adult visitor	cm ²	5,700	BPJ; USEPA, 2002
SA _c	Skin surface area for dermal contact – child visitor	cm ²	2,800	BPJ; USEPA, 2002
SA _{work}	Skin surface area for dermal contact – park workers	cm ²	3,300	USEPA, 2002
THQ	Target non-cancer hazard quotient	-	1	-
TR	Target cancer risk	-	1 x 10 ⁻⁴	-

BPJ: Best professional judgment. Default recreational exposure parameters do not exist. As described in Section 3.2.1, these values are based on site-specific information (MDNR, 2007) or on default residential exposure parameters.

4.0 TOXICITY ASSESSMENT

4.1 Carcinogenic Health Effects

When evaluating the potential carcinogenicity of a chemical, the EPA generally assumes that any exposure to a chemical will increase an individual's risk of developing cancer. In other words, there is no threshold below which the probability of developing cancer is zero. The EPA evaluates carcinogenic effects in two parts. First, the Agency evaluates all available scientific information and assigns a weight-of-evidence classification based on a compound's potential to cause cancer in humans. Second, a

toxicity value is calculated to define the quantitative relationship between dose or concentration and carcinogenic response. These values are known as cancer slope factors (CSFs) and inhalation unit risks (IURs). CSFs and IURs are generally plausible upper-bound estimates of the increased probability of developing cancer following a lifetime of exposure. These toxicity values are used to estimate the increased risk of developing cancer from exposure to potentially carcinogenic chemicals.

The EPA's Office of Solid Waste and Emergency Response (OSWER) Directive 9285.7-53 (USEPA, 2003) provides the hierarchy of human health toxicity values and guidance on the selection of the most appropriate sources of toxicity information that should be used to perform human health risk assessments for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or "Superfund") sites. Tier 1 toxicity values are those in the EPA's Integrated Risk Information System (IRIS). Tier 2 values are those from the EPA's Provisional Peer Reviewed Toxicity Values (PPRTVs). Finally, Tier 3 values are those from other the EPA or non-EPA sources, especially those with the most current information, which are publicly available, transparent regarding the methods and process used to derive the values, and have been peer-reviewed. According to this hierarchy document, "draft toxicity assessments are not appropriate for use until they have been through peer review, the peer review comments have been addressed in a revised draft, and the revised draft is publicly available."

4.1.1 Oral Cancer Slope Factor

Oral cancer slope factors (CSFs) for 2,3,7,8-tetrachlorodibenzo-p-dioxin are not available from Tier 1 (IRIS) or Tier 2 (PPRTV) sources. The current version (April 2012) of the EPA's Regional Screening Level (RSL) Table lists a Tier 3 source from CalEPA of 1.3×10^5 (mg/kg-day)⁻¹. Other Tier 3 values are available, including an oral CSF from the EPA's Office of Health and Environmental Assessment of 1.56×10^5 (mg/kg-day)⁻¹. In this document, we have used the CalEPA CSF, in order to be consistent with the RSL Table. However, because multiple values are available, we have discussed the implications of using other values in the Uncertainties Section of this document.

4.1.2 Inhalation Unit Risk

Inhalation unit risk (IUR) values are not available for 2,3,7,8-tetrachlorodibenzo-p-dioxin from Tier 1 (IRIS) or Tier 2 (PPRTV) sources. The April 2012 version of the EPA's RSL Table recommends use of 38 (μg/m³)⁻¹, from CalEPA. Examination of CalEPA's IUR value indicates that it was based on a route-to-route extrapolation from an oral toxicity study. This means that a toxicity value based on a study where the subjects were exposed via ingestion was then mathematically converted into a toxicity value for inhalation. The EPA does not typically use toxicity values generated by route-to-route extrapolation because of the resulting uncertainties, unless there is a sound scientific basis for doing so. However, we used the CalEPA IUR to derive carcinogenic levels of concern for inhalation in this document in order to be consistent with the EPA's RSL Table. We note that potential health risks from inhalation of dioxin are minimal, compared to the ingestion and dermal contact pathways. This is evident from the much higher inhalation-specific levels of concern, compared with the ingestion and dermal contact levels of concern (see Tables 2 and 3).

4.2 Non-carcinogenic Health Effects

In general, the EPA assumes that a dose or exposure level exists below which adverse non-carcinogenic health effects will not occur (USEPA, 1989). Below this "threshold", it is believed that exposure to a chemical is tolerated without adverse effects. Adverse health effects occur only when physiologic protective mechanisms are overcome by exposure to doses or concentrations above the "threshold".

Non-cancer toxicity values are derived for various durations of exposure, including chronic (up to a lifetime) and subchronic (up to 10% of a lifetime).

4.2.1 Oral Reference Dose

Oral reference doses (RfDs) are the toxicity values used in assessing non-carcinogenic effects from ingestion or dermal absorption of contaminants. An RfD is defined as an estimate of a daily exposure level to the human population, including sensitive subgroups that are likely to be without an appreciable risk of deleterious effects. To derive levels of concern in this evaluation, we used the Tier 1 chronic RfD for 2,3,7,8-tetrachlorodibenzo-p-dioxin of 7×10^{-10} mg/kg-day, which was recently finalized by the IRIS program in February 2012.

4.2.2 Inhalation Reference Concentration

Inhalation reference concentrations (RfCs) are the toxicity values used in assessing non-carcinogenic effects from inhalation of contaminants. RfCs are not available for 2,3,7,8-tetrachlorodibenzo-p-dioxin from Tier 1 (IRIS) or Tier 2 (PPRTV) sources. The April 2012 version of the EPA's RSL Table recommends use of $4\text{E-}08$ mg/m³, from CalEPA. Similar to the IUR, this RfC was derived from an oral study. As previously mentioned, the EPA does not typically use route-to-route extrapolation to derive inhalation toxicity values. However, we used the CalEPA RfC in this document to derive levels of concern, in order to be consistent with the EPA's RSL Table. We note that the non-cancer health risks from inhalation of dioxin are minimal, compared to the ingestion and dermal contact exposure pathways. This can be seen when observing the much higher inhalation-specific levels of concern, compared with the ingestion and dermal contact levels of concern (see Tables 2 and 3). Later in this document, we discuss the uncertainties with evaluating the inhalation pathway using an RfC derived by route-to-route extrapolation in greater detail.

5.0 DATA EVALUATION

5.1 Evaluation of Potential Health Risks for Recreational Visitors

5.1.1 Levels of Concern for Recreational Visitors to the Route 66 State Park

Total and route-specific levels of concern for 2,3,7,8-tetrachlorodibenzo-p-dioxin in surface soil at the Route 66 State Park for recreational visitors are presented in Table 2. All of the levels of concern are in parts per trillion (ppt) and rounded to two significant digits. Carcinogenic levels of concern were based on a 1×10^{-4} excess individual lifetime cancer risk, which is the upper end of the EPA's target cancer risk range as directed by the National Contingency Plan (USEPA, 1991a). Non-carcinogenic levels of concern were based on a target non-cancer hazard quotient of 1.0. The non-carcinogenic levels are lower, or more health-protective, than the carcinogenic levels of concern. As expected, the lowest levels of concern are associated with the higher exposure frequencies. For adult and children visitors, the lowest level of concern is 680 ppt dioxin in surface soil, based on 26 days per year. For frequent (250 days per year) adults-only visitors, the lowest level of concern is 640 ppt dioxin in surface soil.

Table 2. Levels of Concern for Dioxin in Soil (ppt) - Route 66 State Park Recreational Visitors.				
Frequency of Park Visits	250 days/year (adults only)	26 days/year (adults and children)	19 days/year (adults and children)	4 days/year (adults and children)
Excess Individual Lifetime Cancer Risk = 1×10^{-4}				
<i>Ingestion Level of Concern:</i>	1.8E+03	6.6E+03	9.1E+03	4.3E+04
<i>Dermal Level of Concern:</i>	1.5E+04	7.0E+04	9.6E+04	4.5E+05
<i>Inhalation Level of Concern:</i>	7.3E+07	7.0E+08	9.6E+08	4.6E+09
Total Level of Concern:	1,600	6,000	8,300	39,000
Non-cancer Hazard Quotient = 1				
<i>Ingestion Level of Concern:</i>	7.2E+02	7.4E+02	1.0E+03	4.8E+03
<i>Dermal Level of Concern:</i>	6.0E+03	8.8E+03	1.2E+04	5.7E+04
<i>Inhalation Level of Concern:</i>	4.8E+08	4.6E+09	6.3E+09	3.0E+10
Total Level of Concern:	640	680	930	4,400

5.1.2 Evaluation of Visitor Use of the Trails

From the trails, 16 DU composite samples were collected (Section 2.1; Figures 1, 3, 6, and 8). Of these, the lowest dioxin toxicity equivalence (TEQ) concentrations (Section 2.2 and Appendix D.1) were detected down the center of each of the four trail segments: 11.2 ppt at the 'W' Trail, 0.4 ppt at the Park Trail, 2.6 ppt at the Beach Trail, and 2.0 ppt at the Riverside Trail. Moving off the edges of the trails, the dioxin TEQ concentrations generally increased. The 'W' Trail measured 14.8 ppt, 27.3 ppt, and 31.8 ppt dioxin, at 1 foot, 2 – 3 feet, and 4 – 5 feet away from the edges of the trail, respectively. The Park Trail measured 1.2 ppt, 4.5 ppt, and 10.5 ppt dioxin, at 1 foot, 2 – 3 feet, and 4 – 5 feet away from the edges of the trail, respectively. The Beach Trail measured 8.8 ppt, 21 ppt, and 16 ppt dioxin, at 1 foot, 2 – 3 feet, and 4 – 5 feet away from the edges of the trail, respectively. Finally, the Riverside Trail measured 10.2 ppt, 37.5 ppt, and 73.4 ppt dioxin, at 1 foot, 2 – 3 feet, and 4 – 5 feet away from the edges of the trail, respectively. The dioxin TEQ concentrations detected in the 16 trail samples were all well below all of the recreational visitor levels of concern.

We expect that the most frequent trail users will be adults who walk, hike, jog, run, or ride horses on the trails. These users would include adults who regularly walk or otherwise use the park trails several days a week for exercise. In general, we expect these users to remain on the trail beds, with minimal soil contact. However, if the trail perimeters are easier to walk on or softer than the trail beds, regular trail users might consistently exercise on the trail edges. In both situations, the most appropriate level of concern for comparison is 640 ppt, based on non-cancer health risks to adults using the trails 250 days per year. Based on the available data for the centers of the trails, the dioxin concentrations are expected to be much lower than the level of concern throughout the park. Note that the concentrations detected ranged from 0.4 to 2.6 ppt in trails close to the shelters and the Meramec River, while a slightly higher level (11.2 ppt) was detected at the 'W' Trail in the southwestern portion of the park. The concentrations of dioxin detected along the perimeters of the trails were higher (1.2 to 73.4 ppt), but all concentrations were well below the 640 ppt level of concern. Based on the available data, the dioxin levels tend to increase with greater distance from the edge of the trail. Also, levels along the Riverside Trail perimeter appear higher than for the other trail segments.

Along with regular adult trail users, we expect that children may occasionally walk along the trails. In this case, the most appropriate level of concern is 680 ppt, based on non-cancer health risks to children and adults who use the trails 26 times per year. Unlike the frequent adult users, we expect these receptors to wander off the sides of the trail, perhaps contacting the soil as they collect rocks, flowers, other nature specimens, or dropped possessions (e.g., drinking containers). A greater soil contact rate is associated with these types of activities, which is why exposure parameters for children residents were used to derive the levels of concern (e.g., residential child soil ingestion rate). The use of higher soil

contact rates is why the level of concern for occasional child and adult visitors (680 ppt) is similar to the level for frequent adult visitors with lower soil contact rates (640 ppt). Based on the available data, all of the dioxin concentrations detected are well below the 680 ppt level of concern. Unlike the frequent adult visitors, we expect the occasional child and adult visitor to use shorter segments of the trails, particularly those close to parking lots, shelters, picnic areas, or the playground.

5.1.3 Evaluation of Visitor Use of the Public Use Areas

From the public use areas, 8 DU composite samples were collected (Section 2.1; Figures 1, 3, 4, and 5). At the Dogwood Shelter, the dioxin TEQ concentration detected was 24.1 ppt; at the Forest Shelter, 30.9 ppt was detected. The TEQ concentrations detected at the open picnic areas were 35 ppt, 218.6 ppt, and 35 ppt (with a duplicate sample of 36.2 ppt). The concentration detected in the playground was 1.2 ppt, while the concentration detected around the perimeter of the playground was 20.8 ppt. Finally, 60.9 ppt dioxin was detected at the proposed location for an off-leash dog park.

Children and adults are likely to picnic or have celebrations (e.g., family reunions, birthday parties) at the shelters and open picnic areas. Unlike the trail users, we expect picnickers to visit the Route 66 State Park less frequently. Thus, the more appropriate levels of concern are likely 930 ppt or 4,400 ppt, which are based on non-cancer health risks for adults and children visiting 19 or 4 days per year, respectively. The dioxin TEQ concentrations detected at the shelters and picnic areas (24.1 to 218.6 ppt) were all well below these levels of concern, as well as levels of concern based on more frequent use (e.g., 680 ppt). To reach a level of concern, picnickers would need to visit DU 7 (the picnic area where 218.6 ppt dioxin was detected) 81 times per year, assuming high soil contact rates (e.g., ingestion rates).

Children (and adults) may use the playground when picnicking. It is also plausible that family members or friends bring them to the Route 66 State Park specifically to play on the playground. Note that the park is not located adjacent to residential areas, so visitors must drive or be driven to visit the park. Thus, an appropriate level of concern is 680 ppt, based on non-cancer health risks to children using the playground once a week, during the 6 warmer months of the year. Because of the thick material (i.e., mulch) covering the playground, the dioxin TEQ concentration detected in the actual playground DU was very low, at 1.2 ppt. The perimeter of the playground, which is not covered in mulch, was also sampled to assess potential health risks for children visitors. At this location, 20.8 ppt dioxin TEQ was detected. Although the concentration detected in the perimeter was greater than the actual playground, both concentrations were well below all levels of concern for recreational receptors.

Because a portion of the park has been proposed as the location for an off-leash dog park, this area was defined as a decision unit. Currently, we expect minimal exposure at this area, which is located next to a parking lot. However, if it were used as a dog park, an appropriate level of concern is 640 ppt, based on non-cancer health risks to adults visiting the dog park 250 days/year. Typical nearby dog owners may be more likely to take their dog to a dog park once a week. However, we expect some dog owners might regularly bring their dogs several days per week. The dioxin TEQ concentration detected at the proposed dog park location was 60.3 ppt, an order of magnitude lower than the level of concern.

5.1.4 Evaluation of Visitor Exposure at Other Areas

As discussed in Section 2.1, samples were collected from the Route 66 State Park to satisfy two objectives: to evaluate potential health risks for park visitors and workers and to characterize contaminant distribution. Although not expressly collected to assess recreational visitors, we still evaluated this data using the most appropriate levels of concern.

Samples were collected from three locations where underground utility lines were installed primarily to assess potential exposure to workers. However, as shown in Figure 1, 3, and 4, these areas are located near the shelters, picnic areas, and playgrounds. Therefore, we used the level of concern of 680 ppt to evaluate visitor exposures, based on non-cancer health risks to children (and adults) that are exposed 26 days per year. This assumes that children playing at the Route 66 State Park spend the duration of their visit along the utility line areas, which is unlikely to occur on a consistent basis. We could also use a level of concern of 930 ppt, which assumes that adults and children come to the park for picnics or celebrations, but instead spend their time in the utility line areas. The dioxin TEQ concentrations detected in Utility-2, which is the closest of the three lines to the Forest Shelter, picnic areas, and playground, ranged from 6.8 to 11 ppt. The other two lines flank the Dogwood Shelter. While 29.2 to 63.2 ppt dioxin was detected in Utility-1, on the southwest side of the shelter, the levels ranged from 120.8 to 350.6 ppt in Utility-3, located on the northeastern side of the Dogwood Shelter. All of the utility line samples were below the 680 and 930 ppt levels of concern.

Samples were collected from the former roadways to help better understand current dioxin distribution. However, these former roadways are now located near or used as trails (Figures 1, 2, 7, 8). Therefore, the level of concern used to evaluate the road samples from a visitor perspective was 640 ppt, based on use by adults for 250 days per year. The dioxin TEQ concentrations detected along the margins of the South Outer Road (Figure 2) ranged from 17.4 to 123.8 ppt, all of which are less than the level of concern. The former Grove Road (Figure 7) is located in the northern portion of the park, in a less-developed area. Between 48.8 and 158.5 ppt dioxin were detected in the samples collected off the sides of this former roadway; all were less than the level of concern. The former Oak Road lies perpendicular to the 'W' Trail, while the former Maple Road is now part of the 'W' Trail (Figure 8). Between 39.2 and 229.6 ppt dioxin TEQ were detected in the samples collected to the side of the former Oak Road; all concentrations were less than the level of concern. Different sampling techniques were used at the former Maple Road. The levels of dioxin detected in these samples ranged from 18.3 ppt closer to the roadway to 524.1 ppt furthest from the road. All of these concentrations are below the level of concern of 640 ppt. We note that frequent trail users are not expected to visit the extreme perimeters of the trail/roadways for 250 days per year.

Like the roadways, samples were collected from the former residential lots to better characterize current dioxin distribution. Ten locations were sampled, as shown in Figure 1. The dioxin TEQ concentrations detected were 16.2 and 24.9 ppt in the lots near the South Outer Road, 37 and 44.2 ppt in the lots near the former Grove Road, 28.4 and 82.5 ppt in the lots near the proposed dog park, 46.7 and 118.2 ppt (duplicate of 144.3 ppt) in the lots near the former Maple Road, and 62.7 and 190.9 ppt in the lots near the former Oak Road. We do not expect any of the park visitors to regularly (i.e., 250 days per year or even 26 days per year) spend time in any of these individual former lots. However, we note that the levels of dioxin detected in each location are well below all of the levels of concern derived for recreational park visitors.

5.2 Evaluation of Potential Health Risks for Park Workers

Total and route-specific levels of concern for 2,3,7,8-tetrachlorodibenzo-p-dioxin in surface soil at the Route 66 State Park for park workers are presented in Table 3. All of the levels of concern are in parts per trillion (ppt) and rounded to two significant digits. A carcinogenic level of concern of 2,000 ppt was derived based on a 1×10^{-4} excess individual lifetime cancer risk, which is the upper end of the EPA's target cancer risk range as directed by the National Contingency Plan (USEPA, 1991a). A non-

carcinogenic level of concern of 660 ppt was derived based on a target non-cancer hazard quotient of 1.0. All of the exposure parameters used to derive these levels of concern for park workers were the EPA's standard values for outdoor workers.

Table 3. Levels of Concern for Dioxin in Soil (ppt) - Route 66 State Park Workers.	
Excess Individual Lifetime Cancer Risk = 1×10^{-4}	
<i>Ingestion Level of Concern:</i>	2.4E+03
<i>Dermal Level of Concern:</i>	1.2E+04
<i>Inhalation Level of Concern:</i>	4.9E+07
Total Level of Concern:	2,000
Non-cancer Hazard Quotient = 1	
<i>Ingestion Level of Concern:</i>	7.9E+02
<i>Dermal Level of Concern:</i>	4.0E+03
<i>Inhalation Level of Concern:</i>	2.6E+08
Total Level of Concern:	660

As described previously, samples were collected throughout the Route 66 State Park, from the trails, shelters, picnic areas, playground, location for the proposed dog park, areas where utility lines have been installed, former roadways, and former residential lots. Although individual park visitors are likely to use just a few of those areas, park workers are expected to contact contaminated surface soil across a much larger portion of the entire 419 acre park over their working lifetime. The levels of concern derived in Table 3 are based on the EPA's standard assumptions for outdoor workers, including 225 days per year exposure with higher soil contact rates. At the Route 66 State Park, these assumptions best apply to outdoor workers involved in maintenance and landscaping duties. Park rangers are also expected to travel throughout the park, but we expect them to have lower soil contact rates. Because maintenance and landscaping occurs throughout the park, it is most appropriate to compare the average dioxin concentration across the park to levels of concern in order to evaluate potential health effects for workers. Although samples were not collected from the entire park, the samples are representative, in that we expect similar or lower dioxin concentrations at all of the trails, former residential lots, and former roadways. Across the park, the dioxin TEQ concentrations detected ranged from 0.4 ppt (in the center of the Park trail segment) to 573.1 ppt (a five aliquot point sample collected off the edge of the former Maple Road). In all of the samples, the dioxin TEQ concentrations detected were lower than the 660 ppt level of concern derived for park workers.

6.0 UNCERTAINTIES

Although we have attempted to minimize the uncertainties in our evaluation of potential health concerns for Route 66 State Park visitors and workers by using a combination of default assumptions, site-specific data, and best professional judgment, this section addresses the remaining uncertainties in the sampling approach, exposure assessment of visitors and workers, and toxicity values used to evaluate the data.

6.1 Uncertainties in Sampling and Available Data

The sampling plan for the Route 66 State Park was designed to collect data from areas frequented by visitors and workers. However, the park is large, at approximately 419 acres, so the entire park was not sampled. It is possible that higher levels of dioxin are found in these un-sampled areas, but we do not expect that workers and visitors will spend 250 days per year (adult visitors), 26 days per year (children visitors), or 225 days per year (workers) at these areas. Instead, we expect most of their exposure will occur at the shelters, picnic areas, playground, and trails. The public use areas (i.e., the shelters, picnic areas, and playground) with frequent exposure by visitors were well-sampled, with dioxin

concentrations below levels of concern. It is possible that other open picnic areas have higher dioxin levels, but we expect routine picnicking to occur at the shelters and nearby picnic areas that were sampled. Only four trail segments were sampled, but because the segments were spread throughout the park and had lower levels of dioxin (maximum of 73.4 ppt, at 4 – 5 feet off one trail segment), we expect the dioxin concentrations throughout the park trails to be less than levels of concern. The sampling plan was not specifically designed to sample “off-road” trails, but samples were collected from the former roadways and residential lots to characterize current dioxin distribution. Dioxin concentrations in these “off-road” areas are higher than found on the trails and public use areas, but they are still below levels of concern. Although the former roads and lots that were sampled were spread throughout the park, it is possible that they are not representative of all roadways and lots. However, it is unlikely that someone would spend all their time at the park at specific former roadways and residential lots.

In addition to the areas sampled, another uncertainty in the available data is the type of samples that were collected. Only surface soil samples were collected. We do not expect recreational visitor or routine park workers to contact subsurface soil. We are aware that utility workers have installed underground utility lines at the park and have thus come into contact with subsurface soil. We attempted to minimize this uncertainty by collecting samples along three locations where utility lines were buried. These samples likely represent a mixture of surface and subsurface soil, which is what utility workers would contact. The concentrations of dioxin detected in these samples were below levels of concern for park workers. Even though utility workers have higher soil contact rates, compared to typical outdoor workers, they have much shorter exposure frequencies (e.g., 120 days or less) and exposure durations (e.g., less than one year). Therefore, levels of concern for exposure to dioxin in soil by utility workers are much higher than for outdoor workers. In other words, the levels of concern derived for outdoor workers are protective for utility workers as well.

6.2 Uncertainties in Exposure Assessment

When deriving levels of concern for recreational park visitors, we relied on site-specific data obtained in park visitor studies. However, as with many surveys, the number of respondents in these studies was much less than the total number of park visitors and may not be representative of current behavior. The most recent study was conducted in 2005 – 2006. Finally, the park visitor studies were done to aid the MDNR and the parks department; they were not designed to collect data intended for exposure or risk assessment purposes. For these reasons, it is possible that we underestimated visitor frequency. However, we attempted to address this uncertainty by selecting multiple exposure frequencies from the MDNR studies, as well as using a frequency of 26 days per year, consistent with what has been used at for other Region 7 recreational scenarios.

For the other parameters used to derive recreational visitor levels of concern, we used the EPA’s standard exposure values for residents. It is likely that these assumptions are overly conservative (i.e., health-protective). For example, we assumed a high residential soil ingestion rate for children and also assumed that all soil ingestion for visitors occurs at the Route 66 State Park, with none at home or other locations. However, because we did not have information to suggest otherwise, we chose to use these conservative assumptions in order to be health-protective for visitors.

All of the exposure parameters used to derive levels of concern for the park workers assumed the EPA’s standard exposure values for outdoor workers. These may be overly conservative. For instance, we are unsure whether park workers spend their entire work days doing maintenance and landscaping for 225

days out of the year. Again, however, we do not have information to suggest otherwise, so we chose to use these conservative assumptions to be health-protective for park workers.

6.3 Uncertainties in Toxicity Values

Looking at Tables 2 and 3, the lowest, most-health protective levels of concern are based on non-cancer risks from ingestion of soil. We have high confidence in the 2,3,7,8-tetrachlorodibenzo-p-dioxin oral non-cancer toxicity value (RfD) finalized in 2012 because it underwent an extensive, independent, and highly public peer review process. We have less confidence in the oral cancer slope factor (CSF), which is a Tier 3 value from CalEPA. However, other CSF values are available, and all are generally the same magnitude as the CalEPA value. Both the inhalation non-cancer value (RfC) and cancer value (IUR) were derived using route-to-route extrapolation. There are many uncertainties with using an oral study to approximate inhalation toxicity values. However, we note that the contribution of inhalation exposure is much less of a concern than oral exposure (ingestion) for dioxin.

7.0 CONCLUSIONS

The EPA and the MDNR conducted an extensive dioxin cleanup at the Route 66 State Park (formerly Times Beach, Missouri) in the 1990s. Since then, the ability to quantify levels of dioxin in the environment and our overall understanding of health effects associated with dioxin has continued to improve. On January 5, 2012, the Missouri Department of Natural Resources requested that the EPA conduct a site-specific risk assessment for the Route 66 State Park to determine whether current use poses health concerns for public visitors or park workers. In response to the MDNR's request, the EPA collected soil samples from the Route 66 State Park in June 2012. The samples were analyzed for 2,3,7,8-tetrachlorodibenzo-p-dioxin and other related dioxins and furans. Following applicable EPA risk assessment guidance and using a combination of site-specific information, best professional judgment, default exposure parameters, and current toxicity values, we derived multiple levels of concern for recreational visitors and workers at the Route 66 State Park. The concentrations of dioxin detected in the soil samples were all lower than these levels of concern. We conclude that current use of the Route 66 State Park does not pose significant health risks to public visitors or park workers.

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APPENDIX C

**SUMMARY OF DIOXIN DATA COLLECTED FROM ROUTE 66 PARK—PILOT
STUDY/VARIABILITY STUDY DATA TECHNICAL SUMMARY DOCUMENT**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

November 6, 2012

**OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE**

TECHNICAL MEMORANDUM

SUBJECT: Final Summary of Dioxin Data Collected from Route 66 Park

**FROM: Deana Crumbling
Technology Integration and Information Branch
Office of Superfund Remediation and Technology Innovation**

**TO: Dave Williams
Region 7 Superfund Division**

Per your request, this memo provides you with a final summary of my review and analysis of the Route 66 Park dioxin data. Improvements were made to the Oct. 1, 2012, draft memo based on comments. The data was collected during June 2012 and provided to me by the Region in July 2012. My summary is intended for the Region to share and use as they deem appropriate.

The dioxin investigation performed in Rt. 66 Park in 2012 was designed to serve several purposes:

- Provide data to use in risk assessment to evaluate risk to park patrons and workers using the new IRIS RfD value for dioxin TEQ.
 - To support this purpose, incremental samples were taken from trails (center and sides), current and future patron use areas, and utility areas and lines.
 - Where convenient, these sampling locations were used as opportunities to gather more information about the spatial distribution and variability of residual dioxin TEQ concentrations.
 - Take a look at potential migration of dioxin-contaminated soil from the Park via stormwater outfalls.
- Provide an indication of concentrations and spatial distributions of residual dioxin TEQ in selected Times Beach areas that underwent past cleanup.
 - The areas included the sides of former sprayed streets that had been capped or otherwise cleaned up (called "strip sampling") to 1000 ppt, and former residential lots.
 - A goal of the Times Beach area samplings was to provide data that could predict the design and costs of any future sampling efforts in other areas of eastern Missouri that had been affected by Bliss's road spraying.
- A side benefit was to establish and resolve the source of data variability that had been noted in data from sampling events done for Strecker Forest in 2011 and 2012.

Outcomes and conclusions from the Route 66 Study

- 1) The TEQ results from dioxin/furan soil analyses from patron-use areas are provided on maps of these locations within the park (in the Attachment). The results are summarized below.
 - a. The potential dog park area was 60 ppt TEQ (see Figure 5 in the Attachment); the picnic areas were 35, 36 and 219 ppt and the playground area was 1 ppt in the center and 21 ppt around the perimeter (see Figure 6). Forest Shelter was 31 and Dogwood Shelter was 24 ppt (see Figures 4 and 6).
 - b. Trail concentrations were determined for the trail proper (the center) and for 3 one-to-two ft strips along both sides of the trail. The cumulative width of the strips was 5 ft on either side of a trail. Thus, data was provided for 6 strip-DUs composed of soil totaling a width of 10 ft centered on the trail, plus a strip-DU for material making up the trail itself. Spatial distribution information generated from the trail strip sampling showed that concentrations of the strips along the trail were similar at different distances from the trail. When the center and side strips are averaged, the trail results are as follows:
 - i. Riverside Drive Trail concentration was 31 ppt overall for the 10-ft+ wide strip centered on the trail [(i.e., the trail proper plus 5 ft on either side)] (see Figure 7).
 - ii. Beach Trail overall concentration was 12 ppt (see Figure 7).
 - iii. W Trail overall concentration was 21 ppt (see Figure 8).
 - iv. Park Trail overall concentration was 4 ppt (see Figure 3).
 - c. Utility area and lines (lines involve averaging results covering over a 10 ft wide strip centered on the line):
 - i. Combined utility areas near picnic areas (DU 21) (Figure 6): 14 ppt
 - ii. Utility lines along Forest from Beach to SE 1000 feet (DU18) (Fig. 4): 43 ppt
 - iii. Forest utility line from Beach to NNW 630 feet (DU19) (Figure 6): 9 ppt
 - iv. Dogwood utility line from Beach to SE 1000 feet (DU20) (Fig. 4): 198 ppt
 - d. Two drainage outfalls:
 - i. Outfall #1 (DU 16) (not shown in the Attachment figures): 8 ppt
 - ii. Outfall #2 (DU 17) (see Figure 3): 93 ppt
 - e. Summary: All 16 potential exposure unit concentrations (the drainage outfalls are not included as exposure units) were less than 220 ppt. A total of 13 were less than 45 ppt.
- 2) One of the questions regarding residual dioxin contamination was whether there was a predictable pattern of higher concentrations nearest the sprayed road, and over what distance concentrations might drop off with distance from the road. If cleanup had occurred in the past, how high might residual concentrations be?
 - a. Understanding the concentration trend running perpendicular to the road on both sides would support an understanding of how far into adjacent residential yards (in other parts of MO) dioxin-contaminated spray might have traveled at the time of spraying, and how far contaminated soil/dust might have traveled in the intervening years. This information in turn could be used to generally predict what the overall concentration might be for

residential yards that border sprayed roads, and what sampling design would be most advantageous if there was a plan to clean up yards that exceeded some threshold. Since the bulk of contamination might be expected to be nearer the road, the investigation sampling design could be structured to simultaneously support the remediation design (supporting both data uses in a single sample collection event to avoid a second sampling event in any particular yard). However, it is also possible that the passage of time could have erased those patterns. The parallel “strip” designs along sprayed roadways of the former Times Beach were intended to address those questions.

i. Results from the road strip sampling

1. South Outer Road (1000 ft strip length; 1 side only, 4 10-ft wide strip-DUs): this road had never been sprayed, so it was originally intended to serve as a “background” area. However, it appears that dioxin contamination was tracked to the soil immediately adjacent to South Outer Road. At 10 ft from the road, the concentration was 124 ppt. However, beyond the 10-ft strip, the concentrations of the 20-, 30-, and 40-ft strips were stable around 18 ppt. Only one side of the road was tested (see Figure 2).
2. Oak Road/Street (750 ft strip length; both sides; 8 10-ft wide strip-DUs): this was a remediated roadway and both the north and south sides were tested. The innermost strip (10 ft from road) on the north side of the road was 230 ppt. The rest of the north side strips (20-, 30-, and 40-ft) were similar to each other in concentration (~50 ppt). The south side strips showed a barely perceptible drop off in concentration with increasing distance from the road, from 74 ppt for the innermost 10-ft strip, to 62, 58, and 39 ppt for the subsequent 3 strips, averaging 58 ppt over all 4 south side strips (see Figure 8).
3. Grove Road/Street (1000 ft strip length; both sides; 8 10-ft wide strip-DUs): The strips on the north side of Grove did not show a concentration trend with increasing perpendicular distance from the road. The results in order from 10-ft to 40-ft were 76, 97, 158, and 81 ppt, for an average of 103 ppt over the whole 40-ft wide north shoulder. There also was not a trend for the southern strips. Those results, in order from 10-ft to 40-ft, were 52, 87, 78, and 49 ppt, for an average of 67 ppt over the 40-ft wide south border of Grove (see Figure 9).
4. Maple Road/Street (600 ft strip length, both sides; 8 20-ft wide strip-DUs): The strips bordering the north side of Maple show a counter-intuitive increasing trend with distance from the road: the 20-ft strip concentration was 26 ppt; the 40-ft was 106, 60-ft was 260, and the 80-ft strip was 366 ppt. (These strips happened to have field triplicates, so this pattern is confirmed.) The south-bordering strips had a variable pattern: the 20-ft strip was 40 ppt, 40-ft was 246 ppt, 60-ft was 82, and 80-ft was 70 ppt. The average over the entire 80-ft south border was 110 ppt (see Figure 8).
5. Five-point composite sampling was performed along the length of the 2nd (from road) strip on the north side of Maple. (See Figure 1 immediately below.) Six 5-pt composite samples were collected with 60 to 100 ft between them. A composite sample was formed by taking soil from the corners and center of a 4-sq.ft. square and compositing those 5 increments

into a single sample, each of which was analyzed once. The goal for these composite samples was to estimate the variability from place to place along a single strip parallel to the road. The variability proved to be high, with concentrations ranging from 8 to 573 ppt. Taking a 5-pt composite minimizes the effect of short-scale heterogeneity, so that these results can be considered real concentration differences along the 600-ft long strip. The incremental result for the whole strip was 106 ppt. This compares favorably with the average of the 6 5-pt composites, which was 197 ppt. The standard deviation for the six composite sample results was 204 ppt (refer to Figure 1).

- a. Note that a 5-point composite sample represents only a 4-sq.ft. area, whereas the 30-increment strip-DU samples covered areas ranging up to 12,000 sq.ft. Since the 5-point composite samples and the DU samples represent different spatial areas, their results are not directly comparable (i.e., the 573 ppt result is not an “outlier”). The purpose of the 5-point composite samples was different from the purpose of the strip-DU samples. The six composite samples were used to estimate spatial variability within a single strip-DU. This information is useful input to developing possible future sampling designs for other MO locations with similarly sprayed roads.

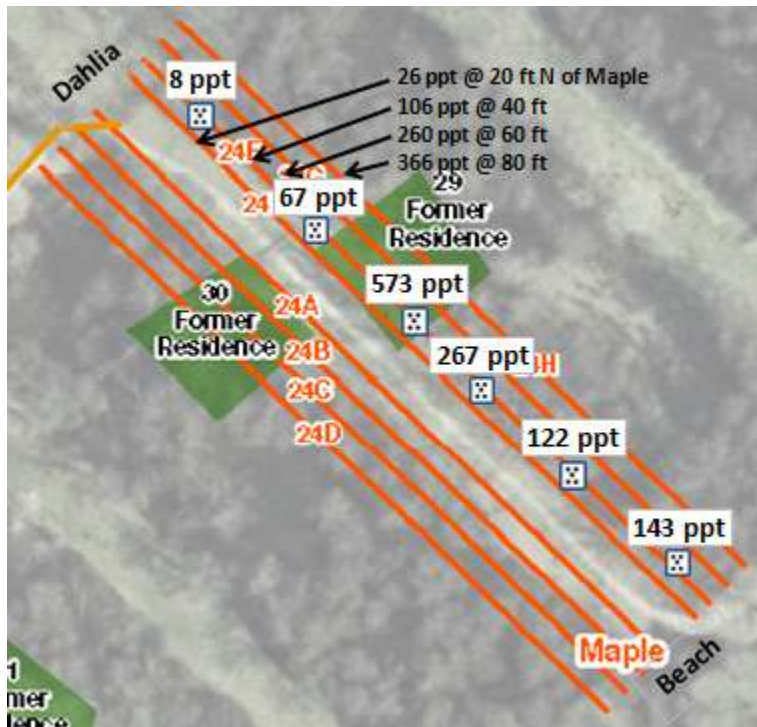


Figure 1.

- ii. Conclusions drawn from the road strip sampling:
 1. All strip-DU sample results (this excludes the 5-point composites) from the 3 road groups subjected to past cleanup were less than 370 parts per trillion, showing that past cleanup was effective in meeting the 1 part per billion (which is equal to 1000 parts per trillion) cleanup goal. If cleanups

outside of Rt. 66 Park followed similar procedures, it can be expected that those cleanups also likely achieved concentrations below 1000 ppt for similarly constructed DUs.

2. Concentration patterns for roadside residual contamination from road spraying are not predictable. Unlike what might be expected, concentration patterns moving perpendicularly away from a sprayed road do not consistently show a decreasing trend. The magnitude of concentrations for incremental samples representing 600- to 1000-ft strips parallel to roads ranged from 20 to 370 ppt, without regard for distance from the road.
 3. The influence of overall roadside strip concentration on the overall residential lot concentration also was not predictable, even when the strips covered a large portion of the front of the lot (as is the case for the 2 lots bordering Maple). This is no doubt due to the high degree of heterogeneity along the length of the strip. For example, although the 40-to-60 and 60-to-80-ft strips had overall concentrations of 260 and 366 ppt, respectively, and covered a 40-ft section of the lot, the overall concentration of the lot (DU29) is not elevated as much as might be expected (only 122 ppt). Given the degree of spatial variability within a single strip, it is possible that higher concentration areas that drove the high overall average strip concentrations for the 3rd and 4th strips do not coincide with the lot location.
 4. This high degree of variability in residual dioxin concentrations both parallel and perpendicular to sprayed roads means that each residential lot may have a unique dioxin concentration and pattern. It is not possible to predict whether an individual lot along a sprayed road will have a concentration closer to 20 ppt or 200 ppt. However, where past cleanup has taken place, a lot concentration is likely to be well below 1000 ppt.
- b. A total of 10 former residential lots were each sampled with a single incremental sample representing the entire lot-DU. In addition, one of these lots (RES-5:DU29) had two more incremental lot-DU samples collected. Thus for the RES-5:DU29 lot, 3 replicate incremental samples (each of which covered the entire lot) were collected for quality control purposes (discussed later). The 10 lot-DUs provide a general idea of what concentrations might be expected for residential lots outside of Rt. 66 Park that share a similar contaminant release and cleanup history.
- i. Results from former residential lot sampling
 1. Two lots along South Outer Road were originally considered “background,” but as mentioned before, that may no longer be the case: lot-DU1 was 25 ppt and lot-DU2 was 16 ppt (see Figure 2).
 2. Two adjacent lots along Oak were sampled: DU31 was 63 and DU32 was 191 ppt (see Figure 8).
 3. Two lots along Maple, but on opposite sides of the road, were sampled: DU30 was 47 ppt and DU29 was 122 ppt (see Figure 8).
 4. One lot on the north side of Grove (DU26) was 44 ppt, and one lot set back from Grove (DU25) was 37 ppt (see Figure 9).
 5. Two lots near the proposed dog park were sampled: DU27 was 28 ppt and DU28 was 81 ppt (see Figure 5).

ii. Conclusions from former residential lot sampling

1. If a screening level concentration of ~50 ppt is used for residential lots, it is not possible to predict whether any particular lot would be above or below the screening level. Each lot would have to be sampled individually even if a qualitative estimate of lot-specific concentrations is desired.
2. In addition, the high degree of spatial variability seen in the residual dioxin concentrations means that statistical decision-making around a screening level would require more intensive sampling efforts than is typical for incremental sampling projects.
 - a. The number of increments per sample would need to be increased over the usual default of 30 to reduce the effect of high within-DU variability.
 - b. Based on the concentrations observed with the 10 former residential lots, it is likely that some lots will have concentrations below, but near the ~50-ppt screening level (i.e., 35 to 47 ppt). Given the observed variability for the triplicate lot-DU samples from RES 5:DU29, 4 or 5 replicate incremental samples (instead of the usual 3) would probably be needed to bring the 95% statistical upper confidence level (UCL) value under the screening level.

3) Summary of conclusions from the sampling quality control performed as part of the Rt. 66 Park Study: To obtain confident lot-DU dioxin results that are not biased by soil heterogeneity, the sampling effort will need to be greater than the defaults used for incremental sampling projects.

- a. A high number of increments (no less than 30, and likely more than 30) would be needed for any future residential lot sampling. This high number of increments increases the spatial density of sampling locations to be sure that any “hot spots” of significant size are included in the incremental sample in their correct proportion. A high number of increments is also needed to reduce the variability observed between 3 or more replicate incremental samples which might be used to calculate a statistical UCL for the lot.
 - i. Whether an adequate number of increments are being used is detectable by examining the precision of replicate incremental DU samples (also called “field replicates.”) Five sets of field replicates were collected by the sampling team.

- ii. Four of the field replicate sets were taken from the north Maple strips. Since this was the area with the widest concentration range, this was a good test of the quality of the sampling design. The triplicate results are presented in the following table:

	20-ft Maple Strip	40-ft Maple Strip	60-ft Maple Strip	80-ft Maple Strip
1 st Triplicate	39	41	222	524
2 nd Triplicate	18	84	300	395
3 rd Triplicate	20	192	256	179
Mean of Tripl's	26	106	260	366
SD of Triplicates	11.5	78	39	174
RSD (as %)	40%	70%	20%	50%

- iii. The 40-ft Maple strip was the one that had the 6 5-pt composite samples (as described above) that showed a high level of spatial heterogeneity within the strip-DU. Therefore it is not surprising that the variability among the triplicates for the 40-ft strip-DU was also high.
 - iv. The last set of 3 replicate incremental samples was collected from a former residential lot (DU29, which is on the north side of Maple). The 3 replicate results were 104, 118, and 144 ppt, with an average of 122 ppt, a standard deviation of 19 ppt, and an RSD of 16%. This level of field precision is good in an absolute sense. However, if this level of precision is present with triplicates from a future residential lot in association with the ~50 ppt residential screening level, a UCL on a mean of 30 ppt would exceed a screening level of 50 ppt. The number of replicate samples would need to be increased to 5 in order for the statistical calculations to bring the UCL under 50 ppt, assuming all the other parameters stayed the same.
- b. Another activity contributing to data quality is ensuring that increments are thoroughly combined and subsampling is representative of the entire incremental sample. Subsampling in this project was accomplished using the “Japanese slabcake method” and was performed in the field. To ensure that homogenization and subsampling procedures were performing adequately, subsampling replicates were taken periodically. The full triplicate set was taken from one of the field incremental samples from the 40-ft Maple strip. The results were 107, 97, 109 ppt, with a mean of 104 ppt, a SD of 6 and an RSD of 6%. This is excellent precision. In addition to the single triplicate set, 6 sets of duplicate subsamples were performed. The RSD for these ranged from 0.5 to 12%, which is also excellent.
- c. The precision of these QC activities was much better than that seen in prior dioxin sampling events at Strecker Forest, although the field activities were the same. For prior sampling events, enough soil was included in the sample jar to accommodate several analyses. It was determined that the laboratory’s subsampling technique involved “scooping off the top” of the jar with or without stirring with a spatula. It was surmised that the jarred samples were segregating during the trip to the lab and any stirring just made segregation worse. By “scooping off the top” in the presence of particle segregation, the lab was preferentially selecting for subsamples with higher quantities of larger particles. Since contaminants tend to adhere to smaller particles rather than larger particles, the lab was pulling different concentrations out of the jar with each subsampling. To avoid this problem during the Rt. 66 study, only about 15 grams were put in the jar to be sent to the lab. The lab was instructed to extract the entire contents, and thus segregation effects were circumvented. The outcome was much improved precision for replicate subsamples.

Table 2 shows a breakdown of the sources of data variability as calculated from the QC data. Table 2 provides a comparison between the QC data from the Strecker Forest data set (Site A data) and the Rt. 66 data set (Site B data). The improvement in subsampling is apparent in the reduction of the “Processing RSD” from 25% for the Strecker Forest data to 5.4% for the Rt. 66 data. Maintaining a low “Processing RSD” will be important to

reducing variability between lot-DU replicates if UCLs are to be compared to a screening level value during any future sampling.

Table 2.

Replication QC Summary for Dioxin Site A (Oct2011) & Site B (Jun2012)	Mean	SD (ppt)	RSD (%)	Field SD (ppt)	Field RSD (%)	Processing SD (ppt)	Processing RSD (%)
Site A Data	Subsampling done in Lab from single 100-g sample jar						
DU-1 Field Triplicates	4.0	1.3	31	0.7	17	1.1	25
DU-1 Subsampling Triplicates	4.5	1.1	25	Analytical RSD (from LCSs) = 2.5%			
Site B Data	15-g Analytical subsampling done in field-1 analysis/jar						
DU-1 Field Triplicates	123	19	16	18	15	5.6	5.4
DU-1 Subsampling Triplicates	104	6.3	6	Analytical RSD (from LCSs) = 2.7%			

- d. Some of the samples associated with Grove Street strip sampling were sieved, so the results of sieved vs. unsieved samples could be compared. (Note that the size of the sieve was not reported in the project information provided to me, but it was probably 10-mesh/2 mm.) There was essentially no difference in the results. This could have been due to the particle size distribution of the soil: perhaps nearly all the particles were small and passed through the sieve so there was practically no difference between the sieved and unsieved samples. If a significant amount of unsievable material was present, the other explanation for seeing no particle size effects could be that the dioxin compounds were all bound to the smaller particle sizes, so none were removed with removal of larger particles. Since samples were not ground, removal of the larger particles would not affect the reported concentration since they are not included in subsamples.

Attachment

cc: Jeff Heimerman, OSWER/OSRTI
Pamela Barr, OSWER/OSRTI
Phyllis Anderson, OSWER/OSRTI
Dana Stalcup, OSWER/OSRTI
Dan Powell, OSWER/OSRTI
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Helen Dawson, OSWER/OSRTI
David Charters, OSWER/OSRTI
Marlene Berg, OSWER/OSRTI
Jennifer Edwards, OSWER/OSRTI

Attachment

The remaining Figures (#2 through #9) are “snapshots” of portions of the Park map where incremental dioxin samples were collected. The dioxin/furan TEQ concentration (in ppt) is provided for those features subjected to sampling. For linear features (roads, trail, and utility lines), a TEQ result designated as an “average” refers to the average of 2 or more separate “strip” DUs that were configured as narrow bands paralleling the center feature. A strip-DU incremental sample was collected by taking increments along the respective strip for the distance shown on the map. For former roads, the maps display each of the parallel strip DUs. For trails and utility lines, only the center feature is displayed on the map. Strip DUs are further described in the text of this memo. DUs displayed as colored shapes (former residences and use areas) had an incremental sample collected over the area outlined by the colored shape.

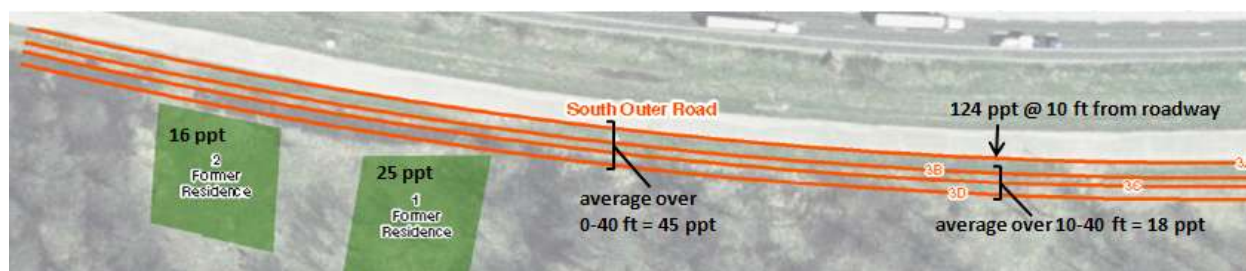


Figure 2.

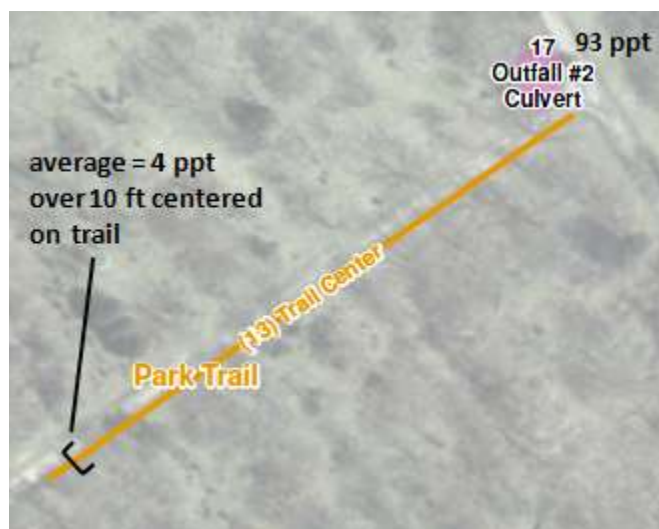


Figure 3.



Figure 4.



Figure 5.

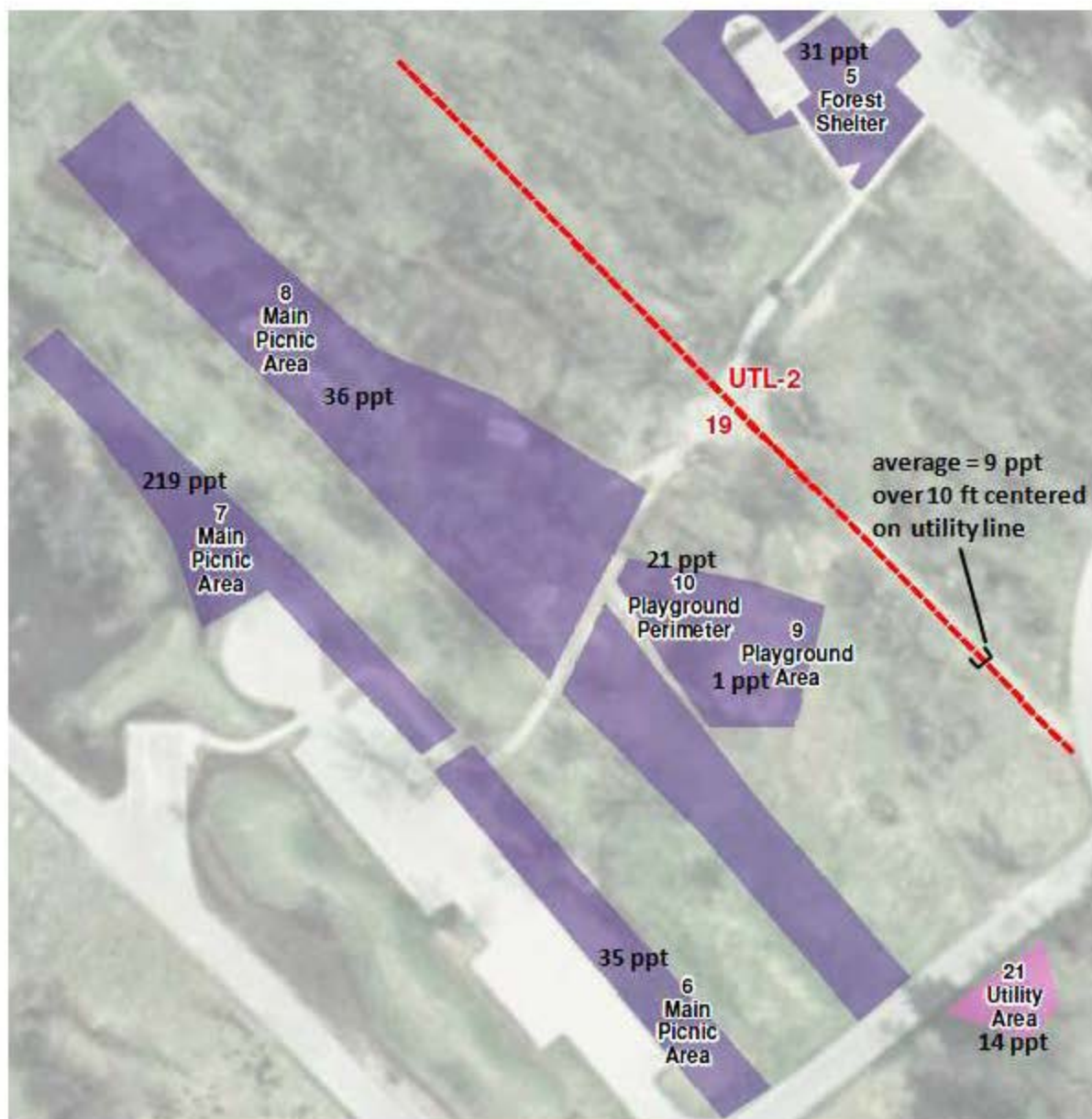


Figure 6.

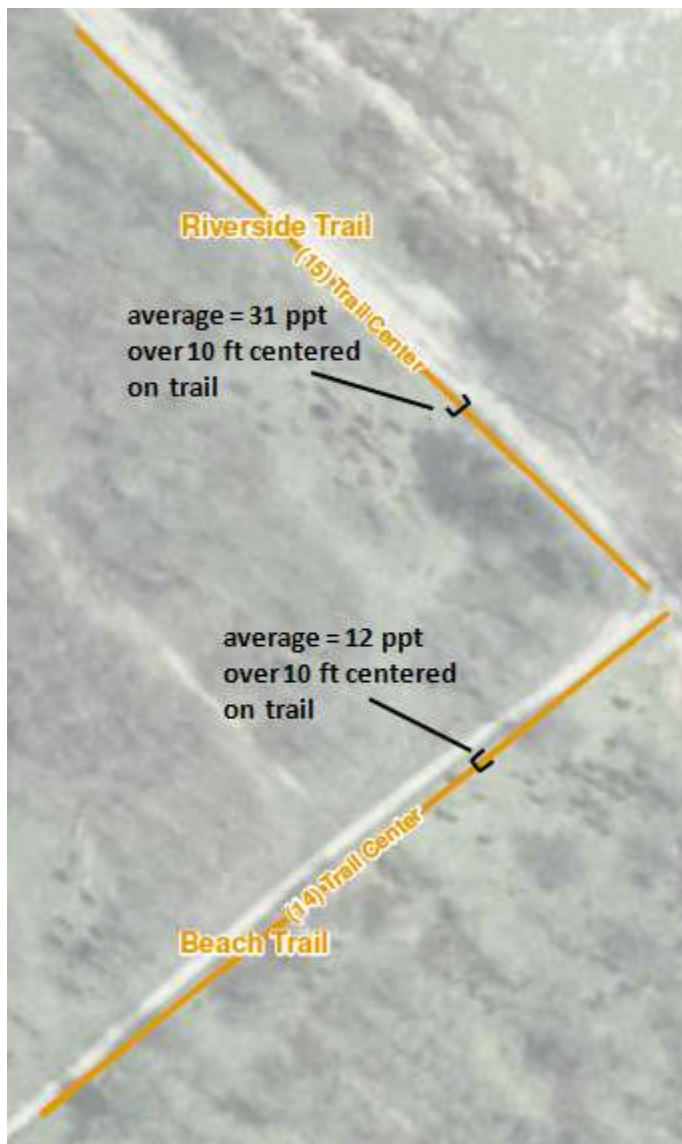


Figure 7.

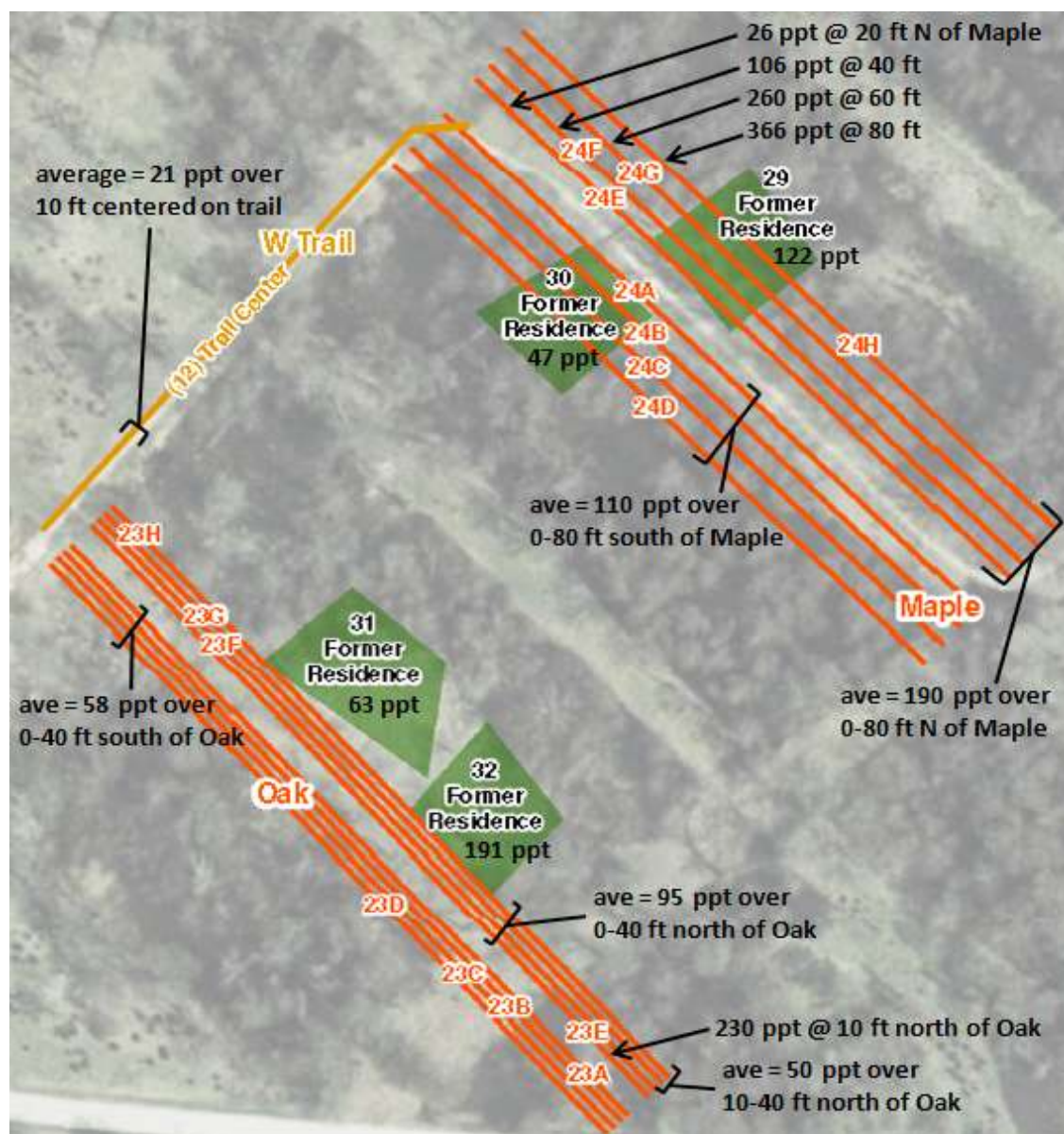


Figure 8.

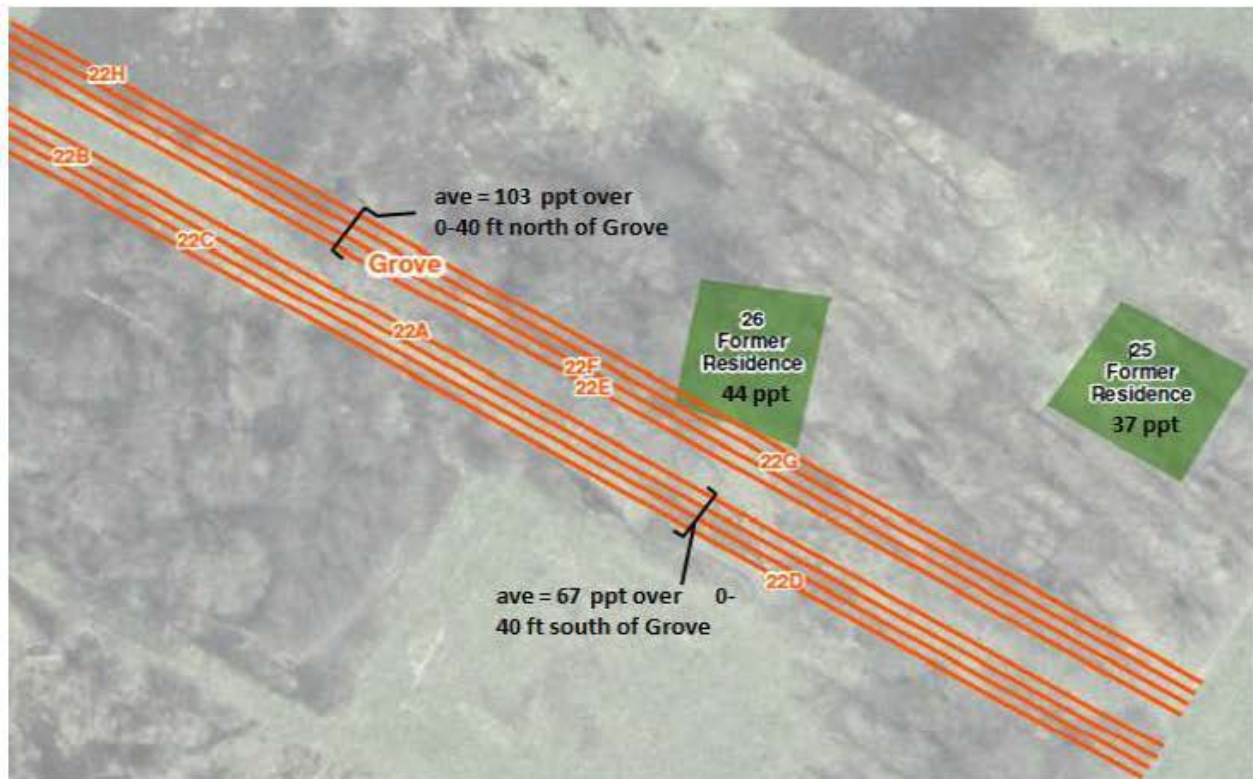


Figure 9.

APPENDIX D

SITE DATA PACKAGES, SAMPLE FIELD SHEETS, AND SUPPORTING DOCUMENTATION

TABLE 1

SUMMARY OF SOIL SAMPLES COLLECTED AND TOTAL DIOXIN TEQ RESULTS - JUNE 2012
MISSOURI DIOXIN SITES RE-EVALUATION - ROUTE 66 STATE PARK (former Times Beach Site)

Sample Number	Assigned Map DU Number	Sample Locational Designation/Descriptor	Sample Location Description	TOTAL TEQ (ppt)
RT66-001	1	SOR-RES-DU1	former residential lot along South Outer Road	24.9
RT66-002	2	SOR-RES-DU2	2nd residential lot area along South Outer Road	16.2
RT66-003	3A	SOR-1S	1st 10' x 1000' strip DU South Outer Road shoulder	123.8
RT66-004	3B	SOR-2S	2nd 10' x 1000' strip DU South Outer Road shoulder	19.5
RT66-005	3C	SOR-3S	3rd 10' x 1000' strip DU South Outer Road shoulder	17.4
RT66-006	3D	SOR-4S	4th 10' x 1000' strip DU South Outer Road shoulder	18.2
RT66-006D	3D	SOR-4S duplicate	duplicate of sample RT66-006	18.5
RT66-007	4	Public Use Area PUA-1	Dogwood Shelter Area Decision Unit (DU)	24.1
RT66-008	5	PUA-2	Forest Shelter DU	30.9
RT66-009	6	PUA-3	Main Picnic Area South DU	35.0
RT66-010	7	PUA-4	Main Picnic Area Northwest DU	218.6
RT66-011	8	PUA-5	Main Picnic Area Northeast DU	35.0
RT66-011D	8	PUA-5 duplicate	duplicate of sample RT66-011	36.2
RT66-012	9	PUA-6	Playground Area Decision Unit (DU)	1.2
RT66-013	10	PUA-7	Playground Perimeter Areas DU	20.8
RT66-014	11	PUA-8	Proposed Off-leash Dog Park Area DU	60.3
RT66-015	-----	PUA-9 (area was not sampled)	2nd Proposed Dog Park Area (sample was omitted)	-----
RT66-016	12	Trail Sample TRA-1	W Trail 500 foot center segment N of parking lot	11.2
RT66-017	12A	TRA-1A	W Trail inner edge segments A	14.8
RT66-018	12B	TRA-1B	W Trail edge segments B	27.3
RT66-019	12C	TRA-1C	W Trail outer edge segments C	31.8
RT66-020	13	TRA-2	former Park Drive Trail 500 feet to SW of Riverside	0.4
RT66-021	13A	TRA-2A	Park Trail inner edge segments A	1.2
RT66-022	13B	TRA-2B	Park Trail edge segments B	4.5
RT66-023	13C	TRA-2C	Park Trail outer edge segments C	10.5
RT66-024	14	TRA-3	former Beach Drive Trail 500 feet SW of Riverside	2.6
RT66-025	14A	TRA-3A	Beach Trail inner edge segments A	8.8
RT66-026	14B	TRA-3B	Beach Trail edge segments B	21.0
RT66-027	14C	TRA-3C	Beach Trail outer edge segments C	16.0
RT66-028	15	TRA-4	Riverside Drive Trail 500 feet to NW of Beach	2.0
RT66-029	15A	TRA-4A	Riverside Trail inner edge segments A	10.2
RT66-030	15B	TRA-4B	Riverside Trail edge segments B	37.5
RT66-031	15C	TRA-4C	Riverside Trail outer edge segments C	73.4
RT66-031D	15C	TRA-4C duplicate	duplicate of RT66-031	72.4
RT66-032	16	Outfall Area Sample OUT-1	park drainage outfall area #1 at Riverside & Orchid	8.1
RT66-033	17	OUT-2	drainage outfall area #2 at Park & Riverside	93.4
RT66-033D	17	OUT-2 duplicate	duplicate of RT66-033	92.7
RT66-034	18A	Utility Line Sample UTL-1A south	Utility lines along Forest from Beach to SE 1000 feet	29.2
RT66-035	18B	UTL-1B center	"	63.2
RT66-036	18C	UTL-1C north	"	37.1
RT66-037	19A	UTL-2A south	Forest utility line from Beach to NNW 630 feet	6.8
RT66-038	19B	UTL-2B center	#	8.5
RT66-039	19C	UTL-2C north	Forest utility line from Beach to NNW 630 feet	11.0
RT66-040	20A	UTL-3A south	Dogwood utility line from Beach to SE 1000 feet	120.8
RT66-041	20B	UTL-3B center	"	150.4
RT66-042	20C	UTL-3C north	"	350.6
RT66-042D	20C	UTL-3C duplicate	duplicate of RT66-042	294.0
RT66-043	21 A, B & C	Utility Areas Decision Unit UTA-1	ICS sample from 3 combined surface utility areas	14.1
RT66-043D	21 A, B & C	UTA-1 duplicate	duplicate of RT66-043	14.6
RT66-044	22A	Roadway Sample RDW1-1S	1st 10' x 1000' strip DU along Grove south shoulder	52.1
RT66-045	22B	RDW1-2S unsieved	2nd strip DU along Grove south shoulder	86.9
RT66-046	22B	RDW1-2S sieved	"	87.5
RT66-047	22C	RDW1-3S unsieved	3rd strip DU along Grove south shoulder	78.8

TABLE 1 (Continued)

SUMMARY OF SOIL SAMPLES COLLECTED AND TOTAL DIOXIN TEQ RESULTS - JUNE 2012
MISSOURI DIOXIN SITES RE-EVALUATION - ROUTE 66 STATE PARK (former Times Beach Site)

Sample Number	Assigned Map DU Number	Sample Locational Designation/Descriptor	Sample Location Description	TOTAL TEQ (ppt)
RT66-048	22C	RDW1-3S sieved	"	77.1
RT66-049	22D	RDW1-4S	4th strip DU along Grove south shoulder	48.8
RT66-050	22E	Roadway Area Sample RDW1-1N	1st 10' x 1000' strip DU along Grove north shoulder	76.4
RT66-051	22F	RDW1-2N unsieved	2nd strip DU along Grove north shoulder	97.7
RT66-052	22F	RDW1-2N sieved	"	94.8
RT66-053	22G	RDW1-3N unsieved	3rd strip DU along Grove north shoulder	158.4
RT66-054	22G	RDW1-3N sieved	"	82.8
RT66-055	22H	RDW1-4N	4th strip DU along Grove north shoulder	80.9
RT66-056	23A	Roadway Area Sample RDW2-1S	1st 10' x 750' strip DU along Oak south shoulder	74.2
RT66-057	23B	RDW2-2S	2nd strip DU along Oak south shoulder	61.7
RT66-058	23C	RDW2-3S	3rd strip DU along Oak south shoulder	57.9
RT66-059	23D	RDW2-4S	4th strip DU along Oak south shoulder	39.2
RT66-060	23E	RDW2-1N	1st 10' x 750' strip DU along Oak north shoulder	229.6
RT66-061	23F	RDW2-2N	2nd strip DU along Oak north shoulder	57.3
RT66-062	23G	RDW2-3N	3rd strip DU along Oak north shoulder	43.3
RT66-063	23H	RDW2-4N	4th strip DU along Oak north shoulder	49.4
RT66-064	24A	Roadway Area Sample RDW3-1S	1st 20' x 600' strip DU along Maple south shoulder	39.9
RT66-065	24B	RDW3-2S	2nd 20' x 600' strip DU along Maple south shoulder	246.3
RT66-066	24C	RDW3-3S	3rd strip DU along Maple south shoulder	81.9
RT66-067	24D	RDW3-4S	4th strip DU along Maple south shoulder	69.5
RT66-068	24E	RDW3-1N A triplicate samples	1st 20' x 600' strip DU along Maple north shoulder	39.1
RT66-069	24E	RDW3-1N B triplicate	"	18.3
RT66-070	24E	RDW3-1N C triplicate	"	20.2
RT66-071	24F	RDW3-2N A triplicates	2nd 20' x 600' strip DU along Maple north shoulder	40.7
RT66-072	24F	RDW3-2N B	"	84.2
RT66-073	24F	RDW3-2N C	"	191.8
RT66-074	24F	RDW3-2N D-1	RDW3-2N 5 aliquot composite 60' east of Dahlia	8.3
RT66-075	24F	RDW3-2N D-2	RDW3-2N 5 aliquot composite 180' east of Dahlia	66.8
RT66-076	24F	RDW3-2N D-3	RDW3-2N 5 aliquot composite 300' east of Dahlia	573.1
RT66-077	24F	RDW3-2N D-5	RDW3-2N 5 aliquot composite 360' east of Dahlia	267.0
RT66-078	24F	RDW3-2N D-5	RDW3-2N 5 aliquot composite 480' east of Dahlia	121.7
RT66-079	24F	RDW3-2N D-6	RDW3-2N 5 aliquot composite 540' east of Dahlia	142.7
RT66-080	24G	RDW3-3N A triplicates	3rd 20' x 600' strip DU along Maple north shoulder	222.0
RT66-081	24G	RDW3-3N B triplicate	"	299.7
RT66-082	24G	RDW3-3N C triplicate	"	256.4
RT66-083	24H	RDW3-4N A triplicates	4th 20' x 600' strip DU along Maple north shoulder	524.1
RT66-084	24H	RDW3-4N B	"	395.2
RT66-085	24H	RDW3-4N C	"	179.2
RT66-086	25	Former Residential Lot RES-1	SW corner intersection of Forest & Orchid	37.0
RT66-087	26	RES-2	N side of Grove 250' west of Orchid	44.2
RT66-088	27	RES-3	SW corner intersection of Ivy & Park	28.4
RT66-089	28	RES-4	NW corner lot at intersection of Ivy & Park	82.5
RT66-089D	28	RES-4 duplicate	duplicate of RT66-089	79.5
RT66-090	29	RES-5 field replicate 1 slabcake 1	former lot location N side of Maple 170' E of Dahlia	107.0
RT66-091	29	RES-5 field replicate 1 slabcake 2	slabcake process replicate 2	97.2
RT66-092	29	RES-5 field replicate 1 slabcake 3	slabcake process replicate 3	108.8
RT66-093	29	RES-5 field replicate 2	former lot location N side of Maple 170' E of Dahlia	118.2
RT66-094	29	RES-5 field replicate 3	"	144.3
RT66-095	30	RES-6	former lot location S side of Maple 170' E of Dahlia	46.7
RT66-096	31	RES-7	former lot on N side of Oak east of Dahlia	62.7
RT66-097	32	RES-8	former lot N side of Oak adjacent to RES-7 to E	190.9

ENVIRONMENTAL SERVICES ASSISTANCE TEAM

ESAT Region 7
300 Minnesota Ave
Kansas City, KS 66101

METI / Alion Science & Technology

DATE: August 10, 2012

MEMORANDUM

TO: Barry Evans,
ESAT Task Order Project Officer, Region 7 EPA

FROM: Rebecca Estep, *RE*
ESAT, Region 7, Senior QA Auditor

THRU: Ronald A. Ross, *Ross*
ESAT, Region 7 Team Manager

SUBJECT: Review of three dioxin data reports from Cape Fear Analytical dated July 2 and two dated July 11, WO3633, WO3661, & WO3675, for the Route 66 State Park site in Wildwood, MO.

Contract No:	EP-W-06-019
TDF No.	T5081
TO No.:	21
Subtask:	4-10
ESAT Document Control No.:	0721-004-0004
EPA Activity Number:	RQA5081
Site ID/Operable Unit:	0708/OU00
GPRA Code:	303DD2

ESAT was requested to review three Route 66 State Park Dioxin Superfund Site Data Assessments one dated July 2, 2012 and two dated July 11, 2012, under WO3633, WO3661, and WO3675, from Wildwood, MO report containing analytical results summary forms. ESAT was requested to verify the reported analytical results including proper qualification of data outliers, verify methods 1613B was followed, confirm appropriate QC was performed at the expected frequencies, and identify data from any samples that should be qualified differently from that identified in the laboratory's report. The review was conducted in accordance with EPA Region 7 SOP 2430.3H for validation of organic Contract Laboratory Program (CLP) data packages. As the PRP data were generated using Method 1613B method, some professional judgment was required in evaluation of the data versus SOP (NFG) requirements.

Summary

The subject data were reviewed and validated based only on the summary reports provided by Cape Fear Analytical LLC. Only minor discrepancies were noted, as discussed below. Overall data quality and completeness were acceptable based on the summary forms provided.

Appropriate samples and analyses were performed along with QC at the expected frequency. The analytical method used was 1613B. A limited amount of data were qualified as estimated (J) or as non-detect (U).

Samples that contain results between the EDL and the PQL were flagged with "J". Typically, EPA Region 7 reports the associated PQL with a "U" code and is considered a non-detect result.

Specific Comments

The ESAT review notes the following issues identified:

No matrix spike/matrix spike duplicates were required per the case narratives for these SDGs.

1,2,3,4,6,7,8,9-OCDD in several samples in all three SDGs was above the calibration range (E-coded) and should be reported from diluted samples or qualified (J-coded) to show estimated results.

Samples -42, -42D, -76, -81, -83, and -84 were analyzed at a dilution (5X) and have elevated reporting limits.

Two surrogates, in the W03633 July 2, 2012 data set, 13C-OCDD (10.9% vs 17-157%) and 13C-1,2,3,4,7,8,9-HpCDF (25.9% vs 26-138%) in sample -20 were below the control limits with no sample left to re-extract. 1,2,3,4,6,7,8,9-OCDD should be J-coded and 1,2,3,4,7,8,9-HpCDF should be UJ-coded in sample -20 based on Region 7 protocols.

1,2,3,7,8,9-HxCDF in samples -14, -26, and -82 was identified as quantitative interference.

Several samples in all three data sets were reanalyzed for 2,3,7,8-TCDF for confirmation.

Based on the Method Blank Summary Forms, 2,3,7,8-TCDF in samples -1, -1RE, -3, -3RE, -10, -10RE, -11, -11D, -13, -13RE, -14, -14RE, -30, -31, -31RE, -31D, -31DRE, -33, -33RE, -33D, -33DRE, -35, -35RE, -36, -36RE, -41, -41RE, -45, -45RE, -46, -46RE, -47, -47RE, -48, -48RE, -65, -65RE, -66, -66RE, -67, -67RE, -72, -72RE, -73, -73RE, -77, -77RE, -78, -78RE, -79, -79RE, -80, -80RE, -82, -82RE, -85, -85RE, -89, -89D, -90, -90RE, -91, -91RE, -92, -92RE, -93, -93RE, -94, -94RE, -95, -95RE, -96, and -96RE should be U-coded due to levels greater than ten times the blank contamination per Region 7 protocols.

July 02, 2012

Mr. David Kinroth
Seagull Environmental Technologies, Incorporated
20 James Town Farm Drive
Florissant, Missouri 63034

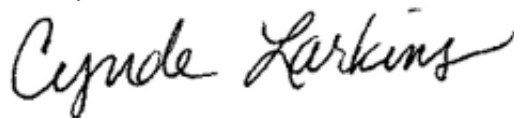
Re: Route 66 State Park
Work Order: 3633

Dear Mr. Kinroth:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 12, 2012. This original data report has been prepared and reviewed in accordance with CFA's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at 910-795-0421.

Sincerely,



Cynthia Larkins
Project Manager

Purchase Order: 1084802
Enclosures

US EPA ARCHIVE DOCUMENT

1st Sample Batch

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

WO#3633

ACTIVITY LEADER(Print) Jim Silver		NAME OF SURVEY OR ACTIVITY Dioxin Sites Remediation		DATE OF COLLECTION 11/12/12			SHEET 1 of 2		
CONTENTS OF SHIPMENT Route 66 State Park									
SAMPLE NUMBER	TYPE OF CONTAINERS		VOA SET (2 VIALS EA)		SAMPLED MEDIA				RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	CUBITAINER	BOTTLE	BOTTLE	BOTTLE	water	soil	sediment	dust	
NUMBERS OF CONTAINERS PER SAMPLE NUMBER									
RT66-001		1	DB38	6/5/12		X			1613 B Dioxin/Furans
-002			0855						Analysis - ~ 15g Sample each - use entire volume for extraction please Collection time and date taken from sample label at CFA 12 JUN 12
-003			0921						
-004			0921						
-005			0921						
-006			0921						
-006D			0921						
-007			1040						
-008			1100						
-009			1450						
-010			1432						
-011			1446						
-011D			1446						
-012			1508						
-013			1515						
-014			1553						
-015			0850	6/6/12					
-017			0850						
-018			0850						
-019			0850						
-020			0928						
-021			0928						
-022			0928						
-023			0928						

DESCRIPTION OF SHIPMENT

33 ☒ PIECE(S) CONSISTING OF _____ BOX(ES)☐ ICE CHEST(S); OTHER _____

MODE OF SHIPMENT

☒ COMMERCIAL CARRIER: Fedex☐ COURIER☐ SAMPLER CONVEYED8750 8908 6320
(SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
<u>Dave Kinnett</u>	6-11-12	16:00	<u>Cyril Jenkins</u> 12 JUN 12 0950	Transport to Lab for Analysis
<input checked="" type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input checked="" type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED	

1st Sample Batch

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

WO#3633

ACTIVITY LEADER(Print) Jim Silver Dave Kinath		NAME OF SURVEY OR ACTIVITY mo Dioxin Sites Re-evaluation		DATE OF COLLECTION 11 6 12 DAY MONTH YEAR			SHEET 2 of 2							
CONTENTS OF SHIPMENT Route 66 State Park														
SAMPLE NUMBER	TYPE OF CONTAINERS				SAMPLED MEDIA				RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)					
	CUBITAINER	BOTTLE	VOA SET (2 VIALS EA)	NUMBERS OF CONTAINERS PER SAMPLE NUMBER	water	soil	sediment	dust		other				
RT66-024		1	1000	6/6/12		X				1613B Dioxins/Furans Analysis - 15g sample please use entire sample volume for extraction				
-025			1000											
-026			1000											
-027			1000											
-028			1015											
-029			1015											
-030			1015											
-031			1015											
-031D			1015											
[Diagonal line across grid]					Collection time ^{and date} taken from sample label at CFA. 02 12JUN12									

DESCRIPTION OF SHIPMENT		MODE OF SHIPMENT	
33 PIECE(S) CONSISTING OF _____ BOX(ES) 1 ICE CHEST(S); OTHER _____		<input checked="" type="checkbox"/> COMMERCIAL CARRIER: <u>Fedex</u> <input type="checkbox"/> COURIER <input type="checkbox"/> SAMPLER CONVEYED	
		8750 8908 6320 (SHIPPING DOCUMENT NUMBER)	

PERSONNEL CUSTODY RECORD			
RELINQUISHED BY (SAMPLER) <u>Dave Kinath</u>	DATE 6-11-12	TIME 16:00	RECEIVED BY <u>Cyrus Larkins</u>
<input checked="" type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input checked="" type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED
REASON FOR CHANGE OF CUSTODY <u>Transport to Lab for Analysis</u>			
RELINQUISHED BY	DATE	TIME	RECEIVED BY
<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED
REASON FOR CHANGE OF CUSTODY			
RELINQUISHED BY	DATE	TIME	RECEIVED BY
<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED
REASON FOR CHANGE OF CUSTODY			

SAMPLE RECEIPT CHECKLIST
Cape Fear Analytical

Client: <u>Tetra Tech</u>	Work Order: <u>3633</u>
Received By: <u>Cyrde Larkins</u>	Date/Time Received: <u>12 JUN 12 0950</u> <i>CE 12 JUN 12</i>

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken damaged container leaking container other(describe)
2 Chain of Custody documents included with shipment?	<input checked="" type="checkbox"/>			
3 Samples requiring cold preservation within 0-6°C?	<input checked="" type="checkbox"/>			Preservation Method: ice bags blue ice dry ice none other (describe) <u>4.9°</u>
4 Samples requiring chemical preservation at proper pH?		<input checked="" type="checkbox"/>		Sample IDs, containers affected and pH observed: If preservative added, Lot#:
5 Samples requiring preservation have no residual chlorine?		<input checked="" type="checkbox"/>		Sample IDs, containers affected: If preservative added, Lot#:
6 Samples received within holding time?	<input checked="" type="checkbox"/>			Sample IDs, tests affected:
7 Sample IDs on COC match IDs on containers?	<input checked="" type="checkbox"/>			Sample IDs, containers affected:
8 Date & time of COC match date & time on containers?	<input checked="" type="checkbox"/>			Sample IDs, containers affected:
9 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample IDs, containers affected:
10 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments:

Checklist performed by: Initials: CL Date: 12 JUN 12

High Resolution Dioxin and Furan Analysis

Case Narrative

**HDOX Case Narrative
Tetra Tech EM Incorporated (TETR)
SDG 3633**

Method/Analysis Information

Product: Dioxins/Furans by EPA Method 1613B in Solids

Analytical Method: EPA Method 1613B

Extraction Method: SW846 3540C

Analytical Batch Number: 21331, 21334

Clean Up Batch Number: 21329, 21333

Extraction Batch Number: 21328, 21332

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA Method 1613B:

Sample ID	Client ID
3633001	RT66-001
3633002	RT66-002
3633003	RT66-003
3633004	RT66-004
3633005	RT66-005
3633006	RT66-006
3633007	RT66-006D
3633008	RT66-007
3633009	RT66-008
3633010	RT66-009
3633011	RT66-010
3633012	RT66-011
3633013	RT66-011D
3633014	RT66-012
3633015	RT66-013
3633016	RT66-014
3633017	RT66-016
3633018	RT66-017
3633019	RT66-018
3633020	RT66-019
3633021	RT66-020
3633022	RT66-021

3633023	RT66-022
3633024	RT66-023
3633025	RT66-024
3633026	RT66-025
3633027	RT66-026
3633028	RT66-027
3633029	RT66-028
3633030	RT66-029
3633031	RT66-030
3633032	RT66-031
3633033	RT66-031D
12006201	Method Blank (MB)
12006202	Laboratory Control Sample (LCS)
12006203	Laboratory Control Sample Duplicate (LCSD)
12006206	Method Blank (MB)
12006207	Laboratory Control Sample (LCS)
12006208	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by Cape Fear Analytical LLC (CFA) as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with CF-OA-E-002 REV# 9.

Raw data reports are processed and reviewed by the analyst using the TargetLynx software package.

Calibration Information

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements

All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Certification Statement

The test results presented in this document are certified to meet all requirements of the 2003 NELAC Standard.

Method Blank (MB) Statement

The MB(s) analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

Sample 3633021 (RT66-020)- Batch 21334 did not meet acceptance criteria for surrogate recovery. There was no more sample left for re-extraction; therefore the data is reported.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery

The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement

The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation

A matrix spike and matrix spike duplicate analysis was not required for this SDG.

Technical Information**Holding Time Specifications**

CFA assigns holding times based on the associated methodology, which assigns the date and time from sample collection. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information**Nonconformance (NCR) Documentation**

A NCR was not required for this SDG.

Manual Integrations

Certain standards and QC samples required manual integrations to correctly position the baseline as set in the calibration standard injections. Where manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction. Manual integrations were required for data files in this SDG.

System Configuration

This analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
HRP750_2	High-Resolution GC/MS System	Dioxin Analysis	DB-5MS	60m x 0.25mm, 0.25um
HRP763_1	High-Resolution GC/MS System	Dioxin Analysis	DB-5MS	60m x 0.25mm, 0.25um
HRP763_2	High-Resolution GC/MS System	TCDF Confirmation	DB-225	30m x 0.25mm, 0.25um

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted: Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Sample Data Summary

Cape Fear Analytical, LLC

3306 Kitty Hawk Road Suite 120, Wilmington, NC 28405 - (910) 795-0421 - www.capefearanalytical.com

**Certificate of Analysis Report
for**

TETR001 Tetra Tech EM Incorporated

Client SDG: 3633 CFA Work Order: 3633

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- K Estimated Maximum Possible Concentration
- Q Quantitative Interference
- U Analyte was analyzed for , but not detected above the specified detection limit.

Review/Validation

Cape Fear Analytical requires all analytical data to be verified by a qualified data reviewer.

The following data validator verified the information presented in this case narrative:

Signature: 

Name: Heather Patterson

Date: 02 JUL 2012

Title: Analyst III

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633001
Client Sample: 1613B Soil
Client ID: RT66-001
Batch ID: 21331
Run Date: 06/20/2012 17:56
Data File: A18JUN12A_6-12
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 08:38
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.55 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		15.8	pg/g	0.191	0.687
40321-76-4	1,2,3,7,8-PeCDD	J	1.28	pg/g	0.239	3.44
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.98	pg/g	0.382	3.44
57653-85-7	1,2,3,6,7,8-HxCDD		6.82	pg/g	0.395	3.44
19408-74-3	1,2,3,7,8,9-HxCDD		6.67	pg/g	0.403	3.44
35822-46-9	1,2,3,4,6,7,8-HpCDD		269	pg/g	1.62	3.44
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	5760	pg/g	2.13	6.87
51207-31-9	2,3,7,8-TCDF		1.05	pg/g	0.267	0.687
57117-41-6	1,2,3,7,8-PeCDF		3.58	pg/g	0.264	3.44
57117-31-4	2,3,4,7,8-PeCDF	J	1.34	pg/g	0.254	3.44
70648-26-9	1,2,3,4,7,8-HxCDF	J	2.52	pg/g	0.333	3.44
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.62	pg/g	0.338	3.44
60851-34-5	2,3,4,6,7,8-HxCDF	J	2.75	pg/g	0.401	3.44
72918-21-9	1,2,3,7,8,9-HxCDF	U	.348	pg/g	0.348	3.44
67562-39-4	1,2,3,4,6,7,8-HpCDF		33.4	pg/g	0.395	3.44
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	2.24	pg/g	0.570	3.44
39001-02-0	1,2,3,4,6,7,8,9-OCDF		103	pg/g	0.528	6.87

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		114	137	pg/g	82.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		123	137	pg/g	89.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		106	137	pg/g	77.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		96.1	137	pg/g	69.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		104	137	pg/g	75.4	(23%-140%)
13C-OCDD		246	275	pg/g	89.3	(17%-157%)
13C-2,3,7,8-TCDF		111	137	pg/g	80.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		125	137	pg/g	90.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		124	137	pg/g	90.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		104	137	pg/g	75.4	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		95.9	137	pg/g	69.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		91.9	137	pg/g	66.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		112	137	pg/g	81.2	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		101	137	pg/g	73.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		110	137	pg/g	80.4	(26%-138%)
37Cl-2,3,7,8-TCDD		10.7	13.7	pg/g	77.9	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number:	3633	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3633001	Date Collected:	06/05/2012 08:38	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/12/2012 09:50		
Client ID:	RT66-001			Prep Basis:	As Received
Batch ID:	21331	Method:	EPA Method 1613B		
Run Date:	06/26/2012 10:42	Analyst:	MJC	Instrument:	HRP763
Data File:	b26jun12a-4			Dilution:	1
Prep Batch:	21328	Prep Method:	SW846 3540C		
Prep Date:	14-JUN-12	Aliquot:	14.55 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.711	pg/g	0.260	0.687

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
J Value is estimated
U Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633002
Client Sample: 1613B Soil
Client ID: RT66-002
Batch ID: 21331
Run Date: 06/20/2012 18:43
Data File: A18JUN12A_6-13
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 08:55
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.82 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		7.29	pg/g	0.174	0.675
40321-76-4	1,2,3,7,8-PeCDD	J	1.34	pg/g	0.290	3.37
39227-28-6	1,2,3,4,7,8-HxCDD	J	3.15	pg/g	0.439	3.37
57653-85-7	1,2,3,6,7,8-HxCDD		7.88	pg/g	0.452	3.37
19408-74-3	1,2,3,7,8,9-HxCDD		7.18	pg/g	0.462	3.37
35822-46-9	1,2,3,4,6,7,8-HpCDD		281	pg/g	1.84	3.37
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	5240	pg/g	2.42	6.75
51207-31-9	2,3,7,8-TCDF	J	0.532	pg/g	0.250	0.675
57117-41-6	1,2,3,7,8-PeCDF	J	1.23	pg/g	0.209	3.37
57117-31-4	2,3,4,7,8-PeCDF	J	0.842	pg/g	0.211	3.37
70648-26-9	1,2,3,4,7,8-HxCDF	J	2.18	pg/g	0.432	3.37
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.51	pg/g	0.417	3.37
60851-34-5	2,3,4,6,7,8-HxCDF	J	2.22	pg/g	0.502	3.37
72918-21-9	1,2,3,7,8,9-HxCDF	U	.538	pg/g	0.538	3.37
67562-39-4	1,2,3,4,6,7,8-HpCDF		33.6	pg/g	0.514	3.37
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	2.25	pg/g	0.742	3.37
39001-02-0	1,2,3,4,6,7,8,9-OCDF		72.6	pg/g	0.549	6.75

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		122	135	pg/g	90.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		135	135	pg/g	100	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		114	135	pg/g	84.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		105	135	pg/g	77.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		116	135	pg/g	86.1	(23%-140%)
13C-OCDD		271	270	pg/g	101	(17%-157%)
13C-2,3,7,8-TCDF		117	135	pg/g	86.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		133	135	pg/g	98.7	(24%-185%)
13C-2,3,4,7,8-PeCDF		136	135	pg/g	101	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		114	135	pg/g	84.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		110	135	pg/g	81.5	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		98.5	135	pg/g	73.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		117	135	pg/g	86.7	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		107	135	pg/g	79.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		117	135	pg/g	86.7	(26%-138%)
37Cl-2,3,7,8-TCDD		11.0	13.5	pg/g	81.5	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633003
Client Sample: 1613B Soil
Client ID: RT66-003
Batch ID: 21331
Run Date: 06/22/2012 12:08
Data File: A22JUN12A-3
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 09:21
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.89 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		113	pg/g	0.286	0.672
40321-76-4	1,2,3,7,8-PeCDD	J	1.39	pg/g	0.175	3.36
39227-28-6	1,2,3,4,7,8-HxCDD		3.76	pg/g	0.496	3.36
57653-85-7	1,2,3,6,7,8-HxCDD		6.26	pg/g	0.493	3.36
19408-74-3	1,2,3,7,8,9-HxCDD		6.77	pg/g	0.512	3.36
35822-46-9	1,2,3,4,6,7,8-HpCDD		287	pg/g	2.08	3.36
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	5670	pg/g	2.74	6.72
51207-31-9	2,3,7,8-TCDF		1.25	pg/g	0.337	0.672
57117-41-6	1,2,3,7,8-PeCDF	J	1.70	pg/g	0.215	3.36
57117-31-4	2,3,4,7,8-PeCDF	J	0.900	pg/g	0.219	3.36
70648-26-9	1,2,3,4,7,8-HxCDF	J	2.63	pg/g	0.283	3.36
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.63	pg/g	0.296	3.36
60851-34-5	2,3,4,6,7,8-HxCDF	J	2.86	pg/g	0.349	3.36
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.435	pg/g	0.349	3.36
67562-39-4	1,2,3,4,6,7,8-HpCDF		50.0	pg/g	0.394	3.36
55673-89-7	1,2,3,4,7,8,9-HpCDF		5.83	pg/g	0.715	3.36
39001-02-0	1,2,3,4,6,7,8,9-OCDF		227	pg/g	0.956	6.72

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		108	134	pg/g	80.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		108	134	pg/g	80.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		94.3	134	pg/g	70.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		99.2	134	pg/g	73.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		89.6	134	pg/g	66.7	(23%-140%)
13C-OCDD		194	269	pg/g	72.2	(17%-157%)
13C-2,3,7,8-TCDF		109	134	pg/g	80.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		114	134	pg/g	84.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		110	134	pg/g	82.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		105	134	pg/g	78.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		104	134	pg/g	77.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		91.4	134	pg/g	68.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		106	134	pg/g	78.9	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		93.3	134	pg/g	69.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		87.2	134	pg/g	65.0	(26%-138%)
37Cl-2,3,7,8-TCDD		10.3	13.4	pg/g	76.4	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number:	3633	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3633003	Date Collected:	06/05/2012 09:21	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/12/2012 09:50		
Client ID:	RT66-003			Prep Basis:	As Received
Batch ID:	21331	Method:	EPA Method 1613B		
Run Date:	06/26/2012 11:02	Analyst:	MJC	Instrument:	HRP763
Data File:	b26jun12a-5			Dilution:	1
Prep Batch:	21328	Prep Method:	SW846 3540C		
Prep Date:	14-JUN-12	Aliquot:	14.89 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.10	pg/g	0.262	0.672

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633004
Client Sample: 1613B Soil
Client ID: RT66-004
Batch ID: 21331
Run Date: 06/22/2012 12:56
Data File: A22JUN12A-4
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 09:21
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.96 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		14.2	pg/g	0.152	0.668
40321-76-4	1,2,3,7,8-PeCDD	J	0.612	pg/g	0.197	3.34
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.96	pg/g	0.246	3.34
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.81	pg/g	0.253	3.34
19408-74-3	1,2,3,7,8,9-HxCDD		3.64	pg/g	0.258	3.34
35822-46-9	1,2,3,4,6,7,8-HpCDD		160	pg/g	2.42	3.34
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	5810	pg/g	2.42	6.68
51207-31-9	2,3,7,8-TCDF	J	0.408	pg/g	0.203	0.668
57117-41-6	1,2,3,7,8-PeCDF	J	0.664	pg/g	0.138	3.34
57117-31-4	2,3,4,7,8-PeCDF	J	0.369	pg/g	0.138	3.34
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.873	pg/g	0.180	3.34
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.527	pg/g	0.174	3.34
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.783	pg/g	0.209	3.34
72918-21-9	1,2,3,7,8,9-HxCDF	U	.245	pg/g	0.245	3.34
67562-39-4	1,2,3,4,6,7,8-HpCDF		11.4	pg/g	0.227	3.34
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.31	pg/g	0.400	3.34
39001-02-0	1,2,3,4,6,7,8,9-OCDF		32.8	pg/g	0.364	6.68

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		114	134	pg/g	85.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		119	134	pg/g	89.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		103	134	pg/g	77.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		107	134	pg/g	80.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		93.1	134	pg/g	69.6	(23%-140%)
13C-OCDD		223	267	pg/g	83.6	(17%-157%)
13C-2,3,7,8-TCDF		111	134	pg/g	82.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		123	134	pg/g	91.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		122	134	pg/g	91.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		115	134	pg/g	86.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		114	134	pg/g	84.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		98.4	134	pg/g	73.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		112	134	pg/g	83.9	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		98.9	134	pg/g	74.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		93.9	134	pg/g	70.3	(26%-138%)
37Cl-2,3,7,8-TCDD		10.1	13.4	pg/g	75.9	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633005
Client Sample: 1613B Soil
Client ID: RT66-005
Batch ID: 21331
Run Date: 06/22/2012 13:43
Data File: A22JUN12A-5
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 09:21
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.08 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		8.26	pg/g	0.203	0.710
40321-76-4	1,2,3,7,8-PeCDD	J	1.19	pg/g	0.162	3.55
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.99	pg/g	0.411	3.55
57653-85-7	1,2,3,6,7,8-HxCDD		4.76	pg/g	0.395	3.55
19408-74-3	1,2,3,7,8,9-HxCDD		5.88	pg/g	0.418	3.55
35822-46-9	1,2,3,4,6,7,8-HpCDD		264	pg/g	2.73	3.55
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	10200	pg/g	2.78	7.10
51207-31-9	2,3,7,8-TCDF	J	0.504	pg/g	0.226	0.710
57117-41-6	1,2,3,7,8-PeCDF	J	0.813	pg/g	0.220	3.55
57117-31-4	2,3,4,7,8-PeCDF	J	0.616	pg/g	0.229	3.55
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.99	pg/g	0.358	3.55
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.781	pg/g	0.362	3.55
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.34	pg/g	0.418	3.55
72918-21-9	1,2,3,7,8,9-HxCDF	U	.446	pg/g	0.446	3.55
67562-39-4	1,2,3,4,6,7,8-HpCDF		16.6	pg/g	0.254	3.55
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.15	pg/g	0.384	3.55
39001-02-0	1,2,3,4,6,7,8,9-OCDF		31.3	pg/g	0.379	7.10

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		122	142	pg/g	85.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		126	142	pg/g	89.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		113	142	pg/g	79.7	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		109	142	pg/g	76.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		103	142	pg/g	72.2	(23%-140%)
13C-OCDD		240	284	pg/g	84.5	(17%-157%)
13C-2,3,7,8-TCDF		123	142	pg/g	86.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		129	142	pg/g	91.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		132	142	pg/g	93.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		120	142	pg/g	84.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		117	142	pg/g	82.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		104	142	pg/g	73.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		117	142	pg/g	82.7	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		106	142	pg/g	74.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		103	142	pg/g	72.5	(26%-138%)
37Cl-2,3,7,8-TCDD		11.0	14.2	pg/g	77.2	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633
Lab Sample ID: 3633006
Client Sample: 1613B Soil
Client ID: RT66-006
Batch ID: 21331
Run Date: 06/22/2012 14:31
Data File: A22JUN12A-6
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 09:21
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.35 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		7.10	pg/g	0.174	0.697
40321-76-4	1,2,3,7,8-PeCDD	J	0.997	pg/g	0.139	3.48
39227-28-6	1,2,3,4,7,8-HxCDD	J	3.12	pg/g	0.379	3.48
57653-85-7	1,2,3,6,7,8-HxCDD		5.53	pg/g	0.386	3.48
19408-74-3	1,2,3,7,8,9-HxCDD		6.06	pg/g	0.396	3.48
35822-46-9	1,2,3,4,6,7,8-HpCDD		292	pg/g	3.11	3.48
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	13300	pg/g	3.05	6.97
51207-31-9	2,3,7,8-TCDF	J	0.460	pg/g	0.247	0.697
57117-41-6	1,2,3,7,8-PeCDF	J	0.649	pg/g	0.169	3.48
57117-31-4	2,3,4,7,8-PeCDF	J	1.17	pg/g	0.156	3.48
70648-26-9	1,2,3,4,7,8-HxCDF		6.09	pg/g	0.190	3.48
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.52	pg/g	0.190	3.48
60851-34-5	2,3,4,6,7,8-HxCDF	J	2.30	pg/g	0.223	3.48
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.775	pg/g	0.254	3.48
67562-39-4	1,2,3,4,6,7,8-HpCDF		25.3	pg/g	0.203	3.48
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.88	pg/g	0.357	3.48
39001-02-0	1,2,3,4,6,7,8,9-OCDF		30.4	pg/g	0.297	6.97

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		116	139	pg/g	83.5	(25%-164%)
13C-1,2,3,7,8-PeCDD		124	139	pg/g	89.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		106	139	pg/g	76.4	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		112	139	pg/g	80.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		95.5	139	pg/g	68.5	(23%-140%)
13C-OCDD		265	279	pg/g	95.2	(17%-157%)
13C-2,3,7,8-TCDF		117	139	pg/g	83.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		130	139	pg/g	93.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		130	139	pg/g	93.6	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		120	139	pg/g	86.3	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		116	139	pg/g	83.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		104	139	pg/g	74.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		117	139	pg/g	83.7	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		102	139	pg/g	73.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		99.4	139	pg/g	71.3	(26%-138%)
37Cl-2,3,7,8-TCDD		10.8	13.9	pg/g	77.5	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633
Lab Sample ID: 3633007
Client Sample: 1613B Soil
Client ID: RT66-006D
Batch ID: 21331
Run Date: 06/22/2012 15:18
Data File: A22JUN12A-7
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 09:21
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.04 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		6.86	pg/g	0.181	0.712
40321-76-4	1,2,3,7,8-PeCDD	J	1.08	pg/g	0.238	3.56
39227-28-6	1,2,3,4,7,8-HxCDD	J	3.16	pg/g	0.386	3.56
57653-85-7	1,2,3,6,7,8-HxCDD		6.28	pg/g	0.377	3.56
19408-74-3	1,2,3,7,8,9-HxCDD		6.26	pg/g	0.395	3.56
35822-46-9	1,2,3,4,6,7,8-HpCDD		312	pg/g	2.69	3.56
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	12700	pg/g	3.40	7.12
51207-31-9	2,3,7,8-TCDF	J	0.349	pg/g	0.226	0.712
57117-41-6	1,2,3,7,8-PeCDF	J	0.865	pg/g	0.175	3.56
57117-31-4	2,3,4,7,8-PeCDF	J	1.48	pg/g	0.179	3.56
70648-26-9	1,2,3,4,7,8-HxCDF		7.29	pg/g	0.311	3.56
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.90	pg/g	0.301	3.56
60851-34-5	2,3,4,6,7,8-HxCDF	J	2.75	pg/g	0.350	3.56
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.976	pg/g	0.396	3.56
67562-39-4	1,2,3,4,6,7,8-HpCDF		28.2	pg/g	0.292	3.56
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.91	pg/g	0.496	3.56
39001-02-0	1,2,3,4,6,7,8,9-OCDF		34.1	pg/g	0.556	7.12

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		119	142	pg/g	83.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		124	142	pg/g	87.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		113	142	pg/g	79.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		113	142	pg/g	79.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		101	142	pg/g	70.8	(23%-140%)
13C-OCDD		241	285	pg/g	84.5	(17%-157%)
13C-2,3,7,8-TCDF		119	142	pg/g	83.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		130	142	pg/g	91.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		128	142	pg/g	89.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		120	142	pg/g	84.3	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		119	142	pg/g	83.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		104	142	pg/g	73.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		119	142	pg/g	83.8	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		107	142	pg/g	75.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		104	142	pg/g	73.3	(26%-138%)
37Cl-2,3,7,8-TCDD		10.8	14.2	pg/g	75.5	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633
Lab Sample ID: 3633008
Client Sample: 1613B Soil
Client ID: RT66-007
Batch ID: 21331
Run Date: 06/22/2012 16:06
Data File: A22JUN12A-8
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 10:40
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 15.37 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		21.5	pg/g	0.161	0.651
40321-76-4	1,2,3,7,8-PeCDD	J	0.310	pg/g	0.116	3.25
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.799	pg/g	0.219	3.25
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.66	pg/g	0.224	3.25
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.67	pg/g	0.229	3.25
35822-46-9	1,2,3,4,6,7,8-HpCDD		68.0	pg/g	0.968	3.25
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1370	pg/g	1.50	6.51
51207-31-9	2,3,7,8-TCDF	J	0.501	pg/g	0.213	0.651
57117-41-6	1,2,3,7,8-PeCDF	J	1.01	pg/g	0.133	3.25
57117-31-4	2,3,4,7,8-PeCDF	J	0.786	pg/g	0.157	3.25
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.45	pg/g	0.147	3.25
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.561	pg/g	0.144	3.25
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.05	pg/g	0.170	3.25
72918-21-9	1,2,3,7,8,9-HxCDF	U	.173	pg/g	0.173	3.25
67562-39-4	1,2,3,4,6,7,8-HpCDF		9.75	pg/g	0.156	3.25
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.655	pg/g	0.258	3.25
39001-02-0	1,2,3,4,6,7,8,9-OCDF		20.8	pg/g	0.450	6.51

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		115	130	pg/g	88.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		119	130	pg/g	91.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		110	130	pg/g	84.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		103	130	pg/g	78.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		95.8	130	pg/g	73.7	(23%-140%)
13C-OCDD		187	260	pg/g	71.8	(17%-157%)
13C-2,3,7,8-TCDF		113	130	pg/g	86.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		138	130	pg/g	106	(24%-185%)
13C-2,3,4,7,8-PeCDF		126	130	pg/g	97.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		113	130	pg/g	87.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		108	130	pg/g	82.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		99.0	130	pg/g	76.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		114	130	pg/g	87.7	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		97.4	130	pg/g	74.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		92.7	130	pg/g	71.3	(26%-138%)
37Cl-2,3,7,8-TCDD		10.4	13.0	pg/g	79.9	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633
Lab Sample ID: 3633009
Client Sample: 1613B Soil
Client ID: RT66-008
Batch ID: 21331
Run Date: 06/22/2012 16:53
Data File: A22JUN12A-9
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 11:00
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 15 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		27.5	pg/g	0.183	0.667
40321-76-4	1,2,3,7,8-PeCDD	J	0.348	pg/g	0.128	3.33
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.16	pg/g	0.291	3.33
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.58	pg/g	0.311	3.33
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.85	pg/g	0.312	3.33
35822-46-9	1,2,3,4,6,7,8-HpCDD		92.3	pg/g	1.80	3.33
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	2940	pg/g	2.20	6.67
51207-31-9	2,3,7,8-TCDF	J	0.544	pg/g	0.309	0.667
57117-41-6	1,2,3,7,8-PeCDF	J	1.22	pg/g	0.236	3.33
57117-31-4	2,3,4,7,8-PeCDF	J	1.19	pg/g	0.236	3.33
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.08	pg/g	0.179	3.33
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.485	pg/g	0.171	3.33
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.09	pg/g	0.205	3.33
72918-21-9	1,2,3,7,8,9-HxCDF	U	.245	pg/g	0.245	3.33
67562-39-4	1,2,3,4,6,7,8-HpCDF		5.94	pg/g	0.261	3.33
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.415	pg/g	0.415	3.33
39001-02-0	1,2,3,4,6,7,8,9-OCDF		11.9	pg/g	0.440	6.67

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		114	133	pg/g	85.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		115	133	pg/g	86.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		97.7	133	pg/g	73.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		103	133	pg/g	77.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		95.0	133	pg/g	71.2	(23%-140%)
13C-OCDD		222	267	pg/g	83.4	(17%-157%)
13C-2,3,7,8-TCDF		111	133	pg/g	83.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		121	133	pg/g	91.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		119	133	pg/g	89.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		109	133	pg/g	81.4	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		109	133	pg/g	81.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		97.4	133	pg/g	73.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		108	133	pg/g	81.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		96.9	133	pg/g	72.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		95.0	133	pg/g	71.3	(26%-138%)
37Cl-2,3,7,8-TCDD		10.3	13.3	pg/g	77.3	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633	Client: TETR001	Project: TETR00112
Lab Sample ID: 3633010	Date Collected: 06/05/2012 14:50	Matrix: SOLID
Client Sample: 1613B Soil	Date Received: 06/12/2012 09:50	
Client ID: RT66-009		Prep Basis: As Received
Batch ID: 21331	Method: EPA Method 1613B	
Run Date: 06/22/2012 17:41	Analyst: MJC	Instrument: HRP750
Data File: A22JUN12A-10		Dilution: 1
Prep Batch: 21328	Prep Method: SW846 3540C	
Prep Date: 14-JUN-12	Aliquot: 14.57 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		30.7	pg/g	0.189	0.686
40321-76-4	1,2,3,7,8-PeCDD	J	0.590	pg/g	0.225	3.43
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.67	pg/g	0.305	3.43
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.99	pg/g	0.314	3.43
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.95	pg/g	0.320	3.43
35822-46-9	1,2,3,4,6,7,8-HpCDD		124	pg/g	1.54	3.43
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2510	pg/g	2.29	6.86
51207-31-9	2,3,7,8-TCDF	J	0.524	pg/g	0.248	0.686
57117-41-6	1,2,3,7,8-PeCDF	J	1.00	pg/g	0.262	3.43
57117-31-4	2,3,4,7,8-PeCDF	J	0.857	pg/g	0.261	3.43
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.93	pg/g	0.218	3.43
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.905	pg/g	0.218	3.43
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.61	pg/g	0.253	3.43
72918-21-9	1,2,3,7,8,9-HxCDF	U	.313	pg/g	0.313	3.43
67562-39-4	1,2,3,4,6,7,8-HpCDF		14.7	pg/g	0.334	3.43
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.862	pg/g	0.556	3.43
39001-02-0	1,2,3,4,6,7,8,9-OCDF		37.1	pg/g	0.539	6.86

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		109	137	pg/g	79.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		114	137	pg/g	83.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		102	137	pg/g	74.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		108	137	pg/g	78.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		95.7	137	pg/g	69.7	(23%-140%)
13C-OCDD		196	275	pg/g	71.2	(17%-157%)
13C-2,3,7,8-TCDF		110	137	pg/g	80.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		120	137	pg/g	87.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		117	137	pg/g	85.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		112	137	pg/g	81.6	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		111	137	pg/g	81.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		99.1	137	pg/g	72.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		108	137	pg/g	78.4	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		100	137	pg/g	72.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		95.7	137	pg/g	69.7	(26%-138%)
37Cl-2,3,7,8-TCDD		10.1	13.7	pg/g	73.5	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3633
Lab Sample ID: 3633011
Client Sample: 1613B Soil
Client ID: RT66-010
Batch ID: 21331
Run Date: 06/22/2012 18:28
Data File: A22JUN12A-11
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 14:32
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.41 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		212	pg/g	0.323	0.694
40321-76-4	1,2,3,7,8-PeCDD	J	0.895	pg/g	0.262	3.47
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.07	pg/g	0.459	3.47
57653-85-7	1,2,3,6,7,8-HxCDD		6.31	pg/g	0.473	3.47
19408-74-3	1,2,3,7,8,9-HxCDD		4.24	pg/g	0.483	3.47
35822-46-9	1,2,3,4,6,7,8-HpCDD		153	pg/g	1.54	3.47
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2030	pg/g	2.66	6.94
51207-31-9	2,3,7,8-TCDF		1.40	pg/g	0.458	0.694
57117-41-6	1,2,3,7,8-PeCDF	J	1.62	pg/g	0.189	3.47
57117-31-4	2,3,4,7,8-PeCDF	J	3.17	pg/g	0.190	3.47
70648-26-9	1,2,3,4,7,8-HxCDF	J	2.44	pg/g	0.323	3.47
57117-44-9	1,2,3,6,7,8-HxCDF	J	2.03	pg/g	0.307	3.47
60851-34-5	2,3,4,6,7,8-HxCDF		3.70	pg/g	0.368	3.47
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.755	pg/g	0.447	3.47
67562-39-4	1,2,3,4,6,7,8-HpCDF		22.9	pg/g	0.346	3.47
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.97	pg/g	0.551	3.47
39001-02-0	1,2,3,4,6,7,8,9-OCDF		35.6	pg/g	0.616	6.94

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		119	139	pg/g	85.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		121	139	pg/g	86.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		107	139	pg/g	76.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		109	139	pg/g	78.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		101	139	pg/g	72.6	(23%-140%)
13C-OCDD		215	278	pg/g	77.4	(17%-157%)
13C-2,3,7,8-TCDF		116	139	pg/g	83.5	(24%-169%)
13C-1,2,3,7,8-PeCDF		126	139	pg/g	91.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		122	139	pg/g	87.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		114	139	pg/g	82.3	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		121	139	pg/g	86.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		103	139	pg/g	74.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		111	139	pg/g	80.2	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		103	139	pg/g	74.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		98.2	139	pg/g	70.8	(26%-138%)
37Cl-2,3,7,8-TCDD		11.5	13.9	pg/g	83.1	(35%-197%)

Comments:

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number:	3633	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3633011	Date Collected:	06/05/2012 14:32	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/12/2012 09:50		
Client ID:	RT66-010			Prep Basis:	As Received
Batch ID:	21331	Method:	EPA Method 1613B		
Run Date:	06/26/2012 11:21	Analyst:	MJC	Instrument:	HRP763
Data File:	b26jun12a-6			Dilution:	1
Prep Batch:	21328	Prep Method:	SW846 3540C		
Prep Date:	14-JUN-12	Aliquot:	14.41 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.18	pg/g	0.329	0.694

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3633
Lab Sample ID: 3633012
Client Sample: 1613B Soil
Client ID: RT66-011
Batch ID: 21331
Run Date: 06/22/2012 19:16
Data File: A22JUN12A-12
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 14:46
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.74 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		30.2	pg/g	0.159	0.678
40321-76-4	1,2,3,7,8-PeCDD	J	0.634	pg/g	0.204	3.39
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.87	pg/g	0.332	3.39
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.19	pg/g	0.362	3.39
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.75	pg/g	0.360	3.39
35822-46-9	1,2,3,4,6,7,8-HpCDD		133	pg/g	1.70	3.39
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2570	pg/g	2.08	6.78
51207-31-9	2,3,7,8-TCDF		0.718	pg/g	0.258	0.678
57117-41-6	1,2,3,7,8-PeCDF	J	0.948	pg/g	0.141	3.39
57117-31-4	2,3,4,7,8-PeCDF	J	1.52	pg/g	0.155	3.39
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.34	pg/g	0.216	3.39
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.01	pg/g	0.243	3.39
60851-34-5	2,3,4,6,7,8-HxCDF	J	2.10	pg/g	0.296	3.39
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.357	pg/g	0.201	3.39
67562-39-4	1,2,3,4,6,7,8-HpCDF		21.0	pg/g	0.210	3.39
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.860	pg/g	0.383	3.39
39001-02-0	1,2,3,4,6,7,8,9-OCDF		36.0	pg/g	0.550	6.78

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		123	136	pg/g	90.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		122	136	pg/g	90.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		113	136	pg/g	83.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		95.4	136	pg/g	70.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		98.5	136	pg/g	72.6	(23%-140%)
13C-OCDD		218	271	pg/g	80.2	(17%-157%)
13C-2,3,7,8-TCDF		120	136	pg/g	88.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		126	136	pg/g	93.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		125	136	pg/g	92.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		133	136	pg/g	97.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		106	136	pg/g	78.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		91.8	136	pg/g	67.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		126	136	pg/g	92.8	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		112	136	pg/g	82.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		101	136	pg/g	74.6	(26%-138%)
37Cl-2,3,7,8-TCDD		11.3	13.6	pg/g	83.0	(35%-197%)

Comments:

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3633	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3633012	Date Collected:	06/05/2012 14:46	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/12/2012 09:50		
Client ID:	RT66-011			Prep Basis:	As Received
Batch ID:	21331	Method:	EPA Method 1613B		
Run Date:	06/26/2012 11:41	Analyst:	MJC	Instrument:	HRP763
Data File:	b26jun12a-7			Dilution:	1
Prep Batch:	21328	Prep Method:	SW846 3540C		
Prep Date:	14-JUN-12	Aliquot:	14.74 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF	J	0.662	pg/g	0.327	0.678

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3633
Lab Sample ID: 3633013
Client Sample: 1613B Soil
Client ID: RT66-011D
Batch ID: 21331
Run Date: 06/22/2012 20:03
Data File: A22JUN12A-13
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 14:46
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 15.41 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		31.9	pg/g	0.154	0.649
40321-76-4	1,2,3,7,8-PeCDD	J	0.558	pg/g	0.129	3.24
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.60	pg/g	0.335	3.24
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.99	pg/g	0.340	3.24
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.87	pg/g	0.350	3.24
35822-46-9	1,2,3,4,6,7,8-HpCDD		122	pg/g	1.32	3.24
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2350	pg/g	1.53	6.49
51207-31-9	2,3,7,8-TCDF		0.803	pg/g	0.308	0.649
57117-41-6	1,2,3,7,8-PeCDF	J	0.828	pg/g	0.138	3.24
57117-31-4	2,3,4,7,8-PeCDF	J	1.39	pg/g	0.160	3.24
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.964	pg/g	0.169	3.24
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.923	pg/g	0.183	3.24
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.82	pg/g	0.235	3.24
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.283	pg/g	0.152	3.24
67562-39-4	1,2,3,4,6,7,8-HpCDF		18.4	pg/g	0.187	3.24
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.928	pg/g	0.335	3.24
39001-02-0	1,2,3,4,6,7,8,9-OCDF		28.4	pg/g	0.482	6.49

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		130	130	pg/g	100	(25%-164%)
13C-1,2,3,7,8-PeCDD		127	130	pg/g	97.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		109	130	pg/g	83.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		99.0	130	pg/g	76.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		96.8	130	pg/g	74.6	(23%-140%)
13C-OCDD		235	260	pg/g	90.5	(17%-157%)
13C-2,3,7,8-TCDF		120	130	pg/g	92.3	(24%-169%)
13C-1,2,3,7,8-PeCDF		134	130	pg/g	103	(24%-185%)
13C-2,3,4,7,8-PeCDF		131	130	pg/g	101	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		131	130	pg/g	101	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		106	130	pg/g	81.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		92.2	130	pg/g	71.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		125	130	pg/g	96.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		109	130	pg/g	84.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		99.0	130	pg/g	76.3	(26%-138%)
37Cl-2,3,7,8-TCDD		10.9	13.0	pg/g	84.2	(35%-197%)

Comments:

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3633	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3633013	Date Collected:	06/05/2012 14:46	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/12/2012 09:50		
Client ID:	RT66-011D			Prep Basis:	As Received
Batch ID:	21331	Method:	EPA Method 1613B		
Run Date:	06/26/2012 12:00	Analyst:	MJC	Instrument:	HRP763
Data File:	b26jun12a-8			Dilution:	1
Prep Batch:	21328	Prep Method:	SW846 3540C		
Prep Date:	14-JUN-12	Aliquot:	15.41 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF	J	0.528	pg/g	0.261	0.649

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633014
Client Sample: 1613B Soil
Client ID: RT66-012
Batch ID: 21331
Run Date: 06/22/2012 20:51
Data File: A22JUN12A-14
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 15:08
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.27 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		0.786	pg/g	0.161	0.701
40321-76-4	1,2,3,7,8-PeCDD	U	.164	pg/g	0.164	3.50
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.270	pg/g	0.259	3.50
57653-85-7	1,2,3,6,7,8-HxCDD	J	0.512	pg/g	0.251	3.50
19408-74-3	1,2,3,7,8,9-HxCDD	J	0.371	pg/g	0.263	3.50
35822-46-9	1,2,3,4,6,7,8-HpCDD		13.1	pg/g	1.14	3.50
3268-87-9	1,2,3,4,6,7,8,9-OCDD		222	pg/g	0.980	7.01
51207-31-9	2,3,7,8-TCDF	J	0.362	pg/g	0.196	0.701
57117-41-6	1,2,3,7,8-PeCDF	J	0.164	pg/g	0.118	3.50
57117-31-4	2,3,4,7,8-PeCDF	U	.124	pg/g	0.124	3.50
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.139	pg/g	0.138	3.50
57117-44-9	1,2,3,6,7,8-HxCDF	U	.134	pg/g	0.134	3.50
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.172	pg/g	0.167	3.50
72918-21-9	1,2,3,7,8,9-HxCDF	U	.206	pg/g	0.206	3.50
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	0.988	pg/g	0.164	3.50
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.279	pg/g	0.279	3.50
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	1.51	pg/g	0.454	7.01

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		125	140	pg/g	89.5	(25%-164%)
13C-1,2,3,7,8-PeCDD		116	140	pg/g	82.6	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		99.7	140	pg/g	71.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		108	140	pg/g	76.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		91.8	140	pg/g	65.5	(23%-140%)
13C-OCDD		215	280	pg/g	76.8	(17%-157%)
13C-2,3,7,8-TCDF		112	140	pg/g	79.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		127	140	pg/g	90.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		119	140	pg/g	85.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		116	140	pg/g	83.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		115	140	pg/g	82.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		97.2	140	pg/g	69.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		110	140	pg/g	78.6	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		94.3	140	pg/g	67.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		91.7	140	pg/g	65.4	(26%-138%)
37Cl-2,3,7,8-TCDD		10.9	14.0	pg/g	77.6	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3633
Lab Sample ID: 3633015
Client Sample: 1613B Soil
Client ID: RT66-013
Batch ID: 21334
Run Date: 06/20/2012 13:51
Data File: b20jun12a-8
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 15:15
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.75 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		13.9	pg/g	0.148	0.678
40321-76-4	1,2,3,7,8-PeCDD	J	0.774	pg/g	0.0925	3.39
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.05	pg/g	0.210	3.39
57653-85-7	1,2,3,6,7,8-HxCDD		8.80	pg/g	0.216	3.39
19408-74-3	1,2,3,7,8,9-HxCDD		3.88	pg/g	0.229	3.39
35822-46-9	1,2,3,4,6,7,8-HpCDD		196	pg/g	0.758	3.39
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	3380	pg/g	1.78	6.78
51207-31-9	2,3,7,8-TCDF		0.696	pg/g	0.275	0.678
57117-41-6	1,2,3,7,8-PeCDF	J	1.65	pg/g	0.109	3.39
57117-31-4	2,3,4,7,8-PeCDF	J	1.63	pg/g	0.113	3.39
70648-26-9	1,2,3,4,7,8-HxCDF	J	2.44	pg/g	0.138	3.39
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.56	pg/g	0.133	3.39
60851-34-5	2,3,4,6,7,8-HxCDF	J	3.20	pg/g	0.161	3.39
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.744	pg/g	0.197	3.39
67562-39-4	1,2,3,4,6,7,8-HpCDF		22.8	pg/g	0.193	3.39
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.40	pg/g	0.308	3.39
39001-02-0	1,2,3,4,6,7,8,9-OCDF		35.0	pg/g	0.466	6.78

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		104	136	pg/g	76.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		95.6	136	pg/g	70.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		98.3	136	pg/g	72.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		96.1	136	pg/g	70.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		93.5	136	pg/g	69.0	(23%-140%)
13C-OCDD		175	271	pg/g	64.6	(17%-157%)
13C-2,3,7,8-TCDF		96.5	136	pg/g	71.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		100	136	pg/g	74.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		100	136	pg/g	74.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		108	136	pg/g	79.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		106	136	pg/g	77.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		96.4	136	pg/g	71.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		111	136	pg/g	81.6	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		91.7	136	pg/g	67.6	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		89.4	136	pg/g	66.0	(26%-138%)
37Cl-2,3,7,8-TCDD		9.31	13.6	pg/g	68.7	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3633	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3633015	Date Collected:	06/05/2012 15:15	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/12/2012 09:50		
Client ID:	RT66-013			Prep Basis:	As Received
Batch ID:	21334	Method:	EPA Method 1613B		
Run Date:	06/26/2012 12:20	Analyst:	MJC	Instrument:	HRP763
Data File:	b26jun12a-9			Dilution:	1
Prep Batch:	21332	Prep Method:	SW846 3540C		
Prep Date:	14-JUN-12	Aliquot:	14.75 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.689	pg/g	0.374	0.678

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3633
Lab Sample ID: 3633016
Client Sample: 1613B Soil
Client ID: RT66-014
Batch ID: 21334
Run Date: 06/20/2012 14:38
Data File: b20jun12a-9
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/05/2012 15:53
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.35 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		52.2	pg/g	0.145	0.697
40321-76-4	1,2,3,7,8-PeCDD	J	0.813	pg/g	0.0892	3.48
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.71	pg/g	0.315	3.48
57653-85-7	1,2,3,6,7,8-HxCDD		6.60	pg/g	0.314	3.48
19408-74-3	1,2,3,7,8,9-HxCDD		5.65	pg/g	0.339	3.48
35822-46-9	1,2,3,4,6,7,8-HpCDD		260	pg/g	1.06	3.48
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	4450	pg/g	1.63	6.97
51207-31-9	2,3,7,8-TCDF		0.900	pg/g	0.181	0.697
57117-41-6	1,2,3,7,8-PeCDF	J	1.83	pg/g	0.122	3.48
57117-31-4	2,3,4,7,8-PeCDF	J	2.00	pg/g	0.133	3.48
70648-26-9	1,2,3,4,7,8-HxCDF	J	2.58	pg/g	0.134	3.48
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.59	pg/g	0.136	3.48
60851-34-5	2,3,4,6,7,8-HxCDF	J	2.67	pg/g	0.157	3.48
72918-21-9	1,2,3,7,8,9-HxCDF	JQ	0.690	pg/g	0.163	3.48
67562-39-4	1,2,3,4,6,7,8-HpCDF		31.3	pg/g	0.185	3.48
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	2.00	pg/g	0.283	3.48
39001-02-0	1,2,3,4,6,7,8,9-OCDF		102	pg/g	0.433	6.97

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		118	139	pg/g	84.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		107	139	pg/g	76.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		115	139	pg/g	82.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		105	139	pg/g	75.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		109	139	pg/g	78.2	(23%-140%)
13C-OCDD		191	279	pg/g	68.4	(17%-157%)
13C-2,3,7,8-TCDF		104	139	pg/g	74.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		112	139	pg/g	80.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		112	139	pg/g	80.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		125	139	pg/g	89.6	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		111	139	pg/g	80.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		106	139	pg/g	75.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF	Q	87.7	139	pg/g	62.9	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		106	139	pg/g	76.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		111	139	pg/g	79.5	(26%-138%)
37Cl-2,3,7,8-TCDD		10.8	13.9	pg/g	77.5	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Q Quantitative Interference

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3633	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3633016	Date Collected:	06/05/2012 15:53	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/12/2012 09:50		
Client ID:	RT66-014			Prep Basis:	As Received
Batch ID:	21334	Method:	EPA Method 1613B		
Run Date:	06/26/2012 12:39	Analyst:	MJC	Instrument:	HRP763
Data File:	b26jun12a-10			Dilution:	1
Prep Batch:	21332	Prep Method:	SW846 3540C		
Prep Date:	14-JUN-12	Aliquot:	14.35 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.821	pg/g	0.329	0.697

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
J Value is estimated
Q Quantitative Interference

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633017
Client Sample: 1613B Soil
Client ID: RT66-016
Batch ID: 21334
Run Date: 06/20/2012 15:25
Data File: b20jun12a-10
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 08:50
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 15.24 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		10.7	pg/g	0.0949	0.656
40321-76-4	1,2,3,7,8-PeCDD	U	.0832	pg/g	0.0832	3.28
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.209	pg/g	0.144	3.28
57653-85-7	1,2,3,6,7,8-HxCDD	J	0.463	pg/g	0.152	3.28
19408-74-3	1,2,3,7,8,9-HxCDD	J	0.429	pg/g	0.159	3.28
35822-46-9	1,2,3,4,6,7,8-HpCDD		14.8	pg/g	0.316	3.28
3268-87-9	1,2,3,4,6,7,8,9-OCDD		429	pg/g	0.797	6.56
51207-31-9	2,3,7,8-TCDF	J	0.269	pg/g	0.105	0.656
57117-41-6	1,2,3,7,8-PeCDF	J	0.148	pg/g	0.0572	3.28
57117-31-4	2,3,4,7,8-PeCDF	U	.0563	pg/g	0.0563	3.28
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.171	pg/g	0.079	3.28
57117-44-9	1,2,3,6,7,8-HxCDF	U	.0835	pg/g	0.0835	3.28
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.117	pg/g	0.0957	3.28
72918-21-9	1,2,3,7,8,9-HxCDF	U	.12	pg/g	0.120	3.28
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	0.819	pg/g	0.0976	3.28
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.16	pg/g	0.160	3.28
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	2.00	pg/g	0.311	6.56

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		99.4	131	pg/g	75.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		94.0	131	pg/g	71.6	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		100	131	pg/g	76.4	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		95.0	131	pg/g	72.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		94.4	131	pg/g	71.9	(23%-140%)
13C-OCDD		161	262	pg/g	61.5	(17%-157%)
13C-2,3,7,8-TCDF		94.7	131	pg/g	72.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		96.7	131	pg/g	73.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		98.6	131	pg/g	75.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		114	131	pg/g	86.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		104	131	pg/g	79.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		99.2	131	pg/g	75.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		109	131	pg/g	83.3	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		94.3	131	pg/g	71.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		91.3	131	pg/g	69.6	(26%-138%)
37Cl-2,3,7,8-TCDD		9.10	13.1	pg/g	69.3	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633
Lab Sample ID: 3633018
Client Sample: 1613B Soil
Client ID: RT66-017
Batch ID: 21334
Run Date: 06/20/2012 16:12
Data File: b20jun12a-11
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 08:50
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.51 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		12.6	pg/g	0.109	0.689
40321-76-4	1,2,3,7,8-PeCDD	J	0.390	pg/g	0.0637	3.45
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.848	pg/g	0.129	3.45
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.34	pg/g	0.133	3.45
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.65	pg/g	0.141	3.45
35822-46-9	1,2,3,4,6,7,8-HpCDD		55.5	pg/g	0.447	3.45
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1730	pg/g	1.36	6.89
51207-31-9	2,3,7,8-TCDF	J	0.484	pg/g	0.163	0.689
57117-41-6	1,2,3,7,8-PeCDF	J	0.385	pg/g	0.0998	3.45
57117-31-4	2,3,4,7,8-PeCDF	J	0.256	pg/g	0.093	3.45
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.618	pg/g	0.0944	3.45
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.386	pg/g	0.0987	3.45
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.331	pg/g	0.110	3.45
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.131	pg/g	0.128	3.45
67562-39-4	1,2,3,4,6,7,8-HpCDF		3.83	pg/g	0.124	3.45
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.234	pg/g	0.193	3.45
39001-02-0	1,2,3,4,6,7,8,9-OCDF		11.4	pg/g	0.289	6.89

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		109	138	pg/g	79.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		105	138	pg/g	75.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		100	138	pg/g	72.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		99.5	138	pg/g	72.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		97.5	138	pg/g	70.8	(23%-140%)
13C-OCDD		165	276	pg/g	60.0	(17%-157%)
13C-2,3,7,8-TCDF		104	138	pg/g	75.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		113	138	pg/g	81.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		116	138	pg/g	83.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		112	138	pg/g	81.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		108	138	pg/g	78.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		99.8	138	pg/g	72.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		114	138	pg/g	82.6	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		97.7	138	pg/g	70.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		96.1	138	pg/g	69.8	(26%-138%)
37Cl-2,3,7,8-TCDD		9.77	13.8	pg/g	70.9	(35%-197%)

Comments:

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633
Lab Sample ID: 3633019
Client Sample: 1613B Soil
Client ID: RT66-018
Batch ID: 21334
Run Date: 06/20/2012 16:59
Data File: b20jun12a-12
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 08:50
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.95 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		24.5	pg/g	0.111	0.669
40321-76-4	1,2,3,7,8-PeCDD	J	0.364	pg/g	0.0919	3.34
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.14	pg/g	0.155	3.34
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.79	pg/g	0.159	3.34
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.21	pg/g	0.169	3.34
35822-46-9	1,2,3,4,6,7,8-HpCDD		82.0	pg/g	0.668	3.34
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2520	pg/g	1.79	6.69
51207-31-9	2,3,7,8-TCDF	J	0.466	pg/g	0.173	0.669
57117-41-6	1,2,3,7,8-PeCDF	J	0.518	pg/g	0.0709	3.34
57117-31-4	2,3,4,7,8-PeCDF	J	0.415	pg/g	0.0673	3.34
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.581	pg/g	0.0836	3.34
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.278	pg/g	0.0871	3.34
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.490	pg/g	0.102	3.34
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.153	pg/g	0.119	3.34
67562-39-4	1,2,3,4,6,7,8-HpCDF		4.42	pg/g	0.108	3.34
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.348	pg/g	0.170	3.34
39001-02-0	1,2,3,4,6,7,8,9-OCDF		12.5	pg/g	0.312	6.69

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		103	134	pg/g	77.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		100	134	pg/g	75.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		101	134	pg/g	75.7	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		96.5	134	pg/g	72.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		95.7	134	pg/g	71.6	(23%-140%)
13C-OCDD		170	268	pg/g	63.4	(17%-157%)
13C-2,3,7,8-TCDF		99.7	134	pg/g	74.5	(24%-169%)
13C-1,2,3,7,8-PeCDF		107	134	pg/g	80.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		109	134	pg/g	81.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		113	134	pg/g	84.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		108	134	pg/g	80.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		98.8	134	pg/g	73.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		116	134	pg/g	87.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		94.9	134	pg/g	70.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		93.0	134	pg/g	69.5	(26%-138%)
37Cl-2,3,7,8-TCDD		9.05	13.4	pg/g	67.6	(35%-197%)

Comments:

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633020
Client Sample: 1613B Soil
Client ID: RT66-019
Batch ID: 21334
Run Date: 06/20/2012 17:46
Data File: b20jun12a-13
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 08:50
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.28 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		28.6	pg/g	0.124	0.700
40321-76-4	1,2,3,7,8-PeCDD	J	0.448	pg/g	0.0923	3.50
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.15	pg/g	0.196	3.50
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.02	pg/g	0.203	3.50
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.36	pg/g	0.214	3.50
35822-46-9	1,2,3,4,6,7,8-HpCDD		85.8	pg/g	0.612	3.50
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	2810	pg/g	2.39	7.00
51207-31-9	2,3,7,8-TCDF	J	0.527	pg/g	0.168	0.700
57117-41-6	1,2,3,7,8-PeCDF	J	0.601	pg/g	0.0796	3.50
57117-31-4	2,3,4,7,8-PeCDF	J	0.483	pg/g	0.0763	3.50
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.671	pg/g	0.0727	3.50
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.377	pg/g	0.077	3.50
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.625	pg/g	0.0917	3.50
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.150	pg/g	0.110	3.50
67562-39-4	1,2,3,4,6,7,8-HpCDF		5.18	pg/g	0.127	3.50
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.426	pg/g	0.216	3.50
39001-02-0	1,2,3,4,6,7,8,9-OCDF		15.7	pg/g	0.326	7.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		97.7	140	pg/g	69.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		91.8	140	pg/g	65.6	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		97.7	140	pg/g	69.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		96.8	140	pg/g	69.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		94.7	140	pg/g	67.6	(23%-140%)
13C-OCDD		171	280	pg/g	60.9	(17%-157%)
13C-2,3,7,8-TCDF		93.8	140	pg/g	67.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		97.2	140	pg/g	69.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		97.5	140	pg/g	69.6	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		112	140	pg/g	80.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		105	140	pg/g	75.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		98.0	140	pg/g	70.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		114	140	pg/g	81.6	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		95.1	140	pg/g	67.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		92.9	140	pg/g	66.3	(26%-138%)
37Cl-2,3,7,8-TCDD		8.77	14.0	pg/g	62.6	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633021
Client Sample: 1613B Soil
Client ID: RT66-020
Batch ID: 21334
Run Date: 06/23/2012 06:01
Data File: b20jun12a_7-10
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 09:28
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.76 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	0.196	pg/g	0.0728	0.678
40321-76-4	1,2,3,7,8-PeCDD	U	.154	pg/g	0.154	3.39
39227-28-6	1,2,3,4,7,8-HxCDD	U	.276	pg/g	0.276	3.39
57653-85-7	1,2,3,6,7,8-HxCDD	J	0.325	pg/g	0.282	3.39
19408-74-3	1,2,3,7,8,9-HxCDD	U	.299	pg/g	0.299	3.39
35822-46-9	1,2,3,4,6,7,8-HpCDD		7.70	pg/g	1.00	3.39
3268-87-9	1,2,3,4,6,7,8,9-OCDD		101	pg/g	3.54	6.78
51207-31-9	2,3,7,8-TCDF	J	0.152	pg/g	0.0938	0.678
57117-41-6	1,2,3,7,8-PeCDF	U	.1	pg/g	0.100	3.39
57117-31-4	2,3,4,7,8-PeCDF	U	.108	pg/g	0.108	3.39
70648-26-9	1,2,3,4,7,8-HxCDF	U	.134	pg/g	0.134	3.39
57117-44-9	1,2,3,6,7,8-HxCDF	U	.145	pg/g	0.145	3.39
60851-34-5	2,3,4,6,7,8-HxCDF	U	.176	pg/g	0.176	3.39
72918-21-9	1,2,3,7,8,9-HxCDF	U	.24	pg/g	0.240	3.39
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	1.50	pg/g	0.381	3.39
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.688	pg/g	0.688	3.39
39001-02-0	1,2,3,4,6,7,8,9-OCDF		6.81	pg/g	2.11	6.78

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		82.4	136	pg/g	60.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		55.4	136	pg/g	40.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		85.2	136	pg/g	62.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		93.6	136	pg/g	69.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		36.7	136	pg/g	27.1	(23%-140%)
13C-OCDD		29.6	271	pg/g	10.9 *	(17%-157%)
13C-2,3,7,8-TCDF		76.2	136	pg/g	56.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		59.0	136	pg/g	43.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		56.5	136	pg/g	41.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		103	136	pg/g	75.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		99.2	136	pg/g	73.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		81.8	136	pg/g	60.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		75.2	136	pg/g	55.5	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		42.5	136	pg/g	31.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		35.0	136	pg/g	25.9 *	(26%-138%)
37Cl-2,3,7,8-TCDD		6.99	13.6	pg/g	51.6	(35%-197%)

Comments:

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633022
Client Sample: 1613B Soil
Client ID: RT66-021
Batch ID: 21334
Run Date: 06/20/2012 21:01
Data File: b20jun12a_2-2
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 09:28
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.75 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	0.624	pg/g	0.112	0.678
40321-76-4	1,2,3,7,8-PeCDD	U	.282	pg/g	0.282	3.39
39227-28-6	1,2,3,4,7,8-HxCDD	U	.298	pg/g	0.298	3.39
57653-85-7	1,2,3,6,7,8-HxCDD	J	0.719	pg/g	0.294	3.39
19408-74-3	1,2,3,7,8,9-HxCDD	J	0.656	pg/g	0.306	3.39
35822-46-9	1,2,3,4,6,7,8-HpCDD		14.2	pg/g	0.594	3.39
3268-87-9	1,2,3,4,6,7,8,9-OCDD		254	pg/g	2.20	6.78
51207-31-9	2,3,7,8-TCDF	J	0.285	pg/g	0.180	0.678
57117-41-6	1,2,3,7,8-PeCDF	U	.175	pg/g	0.175	3.39
57117-31-4	2,3,4,7,8-PeCDF	U	.184	pg/g	0.184	3.39
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.231	pg/g	0.184	3.39
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.216	pg/g	0.197	3.39
60851-34-5	2,3,4,6,7,8-HxCDF	U	.232	pg/g	0.232	3.39
72918-21-9	1,2,3,7,8,9-HxCDF	U	.334	pg/g	0.334	3.39
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	1.82	pg/g	0.235	3.39
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.433	pg/g	0.433	3.39
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	5.67	pg/g	1.91	6.78

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		111	136	pg/g	81.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		93.5	136	pg/g	68.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		120	136	pg/g	88.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		117	136	pg/g	86.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		62.9	136	pg/g	46.4	(23%-140%)
13C-OCDD		46.7	271	pg/g	17.2	(17%-157%)
13C-2,3,7,8-TCDF		102	136	pg/g	75.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		106	136	pg/g	78.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		104	136	pg/g	77.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		161	136	pg/g	119	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		136	136	pg/g	100	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		125	136	pg/g	91.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		110	136	pg/g	81.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		75.8	136	pg/g	55.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		62.2	136	pg/g	45.8	(26%-138%)
37Cl-2,3,7,8-TCDD		9.55	13.6	pg/g	70.5	(35%-197%)

Comments:

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633023
Client Sample: 1613B Soil
Client ID: RT66-022
Batch ID: 21334
Run Date: 06/20/2012 21:48
Data File: b20jun12a_2-3
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 09:28
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.39 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		3.06	pg/g	0.134	0.695
40321-76-4	1,2,3,7,8-PeCDD	J	0.224	pg/g	0.120	3.47
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.385	pg/g	0.156	3.47
57653-85-7	1,2,3,6,7,8-HxCDD	J	0.732	pg/g	0.158	3.47
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.08	pg/g	0.170	3.47
35822-46-9	1,2,3,4,6,7,8-HpCDD		27.3	pg/g	0.410	3.47
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1000	pg/g	1.79	6.95
51207-31-9	2,3,7,8-TCDF	J	0.318	pg/g	0.158	0.695
57117-41-6	1,2,3,7,8-PeCDF		4.20	pg/g	0.127	3.47
57117-31-4	2,3,4,7,8-PeCDF	J	0.434	pg/g	0.128	3.47
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.207	pg/g	0.114	3.47
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.208	pg/g	0.117	3.47
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.263	pg/g	0.132	3.47
72918-21-9	1,2,3,7,8,9-HxCDF	U	.177	pg/g	0.177	3.47
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	2.12	pg/g	0.156	3.47
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.264	pg/g	0.264	3.47
39001-02-0	1,2,3,4,6,7,8,9-OCDF		7.62	pg/g	0.773	6.95

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		108	139	pg/g	77.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		94.6	139	pg/g	68.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		117	139	pg/g	84.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		106	139	pg/g	76.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		76.9	139	pg/g	55.3	(23%-140%)
13C-OCDD		83.7	278	pg/g	30.1	(17%-157%)
13C-2,3,7,8-TCDF		99.1	139	pg/g	71.3	(24%-169%)
13C-1,2,3,7,8-PeCDF		95.3	139	pg/g	68.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		94.5	139	pg/g	68.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		124	139	pg/g	89.5	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		114	139	pg/g	82.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		108	139	pg/g	77.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		111	139	pg/g	79.8	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		80.8	139	pg/g	58.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		73.7	139	pg/g	53.0	(26%-138%)
37Cl-2,3,7,8-TCDD		9.26	13.9	pg/g	66.6	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633024
Client Sample: 1613B Soil
Client ID: RT66-023
Batch ID: 21334
Run Date: 06/20/2012 22:35
Data File: b20jun12a_2-4
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 09:28
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.46 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		8.44	pg/g	0.0878	0.692
40321-76-4	1,2,3,7,8-PeCDD	J	0.219	pg/g	0.0963	3.46
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.434	pg/g	0.105	3.46
57653-85-7	1,2,3,6,7,8-HxCDD	J	0.770	pg/g	0.109	3.46
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.43	pg/g	0.115	3.46
35822-46-9	1,2,3,4,6,7,8-HpCDD		33.0	pg/g	0.293	3.46
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1480	pg/g	1.01	6.92
51207-31-9	2,3,7,8-TCDF	J	0.515	pg/g	0.113	0.692
57117-41-6	1,2,3,7,8-PeCDF		8.98	pg/g	0.0959	3.46
57117-31-4	2,3,4,7,8-PeCDF	J	0.523	pg/g	0.0913	3.46
70648-26-9	1,2,3,4,7,8-HxCDF	J	2.68	pg/g	0.065	3.46
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.123	pg/g	0.0675	3.46
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.343	pg/g	0.0766	3.46
72918-21-9	1,2,3,7,8,9-HxCDF	U	.0954	pg/g	0.0954	3.46
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	1.57	pg/g	0.0899	3.46
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.14	pg/g	0.140	3.46
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	3.84	pg/g	0.469	6.92

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		107	138	pg/g	77.5	(25%-164%)
13C-1,2,3,7,8-PeCDD		108	138	pg/g	78.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		104	138	pg/g	75.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		101	138	pg/g	73.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		94.6	138	pg/g	68.4	(23%-140%)
13C-OCDD		162	277	pg/g	58.4	(17%-157%)
13C-2,3,7,8-TCDF		100	138	pg/g	72.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		111	138	pg/g	80.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		112	138	pg/g	81.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		113	138	pg/g	81.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		102	138	pg/g	73.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		100	138	pg/g	72.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		111	138	pg/g	80.6	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		90.8	138	pg/g	65.6	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		93.9	138	pg/g	67.9	(26%-138%)
37Cl-2,3,7,8-TCDD		9.48	13.8	pg/g	68.5	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3633
Lab Sample ID: 3633025
Client Sample: 1613B Soil
Client ID: RT66-024
Batch ID: 21334
Run Date: 06/20/2012 23:22
Data File: b20jun12a_2-5
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 10:00
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 15.1 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		0.919	pg/g	0.0952	0.662
40321-76-4	1,2,3,7,8-PeCDD	J	0.245	pg/g	0.0784	3.31
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.575	pg/g	0.122	3.31
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.20	pg/g	0.126	3.31
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.55	pg/g	0.134	3.31
35822-46-9	1,2,3,4,6,7,8-HpCDD		34.5	pg/g	0.313	3.31
3268-87-9	1,2,3,4,6,7,8,9-OCDD		741	pg/g	0.999	6.62
51207-31-9	2,3,7,8-TCDF	J	0.242	pg/g	0.112	0.662
57117-41-6	1,2,3,7,8-PeCDF	J	0.314	pg/g	0.0625	3.31
57117-31-4	2,3,4,7,8-PeCDF	J	0.464	pg/g	0.0597	3.31
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.885	pg/g	0.0728	3.31
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.465	pg/g	0.0842	3.31
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.702	pg/g	0.0907	3.31
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.342	pg/g	0.111	3.31
67562-39-4	1,2,3,4,6,7,8-HpCDF		7.48	pg/g	0.122	3.31
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.630	pg/g	0.191	3.31
39001-02-0	1,2,3,4,6,7,8,9-OCDF		13.5	pg/g	0.291	6.62

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		102	132	pg/g	76.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		102	132	pg/g	77.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		103	132	pg/g	77.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		97.2	132	pg/g	73.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		93.3	132	pg/g	70.4	(23%-140%)
13C-OCDD		146	265	pg/g	55.1	(17%-157%)
13C-2,3,7,8-TCDF		97.0	132	pg/g	73.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		106	132	pg/g	80.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		107	132	pg/g	81.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		115	132	pg/g	86.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		103	132	pg/g	77.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		101	132	pg/g	76.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		114	132	pg/g	86.4	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		92.7	132	pg/g	70.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		94.4	132	pg/g	71.3	(26%-138%)
37Cl-2,3,7,8-TCDD		8.71	13.2	pg/g	65.8	(35%-197%)

Comments:

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3633	Client: TETR001	Project: TETR00112
Lab Sample ID: 3633026	Date Collected: 06/06/2012 10:00	Matrix: SOLID
Client Sample: 1613B Soil	Date Received: 06/12/2012 09:50	
Client ID: RT66-025		Prep Basis: As Received
Batch ID: 21334	Method: EPA Method 1613B	
Run Date: 06/21/2012 00:09	Analyst: MJC	Instrument: HRP763
Data File: b20jun12a_2-6		Dilution: 1
Prep Batch: 21332	Prep Method: SW846 3540C	
Prep Date: 14-JUN-12	Aliquot: 14.9 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		5.37	pg/g	0.0984	0.671
40321-76-4	1,2,3,7,8-PeCDD	J	0.530	pg/g	0.0945	3.36
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.23	pg/g	0.157	3.36
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.18	pg/g	0.165	3.36
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.88	pg/g	0.173	3.36
35822-46-9	1,2,3,4,6,7,8-HpCDD		81.8	pg/g	0.506	3.36
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2350	pg/g	2.09	6.71
51207-31-9	2,3,7,8-TCDF	J	0.341	pg/g	0.129	0.671
57117-41-6	1,2,3,7,8-PeCDF	J	0.812	pg/g	0.105	3.36
57117-31-4	2,3,4,7,8-PeCDF	J	0.835	pg/g	0.0984	3.36
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.996	pg/g	0.0851	3.36
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.624	pg/g	0.0897	3.36
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.07	pg/g	0.104	3.36
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.231	pg/g	0.129	3.36
67562-39-4	1,2,3,4,6,7,8-HpCDF		9.35	pg/g	0.140	3.36
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.568	pg/g	0.224	3.36
39001-02-0	1,2,3,4,6,7,8,9-OCDF		22.1	pg/g	0.389	6.71

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		108	134	pg/g	80.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		106	134	pg/g	79.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		108	134	pg/g	80.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		104	134	pg/g	77.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		96.0	134	pg/g	71.5	(23%-140%)
13C-OCDD		144	268	pg/g	53.6	(17%-157%)
13C-2,3,7,8-TCDF		102	134	pg/g	76.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		112	134	pg/g	83.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		113	134	pg/g	84.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		121	134	pg/g	90.4	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		111	134	pg/g	82.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		108	134	pg/g	80.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		118	134	pg/g	87.8	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		93.8	134	pg/g	69.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		92.6	134	pg/g	69.0	(26%-138%)
37Cl-2,3,7,8-TCDD		9.46	13.4	pg/g	70.5	(35%-197%)

Comments:

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633
Lab Sample ID: 3633027
Client Sample: 1613B Soil
Client ID: RT66-026
Batch ID: 21334
Run Date: 06/21/2012 00:55
Data File: b20jun12a_2-7
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 10:00
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.52 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		15.9	pg/g	0.106	0.689
40321-76-4	1,2,3,7,8-PeCDD	J	0.795	pg/g	0.0876	3.44
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.40	pg/g	0.168	3.44
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.16	pg/g	0.179	3.44
19408-74-3	1,2,3,7,8,9-HxCDD	J	3.13	pg/g	0.187	3.44
35822-46-9	1,2,3,4,6,7,8-HpCDD		100	pg/g	0.587	3.44
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	2870	pg/g	1.47	6.89
51207-31-9	2,3,7,8-TCDF	J	0.427	pg/g	0.175	0.689
57117-41-6	1,2,3,7,8-PeCDF	J	1.41	pg/g	0.0928	3.44
57117-31-4	2,3,4,7,8-PeCDF	J	2.92	pg/g	0.0921	3.44
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.01	pg/g	0.126	3.44
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.26	pg/g	0.134	3.44
60851-34-5	2,3,4,6,7,8-HxCDF	J	2.60	pg/g	0.146	3.44
72918-21-9	1,2,3,7,8,9-HxCDF	JQ	0.459	pg/g	0.163	3.44
67562-39-4	1,2,3,4,6,7,8-HpCDF		13.9	pg/g	0.146	3.44
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.953	pg/g	0.207	3.44
39001-02-0	1,2,3,4,6,7,8,9-OCDF		33.7	pg/g	0.331	6.89

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		112	138	pg/g	81.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		102	138	pg/g	74.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		106	138	pg/g	77.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		100	138	pg/g	72.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		100	138	pg/g	72.9	(23%-140%)
13C-OCDD		170	275	pg/g	61.7	(17%-157%)
13C-2,3,7,8-TCDF		100	138	pg/g	72.8	(24%-169%)
13C-1,2,3,7,8-PeCDF		109	138	pg/g	78.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		110	138	pg/g	79.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		126	138	pg/g	91.3	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		107	138	pg/g	78.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		101	138	pg/g	73.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF	Q	87.0	138	pg/g	63.2	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		97.8	138	pg/g	71.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		103	138	pg/g	74.7	(26%-138%)
37Cl-2,3,7,8-TCDD		9.63	13.8	pg/g	69.9	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Q Quantitative Interference

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633
Lab Sample ID: 3633028
Client Sample: 1613B Soil
Client ID: RT66-027
Batch ID: 21334
Run Date: 06/21/2012 01:42
Data File: b20jun12a_2-8
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 10:00
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.29 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		11.3	pg/g	0.0988	0.700
40321-76-4	1,2,3,7,8-PeCDD	J	0.687	pg/g	0.104	3.50
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.27	pg/g	0.178	3.50
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.58	pg/g	0.188	3.50
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.99	pg/g	0.196	3.50
35822-46-9	1,2,3,4,6,7,8-HpCDD		94.8	pg/g	0.910	3.50
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	3100	pg/g	1.46	7.00
51207-31-9	2,3,7,8-TCDF	J	0.585	pg/g	0.144	0.700
57117-41-6	1,2,3,7,8-PeCDF	J	1.51	pg/g	0.0936	3.50
57117-31-4	2,3,4,7,8-PeCDF	J	2.37	pg/g	0.0911	3.50
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.99	pg/g	0.144	3.50
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.02	pg/g	0.150	3.50
60851-34-5	2,3,4,6,7,8-HxCDF	J	2.10	pg/g	0.181	3.50
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.507	pg/g	0.218	3.50
67562-39-4	1,2,3,4,6,7,8-HpCDF		10.8	pg/g	0.161	3.50
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.754	pg/g	0.263	3.50
39001-02-0	1,2,3,4,6,7,8,9-OCDF		24.1	pg/g	0.315	7.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		99.6	140	pg/g	71.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		91.3	140	pg/g	65.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		101	140	pg/g	72.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		97.4	140	pg/g	69.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		92.0	140	pg/g	65.8	(23%-140%)
13C-OCDD		177	280	pg/g	63.2	(17%-157%)
13C-2,3,7,8-TCDF		92.6	140	pg/g	66.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		92.9	140	pg/g	66.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		95.7	140	pg/g	68.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		112	140	pg/g	79.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		103	140	pg/g	73.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		99.6	140	pg/g	71.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		110	140	pg/g	78.7	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		91.1	140	pg/g	65.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		92.0	140	pg/g	65.7	(26%-138%)
37Cl-2,3,7,8-TCDD		8.47	14.0	pg/g	60.5	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633
Lab Sample ID: 3633029
Client Sample: 1613B Soil
Client ID: RT66-028
Batch ID: 21334
Run Date: 06/21/2012 02:29
Data File: b20jun12a_2-9
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 10:15
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.52 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		1.31	pg/g	0.0686	0.689
40321-76-4	1,2,3,7,8-PeCDD	J	0.149	pg/g	0.0617	3.44
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.247	pg/g	0.105	3.44
57653-85-7	1,2,3,6,7,8-HxCDD	J	0.555	pg/g	0.103	3.44
19408-74-3	1,2,3,7,8,9-HxCDD	J	0.464	pg/g	0.112	3.44
35822-46-9	1,2,3,4,6,7,8-HpCDD		13.8	pg/g	0.249	3.44
3268-87-9	1,2,3,4,6,7,8,9-OCDD		176	pg/g	0.609	6.89
51207-31-9	2,3,7,8-TCDF	J	0.189	pg/g	0.0702	0.689
57117-41-6	1,2,3,7,8-PeCDF	J	0.244	pg/g	0.0572	3.44
57117-31-4	2,3,4,7,8-PeCDF	J	0.262	pg/g	0.0566	3.44
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.187	pg/g	0.0603	3.44
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.172	pg/g	0.0632	3.44
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.314	pg/g	0.0698	3.44
72918-21-9	1,2,3,7,8,9-HxCDF	U	.096	pg/g	0.096	3.44
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	2.96	pg/g	0.0982	3.44
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.157	pg/g	0.146	3.44
39001-02-0	1,2,3,4,6,7,8,9-OCDF		7.45	pg/g	0.448	6.89

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		109	138	pg/g	79.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		106	138	pg/g	77.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		110	138	pg/g	79.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		110	138	pg/g	80.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		91.9	138	pg/g	66.7	(23%-140%)
13C-OCDD		126	275	pg/g	45.6	(17%-157%)
13C-2,3,7,8-TCDF		102	138	pg/g	74.3	(24%-169%)
13C-1,2,3,7,8-PeCDF		108	138	pg/g	78.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		109	138	pg/g	79.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		126	138	pg/g	91.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		107	138	pg/g	77.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		106	138	pg/g	77.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		107	138	pg/g	77.3	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		89.9	138	pg/g	65.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		92.5	138	pg/g	67.1	(26%-138%)
37Cl-2,3,7,8-TCDD		10.7	13.8	pg/g	78.0	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633030
Client Sample: 1613B Soil
Client ID: RT66-029
Batch ID: 21334
Run Date: 06/21/2012 03:16
Data File: b20jun12a_2-10
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 10:15
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.29 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		8.75	pg/g	0.104	0.700
40321-76-4	1,2,3,7,8-PeCDD	J	0.374	pg/g	0.0913	3.50
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.544	pg/g	0.104	3.50
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.16	pg/g	0.108	3.50
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.08	pg/g	0.114	3.50
35822-46-9	1,2,3,4,6,7,8-HpCDD		22.8	pg/g	0.244	3.50
3268-87-9	1,2,3,4,6,7,8,9-OCDD		278	pg/g	0.523	7.00
51207-31-9	2,3,7,8-TCDF	J	0.378	pg/g	0.127	0.700
57117-41-6	1,2,3,7,8-PeCDF	J	0.977	pg/g	0.0952	3.50
57117-31-4	2,3,4,7,8-PeCDF	J	0.798	pg/g	0.089	3.50
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.334	pg/g	0.0857	3.50
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.501	pg/g	0.0938	3.50
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.752	pg/g	0.100	3.50
72918-21-9	1,2,3,7,8,9-HxCDF	U	.127	pg/g	0.127	3.50
67562-39-4	1,2,3,4,6,7,8-HpCDF		5.24	pg/g	0.105	3.50
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.319	pg/g	0.153	3.50
39001-02-0	1,2,3,4,6,7,8,9-OCDF		8.78	pg/g	0.284	7.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		114	140	pg/g	81.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		97.8	140	pg/g	69.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		116	140	pg/g	83.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		112	140	pg/g	80.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		100	140	pg/g	71.8	(23%-140%)
13C-OCDD		150	280	pg/g	53.5	(17%-157%)
13C-2,3,7,8-TCDF		105	140	pg/g	75.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		96.7	140	pg/g	69.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		102	140	pg/g	72.8	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		131	140	pg/g	93.6	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		112	140	pg/g	79.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		112	140	pg/g	79.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		113	140	pg/g	80.5	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		97.8	140	pg/g	69.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		103	140	pg/g	73.4	(26%-138%)
37Cl-2,3,7,8-TCDD		11.5	14.0	pg/g	82.3	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633
Lab Sample ID: 3633031
Client Sample: 1613B Soil
Client ID: RT66-030
Batch ID: 21334
Run Date: 06/21/2012 04:03
Data File: b20jun12a_2-11
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 10:15
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.42 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		31.1	pg/g	0.0899	0.693
40321-76-4	1,2,3,7,8-PeCDD	J	0.799	pg/g	0.0831	3.47
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.47	pg/g	0.169	3.47
57653-85-7	1,2,3,6,7,8-HxCDD		4.23	pg/g	0.164	3.47
19408-74-3	1,2,3,7,8,9-HxCDD		3.62	pg/g	0.179	3.47
35822-46-9	1,2,3,4,6,7,8-HpCDD		101	pg/g	0.497	3.47
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1420	pg/g	1.26	6.93
51207-31-9	2,3,7,8-TCDF		0.856	pg/g	0.102	0.693
57117-41-6	1,2,3,7,8-PeCDF		4.96	pg/g	0.135	3.47
57117-31-4	2,3,4,7,8-PeCDF		5.99	pg/g	0.127	3.47
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.43	pg/g	0.102	3.47
57117-44-9	1,2,3,6,7,8-HxCDF	J	2.47	pg/g	0.107	3.47
60851-34-5	2,3,4,6,7,8-HxCDF		4.66	pg/g	0.116	3.47
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.530	pg/g	0.153	3.47
67562-39-4	1,2,3,4,6,7,8-HpCDF		22.2	pg/g	0.130	3.47
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.25	pg/g	0.193	3.47
39001-02-0	1,2,3,4,6,7,8,9-OCDF		41.6	pg/g	0.352	6.93

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		116	139	pg/g	83.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		103	139	pg/g	74.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		123	139	pg/g	88.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		114	139	pg/g	82.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		102	139	pg/g	73.7	(23%-140%)
13C-OCDD		146	277	pg/g	52.7	(17%-157%)
13C-2,3,7,8-TCDF		108	139	pg/g	77.8	(24%-169%)
13C-1,2,3,7,8-PeCDF		104	139	pg/g	75.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		108	139	pg/g	77.8	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		133	139	pg/g	95.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		119	139	pg/g	85.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		115	139	pg/g	83.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		114	139	pg/g	82.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		100	139	pg/g	72.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		104	139	pg/g	75.2	(26%-138%)
37Cl-2,3,7,8-TCDD		11.5	13.9	pg/g	82.9	(35%-197%)

Comments:

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633
Lab Sample ID: 3633031
Client Sample: 1613B Soil
Client ID: RT66-030
Batch ID: 21334
Run Date: 06/26/2012 12:59
Data File: b26jun12a-11
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 10:15
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.42 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF	J	0.684	pg/g	0.240	0.693

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3633
Lab Sample ID: 3633032
Client Sample: 1613B Soil
Client ID: RT66-031
Batch ID: 21334
Run Date: 06/21/2012 04:50
Data File: b20jun12a_2-12
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 10:15
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.47 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		60.5	pg/g	0.0951	0.691
40321-76-4	1,2,3,7,8-PeCDD	J	0.825	pg/g	0.0973	3.46
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.27	pg/g	0.124	3.46
57653-85-7	1,2,3,6,7,8-HxCDD		3.97	pg/g	0.128	3.46
19408-74-3	1,2,3,7,8,9-HxCDD	J	3.40	pg/g	0.136	3.46
35822-46-9	1,2,3,4,6,7,8-HpCDD		103	pg/g	0.547	3.46
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2480	pg/g	1.80	6.91
51207-31-9	2,3,7,8-TCDF		1.85	pg/g	0.184	0.691
57117-41-6	1,2,3,7,8-PeCDF		12.6	pg/g	0.182	3.46
57117-31-4	2,3,4,7,8-PeCDF		21.5	pg/g	0.187	3.46
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.83	pg/g	0.114	3.46
57117-44-9	1,2,3,6,7,8-HxCDF		6.18	pg/g	0.122	3.46
60851-34-5	2,3,4,6,7,8-HxCDF		12.8	pg/g	0.130	3.46
72918-21-9	1,2,3,7,8,9-HxCDF	J	1.03	pg/g	0.163	3.46
67562-39-4	1,2,3,4,6,7,8-HpCDF		20.2	pg/g	0.124	3.46
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.31	pg/g	0.194	3.46
39001-02-0	1,2,3,4,6,7,8,9-OCDF		36.0	pg/g	0.469	6.91

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		111	138	pg/g	80.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		96.3	138	pg/g	69.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		120	138	pg/g	86.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		106	138	pg/g	76.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		92.6	138	pg/g	67.0	(23%-140%)
13C-OCDD		124	276	pg/g	45.0	(17%-157%)
13C-2,3,7,8-TCDF		103	138	pg/g	74.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		96.6	138	pg/g	69.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		100	138	pg/g	72.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		127	138	pg/g	92.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		112	138	pg/g	80.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		110	138	pg/g	79.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		109	138	pg/g	79.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		92.6	138	pg/g	67.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		91.6	138	pg/g	66.3	(26%-138%)
37Cl-2,3,7,8-TCDD		11.5	13.8	pg/g	83.0	(35%-197%)

Comments:

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633
Lab Sample ID: 3633032
Client Sample: 1613B Soil
Client ID: RT66-031
Batch ID: 21334
Run Date: 06/26/2012 13:18
Data File: b26jun12a-12
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 10:15
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.47 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.45	pg/g	0.270	0.691

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 3633033
Client Sample: 1613B Soil
Client ID: RT66-031D
Batch ID: 21334
Run Date: 06/21/2012 05:37
Data File: b20jun12a_2-13
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001
Date Collected: 06/06/2012 10:15
Date Received: 06/12/2012 09:50

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.63 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		59.9	pg/g	0.112	0.684
40321-76-4	1,2,3,7,8-PeCDD	J	1.21	pg/g	0.106	3.42
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.21	pg/g	0.175	3.42
57653-85-7	1,2,3,6,7,8-HxCDD		3.42	pg/g	0.182	3.42
19408-74-3	1,2,3,7,8,9-HxCDD	J	3.15	pg/g	0.191	3.42
35822-46-9	1,2,3,4,6,7,8-HpCDD		87.8	pg/g	0.533	3.42
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2040	pg/g	2.24	6.84
51207-31-9	2,3,7,8-TCDF		2.04	pg/g	0.174	0.684
57117-41-6	1,2,3,7,8-PeCDF	J	0.432	pg/g	0.144	3.42
57117-31-4	2,3,4,7,8-PeCDF		21.4	pg/g	0.149	3.42
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.91	pg/g	0.145	3.42
57117-44-9	1,2,3,6,7,8-HxCDF		5.65	pg/g	0.163	3.42
60851-34-5	2,3,4,6,7,8-HxCDF		12.9	pg/g	0.170	3.42
72918-21-9	1,2,3,7,8,9-HxCDF	J	1.07	pg/g	0.242	3.42
67562-39-4	1,2,3,4,6,7,8-HpCDF		18.4	pg/g	0.187	3.42
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.10	pg/g	0.320	3.42
39001-02-0	1,2,3,4,6,7,8,9-OCDF		31.9	pg/g	0.649	6.84

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		107	137	pg/g	78.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		87.5	137	pg/g	64.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		113	137	pg/g	82.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		106	137	pg/g	77.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		73.9	137	pg/g	54.1	(23%-140%)
13C-OCDD		80.4	273	pg/g	29.4	(17%-157%)
13C-2,3,7,8-TCDF		96.5	137	pg/g	70.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		87.8	137	pg/g	64.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		88.2	137	pg/g	64.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		127	137	pg/g	92.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		104	137	pg/g	75.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		103	137	pg/g	75.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		79.0	137	pg/g	57.8	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		76.2	137	pg/g	55.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		70.0	137	pg/g	51.2	(26%-138%)
37Cl-2,3,7,8-TCDD		10.3	13.7	pg/g	75.2	(35%-197%)

Comments:

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number:	3633	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3633033	Date Collected:	06/06/2012 10:15	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/12/2012 09:50		
Client ID:	RT66-031D			Prep Basis:	As Received
Batch ID:	21334	Method:	EPA Method 1613B		
Run Date:	06/26/2012 13:38	Analyst:	MJC	Instrument:	HRP763
Data File:	b26jun12a-13			Dilution:	1
Prep Batch:	21332	Prep Method:	SW846 3540C		
Prep Date:	14-JUN-12	Aliquot:	14.63 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.53	pg/g	0.331	0.684

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

J Value is estimated

Quality Control Summary

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3633

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12006207	LCS for batch 21332	13C-2,3,7,8-TCDD		76.2	(20%-175%)
		13C-1,2,3,7,8-PeCDD		77.1	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		75.7	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		75.4	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		74.9	(22%-166%)
		13C-OCDD		60.9	(13%-199%)
		13C-2,3,7,8-TCDF		70.4	(22%-152%)
		13C-1,2,3,7,8-PeCDF		76.0	(21%-192%)
		13C-2,3,4,7,8-PeCDF		76.4	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		79.9	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		78.6	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		72.6	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		78.7	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		68.4	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		69.2	(20%-186%)
		37Cl-2,3,7,8-TCDD		68.9	(31%-191%)
12006202	LCS for batch 21328	13C-2,3,7,8-TCDD		87.1	(20%-175%)
		13C-1,2,3,7,8-PeCDD		93.2	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		69.9	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		81.6	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		76.5	(22%-166%)
		13C-OCDD		74.4	(13%-199%)
		13C-2,3,7,8-TCDF		83.8	(22%-152%)
		13C-1,2,3,7,8-PeCDF		94.4	(21%-192%)
		13C-2,3,4,7,8-PeCDF		92.9	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		75.0	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		78.0	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		68.9	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		81.2	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		74.8	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		74.9	(20%-186%)
		37Cl-2,3,7,8-TCDD		81.1	(31%-191%)
12006208	LCSD for batch 21332	13C-2,3,7,8-TCDD		71.3	(20%-175%)
		13C-1,2,3,7,8-PeCDD		68.5	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		71.7	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		69.1	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		65.3	(22%-166%)
		13C-OCDD		49.8	(13%-199%)
		13C-2,3,7,8-TCDF		65.0	(22%-152%)
		13C-1,2,3,7,8-PeCDF		68.5	(21%-192%)
		13C-2,3,4,7,8-PeCDF		68.8	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		73.1	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		69.8	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		65.4	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		71.1	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		60.6	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		58.3	(20%-186%)
		37Cl-2,3,7,8-TCDD		63.2	(31%-191%)
12006203	LCSD for batch 21328	13C-2,3,7,8-TCDD		85.4	(20%-175%)

Hi-Res Dioxins/Furans **Surrogate Recovery Report**

SDG Number: 3633

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12006203	LCSD for batch 21328	13C-1,2,3,7,8-PeCDD		94.0	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		66.8	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		75.6	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		72.0	(22%-166%)
		13C-OCDD		69.8	(13%-199%)
		13C-2,3,7,8-TCDF		82.3	(22%-152%)
		13C-1,2,3,7,8-PeCDF		92.6	(21%-192%)
		13C-2,3,4,7,8-PeCDF		94.6	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		69.0	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		73.8	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		64.9	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		75.6	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		69.4	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		68.7	(20%-186%)
		37Cl-2,3,7,8-TCDD		78.6	(31%-191%)
12006206	MB for batch 21332	13C-2,3,7,8-TCDD		74.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		71.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		73.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		74.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		71.2	(23%-140%)
		13C-OCDD		55.0	(17%-157%)
		13C-2,3,7,8-TCDF		67.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		72.6	(24%-185%)
		13C-2,3,4,7,8-PeCDF		72.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		78.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		75.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		69.5	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		78.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		64.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		64.7	(26%-138%)
12006201	MB for batch 21328	37Cl-2,3,7,8-TCDD		66.2	(35%-197%)
		13C-2,3,7,8-TCDD		80.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		86.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		71.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.7	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		78.4	(23%-140%)
		13C-OCDD		75.9	(17%-157%)
		13C-2,3,7,8-TCDF		77.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		85.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		85.8	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		74.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		76.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		69.4	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		78.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		75.1	(28%-143%)
3633015	RT66-013	13C-1,2,3,4,7,8,9-HpCDF		73.7	(26%-138%)
		37Cl-2,3,7,8-TCDD		73.3	(35%-197%)
		13C-2,3,7,8-TCDD		76.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		70.5	(25%-181%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3633

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3633015	RT66-013	13C-1,2,3,4,7,8-HxCDD		72.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		70.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		69.0	(23%-140%)
		13C-OCDD		64.6	(17%-157%)
		13C-2,3,7,8-TCDF		71.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		74.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		74.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		79.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		77.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		71.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		81.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		67.6	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		66.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		68.7	(35%-197%)
3633016	RT66-014	13C-2,3,7,8-TCDD		84.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		76.7	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		82.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		78.2	(23%-140%)
		13C-OCDD		68.4	(17%-157%)
		13C-2,3,7,8-TCDF		74.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		80.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		80.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		89.6	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		80.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		75.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF	Q	62.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		76.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		79.5	(26%-138%)
3633017	RT66-016	37Cl-2,3,7,8-TCDD		77.5	(35%-197%)
		13C-2,3,7,8-TCDD		75.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		71.6	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		76.4	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		72.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		71.9	(23%-140%)
		13C-OCDD		61.5	(17%-157%)
		13C-2,3,7,8-TCDF		72.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		73.6	(24%-185%)
		13C-2,3,4,7,8-PeCDF		75.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		86.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		79.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		75.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		83.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		71.8	(28%-143%)
3633018	RT66-017	13C-1,2,3,4,7,8,9-HpCDF		69.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		69.3	(35%-197%)
		13C-2,3,7,8-TCDD		79.0	(25%-164%)
3633018	RT66-017	13C-1,2,3,7,8-PeCDD		75.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		72.8	(32%-141%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3633

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3633018	RT66-017	13C-1,2,3,6,7,8-HxCDD		72.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		70.8	(23%-140%)
		13C-OCDD		60.0	(17%-157%)
		13C-2,3,7,8-TCDF		75.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		81.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		83.9	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		81.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		78.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		72.4	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		82.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		70.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		69.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		70.9	(35%-197%)
3633019	RT66-018	13C-2,3,7,8-TCDD		77.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		75.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		75.7	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		72.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		71.6	(23%-140%)
		13C-OCDD		63.4	(17%-157%)
		13C-2,3,7,8-TCDF		74.5	(24%-169%)
		13C-1,2,3,7,8-PeCDF		80.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		81.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		84.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		80.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		87.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		70.9	(28%-143%)
3633020	RT66-019	13C-1,2,3,4,7,8,9-HpCDF		69.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		67.6	(35%-197%)
		13C-2,3,7,8-TCDD		69.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		65.6	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		69.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		69.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		67.6	(23%-140%)
		13C-OCDD		60.9	(17%-157%)
		13C-2,3,7,8-TCDF		67.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		69.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		69.6	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		80.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		75.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		70.0	(28%-136%)
3633001	RT66-001	13C-1,2,3,7,8,9-HxCDF		81.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		67.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		66.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		62.6	(35%-197%)
		13C-2,3,7,8-TCDD		82.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		89.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		77.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		69.9	(28%-130%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 3633

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3633001	RT66-001	13C-1,2,3,4,6,7,8-HpCDD		75.4	(23%-140%)
		13C-OCDD		89.3	(17%-157%)
		13C-2,3,7,8-TCDF		80.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		90.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		90.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		75.4	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		69.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		66.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		81.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		73.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		80.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		77.9	(35%-197%)
3633002	RT66-002	13C-2,3,7,8-TCDD		90.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		100	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		84.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		86.1	(23%-140%)
		13C-OCDD		101	(17%-157%)
		13C-2,3,7,8-TCDF		86.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		98.7	(24%-185%)
		13C-2,3,4,7,8-PeCDF		101	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		84.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		81.5	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.0	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		86.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		79.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		86.7	(26%-138%)
		37Cl-2,3,7,8-TCDD		81.5	(35%-197%)
3633022	RT66-021	13C-2,3,7,8-TCDD		81.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		68.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		88.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		86.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		46.4	(23%-140%)
		13C-OCDD		17.2	(17%-157%)
		13C-2,3,7,8-TCDF		75.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		78.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		77.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		119	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		100	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		91.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		81.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		55.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		45.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		70.5	(35%-197%)
3633023	RT66-022	13C-2,3,7,8-TCDD		77.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		68.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		84.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		76.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		55.3	(23%-140%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 3633

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3633023	RT66-022	13C-OCDD		30.1	(17%-157%)
		13C-2,3,7,8-TCDF		71.3	(24%-169%)
		13C-1,2,3,7,8-PeCDF		68.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		68.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		89.5	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		82.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		77.4	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		79.8	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		58.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		53.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		66.6	(35%-197%)
3633024	RT66-023	13C-2,3,7,8-TCDD		77.5	(25%-164%)
		13C-1,2,3,7,8-PeCDD		78.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		75.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		73.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		68.4	(23%-140%)
		13C-OCDD		58.4	(17%-157%)
		13C-2,3,7,8-TCDF		72.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		80.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		81.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		81.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		73.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		72.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		80.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		65.6	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		67.9	(26%-138%)
		37Cl-2,3,7,8-TCDD		68.5	(35%-197%)
3633025	RT66-024	13C-2,3,7,8-TCDD		76.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		77.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		77.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		73.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		70.4	(23%-140%)
		13C-OCDD		55.1	(17%-157%)
		13C-2,3,7,8-TCDF		73.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		80.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		81.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		86.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		77.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		76.5	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		86.4	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		70.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		71.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		65.8	(35%-197%)
3633026	RT66-025	13C-2,3,7,8-TCDD		80.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		79.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		80.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		71.5	(23%-140%)
		13C-OCDD		53.6	(17%-157%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3633

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3633026	RT66-025	13C-2,3,7,8-TCDF		76.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		83.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		84.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		90.4	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		82.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		80.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		87.8	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		69.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		69.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		70.5	(35%-197%)
3633027	RT66-026	13C-2,3,7,8-TCDD		81.0	(25%-164%)
		13C-1,2,3,7,8-PeCDD		74.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		77.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		72.7	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		72.9	(23%-140%)
		13C-OCDD		61.7	(17%-157%)
		13C-2,3,7,8-TCDF		72.8	(24%-169%)
		13C-1,2,3,7,8-PeCDF		78.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		79.9	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		91.3	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		78.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.5	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF	Q	63.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		71.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		74.7	(26%-138%)
		37Cl-2,3,7,8-TCDD		69.9	(35%-197%)
3633028	RT66-027	13C-2,3,7,8-TCDD		71.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		65.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		72.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		69.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		65.8	(23%-140%)
		13C-OCDD		63.2	(17%-157%)
		13C-2,3,7,8-TCDF		66.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		66.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		68.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		79.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		73.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		71.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		78.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		65.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		65.7	(26%-138%)
		37Cl-2,3,7,8-TCDD		60.5	(35%-197%)
3633029	RT66-028	13C-2,3,7,8-TCDD		79.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		77.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		79.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		80.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		66.7	(23%-140%)
		13C-OCDD		45.6	(17%-157%)
		13C-2,3,7,8-TCDF		74.3	(24%-169%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 3633

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3633029	RT66-028	13C-1,2,3,7,8-PeCDF		78.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		79.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		91.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		77.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		77.0	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		77.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		65.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		67.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		78.0	(35%-197%)
3633030	RT66-029	13C-2,3,7,8-TCDD		81.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		69.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		83.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		80.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		71.8	(23%-140%)
		13C-OCDD		53.5	(17%-157%)
		13C-2,3,7,8-TCDF		75.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		69.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		72.8	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		93.6	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		79.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		79.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		80.5	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		69.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		73.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		82.3	(35%-197%)
3633031	RT66-030	13C-2,3,7,8-TCDD		83.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		74.5	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		88.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		82.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		73.7	(23%-140%)
		13C-OCDD		52.7	(17%-157%)
		13C-2,3,7,8-TCDF		77.8	(24%-169%)
		13C-1,2,3,7,8-PeCDF		75.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		77.8	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		95.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		85.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		83.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		82.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		72.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		75.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		82.9	(35%-197%)
3633032	RT66-031	13C-2,3,7,8-TCDD		80.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		69.7	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		86.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		76.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		67.0	(23%-140%)
		13C-OCDD		45.0	(17%-157%)
		13C-2,3,7,8-TCDF		74.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		69.9	(24%-185%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3633

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3633032	RT66-031	13C-2,3,4,7,8-PeCDF		72.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		92.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		80.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		79.4	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		79.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		67.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		66.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		83.0	(35%-197%)
3633033	RT66-031D	13C-2,3,7,8-TCDD		78.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		64.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		82.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		54.1	(23%-140%)
		13C-OCDD		29.4	(17%-157%)
		13C-2,3,7,8-TCDF		70.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		64.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		64.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		92.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		75.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		75.5	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		57.8	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		55.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		51.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		75.2	(35%-197%)
3633003	RT66-003	13C-2,3,7,8-TCDD		80.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		80.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		70.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		73.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		66.7	(23%-140%)
		13C-OCDD		72.2	(17%-157%)
		13C-2,3,7,8-TCDF		80.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		84.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		82.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		78.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		77.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		68.0	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		78.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		69.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		65.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		76.4	(35%-197%)
3633004	RT66-004	13C-2,3,7,8-TCDD		85.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		89.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		77.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		80.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		69.6	(23%-140%)
		13C-OCDD		83.6	(17%-157%)
		13C-2,3,7,8-TCDF		82.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		91.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		91.5	(21%-178%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3633

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3633004	RT66-004	13C-1,2,3,4,7,8-HxCDF		86.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		84.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		83.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		74.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		70.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		75.9	(35%-197%)
3633005	RT66-005	13C-2,3,7,8-TCDD		85.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		89.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		79.7	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		76.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		72.2	(23%-140%)
		13C-OCDD		84.5	(17%-157%)
		13C-2,3,7,8-TCDF		86.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		91.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		93.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		84.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		82.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		82.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		74.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		72.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		77.2	(35%-197%)
3633006	RT66-006	13C-2,3,7,8-TCDD		83.5	(25%-164%)
		13C-1,2,3,7,8-PeCDD		89.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		76.4	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		80.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		68.5	(23%-140%)
		13C-OCDD		95.2	(17%-157%)
		13C-2,3,7,8-TCDF		83.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		93.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		93.6	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		86.3	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		83.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		74.4	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		83.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		73.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		71.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		77.5	(35%-197%)
3633007	RT66-006D	13C-2,3,7,8-TCDD		83.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		87.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		79.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		79.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		70.8	(23%-140%)
		13C-OCDD		84.5	(17%-157%)
		13C-2,3,7,8-TCDF		83.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		91.6	(24%-185%)
		13C-2,3,4,7,8-PeCDF		89.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		84.3	(26%-152%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 3633

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3633007	RT66-006D	13C-1,2,3,6,7,8-HxCDF		83.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		83.8	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		75.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		73.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		75.5	(35%-197%)
3633008	RT66-007	13C-2,3,7,8-TCDD		88.0	(25%-164%)
		13C-1,2,3,7,8-PeCDD		91.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		84.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		78.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		73.7	(23%-140%)
		13C-OCDD		71.8	(17%-157%)
		13C-2,3,7,8-TCDF		86.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		106	(24%-185%)
		13C-2,3,4,7,8-PeCDF		97.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		87.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		82.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		76.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		87.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		74.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		71.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		79.9	(35%-197%)
3633009	RT66-008	13C-2,3,7,8-TCDD		85.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		86.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		73.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		71.2	(23%-140%)
		13C-OCDD		83.4	(17%-157%)
		13C-2,3,7,8-TCDF		83.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		91.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		89.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		81.4	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		81.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.0	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		81.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		72.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		71.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		77.3	(35%-197%)
3633010	RT66-009	13C-2,3,7,8-TCDD		79.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		83.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		74.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		78.7	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		69.7	(23%-140%)
		13C-OCDD		71.2	(17%-157%)
		13C-2,3,7,8-TCDF		80.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		87.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		85.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		81.6	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		81.0	(26%-123%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 3633

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3633010	RT66-009	13C-2,3,4,6,7,8-HxCDF		72.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		78.4	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		72.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		69.7	(26%-138%)
		37Cl-2,3,7,8-TCDD		73.5	(35%-197%)
3633011	RT66-010	13C-2,3,7,8-TCDD		85.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		86.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		76.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		78.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		72.6	(23%-140%)
		13C-OCDD		77.4	(17%-157%)
		13C-2,3,7,8-TCDF		83.5	(24%-169%)
		13C-1,2,3,7,8-PeCDF		91.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		87.9	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		82.3	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		86.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		74.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		80.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		74.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		70.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		83.1	(35%-197%)
3633012	RT66-011	13C-2,3,7,8-TCDD		90.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		90.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		83.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		70.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		72.6	(23%-140%)
		13C-OCDD		80.2	(17%-157%)
		13C-2,3,7,8-TCDF		88.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		93.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		92.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		97.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		78.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		67.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		92.8	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		82.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		74.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		83.0	(35%-197%)
3633013	RT66-011D	13C-2,3,7,8-TCDD		100	(25%-164%)
		13C-1,2,3,7,8-PeCDD		97.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		83.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		76.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		74.6	(23%-140%)
		13C-OCDD		90.5	(17%-157%)
		13C-2,3,7,8-TCDF		92.3	(24%-169%)
		13C-1,2,3,7,8-PeCDF		103	(24%-185%)
		13C-2,3,4,7,8-PeCDF		101	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		101	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		81.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		71.1	(28%-136%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 3633

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3633013	RT66-011D	13C-1,2,3,7,8,9-HxCDF		96.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		84.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		76.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		84.2	(35%-197%)
3633014	RT66-012	13C-2,3,7,8-TCDD		89.5	(25%-164%)
		13C-1,2,3,7,8-PeCDD		82.6	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		71.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		76.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		65.5	(23%-140%)
		13C-OCDD		76.8	(17%-157%)
		13C-2,3,7,8-TCDF		79.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		90.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		85.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		83.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		82.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		69.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		78.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		67.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		65.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		77.6	(35%-197%)
3633021	RT66-020	13C-2,3,7,8-TCDD		60.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		40.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		62.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		69.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		27.1	(23%-140%)
		13C-OCDD		10.9 *	(17%-157%)
		13C-2,3,7,8-TCDF		56.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		43.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		41.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		75.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		73.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		60.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		55.5	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		31.4	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		25.9 *	(26%-138%)
		37Cl-2,3,7,8-TCDD		51.6	(35%-197%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Hi-Res Dioxins/Furans
Quality Control Summary
Spike Recovery Report

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SDG Number: 3633
Client ID: LCS for batch 21328
Lab Sample ID: 12006202
Instrument: HRP750
Analyst: MJC

Sample Type: Laboratory Control Sample
Matrix: SOIL
Analysis Date: 06/20/2012 09:15
Prep Batch ID: 21328
Batch ID: 21331

Dilution: 1

CAS No.	Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	LCS 2,3,7,8-TCDD	20.0	20.0	100	67-158
40321-76-4	LCS 1,2,3,7,8-PeCDD	100	106	106	70-142
39227-28-6	LCS 1,2,3,4,7,8-HxCDD	100	105	105	70-164
57653-85-7	LCS 1,2,3,6,7,8-HxCDD	100	104	104	76-134
19408-74-3	LCS 1,2,3,7,8,9-HxCDD	100	112	112	64-162
35822-46-9	LCS 1,2,3,4,6,7,8-HpCDD	100	105	105	70-140
3268-87-9	LCS 1,2,3,4,6,7,8,9-OCDD	200	197	98.7	78-144
51207-31-9	LCS 2,3,7,8-TCDF	20.0	20.2	101	75-158
57117-41-6	LCS 1,2,3,7,8-PeCDF	100	106	106	80-134
57117-31-4	LCS 2,3,4,7,8-PeCDF	100	107	107	68-160
70648-26-9	LCS 1,2,3,4,7,8-HxCDF	100	106	106	72-134
57117-44-9	LCS 1,2,3,6,7,8-HxCDF	100	105	105	84-130
60851-34-5	LCS 2,3,4,6,7,8-HxCDF	100	111	111	70-156
72918-21-9	LCS 1,2,3,7,8,9-HxCDF	100	102	102	78-130
67562-39-4	LCS 1,2,3,4,6,7,8-HpCDF	100	108	108	82-122
55673-89-7	LCS 1,2,3,4,7,8,9-HpCDF	100	109	109	78-138
39001-02-0	LCS 1,2,3,4,6,7,8,9-OCDF	200	205	103	63-170

Hi-Res Dioxins/Furans
Quality Control Summary
Spike Recovery Report

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SDG Number: 3633
Client ID: LCSD for batch 21328
Lab Sample ID: 12006203
Instrument: HRP750
Analyst: MJC

Sample Type: Laboratory Control Sample Duplicate
Matrix: SOIL
Analysis Date: 06/20/2012 10:01
Dilution: 1
Prep Batch ID: 21328
Batch ID: 21331

CAS No.	Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD 2,3,7,8-TCDD	20.0	19.6	98	67-158	2.08	0-20
40321-76-4	LCSD 1,2,3,7,8-PeCDD	100	104	104	70-142	1.88	0-20
39227-28-6	LCSD 1,2,3,4,7,8-HxCDD	100	107	107	70-164	1.35	0-20
57653-85-7	LCSD 1,2,3,6,7,8-HxCDD	100	105	105	76-134	1.06	0-20
19408-74-3	LCSD 1,2,3,7,8,9-HxCDD	100	111	111	64-162	0.827	0-20
35822-46-9	LCSD 1,2,3,4,6,7,8-HpCDD	100	105	105	70-140	0.529	0-20
3268-87-9	LCSD 1,2,3,4,6,7,8,9-OCDD	200	204	102	78-144	3.41	0-20
51207-31-9	LCSD 2,3,7,8-TCDF	20.0	21.5	108	75-158	6.33	0-20
57117-41-6	LCSD 1,2,3,7,8-PeCDF	100	107	107	80-134	1.19	0-20
57117-31-4	LCSD 2,3,4,7,8-PeCDF	100	104	104	68-160	2.96	0-20
70648-26-9	LCSD 1,2,3,4,7,8-HxCDF	100	111	111	72-134	4.96	0-20
57117-44-9	LCSD 1,2,3,6,7,8-HxCDF	100	106	106	84-130	1.03	0-20
60851-34-5	LCSD 2,3,4,6,7,8-HxCDF	100	116	116	70-156	3.61	0-20
72918-21-9	LCSD 1,2,3,7,8,9-HxCDF	100	104	104	78-130	2.42	0-20
67562-39-4	LCSD 1,2,3,4,6,7,8-HpCDF	100	109	109	82-122	1.58	0-20
55673-89-7	LCSD 1,2,3,4,7,8,9-HpCDF	100	108	108	78-138	0.788	0-20
39001-02-0	LCSD 1,2,3,4,6,7,8,9-OCDF	200	203	101	63-170	1.20	0-20

US EPA ARCHIVE DOCUMENT

Hi-Res Dioxins/Furans
Quality Control Summary
Spike Recovery Report

Page 1 of 2

SDG Number: 3633
Client ID: LCS for batch 21332
Lab Sample ID: 12006207
Instrument: HRP763
Analyst: MJC

Sample Type: Laboratory Control Sample
Matrix: SOLID
Analysis Date: 06/20/2012 09:10
Prep Batch ID: 21332
Batch ID: 21334

Dilution: 1

CAS No.	Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	
1746-01-6	LCS	2,3,7,8-TCDD	20.0	18.0	89.8	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	100	102	102	70-142
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	100	111	111	70-164
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	100	113	113	76-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	100	118	118	64-162
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	100	107	107	70-140
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	200	227	113	78-144
51207-31-9	LCS	2,3,7,8-TCDF	20.0	21.8	109	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	100	99.3	99.3	80-134
57117-31-4	LCS	2,3,4,7,8-PeCDF	100	97.3	97.3	68-160
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	100	97.2	97.2	72-134
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	100	99.0	99	84-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	100	104	104	70-156
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	100	98.7	98.7	78-130
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	100	110	110	82-122
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	100	98.3	98.3	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	200	192	95.8	63-170

Hi-Res Dioxins/Furans
Quality Control Summary
Spike Recovery Report

Page 2 of 2

SDG Number: 3633
Client ID: LCSD for batch 21332
Lab Sample ID: 12006208
Instrument: HRP763
Analyst: MJC

Sample Type: Laboratory Control Sample Duplicate
Matrix: SOLID
Analysis Date: 06/20/2012 09:56
Dilution: 1
Prep Batch ID: 21332
Batch ID: 21334

CAS No.	Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD 2,3,7,8-TCDD	20.0	18.3	91.6	67-158	1.94	0-20
40321-76-4	LCSD 1,2,3,7,8-PeCDD	100	101	101	70-142	1.21	0-20
39227-28-6	LCSD 1,2,3,4,7,8-HxCDD	100	109	109	70-164	1.40	0-20
57653-85-7	LCSD 1,2,3,6,7,8-HxCDD	100	110	110	76-134	2.71	0-20
19408-74-3	LCSD 1,2,3,7,8,9-HxCDD	100	113	113	64-162	4.47	0-20
35822-46-9	LCSD 1,2,3,4,6,7,8-HpCDD	100	104	104	70-140	3.13	0-20
3268-87-9	LCSD 1,2,3,4,6,7,8,9-OCDD	200	216	108	78-144	4.70	0-20
51207-31-9	LCSD 2,3,7,8-TCDF	20.0	21.4	107	75-158	2.04	0-20
57117-41-6	LCSD 1,2,3,7,8-PeCDF	100	99.6	99.6	80-134	0.255	0-20
57117-31-4	LCSD 2,3,4,7,8-PeCDF	100	96.4	96.4	68-160	0.838	0-20
70648-26-9	LCSD 1,2,3,4,7,8-HxCDF	100	94.9	94.9	72-134	2.45	0-20
57117-44-9	LCSD 1,2,3,6,7,8-HxCDF	100	101	101	84-130	2.22	0-20
60851-34-5	LCSD 2,3,4,6,7,8-HxCDF	100	106	106	70-156	2.01	0-20
72918-21-9	LCSD 1,2,3,7,8,9-HxCDF	100	94.1	94.1	78-130	4.77	0-20
67562-39-4	LCSD 1,2,3,4,6,7,8-HpCDF	100	110	110	82-122	0.162	0-20
55673-89-7	LCSD 1,2,3,4,7,8,9-HpCDF	100	98.9	98.9	78-138	0.625	0-20
39001-02-0	LCSD 1,2,3,4,6,7,8,9-OCDF	200	185	92.3	63-170	3.79	0-20

US EPA ARCHIVE DOCUMENT

Method Blank Summary

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SDG Number: 3633
Client ID: MB for batch 21328
Lab Sample ID: 12006201
Column:

Client: TETR001
Instrument ID: HRP750
Prep Date: 14-JUN-12

Matrix: SOIL
Data File: A18JUN12A_6-3
Analyzed: 06/20/12 10:49

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 21328	12006202	A18JUN12A_6-1	06/20/12	0915
02 LCSD for batch 21328	12006203	A18JUN12A_6-2	06/20/12	1001
03 RT66-001	3633001	A18JUN12A_6-12	06/20/12	1756
04 RT66-002	3633002	A18JUN12A_6-13	06/20/12	1843
05 RT66-003	3633003	A22JUN12A-3	06/22/12	1208
06 RT66-004	3633004	A22JUN12A-4	06/22/12	1256
07 RT66-005	3633005	A22JUN12A-5	06/22/12	1343
08 RT66-006	3633006	A22JUN12A-6	06/22/12	1431
09 RT66-006D	3633007	A22JUN12A-7	06/22/12	1518
10 RT66-007	3633008	A22JUN12A-8	06/22/12	1606
11 RT66-008	3633009	A22JUN12A-9	06/22/12	1653
12 RT66-009	3633010	A22JUN12A-10	06/22/12	1741
13 RT66-010	3633011	A22JUN12A-11	06/22/12	1828
14 RT66-011	3633012	A22JUN12A-12	06/22/12	1916
15 RT66-011D	3633013	A22JUN12A-13	06/22/12	2003
16 RT66-012	3633014	A22JUN12A-14	06/22/12	2051
17 RT66-001	3633001	b26jun12a-4	06/26/12	1042
18 RT66-003	3633003	b26jun12a-5	06/26/12	1102
19 RT66-010	3633011	b26jun12a-6	06/26/12	1121
20 RT66-011	3633012	b26jun12a-7	06/26/12	1141
21 RT66-011D	3633013	b26jun12a-8	06/26/12	1200

Method Blank Summary

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SDG Number: 3633
Client ID: MB for batch 21332
Lab Sample ID: 12006206
Column:

Client: TETR001
Instrument ID: HRP763
Prep Date: 14-JUN-12

Matrix: SOLID
Data File: b20jun12a-4
Analyzed: 06/20/12 10:43

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 21332	12006207	b20jun12a-2	06/20/12	0910
02 LCSD for batch 21332	12006208	b20jun12a-3	06/20/12	0956
03 RT66-013	3633015	b20jun12a-8	06/20/12	1351
04 RT66-014	3633016	b20jun12a-9	06/20/12	1438
05 RT66-016	3633017	b20jun12a-10	06/20/12	1525
06 RT66-017	3633018	b20jun12a-11	06/20/12	1612
07 RT66-018	3633019	b20jun12a-12	06/20/12	1659
08 RT66-019	3633020	b20jun12a-13	06/20/12	1746
09 RT66-021	3633022	b20jun12a_2-2	06/20/12	2101
10 RT66-022	3633023	b20jun12a_2-3	06/20/12	2148
11 RT66-023	3633024	b20jun12a_2-4	06/20/12	2235
12 RT66-024	3633025	b20jun12a_2-5	06/20/12	2322
13 RT66-025	3633026	b20jun12a_2-6	06/21/12	0009
14 RT66-026	3633027	b20jun12a_2-7	06/21/12	0055
15 RT66-027	3633028	b20jun12a_2-8	06/21/12	0142
16 RT66-028	3633029	b20jun12a_2-9	06/21/12	0229
17 RT66-029	3633030	b20jun12a_2-10	06/21/12	0316
18 RT66-030	3633031	b20jun12a_2-11	06/21/12	0403
19 RT66-031	3633032	b20jun12a_2-12	06/21/12	0450
20 RT66-031D	3633033	b20jun12a_2-13	06/21/12	0537
21 RT66-020	3633021	b20jun12a_7-10	06/23/12	0601
22 RT66-013	3633015	b26jun12a-9	06/26/12	1220
23 RT66-014	3633016	b26jun12a-10	06/26/12	1239
24 RT66-030	3633031	b26jun12a-11	06/26/12	1259
25 RT66-031	3633032	b26jun12a-12	06/26/12	1318
26 RT66-031D	3633033	b26jun12a-13	06/26/12	1338

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3633
Lab Sample ID: 12006201
Client Sample: QC for batch 21328
Client ID: MB for batch 21328
Batch ID: 21331
Run Date: 06/20/2012 10:49
Data File: A18JUN12A_6-3
Prep Batch: 21328
Prep Date: 14-JUN-12

Client: TETR001

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 10 g

Project: TETR00112
Matrix: SOIL

Prep Basis: As Received

Instrument: HRP750
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	.168	pg/g	0.168	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	.146	pg/g	0.146	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	.234	pg/g	0.234	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	.214	pg/g	0.214	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	.232	pg/g	0.232	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	J	0.350	pg/g	0.328	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	J	1.21	pg/g	0.556	10.0
51207-31-9	2,3,7,8-TCDF	J	0.284	pg/g	0.199	1.00
57117-41-6	1,2,3,7,8-PeCDF	J	0.154	pg/g	0.116	5.00
57117-31-4	2,3,4,7,8-PeCDF	J	0.146	pg/g	0.117	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	U	.2	pg/g	0.200	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	U	.18	pg/g	0.180	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	.197	pg/g	0.197	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	.244	pg/g	0.244	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	0.234	pg/g	0.188	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.328	pg/g	0.328	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	.464	pg/g	0.464	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		162	200	pg/g	80.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		173	200	pg/g	86.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		144	200	pg/g	71.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		155	200	pg/g	77.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		157	200	pg/g	78.4	(23%-140%)
13C-OCDD		303	400	pg/g	75.9	(17%-157%)
13C-2,3,7,8-TCDF		155	200	pg/g	77.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		171	200	pg/g	85.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		172	200	pg/g	85.8	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		148	200	pg/g	74.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		154	200	pg/g	76.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		139	200	pg/g	69.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		158	200	pg/g	78.9	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		150	200	pg/g	75.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		147	200	pg/g	73.7	(26%-138%)
37Cl-2,3,7,8-TCDD		14.7	20.0	pg/g	73.3	(35%-197%)

Comments:**J** Value is estimated**K** Estimated Maximum Possible Concentration**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3633	Client: TETR001	Project: TETR00112
Lab Sample ID: 12006202		Matrix: SOIL
Client Sample: QC for batch 21328		
Client ID: LCS for batch 21328		Prep Basis: As Received
Batch ID: 21331	Method: EPA Method 1613B	
Run Date: 06/20/2012 09:15	Analyst: MJC	Instrument: HRP750
Data File: A18JUN12A_6-1		Dilution: 1
Prep Batch: 21328	Prep Method: SW846 3540C	
Prep Date: 14-JUN-12	Aliquot: 10 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		20.0	pg/g	0.244	1.00
40321-76-4	1,2,3,7,8-PeCDD		106	pg/g	0.260	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		105	pg/g	0.424	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		104	pg/g	0.424	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		112	pg/g	0.438	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		105	pg/g	0.798	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		197	pg/g	1.44	10.0
51207-31-9	2,3,7,8-TCDF		20.2	pg/g	0.242	1.00
57117-41-6	1,2,3,7,8-PeCDF		106	pg/g	0.330	5.00
57117-31-4	2,3,4,7,8-PeCDF		107	pg/g	0.328	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		106	pg/g	0.790	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		105	pg/g	0.780	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		111	pg/g	0.944	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		102	pg/g	1.11	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		108	pg/g	0.870	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		109	pg/g	1.40	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		205	pg/g	1.63	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		174	200	pg/g	87.1	(20%-175%)
13C-1,2,3,7,8-PeCDD		186	200	pg/g	93.2	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		140	200	pg/g	69.9	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		163	200	pg/g	81.6	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		153	200	pg/g	76.5	(22%-166%)
13C-OCDD		298	400	pg/g	74.4	(13%-199%)
13C-2,3,7,8-TCDF		168	200	pg/g	83.8	(22%-152%)
13C-1,2,3,7,8-PeCDF		189	200	pg/g	94.4	(21%-192%)
13C-2,3,4,7,8-PeCDF		186	200	pg/g	92.9	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		150	200	pg/g	75.0	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		156	200	pg/g	78.0	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		138	200	pg/g	68.9	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		162	200	pg/g	81.2	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		150	200	pg/g	74.8	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		150	200	pg/g	74.9	(20%-186%)
37Cl-2,3,7,8-TCDD		16.2	20.0	pg/g	81.1	(31%-191%)

Comments:

K Estimated Maximum Possible Concentration

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number: 3633	Client: TETR001	Project: TETR00112
Lab Sample ID: 12006203		Matrix: SOIL
Client Sample: QC for batch 21328		
Client ID: LCSD for batch 21328		Prep Basis: As Received
Batch ID: 21331	Method: EPA Method 1613B	
Run Date: 06/20/2012 10:01	Analyst: MJC	Instrument: HRP750
Data File: A18JUN12A_6-2		Dilution: 1
Prep Batch: 21328	Prep Method: SW846 3540C	
Prep Date: 14-JUN-12	Aliquot: 10 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		19.6	pg/g	0.238	1.00
40321-76-4	1,2,3,7,8-PeCDD		104	pg/g	0.326	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		107	pg/g	0.638	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		105	pg/g	0.628	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		111	pg/g	0.654	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		105	pg/g	0.816	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		204	pg/g	1.31	10.0
51207-31-9	2,3,7,8-TCDF		21.5	pg/g	0.195	1.00
57117-41-6	1,2,3,7,8-PeCDF		107	pg/g	0.370	5.00
57117-31-4	2,3,4,7,8-PeCDF		104	pg/g	0.360	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		111	pg/g	0.714	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		106	pg/g	0.658	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		116	pg/g	0.810	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		104	pg/g	0.920	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		109	pg/g	0.572	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		108	pg/g	0.928	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		203	pg/g	1.41	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		171	200	pg/g	85.4	(20%-175%)
13C-1,2,3,7,8-PeCDD		188	200	pg/g	94.0	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		134	200	pg/g	66.8	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		151	200	pg/g	75.6	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		144	200	pg/g	72.0	(22%-166%)
13C-OCDD		279	400	pg/g	69.8	(13%-199%)
13C-2,3,7,8-TCDF		165	200	pg/g	82.3	(22%-152%)
13C-1,2,3,7,8-PeCDF		185	200	pg/g	92.6	(21%-192%)
13C-2,3,4,7,8-PeCDF		189	200	pg/g	94.6	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		138	200	pg/g	69.0	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		148	200	pg/g	73.8	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		130	200	pg/g	64.9	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		151	200	pg/g	75.6	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		139	200	pg/g	69.4	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		137	200	pg/g	68.7	(20%-186%)
37Cl-2,3,7,8-TCDD		15.7	20.0	pg/g	78.6	(31%-191%)

Comments:

K Estimated Maximum Possible Concentration

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

Page 1 of 1

SDG Number:	3633	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	12006206			Matrix:	SOLID
Client Sample:	QC for batch 21332				
Client ID:	MB for batch 21332			Prep Basis:	As Received
Batch ID:	21334	Method:	EPA Method 1613B		
Run Date:	06/20/2012 10:43	Analyst:	MJC	Instrument:	HRP763
Data File:	b20jun12a-4			Dilution:	1
Prep Batch:	21332	Prep Method:	SW846 3540C		
Prep Date:	14-JUN-12	Aliquot:	10 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	.164	pg/g	0.164	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	.094	pg/g	0.094	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	.152	pg/g	0.152	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	.157	pg/g	0.157	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	.166	pg/g	0.166	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	J	0.478	pg/g	0.346	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	4.6	pg/g	4.60	10.0
51207-31-9	2,3,7,8-TCDF	J	0.332	pg/g	0.171	1.00
57117-41-6	1,2,3,7,8-PeCDF	U	.0928	pg/g	0.0928	5.00
57117-31-4	2,3,4,7,8-PeCDF	U	.0912	pg/g	0.0912	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	U	.107	pg/g	0.107	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	U	.106	pg/g	0.106	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	.127	pg/g	0.127	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	.164	pg/g	0.164	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	0.174	pg/g	0.164	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.264	pg/g	0.264	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	0.654	pg/g	0.482	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		149	200	pg/g	74.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		144	200	pg/g	71.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		146	200	pg/g	73.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		149	200	pg/g	74.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		142	200	pg/g	71.2	(23%-140%)
13C-OCDD		220	400	pg/g	55.0	(17%-157%)
13C-2,3,7,8-TCDF		135	200	pg/g	67.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		145	200	pg/g	72.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		144	200	pg/g	72.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		156	200	pg/g	78.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		152	200	pg/g	75.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		139	200	pg/g	69.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		157	200	pg/g	78.6	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		130	200	pg/g	64.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		129	200	pg/g	64.7	(26%-138%)
37Cl-2,3,7,8-TCDD		13.2	20.0	pg/g	66.2	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number: 3633
Lab Sample ID: 12006207
Client Sample: QC for batch 21332
Client ID: LCS for batch 21332
Batch ID: 21334
Run Date: 06/20/2012 09:10
Data File: b20jun12a-2
Prep Batch: 21332
Prep Date: 14-JUN-12

Client: TETR001

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 10 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		18.0	pg/g	0.202	1.00
40321-76-4	1,2,3,7,8-PeCDD		102	pg/g	0.204	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		111	pg/g	0.362	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		113	pg/g	0.366	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		118	pg/g	0.390	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		107	pg/g	0.534	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		227	pg/g	0.906	10.0
51207-31-9	2,3,7,8-TCDF		21.8	pg/g	0.220	1.00
57117-41-6	1,2,3,7,8-PeCDF		99.3	pg/g	0.143	5.00
57117-31-4	2,3,4,7,8-PeCDF		97.3	pg/g	0.154	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		97.2	pg/g	0.304	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		99.0	pg/g	0.314	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		104	pg/g	0.358	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		98.7	pg/g	0.450	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		110	pg/g	0.386	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		98.3	pg/g	0.592	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		192	pg/g	0.862	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		152	200	pg/g	76.2	(20%-175%)
13C-1,2,3,7,8-PeCDD		154	200	pg/g	77.1	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		151	200	pg/g	75.7	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		151	200	pg/g	75.4	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		150	200	pg/g	74.9	(22%-166%)
13C-OCDD		244	400	pg/g	60.9	(13%-199%)
13C-2,3,7,8-TCDF		141	200	pg/g	70.4	(22%-152%)
13C-1,2,3,7,8-PeCDF		152	200	pg/g	76.0	(21%-192%)
13C-2,3,4,7,8-PeCDF		153	200	pg/g	76.4	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		160	200	pg/g	79.9	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		157	200	pg/g	78.6	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		145	200	pg/g	72.6	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		157	200	pg/g	78.7	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		137	200	pg/g	68.4	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		138	200	pg/g	69.2	(20%-186%)
37Cl-2,3,7,8-TCDD		13.8	20.0	pg/g	68.9	(31%-191%)

Comments:

K Estimated Maximum Possible Concentration

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number: 3633	Client: TETR001	Project: TETR00112
Lab Sample ID: 12006208		Matrix: SOLID
Client Sample: QC for batch 21332		
Client ID: LCSD for batch 21332		Prep Basis: As Received
Batch ID: 21334	Method: EPA Method 1613B	
Run Date: 06/20/2012 09:56	Analyst: MJC	Instrument: HRP763
Data File: b20jun12a-3		Dilution: 1
Prep Batch: 21332	Prep Method: SW846 3540C	
Prep Date: 14-JUN-12	Aliquot: 10 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		18.3	pg/g	0.202	1.00
40321-76-4	1,2,3,7,8-PeCDD		101	pg/g	0.162	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		109	pg/g	0.392	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		110	pg/g	0.402	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		113	pg/g	0.426	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		104	pg/g	0.686	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		216	pg/g	1.19	10.0
51207-31-9	2,3,7,8-TCDF		21.4	pg/g	0.262	1.00
57117-41-6	1,2,3,7,8-PeCDF		99.6	pg/g	0.296	5.00
57117-31-4	2,3,4,7,8-PeCDF		96.4	pg/g	0.286	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		94.9	pg/g	0.290	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		101	pg/g	0.292	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		106	pg/g	0.336	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		94.1	pg/g	0.432	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		110	pg/g	0.396	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		98.9	pg/g	0.682	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		185	pg/g	0.838	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		143	200	pg/g	71.3	(20%-175%)
13C-1,2,3,7,8-PeCDD		137	200	pg/g	68.5	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		143	200	pg/g	71.7	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		138	200	pg/g	69.1	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		131	200	pg/g	65.3	(22%-166%)
13C-OCDD		199	400	pg/g	49.8	(13%-199%)
13C-2,3,7,8-TCDF		130	200	pg/g	65.0	(22%-152%)
13C-1,2,3,7,8-PeCDF		137	200	pg/g	68.5	(21%-192%)
13C-2,3,4,7,8-PeCDF		138	200	pg/g	68.8	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		146	200	pg/g	73.1	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		140	200	pg/g	69.8	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		131	200	pg/g	65.4	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		142	200	pg/g	71.1	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		121	200	pg/g	60.6	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		117	200	pg/g	58.3	(20%-186%)
37Cl-2,3,7,8-TCDD		12.6	20.0	pg/g	63.2	(31%-191%)

Comments:

K Estimated Maximum Possible Concentration

July 10, 2012

Mr. David Kinroth
Seagull Environmental Technologies, Incorporated
20 James Town Farm Drive
Florissant, Missouri 63034

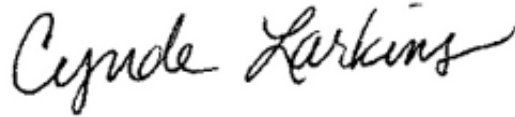
Re: Route 66 State Park
Work Order: 3661

Dear Mr. Kinroth:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 19, 2012. This original data report has been prepared and reviewed in accordance with CFA's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at 910-795-0421.

Sincerely,



Cynthia Larkins
Project Manager

Purchase Order: 1084802
Enclosures

Terra Tech

PO # 1084802

CFA # 3661

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII2nd Sample
Batch

ACTIVITY LEADER(Print) Jim Silver Dave Kinroth	NAME OF SURVEY OR ACTIVITY MO Dioxin Sites Re-evaluation	DATE OF COLLECTION DAY 17 MONTH 6 YEAR 12	SHEET 1 of 2
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CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS				SAMPLED MEDIA				RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	CUBITAINER	BOTTLE	DATE	TIME	VOA SET (2 VIALS EA)	water	soil	sediment	other
RTG6-032		1	6/5/12	16:15		X			
-033		5	6/5/12	16:30					
-033D			6/5/12	16:30					
-034				13:45					
-035				13:45					
-036				13:45					
-037				14:15					
-038				14:15					
-039				14:15					
-040				13:45					
-041				13:45					
-042				13:45					
-042D				13:45					
-043			6/6/12	15:30					
-043D				15:30					
-044				13:00					
-045				13:00					
-046				13:00					
-047				13:00					
-048				13:00					
-049				13:00					
-050				14:00					
-051				14:00					
-052				14:00					

1613B Dioxin/Furans
Analysis ~15g
Sample each-use
entire volume for
extraction please

Collection dates and
times taken from
sample labels at
CFA CA 19JUN12

DESCRIPTION OF SHIPMENT

35 PIECE(S) CONSISTING OF _____ BOX(ES)
1 ICE CHEST(S); OTHER _____

MODE OF SHIPMENT

☒ COMMERCIAL CARRIER: **Fedex**
☐ COURIER
☐ SAMPLER CONVEYED

8750 89086331
(SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER) Dave Kinroth	DATE 6-8-12	TIME 14:30	RECEIVED BY Cynde Lukins 19JUN12 1015	REASON FOR CHANGE OF CUSTODY Transport to Lab for Analysis
<input checked="" type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input checked="" type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED	

Tetra Tech

PO# 1084802

CFA NO # 3661

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII2nd Sample
Batch

ACTIVITY LEADER(Print) Jim Silver	NAME OF SURVEY OR ACTIVITY Dave Kinosh	DATE OF COLLECTION 14 DAY 6 MONTH 12 YEAR	SHEET 2 of 2
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CONTENTS OF SHIPMENT.

Route 66 State Park

SAMPLE NUMBER	TYPE OF CONTAINERS				VOA SET (2 VIALS EA)	SAMPLED MEDIA				RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)	
	CUBITAINER	BOTTLE	DATE	TIME		water	soil	sediment	dust		other
RT66-053		1	6/6/12	14:00		X					1613B Dioxin/Furans Analysis ~15g sample each use entire volume for extraction please Collection dates and times taken from sample labels at CFA, CA 19 JUN 12
-054		1	6/6/12	14:00		X					
-055		1	6/6/12	14:00		X					
-056		1	6/7/12	09:20		X					
-057		1	6/7/12	09:20		X					
-058		1	6/7/12	09:20		X					
-059		1	6/7/12	09:20		X					
-060		1	6/7/12	10:00		X					
-061		1	6/7/12	10:00		X					
-062		1	6/7/12	10:00		X					
-063		1	6/7/12	10:00		X					

End of Sample Batch #2
X PK 6-18-12

DESCRIPTION OF SHIPMENT

35 PIECE(S) CONSISTING OF _____ BOX(ES)

1 ICE CHEST(S); OTHER _____

MODE OF SHIPMENT

X COMMERCIAL CARRIER: _____

____ COURIER

____ SAMPLER CONVEYED

Fedex

8750 8908 6331

(SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER) Dave Kinosh	DATE 6-18-12	TIME 14:30	RECEIVED BY Cynde Larkins	REASON FOR CHANGE OF CUSTODY Transport to Lab for Analysis
<input checked="" type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input checked="" type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED	

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

Client: <u>Tetra Tech</u>	Work Order: <u>3661</u>
Received By: <u>Cynde Larkins</u>	Date/Time Received: <u>19 JUN 12</u> <u>1015</u>

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?		<input checked="" type="checkbox"/>	
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

#	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken damaged container leaking container other(describe)
2	Chain of Custody documents included with shipment?	<input checked="" type="checkbox"/>			
3	Samples requiring cold preservation within 0-6°C?	<input checked="" type="checkbox"/>			Preservation Method: ice bags blue ice dry ice none other (describe) <u>5.9°</u>
4	Samples requiring chemical preservation at proper pH?		<input checked="" type="checkbox"/>		Sample IDs, containers affected and pH observed:
5	Samples requiring preservation have no residual chlorine?		<input checked="" type="checkbox"/>		If preservative added, Lot#: Sample IDs, containers affected: If preservative added, Lot#:
6	Samples received within holding time?	<input checked="" type="checkbox"/>			Sample IDs, tests affected:
7	Sample IDs on COC match IDs on containers?	<input checked="" type="checkbox"/>			Sample IDs, containers affected:
8	Date & time of COC match date & time on containers?	<input checked="" type="checkbox"/>			Sample IDs, containers affected: <u>Taken from sample labels</u>
9	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample IDs, containers affected:
10	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments:

Checklist performed by: Initials: CL Date: 19 JUN 12

High Resolution Dioxin and Furan Analysis

Case Narrative

**HDOX Case Narrative
Tetra Tech EM Incorporated (TETR)
SDG 3661**

Method/Analysis Information

Product: Dioxins/Furans by EPA Method 1613B in Solids

Analytical Method: EPA Method 1613B

Extraction Method: SW846 3540C

Analytical Batch Number: 21396, 21399

Clean Up Batch Number: 21395, 21398

Extraction Batch Number: 21394, 21397

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA Method 1613B:

Sample ID	Client ID
3661001	RT66-032
3661002	RT66-033
3661003	RT66-033D
3661004	RT66-034
3661005	RT66-035
3661006	RT66-036
3661007	RT66-037
3661008	RT66-038
3661009	RT66-039
3661010	RT66-040
3661011	RT66-041
3661012	RT66-042
3661013	RT66-042D
3661014	RT66-043
3661015	RT66-043D
3661016	RT66-044
3661017	RT66-045
3661018	RT66-046
3661019	RT66-047
3661020	RT66-048
3661021	RT66-049
3661022	RT66-050

3661023	RT66-051
3661024	RT66-052
3661025	RT66-053
3661026	RT66-054
3661027	RT66-055
3661028	RT66-056
3661029	RT66-057
3661030	RT66-058
3661031	RT66-059
3661032	RT66-060
3661033	RT66-061
3661034	RT66-062
3661035	RT66-063
12006255	Method Blank (MB)
12006256	Laboratory Control Sample (LCS)
12006257	Laboratory Control Sample Duplicate (LCSD)
12006260	Method Blank (MB)
12006261	Laboratory Control Sample (LCS)
12006262	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by Cape Fear Analytical LLC (CFA) as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with CF-OA-E-002 REV# 9.

Raw data reports are processed and reviewed by the analyst using the TargetLynx software package.

Calibration Information

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements

All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Certification Statement

The test results presented in this document are certified to meet all requirements of the 2003 NELAC Standard.

Method Blank (MB) Statement

The MB(s) analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery

The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement

The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation

A matrix spike and matrix spike duplicate analysis was not required for this SDG.

Technical Information**Holding Time Specifications**

CFA assigns holding times based on the associated methodology, which assigns the date and time from sample collection. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

Samples 3661012 (RT66-042) and 3661013 (RT66-042D)- Batch 21396 were diluted due to the presence of overrange target analytes.

Sample Re-extraction/Re-analysis

2378-TCDF confirmation analysis was required for samples in this SDG.

Miscellaneous Information**Nonconformance (NCR) Documentation**

A NCR was not required for this SDG.

Manual Integrations

Certain standards and QC samples required manual integrations to correctly position the baseline as set in the calibration standard injections. Where manual integrations were performed, copies

of all manual integration peak profiles are included in the raw data section of this fraction. Manual integrations were required for data files in this SDG.

System Configuration

This analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
HRP763_1	High-Resolution GC/MS System	Dioxin Analysis	DB-5MS	60m x 0.25mm, 0.25um
HRP763_2	High-Resolution GC/MS System	TCDF Confirmation	DB-225	30m x 0.25mm, 0.25um

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted: Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Sample Data Summary

Cape Fear Analytical, LLC

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**Certificate of Analysis Report
for**

TETR001 Tetra Tech EM Incorporated

Client SDG: 3661 CFA Work Order: 3661

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- K Estimated Maximum Possible Concentration
- U Analyte was analyzed for , but not detected above the specified detection limit.

Review/Validation

Cape Fear Analytical requires all analytical data to be verified by a qualified data reviewer.

The following data validator verified the information presented in this case narrative:

Signature:



Name: Heather Patterson

Date: 10 JUL 2012

Title: Analyst III

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661001	Date Collected:	06/05/2012 16:15	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-032			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/27/2012 20:08	Analyst:	MJC	Instrument:	HRP763
Data File:	b27jun12c-5			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.32 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		7.48	pg/g	0.228	0.653
40321-76-4	1,2,3,7,8-PeCDD	U	.149	pg/g	0.149	3.26
39227-28-6	1,2,3,4,7,8-HxCDD	U	.39	pg/g	0.390	3.26
57653-85-7	1,2,3,6,7,8-HxCDD	J	0.470	pg/g	0.381	3.26
19408-74-3	1,2,3,7,8,9-HxCDD	J	0.695	pg/g	0.414	3.26
35822-46-9	1,2,3,4,6,7,8-HpCDD		27.9	pg/g	0.836	3.26
3268-87-9	1,2,3,4,6,7,8,9-OCDD		708	pg/g	2.40	6.53
51207-31-9	2,3,7,8-TCDF	U	.239	pg/g	0.239	0.653
57117-41-6	1,2,3,7,8-PeCDF	U	.136	pg/g	0.136	3.26
57117-31-4	2,3,4,7,8-PeCDF	U	.13	pg/g	0.130	3.26
70648-26-9	1,2,3,4,7,8-HxCDF	U	.117	pg/g	0.117	3.26
57117-44-9	1,2,3,6,7,8-HxCDF	U	.151	pg/g	0.151	3.26
60851-34-5	2,3,4,6,7,8-HxCDF	U	.136	pg/g	0.136	3.26
72918-21-9	1,2,3,7,8,9-HxCDF	U	.172	pg/g	0.172	3.26
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	.684	pg/g	0.684	3.26
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.418	pg/g	0.418	3.26
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	3.96	pg/g	0.731	6.53

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		91.3	131	pg/g	69.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		84.2	131	pg/g	64.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		96.3	131	pg/g	73.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		99.4	131	pg/g	76.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		91.1	131	pg/g	69.8	(23%-140%)
13C-OCDD		162	261	pg/g	62.1	(17%-157%)
13C-2,3,7,8-TCDF		86.9	131	pg/g	66.5	(24%-169%)
13C-1,2,3,7,8-PeCDF		87.7	131	pg/g	67.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		91.4	131	pg/g	70.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		113	131	pg/g	86.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		111	131	pg/g	85.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		100	131	pg/g	76.7	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		115	131	pg/g	88.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		95.4	131	pg/g	73.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		88.8	131	pg/g	68.1	(26%-138%)
37Cl-2,3,7,8-TCDD		8.42	13.1	pg/g	64.5	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661002	Date Collected:	06/05/2012 16:30	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-033			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/27/2012 20:55	Analyst:	MJC	Instrument:	HRP763
Data File:	b27jun12c-6			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.52 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		79.8	pg/g	0.250	0.644
40321-76-4	1,2,3,7,8-PeCDD	J	0.995	pg/g	0.196	3.22
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.98	pg/g	0.378	3.22
57653-85-7	1,2,3,6,7,8-HxCDD		4.83	pg/g	0.381	3.22
19408-74-3	1,2,3,7,8,9-HxCDD		6.04	pg/g	0.407	3.22
35822-46-9	1,2,3,4,6,7,8-HpCDD		283	pg/g	1.77	3.22
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	7540	pg/g	4.70	6.44
51207-31-9	2,3,7,8-TCDF		2.28	pg/g	0.433	0.644
57117-41-6	1,2,3,7,8-PeCDF		4.19	pg/g	0.339	3.22
57117-31-4	2,3,4,7,8-PeCDF		13.8	pg/g	0.381	3.22
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.94	pg/g	0.224	3.22
57117-44-9	1,2,3,6,7,8-HxCDF		3.47	pg/g	0.220	3.22
60851-34-5	2,3,4,6,7,8-HxCDF		8.85	pg/g	0.231	3.22
72918-21-9	1,2,3,7,8,9-HxCDF	J	1.07	pg/g	0.276	3.22
67562-39-4	1,2,3,4,6,7,8-HpCDF		12.4	pg/g	0.286	3.22
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.26	pg/g	0.423	3.22
39001-02-0	1,2,3,4,6,7,8,9-OCDF		31.2	pg/g	0.709	6.44

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		105	129	pg/g	81.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		92.4	129	pg/g	71.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		101	129	pg/g	78.7	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		111	129	pg/g	86.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		100	129	pg/g	77.7	(23%-140%)
13C-OCDD		195	258	pg/g	75.5	(17%-157%)
13C-2,3,7,8-TCDF		97.5	129	pg/g	75.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		101	129	pg/g	78.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		103	129	pg/g	80.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		115	129	pg/g	89.5	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		110	129	pg/g	85.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		107	129	pg/g	83.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		111	129	pg/g	86.5	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		98.2	129	pg/g	76.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		96.7	129	pg/g	75.0	(26%-138%)
37Cl-2,3,7,8-TCDD		9.81	12.9	pg/g	76.1	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661002	Date Collected:	06/05/2012 16:30	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-033			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/28/2012 18:31	Analyst:	MJC	Instrument:	HRP763
Data File:	b28jun12b-6			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.52 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.63	pg/g	0.284	0.644

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661003	Date Collected:	06/05/2012 16:30	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-033D			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/27/2012 21:42	Analyst:	MJC	Instrument:	HRP763
Data File:	b27jun12c-7			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.06 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		81.1	pg/g	0.252	0.664
40321-76-4	1,2,3,7,8-PeCDD	J	0.948	pg/g	0.215	3.32
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.61	pg/g	0.365	3.32
57653-85-7	1,2,3,6,7,8-HxCDD		4.54	pg/g	0.360	3.32
19408-74-3	1,2,3,7,8,9-HxCDD		5.22	pg/g	0.389	3.32
35822-46-9	1,2,3,4,6,7,8-HpCDD		239	pg/g	1.91	3.32
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	6550	pg/g	4.34	6.64
51207-31-9	2,3,7,8-TCDF		1.95	pg/g	0.381	0.664
57117-41-6	1,2,3,7,8-PeCDF		6.67	pg/g	0.353	3.32
57117-31-4	2,3,4,7,8-PeCDF		13.7	pg/g	0.365	3.32
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.50	pg/g	0.324	3.32
57117-44-9	1,2,3,6,7,8-HxCDF		3.38	pg/g	0.337	3.32
60851-34-5	2,3,4,6,7,8-HxCDF		8.67	pg/g	0.325	3.32
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.797	pg/g	0.337	3.32
67562-39-4	1,2,3,4,6,7,8-HpCDF		12.4	pg/g	0.266	3.32
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.29	pg/g	0.406	3.32
39001-02-0	1,2,3,4,6,7,8,9-OCDF		32.2	pg/g	0.760	6.64

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		107	133	pg/g	80.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		99.5	133	pg/g	74.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		115	133	pg/g	86.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		113	133	pg/g	84.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		112	133	pg/g	84.0	(23%-140%)
13C-OCDD		220	266	pg/g	83.0	(17%-157%)
13C-2,3,7,8-TCDF		99.2	133	pg/g	74.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		105	133	pg/g	78.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		106	133	pg/g	79.6	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		133	133	pg/g	99.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		121	133	pg/g	91.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		117	133	pg/g	88.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		120	133	pg/g	90.4	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		111	133	pg/g	83.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		108	133	pg/g	81.1	(26%-138%)
37Cl-2,3,7,8-TCDD		9.59	13.3	pg/g	72.2	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661003	Date Collected:	06/05/2012 16:30	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-033D			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/28/2012 18:51	Analyst:	MJC	Instrument:	HRP763
Data File:	b28jun12b-7			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.06 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.65	pg/g	0.323	0.664

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3661	Client: TETR001	Project: TETR00112
Lab Sample ID: 3661004	Date Collected: 06/05/2012 13:45	Matrix: SOLID
Client Sample: 1613B Soil	Date Received: 06/19/2012 10:15	
Client ID: RT66-034		Prep Basis: As Received
Batch ID: 21396	Method: EPA Method 1613B	
Run Date: 06/27/2012 22:29	Analyst: MJC	Instrument: HRP763
Data File: b27jun12c-8		Dilution: 1
Prep Batch: 21394	Prep Method: SW846 3540C	
Prep Date: 24-JUN-12	Aliquot: 14.8 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		26.1	pg/g	0.196	0.676
40321-76-4	1,2,3,7,8-PeCDD	J	0.281	pg/g	0.165	3.38
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.897	pg/g	0.259	3.38
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.34	pg/g	0.266	3.38
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.12	pg/g	0.282	3.38
35822-46-9	1,2,3,4,6,7,8-HpCDD		63.0	pg/g	0.974	3.38
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1660	pg/g	2.53	6.76
51207-31-9	2,3,7,8-TCDF	J	0.534	pg/g	0.257	0.676
57117-41-6	1,2,3,7,8-PeCDF	J	0.412	pg/g	0.161	3.38
57117-31-4	2,3,4,7,8-PeCDF	J	2.53	pg/g	0.153	3.38
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.534	pg/g	0.181	3.38
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.920	pg/g	0.188	3.38
60851-34-5	2,3,4,6,7,8-HxCDF	J	2.36	pg/g	0.212	3.38
72918-21-9	1,2,3,7,8,9-HxCDF	U	.272	pg/g	0.272	3.38
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	2.97	pg/g	0.149	3.38
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.236	pg/g	0.236	3.38
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	4.62	pg/g	0.584	6.76

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		101	135	pg/g	74.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		95.0	135	pg/g	70.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		108	135	pg/g	79.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		109	135	pg/g	80.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		104	135	pg/g	77.1	(23%-140%)
13C-OCDD		205	270	pg/g	75.8	(17%-157%)
13C-2,3,7,8-TCDF		98.1	135	pg/g	72.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		100	135	pg/g	74.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		103	135	pg/g	76.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		123	135	pg/g	90.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		118	135	pg/g	87.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		112	135	pg/g	82.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		122	135	pg/g	90.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		107	135	pg/g	78.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		105	135	pg/g	77.8	(26%-138%)
37Cl-2,3,7,8-TCDD		9.46	13.5	pg/g	70.0	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3661
Lab Sample ID: 3661005
Client Sample: 1613B Soil
Client ID: RT66-035
Batch ID: 21396
Run Date: 06/27/2012 23:16
Data File: b27jun12c-9
Prep Batch: 21394
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/05/2012 13:45
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 15.34 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		44.8	pg/g	0.202	0.652
40321-76-4	1,2,3,7,8-PeCDD	J	0.893	pg/g	0.248	3.26
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.37	pg/g	0.420	3.26
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.11	pg/g	0.417	3.26
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.66	pg/g	0.449	3.26
35822-46-9	1,2,3,4,6,7,8-HpCDD		68.8	pg/g	1.20	3.26
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1670	pg/g	2.93	6.52
51207-31-9	2,3,7,8-TCDF		1.40	pg/g	0.458	0.652
57117-41-6	1,2,3,7,8-PeCDF	J	2.95	pg/g	0.432	3.26
57117-31-4	2,3,4,7,8-PeCDF		35.3	pg/g	0.409	3.26
70648-26-9	1,2,3,4,7,8-HxCDF		3.63	pg/g	0.289	3.26
57117-44-9	1,2,3,6,7,8-HxCDF		10.2	pg/g	0.297	3.26
60851-34-5	2,3,4,6,7,8-HxCDF		30.9	pg/g	0.343	3.26
72918-21-9	1,2,3,7,8,9-HxCDF	J	2.35	pg/g	0.434	3.26
67562-39-4	1,2,3,4,6,7,8-HpCDF		18.4	pg/g	0.327	3.26
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.73	pg/g	0.540	3.26
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	5.46	pg/g	0.625	6.52

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		104	130	pg/g	79.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		95.7	130	pg/g	73.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		101	130	pg/g	77.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		112	130	pg/g	85.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		102	130	pg/g	78.4	(23%-140%)
13C-OCDD		190	261	pg/g	72.8	(17%-157%)
13C-2,3,7,8-TCDF		96.7	130	pg/g	74.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		96.8	130	pg/g	74.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		102	130	pg/g	77.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		117	130	pg/g	89.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		120	130	pg/g	91.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		109	130	pg/g	83.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		119	130	pg/g	91.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		103	130	pg/g	78.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		101	130	pg/g	77.5	(26%-138%)
37Cl-2,3,7,8-TCDD		9.47	13.0	pg/g	72.7	(35%-197%)

Comments:

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661005	Date Collected:	06/05/2012 13:45	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-035			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/28/2012 19:10	Analyst:	MJC	Instrument:	HRP763
Data File:	b28jun12b-8			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.34 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.32	pg/g	0.370	0.652

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3661
Lab Sample ID: 3661006
Client Sample: 1613B Soil
Client ID: RT66-036
Batch ID: 21396
Run Date: 06/28/2012 00:03
Data File: b27jun12c-10
Prep Batch: 21394
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/05/2012 13:45
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 15.45 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		64.2	pg/g	0.271	0.647
40321-76-4	1,2,3,7,8-PeCDD	J	0.823	pg/g	0.203	3.24
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.39	pg/g	0.306	3.24
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.52	pg/g	0.306	3.24
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.89	pg/g	0.328	3.24
35822-46-9	1,2,3,4,6,7,8-HpCDD		65.5	pg/g	0.907	3.24
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1910	pg/g	2.74	6.47
51207-31-9	2,3,7,8-TCDF		1.63	pg/g	0.378	0.647
57117-41-6	1,2,3,7,8-PeCDF	J	1.60	pg/g	0.315	3.24
57117-31-4	2,3,4,7,8-PeCDF		35.4	pg/g	0.293	3.24
70648-26-9	1,2,3,4,7,8-HxCDF		3.73	pg/g	0.322	3.24
57117-44-9	1,2,3,6,7,8-HxCDF		9.93	pg/g	0.326	3.24
60851-34-5	2,3,4,6,7,8-HxCDF		31.0	pg/g	0.365	3.24
72918-21-9	1,2,3,7,8,9-HxCDF	J	2.70	pg/g	0.487	3.24
67562-39-4	1,2,3,4,6,7,8-HpCDF		18.5	pg/g	0.232	3.24
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.95	pg/g	0.360	3.24
39001-02-0	1,2,3,4,6,7,8,9-OCDF		7.52	pg/g	0.593	6.47

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		100	129	pg/g	77.5	(25%-164%)
13C-1,2,3,7,8-PeCDD		101	129	pg/g	78.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		102	129	pg/g	78.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		109	129	pg/g	84.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		101	129	pg/g	77.9	(23%-140%)
13C-OCDD		194	259	pg/g	74.8	(17%-157%)
13C-2,3,7,8-TCDF		94.5	129	pg/g	73.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		103	129	pg/g	79.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		109	129	pg/g	84.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		116	129	pg/g	89.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		116	129	pg/g	89.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		108	129	pg/g	83.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		119	129	pg/g	91.9	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		106	129	pg/g	81.6	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		104	129	pg/g	80.6	(26%-138%)
37Cl-2,3,7,8-TCDD		9.65	12.9	pg/g	74.5	(35%-197%)

Comments:

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661006	Date Collected:	06/05/2012 13:45	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-036			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/28/2012 19:30	Analyst:	MJC	Instrument:	HRP763
Data File:	b28jun12b-9			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.45 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.45	pg/g	0.294	0.647

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

J Value is estimated

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number: 3661
Lab Sample ID: 3661007
Client Sample: 1613B Soil
Client ID: RT66-037
Batch ID: 21396
Run Date: 06/28/2012 00:50
Data File: b27jun12c-11
Prep Batch: 21394
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/05/2012 14:15
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.71 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		3.78	pg/g	0.209	0.680
40321-76-4	1,2,3,7,8-PeCDD	J	0.341	pg/g	0.272	3.40
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.08	pg/g	0.344	3.40
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.62	pg/g	0.343	3.40
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.49	pg/g	0.368	3.40
35822-46-9	1,2,3,4,6,7,8-HpCDD		76.9	pg/g	1.05	3.40
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1900	pg/g	2.83	6.80
51207-31-9	2,3,7,8-TCDF	J	0.427	pg/g	0.272	0.680
57117-41-6	1,2,3,7,8-PeCDF	U	.152	pg/g	0.152	3.40
57117-31-4	2,3,4,7,8-PeCDF	J	1.68	pg/g	0.139	3.40
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.343	pg/g	0.279	3.40
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.412	pg/g	0.280	3.40
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.14	pg/g	0.334	3.40
72918-21-9	1,2,3,7,8,9-HxCDF	U	.424	pg/g	0.424	3.40
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	2.28	pg/g	0.197	3.40
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.326	pg/g	0.326	3.40
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	3.81	pg/g	0.852	6.80

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		102	136	pg/g	74.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		104	136	pg/g	76.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		103	136	pg/g	75.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		106	136	pg/g	78.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		100	136	pg/g	73.8	(23%-140%)
13C-OCDD		179	272	pg/g	65.9	(17%-157%)
13C-2,3,7,8-TCDF		97.5	136	pg/g	71.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		104	136	pg/g	76.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		109	136	pg/g	80.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		116	136	pg/g	85.4	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		113	136	pg/g	82.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		105	136	pg/g	77.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		114	136	pg/g	84.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		101	136	pg/g	74.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		97.4	136	pg/g	71.6	(26%-138%)
37Cl-2,3,7,8-TCDD		9.46	13.6	pg/g	69.6	(35%-197%)

Comments:

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3661
Lab Sample ID: 3661008
Client Sample: 1613B Soil
Client ID: RT66-038
Batch ID: 21396
Run Date: 06/28/2012 01:37
Data File: b27jun12c-12
Prep Batch: 21394
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/05/2012 14:15
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 14.81 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		4.42	pg/g	0.212	0.675
40321-76-4	1,2,3,7,8-PeCDD	U	.281	pg/g	0.281	3.38
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.02	pg/g	0.359	3.38
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.22	pg/g	0.378	3.38
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.30	pg/g	0.397	3.38
35822-46-9	1,2,3,4,6,7,8-HpCDD		99.2	pg/g	1.23	3.38
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2130	pg/g	3.11	6.75
51207-31-9	2,3,7,8-TCDF	U	.292	pg/g	0.292	0.675
57117-41-6	1,2,3,7,8-PeCDF	U	.177	pg/g	0.177	3.38
57117-31-4	2,3,4,7,8-PeCDF		3.96	pg/g	0.170	3.38
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.598	pg/g	0.280	3.38
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.886	pg/g	0.292	3.38
60851-34-5	2,3,4,6,7,8-HxCDF	J	2.65	pg/g	0.332	3.38
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.516	pg/g	0.440	3.38
67562-39-4	1,2,3,4,6,7,8-HpCDF		4.39	pg/g	0.309	3.38
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.489	pg/g	0.489	3.38
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	5.86	pg/g	0.932	6.75

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		103	135	pg/g	76.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		100	135	pg/g	74.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		109	135	pg/g	80.7	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		107	135	pg/g	78.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		104	135	pg/g	76.9	(23%-140%)
13C-OCDD		193	270	pg/g	71.6	(17%-157%)
13C-2,3,7,8-TCDF		98.8	135	pg/g	73.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		102	135	pg/g	75.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		108	135	pg/g	79.6	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		123	135	pg/g	90.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		119	135	pg/g	88.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		111	135	pg/g	82.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		120	135	pg/g	89.2	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		102	135	pg/g	75.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		99.6	135	pg/g	73.7	(26%-138%)
37Cl-2,3,7,8-TCDD		9.65	13.5	pg/g	71.4	(35%-197%)

Comments:

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3661
Lab Sample ID: 3661009
Client Sample: 1613B Soil
Client ID: RT66-039
Batch ID: 21396
Run Date: 06/28/2012 02:24
Data File: b27jun12c-13
Prep Batch: 21394
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/05/2012 14:15
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 15.55 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		8.18	pg/g	0.235	0.643
40321-76-4	1,2,3,7,8-PeCDD	J	0.295	pg/g	0.266	3.22
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.10	pg/g	0.426	3.22
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.61	pg/g	0.437	3.22
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.90	pg/g	0.463	3.22
35822-46-9	1,2,3,4,6,7,8-HpCDD		61.8	pg/g	1.20	3.22
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1830	pg/g	4.14	6.43
51207-31-9	2,3,7,8-TCDF	J	0.405	pg/g	0.273	0.643
57117-41-6	1,2,3,7,8-PeCDF	U	.206	pg/g	0.206	3.22
57117-31-4	2,3,4,7,8-PeCDF	J	2.01	pg/g	0.183	3.22
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.468	pg/g	0.224	3.22
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.484	pg/g	0.226	3.22
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.18	pg/g	0.268	3.22
72918-21-9	1,2,3,7,8,9-HxCDF	U	.346	pg/g	0.346	3.22
67562-39-4	1,2,3,4,6,7,8-HpCDF		3.69	pg/g	0.228	3.22
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.368	pg/g	0.368	3.22
39001-02-0	1,2,3,4,6,7,8,9-OCDF		6.82	pg/g	0.773	6.43

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		99.6	129	pg/g	77.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		93.8	129	pg/g	72.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		101	129	pg/g	78.4	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		105	129	pg/g	81.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		99.8	129	pg/g	77.6	(23%-140%)
13C-OCDD		179	257	pg/g	69.8	(17%-157%)
13C-2,3,7,8-TCDF		97.9	129	pg/g	76.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		95.9	129	pg/g	74.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		102	129	pg/g	79.6	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		113	129	pg/g	88.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		115	129	pg/g	89.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		106	129	pg/g	82.7	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		114	129	pg/g	88.8	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		99.3	129	pg/g	77.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		96.4	129	pg/g	74.9	(26%-138%)
37Cl-2,3,7,8-TCDD		9.43	12.9	pg/g	73.3	(35%-197%)

Comments:

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661010	Date Collected:	06/05/2012 13:45	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-040			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/28/2012 03:11	Analyst:	MJC	Instrument:	HRP763
Data File:	b27jun12c-14			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.68 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		119	pg/g	0.258	0.638
40321-76-4	1,2,3,7,8-PeCDD	U	.258	pg/g	0.258	3.19
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.667	pg/g	0.421	3.19
57653-85-7	1,2,3,6,7,8-HxCDD	J	0.941	pg/g	0.429	3.19
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.48	pg/g	0.457	3.19
35822-46-9	1,2,3,4,6,7,8-HpCDD		49.9	pg/g	1.08	3.19
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2140	pg/g	2.77	6.38
51207-31-9	2,3,7,8-TCDF	J	0.603	pg/g	0.233	0.638
57117-41-6	1,2,3,7,8-PeCDF	J	0.213	pg/g	0.124	3.19
57117-31-4	2,3,4,7,8-PeCDF	J	0.265	pg/g	0.120	3.19
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.349	pg/g	0.162	3.19
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.207	pg/g	0.171	3.19
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.411	pg/g	0.195	3.19
72918-21-9	1,2,3,7,8,9-HxCDF	U	.253	pg/g	0.253	3.19
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	2.84	pg/g	0.250	3.19
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.376	pg/g	0.376	3.19
39001-02-0	1,2,3,4,6,7,8,9-OCDF		7.08	pg/g	0.945	6.38

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		92.0	128	pg/g	72.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		86.3	128	pg/g	67.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		95.5	128	pg/g	74.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		103	128	pg/g	80.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		91.9	128	pg/g	72.0	(23%-140%)
13C-OCDD		176	255	pg/g	68.9	(17%-157%)
13C-2,3,7,8-TCDF		86.0	128	pg/g	67.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		90.3	128	pg/g	70.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		94.7	128	pg/g	74.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		110	128	pg/g	86.5	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		111	128	pg/g	86.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		102	128	pg/g	80.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		111	128	pg/g	87.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		96.2	128	pg/g	75.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		92.4	128	pg/g	72.4	(26%-138%)
37Cl-2,3,7,8-TCDD		9.01	12.8	pg/g	70.6	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3661	Client: TETR001	Project: TETR00112
Lab Sample ID: 3661011	Date Collected: 06/05/2012 13:45	Matrix: SOLID
Client Sample: 1613B Soil	Date Received: 06/19/2012 10:15	
Client ID: RT66-041		Prep Basis: As Received
Batch ID: 21396	Method: EPA Method 1613B	
Run Date: 06/28/2012 07:13	Analyst: MJC	Instrument: HRP763
Data File: b27jun12c_2-4		Dilution: 1
Prep Batch: 21394	Prep Method: SW846 3540C	
Prep Date: 24-JUN-12	Aliquot: 17.76 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		148	pg/g	0.202	0.563
40321-76-4	1,2,3,7,8-PeCDD	J	0.217	pg/g	0.140	2.82
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.921	pg/g	0.328	2.82
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.28	pg/g	0.328	2.82
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.81	pg/g	0.351	2.82
35822-46-9	1,2,3,4,6,7,8-HpCDD		72.8	pg/g	1.44	2.82
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2210	pg/g	3.47	5.63
51207-31-9	2,3,7,8-TCDF		0.755	pg/g	0.189	0.563
57117-41-6	1,2,3,7,8-PeCDF	J	0.231	pg/g	0.134	2.82
57117-31-4	2,3,4,7,8-PeCDF	J	0.392	pg/g	0.126	2.82
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.354	pg/g	0.158	2.82
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.245	pg/g	0.159	2.82
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.462	pg/g	0.190	2.82
72918-21-9	1,2,3,7,8,9-HxCDF	U	.255	pg/g	0.255	2.82
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	2.67	pg/g	0.172	2.82
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.286	pg/g	0.286	2.82
39001-02-0	1,2,3,4,6,7,8,9-OCDF		5.77	pg/g	0.645	5.63

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		84.4	113	pg/g	75.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		74.6	113	pg/g	66.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		79.8	113	pg/g	70.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		87.6	113	pg/g	77.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		78.1	113	pg/g	69.3	(23%-140%)
13C-OCDD		143	225	pg/g	63.7	(17%-157%)
13C-2,3,7,8-TCDF		79.9	113	pg/g	71.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		79.4	113	pg/g	70.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		81.4	113	pg/g	72.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		92.6	113	pg/g	82.3	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		98.1	113	pg/g	87.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		87.1	113	pg/g	77.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		99.0	113	pg/g	87.9	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		80.8	113	pg/g	71.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		76.6	113	pg/g	68.0	(26%-138%)
37Cl-2,3,7,8-TCDD		8.36	11.3	pg/g	74.3	(35%-197%)

Comments:

- J Value is estimated
U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
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Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661011	Date Collected:	06/05/2012 13:45	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-041			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	07/09/2012 13:03	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-5			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	17.76 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.810	pg/g	0.336	0.563

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661012	Date Collected:	06/05/2012 13:45	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-042			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/30/2012 01:53	Analyst:	MJC	Instrument:	HRP763
Data File:	b29jun12a_2-3			Dilution:	5
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.84 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		348	pg/g	0.465	3.16
40321-76-4	1,2,3,7,8-PeCDD	J	0.304	pg/g	0.284	15.8
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.09	pg/g	0.604	15.8
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.22	pg/g	0.643	15.8
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.99	pg/g	0.670	15.8
35822-46-9	1,2,3,4,6,7,8-HpCDD		67.6	pg/g	1.38	15.8
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2430	pg/g	3.37	31.6
51207-31-9	2,3,7,8-TCDF	J	1.63	pg/g	0.630	3.16
57117-41-6	1,2,3,7,8-PeCDF	U	.449	pg/g	0.449	15.8
57117-31-4	2,3,4,7,8-PeCDF	J	0.641	pg/g	0.357	15.8
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.429	pg/g	0.287	15.8
57117-44-9	1,2,3,6,7,8-HxCDF	U	.294	pg/g	0.294	15.8
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.553	pg/g	0.337	15.8
72918-21-9	1,2,3,7,8,9-HxCDF	U	.408	pg/g	0.408	15.8
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	3.66	pg/g	0.393	15.8
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.528	pg/g	0.528	15.8
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	8.59	pg/g	0.915	31.6

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		103	126	pg/g	81.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		103	126	pg/g	81.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		105	126	pg/g	83.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		100	126	pg/g	79.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		111	126	pg/g	87.8	(23%-140%)
13C-OCDD		213	253	pg/g	84.5	(17%-157%)
13C-2,3,7,8-TCDF		100	126	pg/g	79.3	(24%-169%)
13C-1,2,3,7,8-PeCDF		109	126	pg/g	86.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		109	126	pg/g	86.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		116	126	pg/g	91.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		112	126	pg/g	88.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		104	126	pg/g	82.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		120	126	pg/g	95.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		101	126	pg/g	80.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		112	126	pg/g	88.7	(26%-138%)
37Cl-2,3,7,8-TCDD		11.6	12.6	pg/g	92.2	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661013	Date Collected:	06/05/2012 13:45	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-042D			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/30/2012 02:40	Analyst:	MJC	Instrument:	HRP763
Data File:	b29jun12a_2-4			Dilution:	5
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	14.68 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		292	pg/g	0.526	3.41
40321-76-4	1,2,3,7,8-PeCDD	U	.309	pg/g	0.309	17.0
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.05	pg/g	0.544	17.0
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.04	pg/g	0.541	17.0
19408-74-3	1,2,3,7,8,9-HxCDD	U	1.93	pg/g	1.93	17.0
35822-46-9	1,2,3,4,6,7,8-HpCDD		66.7	pg/g	1.51	17.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2330	pg/g	3.69	34.1
51207-31-9	2,3,7,8-TCDF	J	1.34	pg/g	0.386	3.41
57117-41-6	1,2,3,7,8-PeCDF	J	0.240	pg/g	0.202	17.0
57117-31-4	2,3,4,7,8-PeCDF	U	.501	pg/g	0.501	17.0
70648-26-9	1,2,3,4,7,8-HxCDF	U	.27	pg/g	0.270	17.0
57117-44-9	1,2,3,6,7,8-HxCDF	U	.23	pg/g	0.230	17.0
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.460	pg/g	0.274	17.0
72918-21-9	1,2,3,7,8,9-HxCDF	U	.331	pg/g	0.331	17.0
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	4.12	pg/g	0.302	17.0
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.432	pg/g	0.432	17.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	16.9	pg/g	1.30	34.1

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		111	136	pg/g	81.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		115	136	pg/g	84.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		110	136	pg/g	80.7	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		107	136	pg/g	78.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		113	136	pg/g	82.9	(23%-140%)
13C-OCDD		219	272	pg/g	80.3	(17%-157%)
13C-2,3,7,8-TCDF		106	136	pg/g	78.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		112	136	pg/g	82.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		121	136	pg/g	88.6	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		124	136	pg/g	91.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		116	136	pg/g	85.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		110	136	pg/g	80.7	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		122	136	pg/g	89.7	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		106	136	pg/g	78.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		115	136	pg/g	84.3	(26%-138%)
37Cl-2,3,7,8-TCDD		12.3	13.6	pg/g	90.0	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number: 3661
Lab Sample ID: 3661014
Client Sample: 1613B Soil
Client ID: RT66-043
Batch ID: 21396
Run Date: 06/30/2012 01:06
Data File: b29jun12a_2-2
Prep Batch: 21394
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/06/2012 15:30
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 15 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		8.44	pg/g	0.168	0.667
40321-76-4	1,2,3,7,8-PeCDD	J	0.425	pg/g	0.135	3.33
39227-28-6	1,2,3,4,7,8-HxCDD	U	.817	pg/g	0.817	3.33
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.78	pg/g	0.217	3.33
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.72	pg/g	0.228	3.33
35822-46-9	1,2,3,4,6,7,8-HpCDD		59.0	pg/g	0.703	3.33
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2070	pg/g	1.63	6.67
51207-31-9	2,3,7,8-TCDF	J	0.397	pg/g	0.252	0.667
57117-41-6	1,2,3,7,8-PeCDF	J	0.311	pg/g	0.144	3.33
57117-31-4	2,3,4,7,8-PeCDF		8.73	pg/g	0.137	3.33
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.26	pg/g	0.123	3.33
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.65	pg/g	0.126	3.33
60851-34-5	2,3,4,6,7,8-HxCDF		5.19	pg/g	0.145	3.33
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.808	pg/g	0.171	3.33
67562-39-4	1,2,3,4,6,7,8-HpCDF		4.51	pg/g	0.125	3.33
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.576	pg/g	0.169	3.33
39001-02-0	1,2,3,4,6,7,8,9-OCDF		6.94	pg/g	0.551	6.67

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		106	133	pg/g	79.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		107	133	pg/g	80.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		110	133	pg/g	82.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		103	133	pg/g	77.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		117	133	pg/g	88.0	(23%-140%)
13C-OCDD		234	267	pg/g	87.9	(17%-157%)
13C-2,3,7,8-TCDF		103	133	pg/g	76.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		108	133	pg/g	81.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		111	133	pg/g	83.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		121	133	pg/g	91.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		113	133	pg/g	84.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		108	133	pg/g	80.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		127	133	pg/g	95.2	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		110	133	pg/g	82.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		124	133	pg/g	93.0	(26%-138%)
37Cl-2,3,7,8-TCDD		10.1	13.3	pg/g	75.6	(35%-197%)

Comments:

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661015	Date Collected:	06/06/2012 15:30	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-043D			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/28/2012 10:21	Analyst:	MJC	Instrument:	HRP763
Data File:	b27jun12c_2-8			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.28 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		7.72	pg/g	0.251	0.654
40321-76-4	1,2,3,7,8-PeCDD	J	0.524	pg/g	0.228	3.27
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.940	pg/g	0.493	3.27
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.48	pg/g	0.484	3.27
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.70	pg/g	0.522	3.27
35822-46-9	1,2,3,4,6,7,8-HpCDD		71.5	pg/g	1.66	3.27
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2120	pg/g	5.77	6.54
51207-31-9	2,3,7,8-TCDF	J	0.429	pg/g	0.233	0.654
57117-41-6	1,2,3,7,8-PeCDF	J	0.441	pg/g	0.280	3.27
57117-31-4	2,3,4,7,8-PeCDF		11.3	pg/g	0.283	3.27
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.55	pg/g	0.423	3.27
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.82	pg/g	0.431	3.27
60851-34-5	2,3,4,6,7,8-HxCDF		6.69	pg/g	0.509	3.27
72918-21-9	1,2,3,7,8,9-HxCDF	J	1.05	pg/g	0.681	3.27
67562-39-4	1,2,3,4,6,7,8-HpCDF		5.04	pg/g	0.284	3.27
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.508	pg/g	0.508	3.27
39001-02-0	1,2,3,4,6,7,8,9-OCDF		7.58	pg/g	0.949	6.54

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		96.7	131	pg/g	73.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		83.5	131	pg/g	63.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		93.9	131	pg/g	71.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		108	131	pg/g	82.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		90.9	131	pg/g	69.4	(23%-140%)
13C-OCDD		159	262	pg/g	60.8	(17%-157%)
13C-2,3,7,8-TCDF		93.6	131	pg/g	71.5	(24%-169%)
13C-1,2,3,7,8-PeCDF		91.1	131	pg/g	69.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		92.8	131	pg/g	70.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		110	131	pg/g	83.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		118	131	pg/g	90.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		103	131	pg/g	79.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		109	131	pg/g	82.9	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		91.9	131	pg/g	70.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		86.7	131	pg/g	66.2	(26%-138%)
37Cl-2,3,7,8-TCDD		9.28	13.1	pg/g	70.9	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661016	Date Collected:	06/06/2012 13:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-044			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/28/2012 11:07	Analyst:	MJC	Instrument:	HRP763
Data File:	b27jun12c_2-9			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.47 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		44.1	pg/g	0.292	0.646
40321-76-4	1,2,3,7,8-PeCDD	J	0.759	pg/g	0.202	3.23
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.06	pg/g	0.730	3.23
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.77	pg/g	0.729	3.23
19408-74-3	1,2,3,7,8,9-HxCDD		4.34	pg/g	0.782	3.23
35822-46-9	1,2,3,4,6,7,8-HpCDD		209	pg/g	3.27	3.23
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	12800	pg/g	7.94	6.46
51207-31-9	2,3,7,8-TCDF	J	0.623	pg/g	0.324	0.646
57117-41-6	1,2,3,7,8-PeCDF	U	.2	pg/g	0.200	3.23
57117-31-4	2,3,4,7,8-PeCDF	J	0.527	pg/g	0.191	3.23
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.370	pg/g	0.216	3.23
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.437	pg/g	0.221	3.23
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.630	pg/g	0.264	3.23
72918-21-9	1,2,3,7,8,9-HxCDF	U	.336	pg/g	0.336	3.23
67562-39-4	1,2,3,4,6,7,8-HpCDF		3.69	pg/g	0.358	3.23
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.584	pg/g	0.584	3.23
39001-02-0	1,2,3,4,6,7,8,9-OCDF		8.78	pg/g	1.21	6.46

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		86.5	129	pg/g	66.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		74.9	129	pg/g	57.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		87.2	129	pg/g	67.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		94.9	129	pg/g	73.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		82.5	129	pg/g	63.8	(23%-140%)
13C-OCDD		171	259	pg/g	66.0	(17%-157%)
13C-2,3,7,8-TCDF		83.8	129	pg/g	64.8	(24%-169%)
13C-1,2,3,7,8-PeCDF		83.1	129	pg/g	64.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		84.6	129	pg/g	65.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		101	129	pg/g	77.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		105	129	pg/g	81.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		93.9	129	pg/g	72.7	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		104	129	pg/g	80.2	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		89.3	129	pg/g	69.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		80.0	129	pg/g	61.8	(26%-138%)
37Cl-2,3,7,8-TCDD		8.34	12.9	pg/g	64.5	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
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Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661017	Date Collected:	06/06/2012 13:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-045			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/28/2012 11:55	Analyst:	MJC	Instrument:	HRP763
Data File:	b27jun12c_2-10			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.23 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		74.4	pg/g	0.313	0.657
40321-76-4	1,2,3,7,8-PeCDD	J	1.08	pg/g	0.213	3.28
39227-28-6	1,2,3,4,7,8-HxCDD		4.28	pg/g	0.728	3.28
57653-85-7	1,2,3,6,7,8-HxCDD		5.39	pg/g	0.705	3.28
19408-74-3	1,2,3,7,8,9-HxCDD		7.71	pg/g	0.767	3.28
35822-46-9	1,2,3,4,6,7,8-HpCDD		398	pg/g	3.89	3.28
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	17100	pg/g	10.4	6.57
51207-31-9	2,3,7,8-TCDF		0.900	pg/g	0.334	0.657
57117-41-6	1,2,3,7,8-PeCDF	J	0.410	pg/g	0.198	3.28
57117-31-4	2,3,4,7,8-PeCDF	J	0.645	pg/g	0.192	3.28
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.566	pg/g	0.236	3.28
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.524	pg/g	0.238	3.28
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.909	pg/g	0.290	3.28
72918-21-9	1,2,3,7,8,9-HxCDF	U	.387	pg/g	0.387	3.28
67562-39-4	1,2,3,4,6,7,8-HpCDF		6.76	pg/g	0.341	3.28
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.573	pg/g	0.573	3.28
39001-02-0	1,2,3,4,6,7,8,9-OCDF		11.3	pg/g	1.24	6.57

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		100	131	pg/g	76.5	(25%-164%)
13C-1,2,3,7,8-PeCDD		84.6	131	pg/g	64.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		104	131	pg/g	79.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		115	131	pg/g	87.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		103	131	pg/g	78.4	(23%-140%)
13C-OCDD		215	263	pg/g	81.8	(17%-157%)
13C-2,3,7,8-TCDF		98.6	131	pg/g	75.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		96.2	131	pg/g	73.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		97.7	131	pg/g	74.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		123	131	pg/g	93.3	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		130	131	pg/g	99.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		113	131	pg/g	85.7	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		123	131	pg/g	93.8	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		106	131	pg/g	81.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		98.0	131	pg/g	74.6	(26%-138%)
37Cl-2,3,7,8-TCDD		9.82	13.1	pg/g	74.8	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661017	Date Collected:	06/06/2012 13:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-045			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	07/09/2012 13:23	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-6			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.23 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.968	pg/g	0.544	0.657

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661018	Date Collected:	06/06/2012 13:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-046			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/28/2012 12:41	Analyst:	MJC	Instrument:	HRP763
Data File:	b27jun12c_2-11			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	14.52 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		75.3	pg/g	0.299	0.689
40321-76-4	1,2,3,7,8-PeCDD	J	0.854	pg/g	0.215	3.44
39227-28-6	1,2,3,4,7,8-HxCDD		4.13	pg/g	0.800	3.44
57653-85-7	1,2,3,6,7,8-HxCDD		4.89	pg/g	0.767	3.44
19408-74-3	1,2,3,7,8,9-HxCDD		7.19	pg/g	0.837	3.44
35822-46-9	1,2,3,4,6,7,8-HpCDD		402	pg/g	4.74	3.44
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	17200	pg/g	9.26	6.89
51207-31-9	2,3,7,8-TCDF		0.975	pg/g	0.320	0.689
57117-41-6	1,2,3,7,8-PeCDF	J	0.287	pg/g	0.175	3.44
57117-31-4	2,3,4,7,8-PeCDF	J	0.676	pg/g	0.168	3.44
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.519	pg/g	0.219	3.44
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.448	pg/g	0.207	3.44
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.862	pg/g	0.252	3.44
72918-21-9	1,2,3,7,8,9-HxCDF	U	.34	pg/g	0.340	3.44
67562-39-4	1,2,3,4,6,7,8-HpCDF		6.68	pg/g	0.398	3.44
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.632	pg/g	0.632	3.44
39001-02-0	1,2,3,4,6,7,8,9-OCDF		10.8	pg/g	1.83	6.89

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		110	138	pg/g	79.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		94.7	138	pg/g	68.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		104	138	pg/g	75.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		124	138	pg/g	89.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		109	138	pg/g	79.1	(23%-140%)
13C-OCDD		216	275	pg/g	78.3	(17%-157%)
13C-2,3,7,8-TCDF		108	138	pg/g	78.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		106	138	pg/g	76.7	(24%-185%)
13C-2,3,4,7,8-PeCDF		106	138	pg/g	77.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		123	138	pg/g	89.4	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		135	138	pg/g	98.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		117	138	pg/g	85.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		128	138	pg/g	93.2	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		108	138	pg/g	78.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		105	138	pg/g	76.1	(26%-138%)
37Cl-2,3,7,8-TCDD		10.7	13.8	pg/g	77.6	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661018	Date Collected:	06/06/2012 13:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-046			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	07/09/2012 13:42	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-7			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	14.52 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.883	pg/g	0.402	0.689

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number: 3661
Lab Sample ID: 3661019
Client Sample: 1613B Soil
Client ID: RT66-047
Batch ID: 21396
Run Date: 06/28/2012 13:28
Data File: b27jun12c_2-12
Prep Batch: 21394
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/06/2012 13:00
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: MJC

Prep Method: SW846 3540C
Aliquot: 15.42 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		66.4	pg/g	0.316	0.649
40321-76-4	1,2,3,7,8-PeCDD	J	1.21	pg/g	0.263	3.24
39227-28-6	1,2,3,4,7,8-HxCDD		3.96	pg/g	0.776	3.24
57653-85-7	1,2,3,6,7,8-HxCDD		5.41	pg/g	0.747	3.24
19408-74-3	1,2,3,7,8,9-HxCDD		8.53	pg/g	0.815	3.24
35822-46-9	1,2,3,4,6,7,8-HpCDD		410	pg/g	3.26	3.24
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	14900	pg/g	6.86	6.49
51207-31-9	2,3,7,8-TCDF		0.859	pg/g	0.327	0.649
57117-41-6	1,2,3,7,8-PeCDF	J	0.283	pg/g	0.141	3.24
57117-31-4	2,3,4,7,8-PeCDF	J	0.816	pg/g	0.143	3.24
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.796	pg/g	0.202	3.24
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.623	pg/g	0.205	3.24
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.17	pg/g	0.246	3.24
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.331	pg/g	0.293	3.24
67562-39-4	1,2,3,4,6,7,8-HpCDF		21.0	pg/g	0.543	3.24
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.851	pg/g	0.851	3.24
39001-02-0	1,2,3,4,6,7,8,9-OCDF		29.9	pg/g	0.983	6.49

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		103	130	pg/g	79.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		94.6	130	pg/g	72.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		97.0	130	pg/g	74.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		109	130	pg/g	84.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		94.0	130	pg/g	72.5	(23%-140%)
13C-OCDD		194	259	pg/g	74.8	(17%-157%)
13C-2,3,7,8-TCDF		101	130	pg/g	78.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		109	130	pg/g	84.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		105	130	pg/g	81.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		108	130	pg/g	83.4	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		117	130	pg/g	90.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		107	130	pg/g	82.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		119	130	pg/g	91.9	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		96.3	130	pg/g	74.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		92.5	130	pg/g	71.3	(26%-138%)
37Cl-2,3,7,8-TCDD		10.8	13.0	pg/g	83.4	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans

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Certificate of Analysis

Sample Summary

SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661019	Date Collected:	06/06/2012 13:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-047			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	07/09/2012 14:02	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-8			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.42 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.809	pg/g	0.280	0.649

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661020	Date Collected:	06/06/2012 13:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-048			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/29/2012 14:02	Analyst:	MJC	Instrument:	HRP763
Data File:	b29jun12a-3			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	14.34 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		68.4	pg/g	0.148	0.697
40321-76-4	1,2,3,7,8-PeCDD	J	0.755	pg/g	0.0612	3.49
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.57	pg/g	0.177	3.49
57653-85-7	1,2,3,6,7,8-HxCDD		4.00	pg/g	0.187	3.49
19408-74-3	1,2,3,7,8,9-HxCDD		5.32	pg/g	0.195	3.49
35822-46-9	1,2,3,4,6,7,8-HpCDD		223	pg/g	0.869	3.49
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	12600	pg/g	1.44	6.97
51207-31-9	2,3,7,8-TCDF		1.01	pg/g	0.205	0.697
57117-41-6	1,2,3,7,8-PeCDF	J	0.261	pg/g	0.0724	3.49
57117-31-4	2,3,4,7,8-PeCDF	J	0.774	pg/g	0.0743	3.49
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.711	pg/g	0.0713	3.49
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.696	pg/g	0.0731	3.49
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.14	pg/g	0.0883	3.49
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.251	pg/g	0.0775	3.49
67562-39-4	1,2,3,4,6,7,8-HpCDF		14.0	pg/g	0.125	3.49
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.635	pg/g	0.170	3.49
39001-02-0	1,2,3,4,6,7,8,9-OCDF		15.7	pg/g	0.271	6.97

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		116	139	pg/g	83.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		117	139	pg/g	84.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		117	139	pg/g	84.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		105	139	pg/g	75.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		123	139	pg/g	88.5	(23%-140%)
13C-OCDD		290	279	pg/g	104	(17%-157%)
13C-2,3,7,8-TCDF		107	139	pg/g	76.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		120	139	pg/g	85.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		121	139	pg/g	87.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		125	139	pg/g	89.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		118	139	pg/g	84.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		109	139	pg/g	78.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		144	139	pg/g	103	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		116	139	pg/g	83.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		130	139	pg/g	93.0	(26%-138%)
37Cl-2,3,7,8-TCDD		11.7	13.9	pg/g	84.1	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661020	Date Collected:	06/06/2012 13:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-048			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	07/09/2012 14:21	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-9			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	14.34 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.891	pg/g	0.322	0.697

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number: 3661
Lab Sample ID: 3661021
Client Sample: 1613B Soil
Client ID: RT66-049
Batch ID: 21399
Run Date: 06/29/2012 14:49
Data File: b29jun12a-4
Prep Batch: 21397
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/06/2012 13:00
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.94 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		41.3	pg/g	0.133	0.669
40321-76-4	1,2,3,7,8-PeCDD	J	0.529	pg/g	0.0906	3.35
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.13	pg/g	0.173	3.35
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.27	pg/g	0.182	3.35
19408-74-3	1,2,3,7,8,9-HxCDD		4.85	pg/g	0.190	3.35
35822-46-9	1,2,3,4,6,7,8-HpCDD		195	pg/g	0.992	3.35
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	11800	pg/g	1.02	6.69
51207-31-9	2,3,7,8-TCDF		0.760	pg/g	0.151	0.669
57117-41-6	1,2,3,7,8-PeCDF	J	0.256	pg/g	0.0582	3.35
57117-31-4	2,3,4,7,8-PeCDF	J	0.439	pg/g	0.0576	3.35
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.481	pg/g	0.0764	3.35
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.473	pg/g	0.0819	3.35
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.748	pg/g	0.0942	3.35
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.149	pg/g	0.100	3.35
67562-39-4	1,2,3,4,6,7,8-HpCDF		7.11	pg/g	0.119	3.35
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.475	pg/g	0.183	3.35
39001-02-0	1,2,3,4,6,7,8,9-OCDF		9.35	pg/g	0.349	6.69

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		102	134	pg/g	76.1	(25%-164%)
13C-1,2,3,7,8-PeCDD		103	134	pg/g	77.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		107	134	pg/g	79.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		99.8	134	pg/g	74.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		109	134	pg/g	81.1	(23%-140%)
13C-OCDD		276	268	pg/g	103	(17%-157%)
13C-2,3,7,8-TCDF		97.4	134	pg/g	72.8	(24%-169%)
13C-1,2,3,7,8-PeCDF		108	134	pg/g	80.7	(24%-185%)
13C-2,3,4,7,8-PeCDF		107	134	pg/g	80.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		117	134	pg/g	87.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		106	134	pg/g	79.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		101	134	pg/g	75.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		126	134	pg/g	94.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		104	134	pg/g	77.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		108	134	pg/g	80.6	(26%-138%)
37Cl-2,3,7,8-TCDD		9.88	13.4	pg/g	73.8	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661021	Date Collected:	06/06/2012 13:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-049			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 14:41	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-10			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	14.94 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.735	pg/g	0.284	0.669

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661022	Date Collected:	06/06/2012 14:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-050			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	06/29/2012 15:36	Analyst:	EES	Instrument:	HRP763
Data File:	b29jun12a-5			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.06 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		68.9	pg/g	0.129	0.664
40321-76-4	1,2,3,7,8-PeCDD	J	0.661	pg/g	0.0732	3.32
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.31	pg/g	0.247	3.32
57653-85-7	1,2,3,6,7,8-HxCDD		3.67	pg/g	0.263	3.32
19408-74-3	1,2,3,7,8,9-HxCDD		4.84	pg/g	0.274	3.32
35822-46-9	1,2,3,4,6,7,8-HpCDD		239	pg/g	1.09	3.32
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	9670	pg/g	1.43	6.64
51207-31-9	2,3,7,8-TCDF		0.810	pg/g	0.137	0.664
57117-41-6	1,2,3,7,8-PeCDF	J	0.240	pg/g	0.0611	3.32
57117-31-4	2,3,4,7,8-PeCDF	J	0.548	pg/g	0.060	3.32
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.453	pg/g	0.0958	3.32
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.442	pg/g	0.0979	3.32
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.736	pg/g	0.116	3.32
72918-21-9	1,2,3,7,8,9-HxCDF	U	.131	pg/g	0.131	3.32
67562-39-4	1,2,3,4,6,7,8-HpCDF		5.34	pg/g	0.117	3.32
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.365	pg/g	0.177	3.32
39001-02-0	1,2,3,4,6,7,8,9-OCDF		10.4	pg/g	0.296	6.64

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		106	133	pg/g	80.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		108	133	pg/g	81.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		110	133	pg/g	82.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		99.3	133	pg/g	74.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		114	133	pg/g	85.5	(23%-140%)
13C-OCDD		261	266	pg/g	98.1	(17%-157%)
13C-2,3,7,8-TCDF		97.8	133	pg/g	73.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		106	133	pg/g	79.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		108	133	pg/g	81.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		121	133	pg/g	90.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		111	133	pg/g	83.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		103	133	pg/g	77.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		123	133	pg/g	92.7	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		105	133	pg/g	78.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		110	133	pg/g	83.0	(26%-138%)
37Cl-2,3,7,8-TCDD		10.7	13.3	pg/g	80.3	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661022	Date Collected:	06/06/2012 14:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-050			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 15:00	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-11			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.06 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.799	pg/g	0.300	0.664

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661023	Date Collected:	06/06/2012 14:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-051			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	06/29/2012 16:23	Analyst:	EES	Instrument:	HRP763
Data File:	b29jun12a-6			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	14.97 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		90.8	pg/g	0.127	0.668
40321-76-4	1,2,3,7,8-PeCDD	J	0.645	pg/g	0.0791	3.34
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.22	pg/g	0.299	3.34
57653-85-7	1,2,3,6,7,8-HxCDD		3.45	pg/g	0.301	3.34
19408-74-3	1,2,3,7,8,9-HxCDD		4.42	pg/g	0.323	3.34
35822-46-9	1,2,3,4,6,7,8-HpCDD		186	pg/g	0.839	3.34
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	9640	pg/g	1.03	6.68
51207-31-9	2,3,7,8-TCDF		1.03	pg/g	0.126	0.668
57117-41-6	1,2,3,7,8-PeCDF	J	0.259	pg/g	0.108	3.34
57117-31-4	2,3,4,7,8-PeCDF	J	0.568	pg/g	0.103	3.34
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.490	pg/g	0.088	3.34
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.484	pg/g	0.090	3.34
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.810	pg/g	0.111	3.34
72918-21-9	1,2,3,7,8,9-HxCDF	U	.114	pg/g	0.114	3.34
67562-39-4	1,2,3,4,6,7,8-HpCDF		6.76	pg/g	0.130	3.34
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.442	pg/g	0.194	3.34
39001-02-0	1,2,3,4,6,7,8,9-OCDF		13.2	pg/g	0.307	6.68

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		103	134	pg/g	76.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		107	134	pg/g	80.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		104	134	pg/g	78.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		100	134	pg/g	75.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		108	134	pg/g	81.2	(23%-140%)
13C-OCDD		265	267	pg/g	99.2	(17%-157%)
13C-2,3,7,8-TCDF		95.6	134	pg/g	71.5	(24%-169%)
13C-1,2,3,7,8-PeCDF		103	134	pg/g	77.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		110	134	pg/g	82.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		117	134	pg/g	87.6	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		108	134	pg/g	80.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		101	134	pg/g	75.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		126	134	pg/g	94.4	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		107	134	pg/g	79.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		108	134	pg/g	80.8	(26%-138%)
37Cl-2,3,7,8-TCDD		10.5	13.4	pg/g	78.3	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
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Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661023	Date Collected:	06/06/2012 14:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-051			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 15:20	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-12			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	14.97 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.880	pg/g	0.257	0.668

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
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SDG Number: 3661	Client: TETR001	Project: TETR00112
Lab Sample ID: 3661024	Date Collected: 06/06/2012 14:00	Matrix: SOLID
Client Sample: 1613B Soil	Date Received: 06/19/2012 10:15	
Client ID: RT66-052		Prep Basis: As Received
Batch ID: 21399	Method: EPA Method 1613B	
Run Date: 06/29/2012 17:09	Analyst: EES	Instrument: HRP763
Data File: b29jun12a-7		Dilution: 1
Prep Batch: 21397	Prep Method: SW846 3540C	
Prep Date: 24-JUN-12	Aliquot: 14.85 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		87.1	pg/g	0.136	0.673
40321-76-4	1,2,3,7,8-PeCDD	J	0.803	pg/g	0.0536	3.37
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.60	pg/g	0.226	3.37
57653-85-7	1,2,3,6,7,8-HxCDD		3.95	pg/g	0.225	3.37
19408-74-3	1,2,3,7,8,9-HxCDD		5.36	pg/g	0.242	3.37
35822-46-9	1,2,3,4,6,7,8-HpCDD		242	pg/g	0.916	3.37
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	9070	pg/g	1.47	6.73
51207-31-9	2,3,7,8-TCDF		0.943	pg/g	0.145	0.673
57117-41-6	1,2,3,7,8-PeCDF	J	0.251	pg/g	0.0774	3.37
57117-31-4	2,3,4,7,8-PeCDF	J	0.556	pg/g	0.0726	3.37
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.459	pg/g	0.115	3.37
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.474	pg/g	0.110	3.37
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.776	pg/g	0.141	3.37
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.209	pg/g	0.162	3.37
67562-39-4	1,2,3,4,6,7,8-HpCDF		6.69	pg/g	0.106	3.37
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.455	pg/g	0.162	3.37
39001-02-0	1,2,3,4,6,7,8,9-OCDF		12.6	pg/g	0.158	6.73

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		111	135	pg/g	82.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		117	135	pg/g	86.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		115	135	pg/g	85.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		105	135	pg/g	78.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		122	135	pg/g	90.3	(23%-140%)
13C-OCDD		286	269	pg/g	106	(17%-157%)
13C-2,3,7,8-TCDF		104	135	pg/g	77.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		113	135	pg/g	84.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		116	135	pg/g	86.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		127	135	pg/g	94.3	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		120	135	pg/g	89.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		108	135	pg/g	80.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		133	135	pg/g	98.8	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		113	135	pg/g	84.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		116	135	pg/g	85.8	(26%-138%)
37Cl-2,3,7,8-TCDD		11.0	13.5	pg/g	81.6	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans
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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661024	Date Collected:	06/06/2012 14:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-052			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 15:40	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-13			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	14.85 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.905	pg/g	0.280	0.673

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

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SDG Number: 3661
Lab Sample ID: 3661025
Client Sample: 1613B Soil
Client ID: RT66-053
Batch ID: 21399
Run Date: 06/29/2012 17:56
Data File: b29jun12a-8
Prep Batch: 21397
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/06/2012 14:00
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 16.03 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		148	pg/g	0.136	0.624
40321-76-4	1,2,3,7,8-PeCDD	J	0.905	pg/g	0.0619	3.12
39227-28-6	1,2,3,4,7,8-HxCDD	J	3.06	pg/g	0.217	3.12
57653-85-7	1,2,3,6,7,8-HxCDD		5.49	pg/g	0.226	3.12
19408-74-3	1,2,3,7,8,9-HxCDD		6.37	pg/g	0.238	3.12
35822-46-9	1,2,3,4,6,7,8-HpCDD		322	pg/g	1.29	3.12
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	13000	pg/g	1.27	6.24
51207-31-9	2,3,7,8-TCDF		1.18	pg/g	0.183	0.624
57117-41-6	1,2,3,7,8-PeCDF	J	0.316	pg/g	0.0623	3.12
57117-31-4	2,3,4,7,8-PeCDF	J	0.861	pg/g	0.0581	3.12
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.918	pg/g	0.0881	3.12
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.826	pg/g	0.0878	3.12
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.18	pg/g	0.107	3.12
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.302	pg/g	0.115	3.12
67562-39-4	1,2,3,4,6,7,8-HpCDF		15.1	pg/g	0.124	3.12
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.956	pg/g	0.177	3.12
39001-02-0	1,2,3,4,6,7,8,9-OCDF		35.8	pg/g	0.129	6.24

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		98.2	125	pg/g	78.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		100	125	pg/g	80.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		103	125	pg/g	82.7	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		96.6	125	pg/g	77.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		108	125	pg/g	86.6	(23%-140%)
13C-OCDD		268	250	pg/g	107	(17%-157%)
13C-2,3,7,8-TCDF		92.7	125	pg/g	74.3	(24%-169%)
13C-1,2,3,7,8-PeCDF		99.1	125	pg/g	79.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		105	125	pg/g	84.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		114	125	pg/g	91.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		107	125	pg/g	85.5	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		98.2	125	pg/g	78.7	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		121	125	pg/g	96.7	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		98.5	125	pg/g	79.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		102	125	pg/g	81.6	(26%-138%)
37Cl-2,3,7,8-TCDD		10.2	12.5	pg/g	81.8	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans
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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661025	Date Collected:	06/06/2012 14:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-053			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 15:59	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-14			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	16.03 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.08	pg/g	0.274	0.624

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
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SDG Number: 3661
Lab Sample ID: 3661026
Client Sample: 1613B Soil
Client ID: RT66-054
Batch ID: 21399
Run Date: 06/29/2012 18:43
Data File: b29jun12a-9
Prep Batch: 21397
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/06/2012 14:00
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.84 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		72.9	pg/g	0.167	0.674
40321-76-4	1,2,3,7,8-PeCDD	J	0.803	pg/g	0.0631	3.37
39227-28-6	1,2,3,4,7,8-HxCDD	J	3.15	pg/g	0.183	3.37
57653-85-7	1,2,3,6,7,8-HxCDD		5.42	pg/g	0.197	3.37
19408-74-3	1,2,3,7,8,9-HxCDD		6.19	pg/g	0.205	3.37
35822-46-9	1,2,3,4,6,7,8-HpCDD		330	pg/g	1.12	3.37
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	11500	pg/g	1.39	6.74
51207-31-9	2,3,7,8-TCDF		0.925	pg/g	0.147	0.674
57117-41-6	1,2,3,7,8-PeCDF	J	0.350	pg/g	0.098	3.37
57117-31-4	2,3,4,7,8-PeCDF	J	0.799	pg/g	0.0937	3.37
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.864	pg/g	0.0977	3.37
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.852	pg/g	0.0933	3.37
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.31	pg/g	0.116	3.37
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.305	pg/g	0.125	3.37
67562-39-4	1,2,3,4,6,7,8-HpCDF		15.3	pg/g	0.130	3.37
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.09	pg/g	0.195	3.37
39001-02-0	1,2,3,4,6,7,8,9-OCDF		38.0	pg/g	0.673	6.74

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		110	135	pg/g	81.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		114	135	pg/g	84.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		114	135	pg/g	84.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		106	135	pg/g	78.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		122	135	pg/g	90.4	(23%-140%)
13C-OCDD		293	270	pg/g	109	(17%-157%)
13C-2,3,7,8-TCDF		105	135	pg/g	77.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		112	135	pg/g	83.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		117	135	pg/g	86.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		125	135	pg/g	93.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		123	135	pg/g	91.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		109	135	pg/g	81.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		131	135	pg/g	96.9	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		109	135	pg/g	81.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		114	135	pg/g	84.6	(26%-138%)
37Cl-2,3,7,8-TCDD		11.0	13.5	pg/g	81.9	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans
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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661026	Date Collected:	06/06/2012 14:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-054			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 16:19	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-15			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	14.84 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.992	pg/g	0.333	0.674

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661027	Date Collected:	06/06/2012 14:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-055			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	06/29/2012 19:30	Analyst:	EES	Instrument:	HRP763
Data File:	b29jun12a-10			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.61 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		71.6	pg/g	0.141	0.641
40321-76-4	1,2,3,7,8-PeCDD	J	0.726	pg/g	0.126	3.20
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.63	pg/g	0.195	3.20
57653-85-7	1,2,3,6,7,8-HxCDD		5.02	pg/g	0.201	3.20
19408-74-3	1,2,3,7,8,9-HxCDD		6.03	pg/g	0.213	3.20
35822-46-9	1,2,3,4,6,7,8-HpCDD		288	pg/g	1.01	3.20
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	11200	pg/g	1.20	6.41
51207-31-9	2,3,7,8-TCDF		0.741	pg/g	0.161	0.641
57117-41-6	1,2,3,7,8-PeCDF	J	0.242	pg/g	0.0743	3.20
57117-31-4	2,3,4,7,8-PeCDF	J	0.601	pg/g	0.0709	3.20
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.819	pg/g	0.165	3.20
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.696	pg/g	0.161	3.20
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.15	pg/g	0.199	3.20
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.259	pg/g	0.232	3.20
67562-39-4	1,2,3,4,6,7,8-HpCDF		35.7	pg/g	0.127	3.20
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.15	pg/g	0.179	3.20
39001-02-0	1,2,3,4,6,7,8,9-OCDF		45.7	pg/g	0.378	6.41

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		107	128	pg/g	83.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		119	128	pg/g	92.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		114	128	pg/g	88.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		101	128	pg/g	79.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		118	128	pg/g	91.8	(23%-140%)
13C-OCDD		282	256	pg/g	110	(17%-157%)
13C-2,3,7,8-TCDF		103	128	pg/g	80.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		111	128	pg/g	86.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		120	128	pg/g	93.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		123	128	pg/g	95.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		116	128	pg/g	90.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		106	128	pg/g	82.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		124	128	pg/g	97.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		108	128	pg/g	84.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		112	128	pg/g	87.6	(26%-138%)
37Cl-2,3,7,8-TCDD		10.7	12.8	pg/g	83.9	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661027	Date Collected:	06/06/2012 14:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-055			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 16:38	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-16			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.61 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.725	pg/g	0.301	0.641

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number: 3661	Client: TETR001	Project: TETR00112
Lab Sample ID: 3661028	Date Collected: 06/07/2012 09:20	Matrix: SOLID
Client Sample: 1613B Soil	Date Received: 06/19/2012 10:15	
Client ID: RT66-056		Prep Basis: As Received
Batch ID: 21399	Method: EPA Method 1613B	
Run Date: 06/29/2012 20:17	Analyst: EES	Instrument: HRP763
Data File: b29jun12a-11		Dilution: 1
Prep Batch: 21397	Prep Method: SW846 3540C	
Prep Date: 24-JUN-12	Aliquot: 15.23 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		65.3	pg/g	0.121	0.657
40321-76-4	1,2,3,7,8-PeCDD	J	0.834	pg/g	0.0676	3.28
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.75	pg/g	0.332	3.28
57653-85-7	1,2,3,6,7,8-HxCDD		4.44	pg/g	0.336	3.28
19408-74-3	1,2,3,7,8,9-HxCDD		5.99	pg/g	0.360	3.28
35822-46-9	1,2,3,4,6,7,8-HpCDD		264	pg/g	0.963	3.28
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	11600	pg/g	1.08	6.57
51207-31-9	2,3,7,8-TCDF		0.843	pg/g	0.118	0.657
57117-41-6	1,2,3,7,8-PeCDF	J	0.200	pg/g	0.107	3.28
57117-31-4	2,3,4,7,8-PeCDF	J	0.804	pg/g	0.101	3.28
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.555	pg/g	0.0917	3.28
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.609	pg/g	0.0921	3.28
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.14	pg/g	0.115	3.28
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.207	pg/g	0.121	3.28
67562-39-4	1,2,3,4,6,7,8-HpCDF		7.51	pg/g	0.112	3.28
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.557	pg/g	0.165	3.28
39001-02-0	1,2,3,4,6,7,8,9-OCDF		14.1	pg/g	0.138	6.57

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		102	131	pg/g	77.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		111	131	pg/g	84.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		104	131	pg/g	79.4	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		99.6	131	pg/g	75.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		113	131	pg/g	86.2	(23%-140%)
13C-OCDD		280	263	pg/g	106	(17%-157%)
13C-2,3,7,8-TCDF		99.7	131	pg/g	75.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		107	131	pg/g	81.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		114	131	pg/g	86.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		116	131	pg/g	88.3	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		110	131	pg/g	83.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		100	131	pg/g	76.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		125	131	pg/g	95.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		105	131	pg/g	79.6	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		108	131	pg/g	82.5	(26%-138%)
37Cl-2,3,7,8-TCDD		10.4	13.1	pg/g	78.8	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661028	Date Collected:	06/07/2012 09:20	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-056			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 16:58	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-17			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.23 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.759	pg/g	0.260	0.657

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3661
Lab Sample ID: 3661029
Client Sample: 1613B Soil
Client ID: RT66-057
Batch ID: 21399
Run Date: 06/29/2012 21:04
Data File: b29jun12a-12
Prep Batch: 21397
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/07/2012 09:20
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 15.18 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		49.8	pg/g	0.165	0.659
40321-76-4	1,2,3,7,8-PeCDD	J	1.07	pg/g	0.0568	3.29
39227-28-6	1,2,3,4,7,8-HxCDD	J	3.11	pg/g	0.285	3.29
57653-85-7	1,2,3,6,7,8-HxCDD		7.51	pg/g	0.295	3.29
19408-74-3	1,2,3,7,8,9-HxCDD		8.06	pg/g	0.311	3.29
35822-46-9	1,2,3,4,6,7,8-HpCDD		347	pg/g	1.32	3.29
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	15400	pg/g	1.23	6.59
51207-31-9	2,3,7,8-TCDF		0.846	pg/g	0.186	0.659
57117-41-6	1,2,3,7,8-PeCDF	J	0.365	pg/g	0.0838	3.29
57117-31-4	2,3,4,7,8-PeCDF	J	0.966	pg/g	0.0776	3.29
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.773	pg/g	0.107	3.29
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.801	pg/g	0.107	3.29
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.38	pg/g	0.133	3.29
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.282	pg/g	0.136	3.29
67562-39-4	1,2,3,4,6,7,8-HpCDF		17.1	pg/g	0.134	3.29
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.765	pg/g	0.184	3.29
39001-02-0	1,2,3,4,6,7,8,9-OCDF		28.0	pg/g	0.202	6.59

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		103	132	pg/g	77.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		107	132	pg/g	81.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		108	132	pg/g	82.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		98.6	132	pg/g	74.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		113	132	pg/g	85.8	(23%-140%)
13C-OCDD		281	264	pg/g	107	(17%-157%)
13C-2,3,7,8-TCDF		95.8	132	pg/g	72.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		103	132	pg/g	78.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		110	132	pg/g	83.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		117	132	pg/g	88.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		109	132	pg/g	82.5	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		101	132	pg/g	76.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		124	132	pg/g	94.4	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		104	132	pg/g	78.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		110	132	pg/g	83.1	(26%-138%)
37Cl-2,3,7,8-TCDD		10.4	13.2	pg/g	78.9	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661029	Date Collected:	06/07/2012 09:20	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-057			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 17:17	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-18			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.18 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.708	pg/g	0.264	0.659

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

Page 1 of 1

SDG Number: 3661
Lab Sample ID: 3661030
Client Sample: 1613B Soil
Client ID: RT66-058
Batch ID: 21399
Run Date: 06/29/2012 21:51
Data File: b29jun12a-13
Prep Batch: 21397
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/07/2012 09:20
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 15.15 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		40.6	pg/g	0.125	0.660
40321-76-4	1,2,3,7,8-PeCDD	J	1.39	pg/g	0.0743	3.30
39227-28-6	1,2,3,4,7,8-HxCDD		4.93	pg/g	0.228	3.30
57653-85-7	1,2,3,6,7,8-HxCDD		20.3	pg/g	0.244	3.30
19408-74-3	1,2,3,7,8,9-HxCDD		11.7	pg/g	0.253	3.30
35822-46-9	1,2,3,4,6,7,8-HpCDD		566	pg/g	1.11	3.30
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	17500	pg/g	1.43	6.60
51207-31-9	2,3,7,8-TCDF		0.808	pg/g	0.186	0.660
57117-41-6	1,2,3,7,8-PeCDF	J	0.514	pg/g	0.0915	3.30
57117-31-4	2,3,4,7,8-PeCDF	J	1.22	pg/g	0.0825	3.30
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.85	pg/g	0.127	3.30
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.30	pg/g	0.129	3.30
60851-34-5	2,3,4,6,7,8-HxCDF	J	2.41	pg/g	0.153	3.30
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.782	pg/g	0.157	3.30
67562-39-4	1,2,3,4,6,7,8-HpCDF		23.2	pg/g	0.147	3.30
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.64	pg/g	0.217	3.30
39001-02-0	1,2,3,4,6,7,8,9-OCDF		33.7	pg/g	0.195	6.60

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		105	132	pg/g	79.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		113	132	pg/g	85.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		111	132	pg/g	84.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		100	132	pg/g	75.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		117	132	pg/g	88.9	(23%-140%)
13C-OCDD		287	264	pg/g	109	(17%-157%)
13C-2,3,7,8-TCDF		99.6	132	pg/g	75.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		108	132	pg/g	82.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		117	132	pg/g	88.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		117	132	pg/g	88.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		114	132	pg/g	86.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		102	132	pg/g	77.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		129	132	pg/g	97.5	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		108	132	pg/g	81.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		111	132	pg/g	84.2	(26%-138%)
37Cl-2,3,7,8-TCDD		10.5	13.2	pg/g	79.7	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661030	Date Collected:	06/07/2012 09:20	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-058			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 17:37	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-19			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.15 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.729	pg/g	0.261	0.660

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number: 3661
Lab Sample ID: 3661031
Client Sample: 1613B Soil
Client ID: RT66-059
Batch ID: 21399
Run Date: 06/29/2012 22:38
Data File: b29jun12a-14
Prep Batch: 21397
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/07/2012 09:20
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 15.21 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		28.9	pg/g	0.151	0.657
40321-76-4	1,2,3,7,8-PeCDD	J	0.977	pg/g	0.0763	3.29
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.90	pg/g	0.237	3.29
57653-85-7	1,2,3,6,7,8-HxCDD		5.88	pg/g	0.250	3.29
19408-74-3	1,2,3,7,8,9-HxCDD		6.70	pg/g	0.262	3.29
35822-46-9	1,2,3,4,6,7,8-HpCDD		299	pg/g	1.31	3.29
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	13400	pg/g	1.12	6.57
51207-31-9	2,3,7,8-TCDF	J	0.555	pg/g	0.153	0.657
57117-41-6	1,2,3,7,8-PeCDF	J	0.355	pg/g	0.110	3.29
57117-31-4	2,3,4,7,8-PeCDF	J	0.938	pg/g	0.109	3.29
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.613	pg/g	0.105	3.29
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.765	pg/g	0.112	3.29
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.31	pg/g	0.129	3.29
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.239	pg/g	0.137	3.29
67562-39-4	1,2,3,4,6,7,8-HpCDF		9.74	pg/g	0.134	3.29
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.685	pg/g	0.185	3.29
39001-02-0	1,2,3,4,6,7,8,9-OCDF		17.4	pg/g	0.264	6.57

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		102	131	pg/g	77.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		108	131	pg/g	82.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		108	131	pg/g	82.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		96.1	131	pg/g	73.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		114	131	pg/g	86.4	(23%-140%)
13C-OCDD		277	263	pg/g	105	(17%-157%)
13C-2,3,7,8-TCDF		95.8	131	pg/g	72.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		103	131	pg/g	78.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		107	131	pg/g	81.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		115	131	pg/g	87.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		107	131	pg/g	81.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		99.7	131	pg/g	75.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		126	131	pg/g	95.6	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		104	131	pg/g	78.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		111	131	pg/g	84.4	(26%-138%)
37Cl-2,3,7,8-TCDD		10.2	13.1	pg/g	77.4	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3661
Lab Sample ID: 3661032
Client Sample: 1613B Soil
Client ID: RT66-060
Batch ID: 21399
Run Date: 06/30/2012 03:27
Data File: b29jun12a_2-5
Prep Batch: 21397
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/07/2012 10:00
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.12 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		221	pg/g	0.174	0.708
40321-76-4	1,2,3,7,8-PeCDD	J	1.25	pg/g	0.0693	3.54
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.35	pg/g	0.251	3.54
57653-85-7	1,2,3,6,7,8-HxCDD		3.97	pg/g	0.248	3.54
19408-74-3	1,2,3,7,8,9-HxCDD		5.41	pg/g	0.268	3.54
35822-46-9	1,2,3,4,6,7,8-HpCDD		210	pg/g	0.953	3.54
3268-87-9	1,2,3,4,6,7,8,9-OCDD		10500	pg/g	1.56	7.08
51207-31-9	2,3,7,8-TCDF		1.75	pg/g	0.144	0.708
57117-41-6	1,2,3,7,8-PeCDF	J	0.424	pg/g	0.0772	3.54
57117-31-4	2,3,4,7,8-PeCDF	J	0.914	pg/g	0.0769	3.54
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.772	pg/g	0.0779	3.54
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.830	pg/g	0.0792	3.54
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.53	pg/g	0.0941	3.54
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.235	pg/g	0.0983	3.54
67562-39-4	1,2,3,4,6,7,8-HpCDF		9.99	pg/g	0.221	3.54
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.644	pg/g	0.333	3.54
39001-02-0	1,2,3,4,6,7,8,9-OCDF		16.9	pg/g	0.197	7.08

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		116	142	pg/g	82.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		119	142	pg/g	84.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		114	142	pg/g	80.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		113	142	pg/g	79.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		129	142	pg/g	90.8	(23%-140%)
13C-OCDD		311	283	pg/g	110	(17%-157%)
13C-2,3,7,8-TCDF		109	142	pg/g	77.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		119	142	pg/g	84.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		122	142	pg/g	86.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		125	142	pg/g	88.4	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		118	142	pg/g	83.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		111	142	pg/g	78.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		146	142	pg/g	103	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		120	142	pg/g	84.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		125	142	pg/g	87.9	(26%-138%)
37Cl-2,3,7,8-TCDD		12.4	14.2	pg/g	87.7	(35%-197%)

Comments:

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661032	Date Collected:	06/07/2012 10:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-060			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 18:16	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-21			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	14.12 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.58	pg/g	0.296	0.708

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3661	Client: TETR001	Project: TETR00112
Lab Sample ID: 3661033	Date Collected: 06/07/2012 10:00	Matrix: SOLID
Client Sample: 1613B Soil	Date Received: 06/19/2012 10:15	
Client ID: RT66-061		Prep Basis: As Received
Batch ID: 21399	Method: EPA Method 1613B	
Run Date: 06/30/2012 04:14	Analyst: EES	Instrument: HRP763
Data File: b29jun12a_2-6		Dilution: 1
Prep Batch: 21397	Prep Method: SW846 3540C	
Prep Date: 24-JUN-12	Aliquot: 14.91 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		47.3	pg/g	0.121	0.671
40321-76-4	1,2,3,7,8-PeCDD	J	0.769	pg/g	0.0596	3.35
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.27	pg/g	0.236	3.35
57653-85-7	1,2,3,6,7,8-HxCDD		3.75	pg/g	0.251	3.35
19408-74-3	1,2,3,7,8,9-HxCDD		5.34	pg/g	0.263	3.35
35822-46-9	1,2,3,4,6,7,8-HpCDD		247	pg/g	1.04	3.35
3268-87-9	1,2,3,4,6,7,8,9-OCDD		16700	pg/g	1.49	6.71
51207-31-9	2,3,7,8-TCDF		0.689	pg/g	0.140	0.671
57117-41-6	1,2,3,7,8-PeCDF	J	0.203	pg/g	0.0848	3.35
57117-31-4	2,3,4,7,8-PeCDF	J	0.689	pg/g	0.0876	3.35
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.785	pg/g	0.100	3.35
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.655	pg/g	0.102	3.35
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.10	pg/g	0.123	3.35
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.228	pg/g	0.132	3.35
67562-39-4	1,2,3,4,6,7,8-HpCDF		8.61	pg/g	0.106	3.35
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.693	pg/g	0.150	3.35
39001-02-0	1,2,3,4,6,7,8,9-OCDF		17.7	pg/g	0.130	6.71

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		104	134	pg/g	77.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		112	134	pg/g	83.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		109	134	pg/g	81.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		101	134	pg/g	75.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		112	134	pg/g	83.3	(23%-140%)
13C-OCDD		311	268	pg/g	116	(17%-157%)
13C-2,3,7,8-TCDF		101	134	pg/g	75.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		110	134	pg/g	82.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		116	134	pg/g	86.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		117	134	pg/g	87.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		107	134	pg/g	79.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		103	134	pg/g	76.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		132	134	pg/g	98.3	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		108	134	pg/g	80.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		112	134	pg/g	83.8	(26%-138%)
37Cl-2,3,7,8-TCDD		10.5	13.4	pg/g	78.3	(35%-197%)

Comments:

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661033	Date Collected:	06/07/2012 10:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-061			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 18:36	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-22			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	14.91 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.676	pg/g	0.309	0.671

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3661
Lab Sample ID: 3661034
Client Sample: 1613B Soil
Client ID: RT66-062
Batch ID: 21399
Run Date: 06/30/2012 05:01
Data File: b29jun12a_2-7
Prep Batch: 21397
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/07/2012 10:00
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 15.76 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		34.2	pg/g	0.119	0.635
40321-76-4	1,2,3,7,8-PeCDD	J	0.835	pg/g	0.114	3.17
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.19	pg/g	0.184	3.17
57653-85-7	1,2,3,6,7,8-HxCDD		3.83	pg/g	0.180	3.17
19408-74-3	1,2,3,7,8,9-HxCDD		5.28	pg/g	0.195	3.17
35822-46-9	1,2,3,4,6,7,8-HpCDD		214	pg/g	0.665	3.17
3268-87-9	1,2,3,4,6,7,8,9-OCDD		14700	pg/g	1.36	6.35
51207-31-9	2,3,7,8-TCDF		0.693	pg/g	0.127	0.635
57117-41-6	1,2,3,7,8-PeCDF	J	0.240	pg/g	0.0744	3.17
57117-31-4	2,3,4,7,8-PeCDF	J	0.708	pg/g	0.0783	3.17
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.542	pg/g	0.0774	3.17
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.585	pg/g	0.0621	3.17
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.00	pg/g	0.0777	3.17
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.154	pg/g	0.0614	3.17
67562-39-4	1,2,3,4,6,7,8-HpCDF		9.02	pg/g	0.106	3.17
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.651	pg/g	0.150	3.17
39001-02-0	1,2,3,4,6,7,8,9-OCDF		22.8	pg/g	0.164	6.35

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		105	127	pg/g	82.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		105	127	pg/g	82.6	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		102	127	pg/g	80.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		97.6	127	pg/g	76.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		120	127	pg/g	94.2	(23%-140%)
13C-OCDD		254	254	pg/g	100	(17%-157%)
13C-2,3,7,8-TCDF		97.0	127	pg/g	76.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		108	127	pg/g	85.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		114	127	pg/g	89.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		104	127	pg/g	82.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		102	127	pg/g	80.5	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		96.8	127	pg/g	76.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		126	127	pg/g	99.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		99.9	127	pg/g	78.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		109	127	pg/g	86.2	(26%-138%)
37Cl-2,3,7,8-TCDD		10.3	12.7	pg/g	81.3	(35%-197%)

Comments:

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661034	Date Collected:	06/07/2012 10:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-062			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 18:55	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a-23			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	15.76 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF	J	0.588	pg/g	0.315	0.635

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3661
Lab Sample ID: 3661035
Client Sample: 1613B Soil
Client ID: RT66-063
Batch ID: 21399
Run Date: 06/30/2012 05:48
Data File: b29jun12a_2-8
Prep Batch: 21397
Prep Date: 24-JUN-12

Client: TETR001
Date Collected: 06/07/2012 10:00
Date Received: 06/19/2012 10:15

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.06 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		39.9	pg/g	0.136	0.711
40321-76-4	1,2,3,7,8-PeCDD	J	0.881	pg/g	0.0619	3.56
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.71	pg/g	0.218	3.56
57653-85-7	1,2,3,6,7,8-HxCDD		4.58	pg/g	0.232	3.56
19408-74-3	1,2,3,7,8,9-HxCDD		5.93	pg/g	0.242	3.56
35822-46-9	1,2,3,4,6,7,8-HpCDD		270	pg/g	0.967	3.56
3268-87-9	1,2,3,4,6,7,8,9-OCDD		12700	pg/g	1.61	7.11
51207-31-9	2,3,7,8-TCDF		0.875	pg/g	0.145	0.711
57117-41-6	1,2,3,7,8-PeCDF	J	0.259	pg/g	0.0855	3.56
57117-31-4	2,3,4,7,8-PeCDF	J	0.871	pg/g	0.0822	3.56
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.649	pg/g	0.0812	3.56
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.674	pg/g	0.0863	3.56
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.21	pg/g	0.0954	3.56
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.206	pg/g	0.100	3.56
67562-39-4	1,2,3,4,6,7,8-HpCDF		9.73	pg/g	0.0896	3.56
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.731	pg/g	0.123	3.56
39001-02-0	1,2,3,4,6,7,8,9-OCDF		21.4	pg/g	0.209	7.11

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		116	142	pg/g	81.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		128	142	pg/g	90.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		122	142	pg/g	85.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		109	142	pg/g	77.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		126	142	pg/g	88.6	(23%-140%)
13C-OCDD		296	284	pg/g	104	(17%-157%)
13C-2,3,7,8-TCDF		108	142	pg/g	76.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		122	142	pg/g	86.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		127	142	pg/g	89.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		130	142	pg/g	91.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		114	142	pg/g	80.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		111	142	pg/g	78.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		137	142	pg/g	96.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		114	142	pg/g	80.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		125	142	pg/g	87.5	(26%-138%)
37Cl-2,3,7,8-TCDD		11.6	14.2	pg/g	81.5	(35%-197%)

Comments:

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3661035	Date Collected:	06/07/2012 10:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/19/2012 10:15		
Client ID:	RT66-063			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	07/09/2012 20:15	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-3			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	14.06 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF	J	0.680	pg/g	0.239	0.711

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

J Value is estimated

Quality Control Summary

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12006256	LCS for batch 21394	13C-2,3,7,8-TCDD		80.0	(20%-175%)
		13C-1,2,3,7,8-PeCDD		76.9	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		88.0	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		83.4	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		86.7	(22%-166%)
		13C-OCDD		72.1	(13%-199%)
		13C-2,3,7,8-TCDF		75.7	(22%-152%)
		13C-1,2,3,7,8-PeCDF		74.9	(21%-192%)
		13C-2,3,4,7,8-PeCDF		79.6	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		95.7	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		90.5	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		84.4	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		93.9	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		80.8	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		82.2	(20%-186%)
		37Cl-2,3,7,8-TCDD		73.8	(31%-191%)
12006257	LCSD for batch 21394	13C-2,3,7,8-TCDD		77.0	(20%-175%)
		13C-1,2,3,7,8-PeCDD		71.6	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		73.5	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		80.9	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		75.9	(22%-166%)
		13C-OCDD		62.5	(13%-199%)
		13C-2,3,7,8-TCDF		71.9	(22%-152%)
		13C-1,2,3,7,8-PeCDF		73.0	(21%-192%)
		13C-2,3,4,7,8-PeCDF		73.7	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		84.8	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		80.0	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		75.9	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		82.1	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		70.3	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		70.4	(20%-186%)
		37Cl-2,3,7,8-TCDD		71.9	(31%-191%)
12006255	MB for batch 21394	13C-2,3,7,8-TCDD		71.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		53.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		79.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		79.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		72.6	(23%-140%)
		13C-OCDD		56.3	(17%-157%)
		13C-2,3,7,8-TCDF		69.5	(24%-169%)
		13C-1,2,3,7,8-PeCDF		54.6	(24%-185%)
		13C-2,3,4,7,8-PeCDF		55.9	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		87.6	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		85.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		78.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		84.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		71.4	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		66.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		66.7	(35%-197%)
3661001	RT66-032	13C-2,3,7,8-TCDD		69.9	(25%-164%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3661001	RT66-032	13C-1,2,3,7,8-PeCDD		64.5	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		73.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		76.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		69.8	(23%-140%)
		13C-OCDD		62.1	(17%-157%)
		13C-2,3,7,8-TCDF		66.5	(24%-169%)
		13C-1,2,3,7,8-PeCDF		67.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		70.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		86.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		85.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		76.7	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		88.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		73.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		68.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		64.5	(35%-197%)
3661002	RT66-033	13C-2,3,7,8-TCDD		81.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		71.7	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		78.7	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		86.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		77.7	(23%-140%)
		13C-OCDD		75.5	(17%-157%)
		13C-2,3,7,8-TCDF		75.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		78.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		80.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		89.5	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		85.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		83.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		86.5	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		76.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		75.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		76.1	(35%-197%)
3661003	RT66-033D	13C-2,3,7,8-TCDD		80.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		74.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		86.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		84.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		84.0	(23%-140%)
		13C-OCDD		83.0	(17%-157%)
		13C-2,3,7,8-TCDF		74.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		78.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		79.6	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		99.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		91.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		88.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		90.4	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		83.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		81.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		72.2	(35%-197%)
3661004	RT66-034	13C-2,3,7,8-TCDD		74.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		70.3	(25%-181%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3661004	RT66-034	13C-1,2,3,4,7,8-HxCDD		79.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		80.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		77.1	(23%-140%)
		13C-OCDD		75.8	(17%-157%)
		13C-2,3,7,8-TCDF		72.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		74.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		76.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		90.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		87.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		82.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		90.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		78.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		77.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		70.0	(35%-197%)
3661005	RT66-035	13C-2,3,7,8-TCDD		79.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		73.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		77.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		85.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		78.4	(23%-140%)
		13C-OCDD		72.8	(17%-157%)
		13C-2,3,7,8-TCDF		74.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		74.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		77.9	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		89.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		91.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		83.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		91.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		78.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		77.5	(26%-138%)
3661006	RT66-036	37Cl-2,3,7,8-TCDD		72.7	(35%-197%)
		13C-2,3,7,8-TCDD		77.5	(25%-164%)
		13C-1,2,3,7,8-PeCDD		78.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		78.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		84.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		77.9	(23%-140%)
		13C-OCDD		74.8	(17%-157%)
		13C-2,3,7,8-TCDF		73.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		79.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		84.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		89.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		89.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		83.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		91.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		81.6	(28%-143%)
3661007	RT66-037	13C-1,2,3,4,7,8,9-HpCDF		80.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		74.5	(35%-197%)
		13C-2,3,7,8-TCDD		74.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		76.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		75.9	(32%-141%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3661007	RT66-037	13C-1,2,3,6,7,8-HxCDD		78.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		73.8	(23%-140%)
		13C-OCDD		65.9	(17%-157%)
		13C-2,3,7,8-TCDF		71.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		76.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		80.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		85.4	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		82.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		77.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		84.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		74.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		71.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		69.6	(35%-197%)
3661008	RT66-038	13C-2,3,7,8-TCDD		76.6	(25%-164%)
		13C-1,2,3,7,8-PeCDD		74.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		80.7	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		78.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		76.9	(23%-140%)
		13C-OCDD		71.6	(17%-157%)
		13C-2,3,7,8-TCDF		73.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		75.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		79.6	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		90.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		88.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		82.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		89.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		75.4	(28%-143%)
3661009	RT66-039	13C-1,2,3,4,7,8,9-HpCDF		73.7	(26%-138%)
		37Cl-2,3,7,8-TCDD		71.4	(35%-197%)
		13C-2,3,7,8-TCDD		77.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		72.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		78.4	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		81.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		77.6	(23%-140%)
		13C-OCDD		69.8	(17%-157%)
		13C-2,3,7,8-TCDF		76.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		74.6	(24%-185%)
		13C-2,3,4,7,8-PeCDF		79.6	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		88.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		89.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		82.7	(28%-136%)
3661010	RT66-040	13C-1,2,3,7,8,9-HxCDF		88.8	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		77.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		74.9	(26%-138%)
		37Cl-2,3,7,8-TCDD		73.3	(35%-197%)
		13C-2,3,7,8-TCDD		72.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		67.7	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		74.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		80.9	(28%-130%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3661010	RT66-040	13C-1,2,3,4,6,7,8-HpCDD		72.0	(23%-140%)
		13C-OCDD		68.9	(17%-157%)
		13C-2,3,7,8-TCDF		67.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		70.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		74.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		86.5	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		86.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		80.0	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		87.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		75.4	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		72.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		70.6	(35%-197%)
12006261	LCS for batch 21397	13C-2,3,7,8-TCDD		74.6	(20%-175%)
		13C-1,2,3,7,8-PeCDD		67.0	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		71.8	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		84.8	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		72.9	(22%-166%)
		13C-OCDD		55.9	(13%-199%)
		13C-2,3,7,8-TCDF		73.5	(22%-152%)
		13C-1,2,3,7,8-PeCDF		71.3	(21%-192%)
		13C-2,3,4,7,8-PeCDF		70.3	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		85.7	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		88.2	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		79.1	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		79.6	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		73.7	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		66.9	(20%-186%)
12006262	LCSD for batch 21397	37Cl-2,3,7,8-TCDD		74.3	(31%-191%)
		13C-2,3,7,8-TCDD		74.4	(20%-175%)
		13C-1,2,3,7,8-PeCDD		65.6	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		76.9	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		82.4	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		70.6	(22%-166%)
		13C-OCDD		55.5	(13%-199%)
		13C-2,3,7,8-TCDF		71.7	(22%-152%)
		13C-1,2,3,7,8-PeCDF		68.9	(21%-192%)
		13C-2,3,4,7,8-PeCDF		69.7	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		85.7	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		89.8	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		81.7	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		79.5	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		69.4	(21%-158%)
12006260	MB for batch 21397	13C-1,2,3,4,7,8,9-HpCDF		67.1	(20%-186%)
		37Cl-2,3,7,8-TCDD		69.9	(31%-191%)
		13C-2,3,7,8-TCDD		59.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		51.7	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		57.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		67.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		57.9	(23%-140%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12006260	MB for batch 21397	13C-OCDD		44.7	(17%-157%)
		13C-2,3,7,8-TCDF		57.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		54.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		54.9	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		66.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		72.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		63.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		65.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		57.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		53.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		59.8	(35%-197%)
3661011	RT66-041	13C-2,3,7,8-TCDD		75.0	(25%-164%)
		13C-1,2,3,7,8-PeCDD		66.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		70.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		69.3	(23%-140%)
		13C-OCDD		63.7	(17%-157%)
		13C-2,3,7,8-TCDF		71.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		70.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		72.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		82.3	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		87.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		77.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		87.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		71.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		68.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		74.3	(35%-197%)
3661015	RT66-043D	13C-2,3,7,8-TCDD		73.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		63.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		71.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		82.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		69.4	(23%-140%)
		13C-OCDD		60.8	(17%-157%)
		13C-2,3,7,8-TCDF		71.5	(24%-169%)
		13C-1,2,3,7,8-PeCDF		69.6	(24%-185%)
		13C-2,3,4,7,8-PeCDF		70.9	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		83.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		90.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		79.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		82.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		70.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		66.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		70.9	(35%-197%)
3661016	RT66-044	13C-2,3,7,8-TCDD		66.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		57.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		67.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		73.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		63.8	(23%-140%)
		13C-OCDD		66.0	(17%-157%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3661016	RT66-044	13C-2,3,7,8-TCDF		64.8	(24%-169%)
		13C-1,2,3,7,8-PeCDF		64.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		65.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		77.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		81.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		72.7	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		80.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		69.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		61.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		64.5	(35%-197%)
3661017	RT66-045	13C-2,3,7,8-TCDD		76.5	(25%-164%)
		13C-1,2,3,7,8-PeCDD		64.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		79.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		87.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		78.4	(23%-140%)
		13C-OCDD		81.8	(17%-157%)
		13C-2,3,7,8-TCDF		75.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		73.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		74.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		93.3	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		99.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		85.7	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		93.8	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		81.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		74.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		74.8	(35%-197%)
3661018	RT66-046	13C-2,3,7,8-TCDD		79.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		68.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		75.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		89.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		79.1	(23%-140%)
		13C-OCDD		78.3	(17%-157%)
		13C-2,3,7,8-TCDF		78.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		76.7	(24%-185%)
		13C-2,3,4,7,8-PeCDF		77.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		89.4	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		98.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		85.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		93.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		78.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		76.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		77.6	(35%-197%)
3661019	RT66-047	13C-2,3,7,8-TCDD		79.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		72.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		74.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		84.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		72.5	(23%-140%)
		13C-OCDD		74.8	(17%-157%)
		13C-2,3,7,8-TCDF		78.0	(24%-169%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3661019	RT66-047	13C-1,2,3,7,8-PeCDF		84.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		81.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		83.4	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		90.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		82.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		91.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		74.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		71.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		83.4	(35%-197%)
3661020	RT66-048	13C-2,3,7,8-TCDD		83.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		84.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		84.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		88.5	(23%-140%)
		13C-OCDD		104	(17%-157%)
		13C-2,3,7,8-TCDF		76.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		85.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		87.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		89.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		84.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		78.0	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		103	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		83.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		93.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		84.1	(35%-197%)
3661021	RT66-049	13C-2,3,7,8-TCDD		76.1	(25%-164%)
		13C-1,2,3,7,8-PeCDD		77.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		79.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		74.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		81.1	(23%-140%)
		13C-OCDD		103	(17%-157%)
		13C-2,3,7,8-TCDF		72.8	(24%-169%)
		13C-1,2,3,7,8-PeCDF		80.7	(24%-185%)
		13C-2,3,4,7,8-PeCDF		80.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		87.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		79.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		75.4	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		94.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		77.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		80.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		73.8	(35%-197%)
3661022	RT66-050	13C-2,3,7,8-TCDD		80.0	(25%-164%)
		13C-1,2,3,7,8-PeCDD		81.7	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		82.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		74.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		85.5	(23%-140%)
		13C-OCDD		98.1	(17%-157%)
		13C-2,3,7,8-TCDF		73.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		79.5	(24%-185%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3661022	RT66-050	13C-2,3,4,7,8-PeCDF		81.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		90.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		83.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		77.4	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		92.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		78.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		83.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		80.3	(35%-197%)
3661023	RT66-051	13C-2,3,7,8-TCDD		76.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		80.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		78.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		81.2	(23%-140%)
		13C-OCDD		99.2	(17%-157%)
		13C-2,3,7,8-TCDF		71.5	(24%-169%)
		13C-1,2,3,7,8-PeCDF		77.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		82.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		87.6	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		80.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		75.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		94.4	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		79.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		80.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		78.3	(35%-197%)
3661024	RT66-052	13C-2,3,7,8-TCDD		82.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		86.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		85.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		78.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		90.3	(23%-140%)
		13C-OCDD		106	(17%-157%)
		13C-2,3,7,8-TCDF		77.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		84.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		86.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		94.3	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		89.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		80.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		98.8	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		84.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		85.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		81.6	(35%-197%)
3661025	RT66-053	13C-2,3,7,8-TCDD		78.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		80.5	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		82.7	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		86.6	(23%-140%)
		13C-OCDD		107	(17%-157%)
		13C-2,3,7,8-TCDF		74.3	(24%-169%)
		13C-1,2,3,7,8-PeCDF		79.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		84.3	(21%-178%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3661025	RT66-053	13C-1,2,3,4,7,8-HxCDF		91.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		85.5	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		78.7	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		96.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		79.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		81.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		81.8	(35%-197%)
3661026	RT66-054	13C-2,3,7,8-TCDD		81.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		84.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		84.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		78.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		90.4	(23%-140%)
		13C-OCDD		109	(17%-157%)
		13C-2,3,7,8-TCDF		77.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		83.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		86.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		93.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		91.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		81.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		96.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		81.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		84.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		81.9	(35%-197%)
3661027	RT66-055	13C-2,3,7,8-TCDD		83.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		92.5	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		88.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		79.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		91.8	(23%-140%)
		13C-OCDD		110	(17%-157%)
		13C-2,3,7,8-TCDF		80.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		86.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		93.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		95.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		90.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		82.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		97.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		84.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		87.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		83.9	(35%-197%)
3661028	RT66-056	13C-2,3,7,8-TCDD		77.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		84.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		79.4	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		86.2	(23%-140%)
		13C-OCDD		106	(17%-157%)
		13C-2,3,7,8-TCDF		75.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		81.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		86.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		88.3	(26%-152%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3661028	RT66-056	13C-1,2,3,6,7,8-HxCDF		83.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		76.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		95.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		79.6	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		82.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		78.8	(35%-197%)
3661029	RT66-057	13C-2,3,7,8-TCDD		77.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		81.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		82.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		74.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		85.8	(23%-140%)
		13C-OCDD		107	(17%-157%)
		13C-2,3,7,8-TCDF		72.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		78.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		83.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		88.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		82.5	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		76.4	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		94.4	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		78.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		83.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		78.9	(35%-197%)
3661030	RT66-058	13C-2,3,7,8-TCDD		79.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		85.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		84.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		88.9	(23%-140%)
		13C-OCDD		109	(17%-157%)
		13C-2,3,7,8-TCDF		75.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		82.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		88.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		88.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		86.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		77.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		97.5	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		81.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		84.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		79.7	(35%-197%)
3661031	RT66-059	13C-2,3,7,8-TCDD		77.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		82.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		82.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		73.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		86.4	(23%-140%)
		13C-OCDD		105	(17%-157%)
		13C-2,3,7,8-TCDF		72.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		78.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		81.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		87.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		81.6	(26%-123%)

Hi-Res Dioxins/Furans **Surrogate Recovery Report**

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3661031	RT66-059	13C-2,3,4,6,7,8-HxCDF		75.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		95.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		78.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		84.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		77.4	(35%-197%)
3661014	RT66-043	13C-2,3,7,8-TCDD		79.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		80.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		82.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		88.0	(23%-140%)
		13C-OCDD		87.9	(17%-157%)
		13C-2,3,7,8-TCDF		76.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		81.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		83.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		91.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		84.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		80.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		95.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		82.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		93.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		75.6	(35%-197%)
3661012	RT66-042	13C-2,3,7,8-TCDD		81.7	D (25%-164%)
		13C-1,2,3,7,8-PeCDD		81.4	D (25%-181%)
		13C-1,2,3,4,7,8-HxCDD		83.2	D (32%-141%)
		13C-1,2,3,6,7,8-HxCDD		79.3	D (28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		87.8	D (23%-140%)
		13C-OCDD		84.5	D (17%-157%)
		13C-2,3,7,8-TCDF		79.3	D (24%-169%)
		13C-1,2,3,7,8-PeCDF		86.4	D (24%-185%)
		13C-2,3,4,7,8-PeCDF		86.4	D (21%-178%)
		13C-1,2,3,4,7,8-HxCDF		91.8	D (26%-152%)
		13C-1,2,3,6,7,8-HxCDF		88.8	D (26%-123%)
		13C-2,3,4,6,7,8-HxCDF		82.5	D (28%-136%)
		13C-1,2,3,7,8,9-HxCDF		95.0	D (29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		80.3	D (28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		88.7	D (26%-138%)
		37Cl-2,3,7,8-TCDD		92.2	D (35%-197%)
3661013	RT66-042D	13C-2,3,7,8-TCDD		81.4	D (25%-164%)
		13C-1,2,3,7,8-PeCDD		84.4	D (25%-181%)
		13C-1,2,3,4,7,8-HxCDD		80.7	D (32%-141%)
		13C-1,2,3,6,7,8-HxCDD		78.7	D (28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		82.9	D (23%-140%)
		13C-OCDD		80.3	D (17%-157%)
		13C-2,3,7,8-TCDF		78.0	D (24%-169%)
		13C-1,2,3,7,8-PeCDF		82.5	D (24%-185%)
		13C-2,3,4,7,8-PeCDF		88.6	D (21%-178%)
		13C-1,2,3,4,7,8-HxCDF		91.2	D (26%-152%)
		13C-1,2,3,6,7,8-HxCDF		85.0	D (26%-123%)
		13C-2,3,4,6,7,8-HxCDF		80.7	D (28%-136%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3661013	RT66-042D	13C-1,2,3,7,8,9-HxCDF		89.7 D	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		78.0 D	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		84.3 D	(26%-138%)
		37Cl-2,3,7,8-TCDD		90.0 D	(35%-197%)
3661032	RT66-060	13C-2,3,7,8-TCDD		82.0	(25%-164%)
		13C-1,2,3,7,8-PeCDD		84.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		80.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		79.7	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		90.8	(23%-140%)
		13C-OCDD		110	(17%-157%)
		13C-2,3,7,8-TCDF		77.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		84.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		86.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		88.4	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		83.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		78.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		103	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		84.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		87.9	(26%-138%)
		37Cl-2,3,7,8-TCDD		87.7	(35%-197%)
3661033	RT66-061	13C-2,3,7,8-TCDD		77.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		83.5	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		81.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		83.3	(23%-140%)
		13C-OCDD		116	(17%-157%)
		13C-2,3,7,8-TCDF		75.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		82.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		86.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		87.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		79.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		76.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		98.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		80.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		83.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		78.3	(35%-197%)
3661034	RT66-062	13C-2,3,7,8-TCDD		82.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		82.6	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		80.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		76.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		94.2	(23%-140%)
		13C-OCDD		100	(17%-157%)
		13C-2,3,7,8-TCDF		76.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		85.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		89.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		82.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		80.5	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		76.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		99.0	(29%-147%)

**Hi-Res Dioxins/Furans
Surrogate Recovery Report**

SDG Number: 3661

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3661034	RT66-062	13C-1,2,3,4,6,7,8-HpCDF		78.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		86.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		81.3	(35%-197%)
3661035	RT66-063	13C-2,3,7,8-TCDD		81.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		90.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		85.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		88.6	(23%-140%)
		13C-OCDD		104	(17%-157%)
		13C-2,3,7,8-TCDF		76.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		86.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		89.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		91.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		80.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		78.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		96.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		80.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		87.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		81.5	(35%-197%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Hi-Res Dioxins/Furans
Quality Control Summary
Spike Recovery Report

Page 1 of 2

SDG Number: 3661
Client ID: LCS for batch 21394
Lab Sample ID: 12006256
Instrument: HRP763
Analyst: MJC

Sample Type: Laboratory Control Sample
Matrix: SOLID
Analysis Date: 06/27/2012 17:47
Prep Batch ID: 21394
Batch ID: 21396

Dilution: 1

CAS No.	Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	LCS 2,3,7,8-TCDD	20.0	17.6	87.8	67-158
40321-76-4	LCS 1,2,3,7,8-PeCDD	100	99.1	99.1	70-142
39227-28-6	LCS 1,2,3,4,7,8-HxCDD	100	107	107	70-164
57653-85-7	LCS 1,2,3,6,7,8-HxCDD	100	107	107	76-134
19408-74-3	LCS 1,2,3,7,8,9-HxCDD	100	112	112	64-162
35822-46-9	LCS 1,2,3,4,6,7,8-HpCDD	100	101	101	70-140
3268-87-9	LCS 1,2,3,4,6,7,8,9-OCDD	200	215	108	78-144
51207-31-9	LCS 2,3,7,8-TCDF	20.0	20.3	101	75-158
57117-41-6	LCS 1,2,3,7,8-PeCDF	100	95.9	95.9	80-134
57117-31-4	LCS 2,3,4,7,8-PeCDF	100	91.6	91.6	68-160
70648-26-9	LCS 1,2,3,4,7,8-HxCDF	100	93.2	93.2	72-134
57117-44-9	LCS 1,2,3,6,7,8-HxCDF	100	98.9	98.9	84-130
60851-34-5	LCS 2,3,4,6,7,8-HxCDF	100	102	102	70-156
72918-21-9	LCS 1,2,3,7,8,9-HxCDF	100	94.0	94	78-130
67562-39-4	LCS 1,2,3,4,6,7,8-HpCDF	100	99.7	99.7	82-122
55673-89-7	LCS 1,2,3,4,7,8,9-HpCDF	100	96.1	96.1	78-138
39001-02-0	LCS 1,2,3,4,6,7,8,9-OCDF	200	193	96.4	63-170

US EPA ARCHIVE DOCUMENT

Hi-Res Dioxins/Furans
Quality Control Summary
Spike Recovery Report

Page 2 of 2

SDG Number: 3661
Client ID: LCSD for batch 21394
Lab Sample ID: 12006257
Instrument: HRP763
Analyst: MJC

Sample Type: Laboratory Control Sample Duplicate
Matrix: SOLID
Analysis Date: 06/27/2012 18:34
Dilution: 1
Prep Batch ID: 21394
Batch ID: 21396

CAS No.	Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD 2,3,7,8-TCDD	20.0	17.3	86.5	67-158	1.47	0-20
40321-76-4	LCSD 1,2,3,7,8-PeCDD	100	99.9	99.9	70-142	0.776	0-20
39227-28-6	LCSD 1,2,3,4,7,8-HxCDD	100	109	109	70-164	1.89	0-20
57653-85-7	LCSD 1,2,3,6,7,8-HxCDD	100	101	101	76-134	5.77	0-20
19408-74-3	LCSD 1,2,3,7,8,9-HxCDD	100	111	111	64-162	1.26	0-20
35822-46-9	LCSD 1,2,3,4,6,7,8-HpCDD	100	97.1	97.1	70-140	4.22	0-20
3268-87-9	LCSD 1,2,3,4,6,7,8,9-OCDD	200	206	103	78-144	4.35	0-20
51207-31-9	LCSD 2,3,7,8-TCDF	20.0	20.2	101	75-158	0.257	0-20
57117-41-6	LCSD 1,2,3,7,8-PeCDF	100	92.5	92.5	80-134	3.59	0-20
57117-31-4	LCSD 2,3,4,7,8-PeCDF	100	91.2	91.2	68-160	0.361	0-20
70648-26-9	LCSD 1,2,3,4,7,8-HxCDF	100	91.5	91.5	72-134	1.87	0-20
57117-44-9	LCSD 1,2,3,6,7,8-HxCDF	100	97.7	97.7	84-130	1.24	0-20
60851-34-5	LCSD 2,3,4,6,7,8-HxCDF	100	97.8	97.8	70-156	4.13	0-20
72918-21-9	LCSD 1,2,3,7,8,9-HxCDF	100	91.5	91.5	78-130	2.70	0-20
67562-39-4	LCSD 1,2,3,4,6,7,8-HpCDF	100	98.4	98.4	82-122	1.33	0-20
55673-89-7	LCSD 1,2,3,4,7,8,9-HpCDF	100	95.5	95.5	78-138	0.643	0-20
39001-02-0	LCSD 1,2,3,4,6,7,8,9-OCDF	200	192	96.1	63-170	0.328	0-20

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Hi-Res Dioxins/Furans
Quality Control Summary
Spike Recovery Report

Page 1 of 2

SDG Number: 3661
Client ID: LCS for batch 21397
Lab Sample ID: 12006261
Instrument: HRP763
Analyst: EES

Sample Type: Laboratory Control Sample
Matrix: SOLID
Analysis Date: 06/28/2012 04:53
Prep Batch ID: 21397
Batch ID: 21399
Dilution: 1

CAS No.	Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	LCS 2,3,7,8-TCDD	20.0	17.7	88.7	67-158
40321-76-4	LCS 1,2,3,7,8-PeCDD	100	101	101	70-142
39227-28-6	LCS 1,2,3,4,7,8-HxCDD	100	110	110	70-164
57653-85-7	LCS 1,2,3,6,7,8-HxCDD	100	109	109	76-134
19408-74-3	LCS 1,2,3,7,8,9-HxCDD	100	110	110	64-162
35822-46-9	LCS 1,2,3,4,6,7,8-HpCDD	100	101	101	70-140
3268-87-9	LCS 1,2,3,4,6,7,8,9-OCDD	200	207	103	78-144
51207-31-9	LCS 2,3,7,8-TCDF	20.0	20.0	99.8	75-158
57117-41-6	LCS 1,2,3,7,8-PeCDF	100	92.2	92.2	80-134
57117-31-4	LCS 2,3,4,7,8-PeCDF	100	91.1	91.1	68-160
70648-26-9	LCS 1,2,3,4,7,8-HxCDF	100	92.4	92.4	72-134
57117-44-9	LCS 1,2,3,6,7,8-HxCDF	100	95.4	95.4	84-130
60851-34-5	LCS 2,3,4,6,7,8-HxCDF	100	98.8	98.8	70-156
72918-21-9	LCS 1,2,3,7,8,9-HxCDF	100	92.2	92.2	78-130
67562-39-4	LCS 1,2,3,4,6,7,8-HpCDF	100	102	102	82-122
55673-89-7	LCS 1,2,3,4,7,8,9-HpCDF	100	93.4	93.4	78-138
39001-02-0	LCS 1,2,3,4,6,7,8,9-OCDF	200	193	96.5	63-170

Hi-Res Dioxins/Furans
Quality Control Summary
Spike Recovery Report

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SDG Number: 3661
Client ID: LCSD for batch 21397
Lab Sample ID: 12006262
Instrument: HRP763
Analyst: EES

Sample Type: Laboratory Control Sample Duplicate
Matrix: SOLID
Analysis Date: 06/28/2012 05:39
Dilution: 1
Prep Batch ID: 21397
Batch ID: 21399

CAS No.	Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD 2,3,7,8-TCDD	20.0	17.9	89.7	67-158	1.04	0-20
40321-76-4	LCSD 1,2,3,7,8-PeCDD	100	103	103	70-142	1.59	0-20
39227-28-6	LCSD 1,2,3,4,7,8-HxCDD	100	110	110	70-164	0.359	0-20
57653-85-7	LCSD 1,2,3,6,7,8-HxCDD	100	108	108	76-134	0.168	0-20
19408-74-3	LCSD 1,2,3,7,8,9-HxCDD	100	111	111	64-162	1.07	0-20
35822-46-9	LCSD 1,2,3,4,6,7,8-HpCDD	100	108	108	70-140	6.49	0-20
3268-87-9	LCSD 1,2,3,4,6,7,8,9-OCDD	200	211	106	78-144	2.16	0-20
51207-31-9	LCSD 2,3,7,8-TCDF	20.0	21.6	108	75-158	8.03	0-20
57117-41-6	LCSD 1,2,3,7,8-PeCDF	100	95.2	95.2	80-134	3.13	0-20
57117-31-4	LCSD 2,3,4,7,8-PeCDF	100	92.4	92.4	68-160	1.45	0-20
70648-26-9	LCSD 1,2,3,4,7,8-HxCDF	100	92.6	92.6	72-134	0.223	0-20
57117-44-9	LCSD 1,2,3,6,7,8-HxCDF	100	95.4	95.4	84-130	0.088	0-20
60851-34-5	LCSD 2,3,4,6,7,8-HxCDF	100	99.8	99.8	70-156	0.961	0-20
72918-21-9	LCSD 1,2,3,7,8,9-HxCDF	100	93.7	93.7	78-130	1.57	0-20
67562-39-4	LCSD 1,2,3,4,6,7,8-HpCDF	100	108	108	82-122	5.48	0-20
55673-89-7	LCSD 1,2,3,4,7,8,9-HpCDF	100	94.8	94.8	78-138	1.49	0-20
39001-02-0	LCSD 1,2,3,4,6,7,8,9-OCDF	200	194	97.2	63-170	0.688	0-20

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Method Blank Summary

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SDG Number: 3661
Client ID: MB for batch 21394
Lab Sample ID: 12006255
Column:

Client: TETR001
Instrument ID: HRP763
Prep Date: 24-JUN-12

Matrix: SOLID
Data File: b27jun12c-4
Analyzed: 06/27/12 19:21

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 21394	12006256	b27jun12c-2	06/27/12	1747
02 LCSD for batch 21394	12006257	b27jun12c-3	06/27/12	1834
03 RT66-032	3661001	b27jun12c-5	06/27/12	2008
04 RT66-033	3661002	b27jun12c-6	06/27/12	2055
05 RT66-033D	3661003	b27jun12c-7	06/27/12	2142
06 RT66-034	3661004	b27jun12c-8	06/27/12	2229
07 RT66-035	3661005	b27jun12c-9	06/27/12	2316
08 RT66-036	3661006	b27jun12c-10	06/28/12	0003
09 RT66-037	3661007	b27jun12c-11	06/28/12	0050
10 RT66-038	3661008	b27jun12c-12	06/28/12	0137
11 RT66-039	3661009	b27jun12c-13	06/28/12	0224
12 RT66-040	3661010	b27jun12c-14	06/28/12	0311
13 RT66-041	3661011	b27jun12c_2-4	06/28/12	0713
14 RT66-043D	3661015	b27jun12c_2-8	06/28/12	1021
15 RT66-044	3661016	b27jun12c_2-9	06/28/12	1107
16 RT66-045	3661017	b27jun12c_2-10	06/28/12	1155
17 RT66-046	3661018	b27jun12c_2-11	06/28/12	1241
18 RT66-047	3661019	b27jun12c_2-12	06/28/12	1328
19 RT66-033	3661002	b28jun12b-6	06/28/12	1831
20 RT66-033D	3661003	b28jun12b-7	06/28/12	1851
21 RT66-035	3661005	b28jun12b-8	06/28/12	1910
22 RT66-036	3661006	b28jun12b-9	06/28/12	1930
23 RT66-048	3661020	b29jun12a-3	06/29/12	1402
24 RT66-043	3661014	b29jun12a_2-2	06/30/12	0106
25 RT66-042	3661012	b29jun12a_2-3	06/30/12	0153
26 RT66-042D	3661013	b29jun12a_2-4	06/30/12	0240
27 RT66-041	3661011	b09jul12a-5	07/09/12	1303
28 RT66-045	3661017	b09jul12a-6	07/09/12	1323
29 RT66-046	3661018	b09jul12a-7	07/09/12	1342
30 RT66-047	3661019	b09jul12a-8	07/09/12	1402
31 RT66-048	3661020	b09jul12a-9	07/09/12	1421

Method Blank Summary

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SDG Number: 3661
Client ID: MB for batch 21397
Lab Sample ID: 12006260
Column:

Client: TETR001
Instrument ID: HRP763
Prep Date: 24-JUN-12

Matrix: SOLID
Data File: b27jun12c_2-3
Analyzed: 06/28/12 06:26

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 21397	12006261	b27jun12c_2-1	06/28/12	0453
02 LCSD for batch 21397	12006262	b27jun12c_2-2	06/28/12	0539
03 RT66-049	3661021	b29jun12a-4	06/29/12	1449
04 RT66-050	3661022	b29jun12a-5	06/29/12	1536
05 RT66-051	3661023	b29jun12a-6	06/29/12	1623
06 RT66-052	3661024	b29jun12a-7	06/29/12	1709
07 RT66-053	3661025	b29jun12a-8	06/29/12	1756
08 RT66-054	3661026	b29jun12a-9	06/29/12	1843
09 RT66-055	3661027	b29jun12a-10	06/29/12	1930
10 RT66-056	3661028	b29jun12a-11	06/29/12	2017
11 RT66-057	3661029	b29jun12a-12	06/29/12	2104
12 RT66-058	3661030	b29jun12a-13	06/29/12	2151
13 RT66-059	3661031	b29jun12a-14	06/29/12	2238
14 RT66-060	3661032	b29jun12a_2-5	06/30/12	0327
15 RT66-061	3661033	b29jun12a_2-6	06/30/12	0414
16 RT66-062	3661034	b29jun12a_2-7	06/30/12	0501
17 RT66-063	3661035	b29jun12a_2-8	06/30/12	0548
18 RT66-059	3661031	21399	07/02/12	1520
19 RT66-049	3661021	b09jul12a-10	07/09/12	1441
20 RT66-050	3661022	b09jul12a-11	07/09/12	1500
21 RT66-051	3661023	b09jul12a-12	07/09/12	1520
22 RT66-052	3661024	b09jul12a-13	07/09/12	1540
23 RT66-053	3661025	b09jul12a-14	07/09/12	1559
24 RT66-054	3661026	b09jul12a-15	07/09/12	1619
25 RT66-055	3661027	b09jul12a-16	07/09/12	1638
26 RT66-056	3661028	b09jul12a-17	07/09/12	1658
27 RT66-057	3661029	b09jul12a-18	07/09/12	1717
28 RT66-058	3661030	b09jul12a-19	07/09/12	1737
29 RT66-060	3661032	b09jul12a-21	07/09/12	1816
30 RT66-061	3661033	b09jul12a-22	07/09/12	1836
31 RT66-062	3661034	b09jul12a-23	07/09/12	1855
32 RT66-063	3661035	b09jul12a_2-3	07/09/12	2015

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	12006255			Matrix:	SOLID
Client Sample:	QC for batch 21394				
Client ID:	MB for batch 21394			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/27/2012 19:21	Analyst:	MJC	Instrument:	HRP763
Data File:	b27jun12c-4			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	10 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	.199	pg/g	0.199	1.00
40321-76-4	1,2,3,7,8-PeCDD	J	0.134	pg/g	0.117	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	.308	pg/g	0.308	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	.326	pg/g	0.326	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	.342	pg/g	0.342	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	.47	pg/g	0.470	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	J	1.31	pg/g	0.842	10.0
51207-31-9	2,3,7,8-TCDF	J	0.400	pg/g	0.248	1.00
57117-41-6	1,2,3,7,8-PeCDF	U	.128	pg/g	0.128	5.00
57117-31-4	2,3,4,7,8-PeCDF	U	.132	pg/g	0.132	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	U	.167	pg/g	0.167	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	U	.17	pg/g	0.170	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	.198	pg/g	0.198	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	.268	pg/g	0.268	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	.204	pg/g	0.204	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.348	pg/g	0.348	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	.724	pg/g	0.724	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		143	200	pg/g	71.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		108	200	pg/g	53.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		158	200	pg/g	79.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		158	200	pg/g	79.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		145	200	pg/g	72.6	(23%-140%)
13C-OCDD		225	400	pg/g	56.3	(17%-157%)
13C-2,3,7,8-TCDF		139	200	pg/g	69.5	(24%-169%)
13C-1,2,3,7,8-PeCDF		109	200	pg/g	54.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		112	200	pg/g	55.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		175	200	pg/g	87.6	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		171	200	pg/g	85.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		156	200	pg/g	78.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		169	200	pg/g	84.7	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		143	200	pg/g	71.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		132	200	pg/g	66.1	(26%-138%)
37Cl-2,3,7,8-TCDD		13.3	20.0	pg/g	66.7	(35%-197%)

Comments:

- J** Value is estimated
K Estimated Maximum Possible Concentration
U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number: 3661	Client: TETR001	Project: TETR00112
Lab Sample ID: 12006256		Matrix: SOLID
Client Sample: QC for batch 21394		
Client ID: LCS for batch 21394		Prep Basis: As Received
Batch ID: 21396	Method: EPA Method 1613B	
Run Date: 06/27/2012 17:47	Analyst: MJC	Instrument: HRP763
Data File: b27jun12c-2		Dilution: 1
Prep Batch: 21394	Prep Method: SW846 3540C	
Prep Date: 24-JUN-12	Aliquot: 10 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		17.6	pg/g	0.210	1.00
40321-76-4	1,2,3,7,8-PeCDD		99.1	pg/g	0.191	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		107	pg/g	0.330	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		107	pg/g	0.334	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		112	pg/g	0.358	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		101	pg/g	0.634	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		215	pg/g	1.06	10.0
51207-31-9	2,3,7,8-TCDF		20.3	pg/g	0.234	1.00
57117-41-6	1,2,3,7,8-PeCDF		95.9	pg/g	0.192	5.00
57117-31-4	2,3,4,7,8-PeCDF		91.6	pg/g	0.179	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		93.2	pg/g	0.398	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		98.9	pg/g	0.414	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		102	pg/g	0.470	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		94.0	pg/g	0.606	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		99.7	pg/g	0.340	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		96.1	pg/g	0.552	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		193	pg/g	1.09	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		160	200	pg/g	80.0	(20%-175%)
13C-1,2,3,7,8-PeCDD		154	200	pg/g	76.9	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		176	200	pg/g	88.0	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		167	200	pg/g	83.4	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		173	200	pg/g	86.7	(22%-166%)
13C-OCDD		289	400	pg/g	72.1	(13%-199%)
13C-2,3,7,8-TCDF		151	200	pg/g	75.7	(22%-152%)
13C-1,2,3,7,8-PeCDF		150	200	pg/g	74.9	(21%-192%)
13C-2,3,4,7,8-PeCDF		159	200	pg/g	79.6	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		191	200	pg/g	95.7	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		181	200	pg/g	90.5	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		169	200	pg/g	84.4	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		188	200	pg/g	93.9	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		162	200	pg/g	80.8	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		164	200	pg/g	82.2	(20%-186%)
37Cl-2,3,7,8-TCDD		14.8	20.0	pg/g	73.8	(31%-191%)

Comments:

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	12006257			Matrix:	SOLID
Client Sample:	QC for batch 21394				
Client ID:	LCSD for batch 21394			Prep Basis:	As Received
Batch ID:	21396	Method:	EPA Method 1613B		
Run Date:	06/27/2012 18:34	Analyst:	MJC	Instrument:	HRP763
Data File:	b27jun12c-3			Dilution:	1
Prep Batch:	21394	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	10 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		17.3	pg/g	0.244	1.00
40321-76-4	1,2,3,7,8-PeCDD		99.9	pg/g	0.248	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		109	pg/g	0.590	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		101	pg/g	0.600	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		111	pg/g	0.638	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		97.1	pg/g	0.712	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		206	pg/g	1.56	10.0
51207-31-9	2,3,7,8-TCDF		20.2	pg/g	0.248	1.00
57117-41-6	1,2,3,7,8-PeCDF		92.5	pg/g	0.260	5.00
57117-31-4	2,3,4,7,8-PeCDF		91.2	pg/g	0.256	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		91.5	pg/g	0.664	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		97.7	pg/g	0.678	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		97.8	pg/g	0.760	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		91.5	pg/g	1.01	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		98.4	pg/g	0.404	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		95.5	pg/g	0.632	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		192	pg/g	1.32	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		154	200	pg/g	77.0	(20%-175%)
13C-1,2,3,7,8-PeCDD		143	200	pg/g	71.6	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		147	200	pg/g	73.5	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		162	200	pg/g	80.9	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		152	200	pg/g	75.9	(22%-166%)
13C-OCDD		250	400	pg/g	62.5	(13%-199%)
13C-2,3,7,8-TCDF		144	200	pg/g	71.9	(22%-152%)
13C-1,2,3,7,8-PeCDF		146	200	pg/g	73.0	(21%-192%)
13C-2,3,4,7,8-PeCDF		147	200	pg/g	73.7	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		170	200	pg/g	84.8	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		160	200	pg/g	80.0	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		152	200	pg/g	75.9	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		164	200	pg/g	82.1	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		141	200	pg/g	70.3	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		141	200	pg/g	70.4	(20%-186%)
37Cl-2,3,7,8-TCDD		14.4	20.0	pg/g	71.9	(31%-191%)

Comments:

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number: 3661	Client: TETR001	Project: TETR00112
Lab Sample ID: 12006260		Matrix: SOLID
Client Sample: QC for batch 21397		
Client ID: MB for batch 21397		Prep Basis: As Received
Batch ID: 21399	Method: EPA Method 1613B	
Run Date: 06/28/2012 06:26	Analyst: EES	Instrument: HRP763
Data File: b27jun12c_2-3		Dilution: 1
Prep Batch: 21397	Prep Method: SW846 3540C	
Prep Date: 24-JUN-12	Aliquot: 10 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	.284	pg/g	0.284	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	.226	pg/g	0.226	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	.342	pg/g	0.342	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	.338	pg/g	0.338	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	.364	pg/g	0.364	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	.748	pg/g	0.748	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	J	2.07	pg/g	1.54	10.0
51207-31-9	2,3,7,8-TCDF	U	.316	pg/g	0.316	1.00
57117-41-6	1,2,3,7,8-PeCDF	U	.176	pg/g	0.176	5.00
57117-31-4	2,3,4,7,8-PeCDF	U	.173	pg/g	0.173	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	U	.234	pg/g	0.234	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	U	.206	pg/g	0.206	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	.266	pg/g	0.266	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	.38	pg/g	0.380	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	.302	pg/g	0.302	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.472	pg/g	0.472	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	1.12	pg/g	1.12	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		119	200	pg/g	59.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		103	200	pg/g	51.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		114	200	pg/g	57.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		135	200	pg/g	67.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		116	200	pg/g	57.9	(23%-140%)
13C-OCDD		179	400	pg/g	44.7	(17%-157%)
13C-2,3,7,8-TCDF		115	200	pg/g	57.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		110	200	pg/g	54.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		110	200	pg/g	54.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		134	200	pg/g	66.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		145	200	pg/g	72.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		128	200	pg/g	63.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		130	200	pg/g	65.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		116	200	pg/g	57.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		107	200	pg/g	53.6	(26%-138%)
37Cl-2,3,7,8-TCDD		12.0	20.0	pg/g	59.8	(35%-197%)

Comments:

- J Value is estimated
U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3661	Client: TETR001	Project: TETR00112
Lab Sample ID: 12006261		Matrix: SOLID
Client Sample: QC for batch 21397		
Client ID: LCS for batch 21397		Prep Basis: As Received
Batch ID: 21399	Method: EPA Method 1613B	
Run Date: 06/28/2012 04:53	Analyst: EES	Instrument: HRP763
Data File: b27jun12c_2-1		Dilution: 1
Prep Batch: 21397	Prep Method: SW846 3540C	
Prep Date: 24-JUN-12	Aliquot: 10 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		17.7	pg/g	0.306	1.00
40321-76-4	1,2,3,7,8-PeCDD		101	pg/g	0.348	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		110	pg/g	1.24	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		109	pg/g	1.20	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		110	pg/g	1.30	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		101	pg/g	1.27	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		207	pg/g	2.60	10.0
51207-31-9	2,3,7,8-TCDF		20.0	pg/g	0.338	1.00
57117-41-6	1,2,3,7,8-PeCDF		92.2	pg/g	0.380	5.00
57117-31-4	2,3,4,7,8-PeCDF		91.1	pg/g	0.384	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		92.4	pg/g	0.806	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		95.4	pg/g	0.792	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		98.8	pg/g	1.02	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		92.2	pg/g	1.43	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		102	pg/g	0.960	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		93.4	pg/g	1.61	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		193	pg/g	7.00	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		149	200	pg/g	74.6	(20%-175%)
13C-1,2,3,7,8-PeCDD		134	200	pg/g	67.0	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		144	200	pg/g	71.8	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		170	200	pg/g	84.8	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		146	200	pg/g	72.9	(22%-166%)
13C-OCDD		224	400	pg/g	55.9	(13%-199%)
13C-2,3,7,8-TCDF		147	200	pg/g	73.5	(22%-152%)
13C-1,2,3,7,8-PeCDF		143	200	pg/g	71.3	(21%-192%)
13C-2,3,4,7,8-PeCDF		141	200	pg/g	70.3	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		171	200	pg/g	85.7	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		176	200	pg/g	88.2	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		158	200	pg/g	79.1	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		159	200	pg/g	79.6	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		147	200	pg/g	73.7	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		134	200	pg/g	66.9	(20%-186%)
37Cl-2,3,7,8-TCDD		14.9	20.0	pg/g	74.3	(31%-191%)

Comments:

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number:	3661	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	12006262			Matrix:	SOLID
Client Sample:	QC for batch 21397				
Client ID:	LCSD for batch 21397			Prep Basis:	As Received
Batch ID:	21399	Method:	EPA Method 1613B		
Run Date:	06/28/2012 05:39	Analyst:	EES	Instrument:	HRP763
Data File:	b27jun12c_2-2			Dilution:	1
Prep Batch:	21397	Prep Method:	SW846 3540C		
Prep Date:	24-JUN-12	Aliquot:	10 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		17.9	pg/g	0.322	1.00
40321-76-4	1,2,3,7,8-PeCDD		103	pg/g	0.396	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		110	pg/g	0.888	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		108	pg/g	0.902	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		111	pg/g	0.960	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		108	pg/g	1.24	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		211	pg/g	2.40	10.0
51207-31-9	2,3,7,8-TCDF		21.6	pg/g	0.350	1.00
57117-41-6	1,2,3,7,8-PeCDF		95.2	pg/g	0.376	5.00
57117-31-4	2,3,4,7,8-PeCDF		92.4	pg/g	0.372	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		92.6	pg/g	0.892	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		95.4	pg/g	0.882	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		99.8	pg/g	1.03	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		93.7	pg/g	1.55	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		108	pg/g	1.11	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		94.8	pg/g	1.92	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		194	pg/g	2.90	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		149	200	pg/g	74.4	(20%-175%)
13C-1,2,3,7,8-PeCDD		131	200	pg/g	65.6	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		154	200	pg/g	76.9	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		165	200	pg/g	82.4	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		141	200	pg/g	70.6	(22%-166%)
13C-OCDD		222	400	pg/g	55.5	(13%-199%)
13C-2,3,7,8-TCDF		143	200	pg/g	71.7	(22%-152%)
13C-1,2,3,7,8-PeCDF		138	200	pg/g	68.9	(21%-192%)
13C-2,3,4,7,8-PeCDF		139	200	pg/g	69.7	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		171	200	pg/g	85.7	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		180	200	pg/g	89.8	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		163	200	pg/g	81.7	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		159	200	pg/g	79.5	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		139	200	pg/g	69.4	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		134	200	pg/g	67.1	(20%-186%)
37Cl-2,3,7,8-TCDD		14.0	20.0	pg/g	69.9	(31%-191%)

Comments:

U Analyte was analyzed for , but not detected above the specified detection limit.

July 11, 2012

Mr. David Kinroth
Seagull Environmental Technologies, Incorporated
20 James Town Farm Drive
Florissant, Missouri 63034

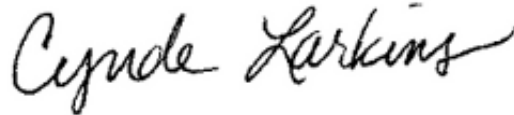
Re: Route 66 State Park
Work Order: 3675

Dear Mr. Kinroth:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 21, 2012. This original data report has been prepared and reviewed in accordance with CFA's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at 910-795-0421.

Sincerely,



Cynthia Larkins
Project Manager

Purchase Order: 1084802
Enclosures

US EPA ARCHIVE DOCUMENT

Tetra Tech
PO# 108480Z

CFA WO# 3675
CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

3rd Sample
Batch
12

ACTIVITY LEADER(Print) <u>Jim Silver Dave Kinosh</u>	NAME OF SURVEY OR ACTIVITY <u>MO Dioxin Sites Re-Evaluation</u>	DATE OF COLLECTION <u>12</u> <u>6</u> <u>12</u> DAY MONTH YEAR	SHEET <u>1</u> of <u>2</u>
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CONTENTS OF SHIPMENT Route 66 State Park

SAMPLE NUMBER	TYPE OF CONTAINERS				VOA SET (2 VIALS EA)	SAMPLED MEDIA				RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	CUBITAINER	BOTTLE	DATE	TIME		water	soil	sediment	other	
RT66-064		1	6/12/12	0900			X			1613 B Dioxin/Furans
-065										Analysis ~15g Sample each - use entire volume for extraction please
-066										
-067										
-068				1050						Collection Date + Time taken from Sample labels at CFA. CO 21 JUN 12
-069										
-070										
-071				1026						
-072										
-073										
-074										
-075				1030						
-076				1035						
-077				1040						
-078				1045						
-079				1050						
-080				1013						
-081										
-082										
-083				0940						
-084										
-085										
-086			6/6/12	1515						
-087			6/6/12	1530						

DESCRIPTION OF SHIPMENT <u>35</u> PIECE(S) CONSISTING OF _____ BOX(ES) <u>1</u> ICE CHEST(S); OTHER _____	MODE OF SHIPMENT <input checked="" type="checkbox"/> COMMERCIAL CARRIER: <u>FedEx</u> <input type="checkbox"/> COURIER <input type="checkbox"/> SAMPLER CONVEYED <u>8750 89086342</u> (SHIPPING DOCUMENT NUMBER)
---	---

PERSONNEL CUSTODY RECORD				
RELINQUISHED BY (SAMPLER) <u>X</u> <u>David Kinosh</u> <input checked="" type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED	DATE <u>6-20-12</u>	TIME <u>13:00</u>	RECEIVED BY <u>Cynde Larkins</u> <u>2 JUN 12 0950</u> <input checked="" type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED	REASON FOR CHANGE OF CUSTODY <u>Transport to Lab for Analysis</u>
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED			<input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED	

Tetra Tech
PO# 108480Z

CFA NO# 3675
CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

3rd Sample
Batch

ACTIVITY LEADER(Print) Jim Silver Dave Kinosh		NAME OF SURVEY OR ACTIVITY MO Dioxin Site Re-Evaluation				DATE OF COLLECTION 12 6 12 DAY MONTH YEAR			SHEET 2 of 2		
CONTENTS OF SHIPMENT Route 66 State Park											
SAMPLE NUMBER	TYPE OF CONTAINERS				VOA SET (2 VIALS EA)	SAMPLED MEDIA				RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)	
	CUBITAINER	BOTTLE	DATE	TIME		water	soil	sediment	slut		other
RT66 -088		1	6/7/12	1025		X					1613B Dioxin/Furans Analysis ~15g Sample each - use entire volume for extraction please
-089				1055							
-089D				1055							
-090			6/12/12	1330							
-091				1330							
-092				1330							
-093				1340							
-094				1350							
-095				1400							
-096				1430							
-097				1507							
END of shipment MDK 6-20-12											Collection date & time taken from sample labels at CFA on 21JUN12
DESCRIPTION OF SHIPMENT 35 PIECE(S) CONSISTING OF _____ BOX(ES) 1 ICE CHEST(S); OTHER _____						MODE OF SHIPMENT X COMMERCIAL CARRIER: <u>FedEx</u> COURIER SAMPLER CONVEYED					
PERSONNEL CUSTODY RECORD											
RELINQUISHED BY (SAMPLER) 6-20-12, Dave Kinosh		DATE 6-20-12	TIME 13:00	RECEIVED BY Cyndie Perkins 21JUN12 0950		REASON FOR CHANGE OF CUSTODY Transport to Lab for Analysis					
X SEALED UNSEALED				X SEALED UNSEALED							
RELINQUISHED BY		DATE	TIME	RECEIVED BY		REASON FOR CHANGE OF CUSTODY					
SEALED UNSEALED				SEALED UNSEALED							
RELINQUISHED BY		DATE	TIME	RECEIVED BY		REASON FOR CHANGE OF CUSTODY					
SEALED UNSEALED				SEALED UNSEALED							

SAMPLE RECEIPT CHECKLIST
Cape Fear Analytical

Client: <u>Tetra Tech</u>	Work Order: <u>3675</u>
Received By: <u>Cynde Larkins</u>	Date/Time Received: <u>21 JUN 12 0950</u>

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?		<input checked="" type="checkbox"/>	
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken damaged container leaking container other(describe)
2 Chain of Custody documents included with shipment?	<input checked="" type="checkbox"/>			
3 Samples requiring cold preservation within 0-6°C?	<input checked="" type="checkbox"/>			Preservation Method: ice bags blue ice dry ice none other (describe) <u>5.8</u>
4 Samples requiring chemical preservation at proper pH?		<input checked="" type="checkbox"/>		Sample IDs, containers affected and pH observed: If preservative added, Lot#:
5 Samples requiring preservation have no residual chlorine?		<input checked="" type="checkbox"/>		Sample IDs, containers affected: If preservative added, Lot#:
6 Samples received within holding time?	<input checked="" type="checkbox"/>			Sample IDs, tests affected:
7 Sample IDs on COC match IDs on containers?	<input checked="" type="checkbox"/>			Sample IDs, containers affected:
8 Date & time of COC match date & time on containers?	<input checked="" type="checkbox"/>			Sample IDs, containers affected:
9 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample IDs, containers affected:
10 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments:

Checklist performed by: Initials: CL

Date: 21 JUN 12

High Resolution Dioxin and Furan Analysis

Case Narrative

**HDOX Case Narrative
Tetra Tech EM Incorporated (TETR)
SDG 3675**

Method/Analysis Information

Product: Dioxins/Furans by EPA Method 1613B in Solids

Analytical Method: EPA Method 1613B

Extraction Method: SW846 3540C

Analytical Batch Number: 21417, 21420

Clean Up Batch Number: 21415, 21419

Extraction Batch Number: 21414, 21418

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA Method 1613B:

Sample ID	Client ID
3675001	RT66-064
3675002	RT66-065
3675003	RT66-066
3675004	RT66-067
3675005	RT66-068
3675006	RT66-069
3675007	RT66-070
3675008	RT66-071
3675009	RT66-072
3675010	RT66-073
3675011	RT66-074
3675012	RT66-075
3675013	RT66-076
3675014	RT66-077
3675015	RT66-078
3675016	RT66-079
3675017	RT66-080
3675018	RT66-081
3675019	RT66-082
3675020	RT66-083
3675021	RT66-084
3675022	RT66-085

3675023	RT66-086
3675024	RT66-087
3675025	RT66-088
3675026	RT66-089
3675027	RT66-089D
3675028	RT66-090
3675029	RT66-091
3675030	RT66-092
3675031	RT66-093
3675032	RT66-094
3675033	RT66-095
3675034	RT66-096
3675035	RT66-097
12006280	Method Blank (MB)
12006281	Laboratory Control Sample (LCS)
12006282	Laboratory Control Sample Duplicate (LCSD)
12006285	Method Blank (MB)
12006286	Laboratory Control Sample (LCS)
12006287	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by Cape Fear Analytical LLC (CFA) as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with CF-OA-E-002 REV# 9.

Raw data reports are processed and reviewed by the analyst using the TargetLynx software package.

Calibration Information

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements

All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Certification Statement

The test results presented in this document are certified to meet all requirements of the 2003 NELAC Standard.

Method Blank (MB) Statement

The MB(s) analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery

The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement

The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation

A matrix spike and matrix spike duplicate analysis was not required for this SDG.

Technical Information**Holding Time Specifications**

CFA assigns holding times based on the associated methodology, which assigns the date and time from sample collection. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

Samples 3675013 (RT66-076), 3675018 (RT66-081)- Batch 21417, 3675020 (RT66-083) and 3675021 (RT66-084)- Batch 21420 were diluted due to the presence of overrange target analytes.

Sample Re-extraction/Re-analysis

2378-TCDF confirmation analysis was required for samples in this SDG.

Miscellaneous Information**Nonconformance (NCR) Documentation**

A NCR was not required for this SDG.

Manual Integrations

Certain standards and QC samples required manual integrations to correctly position the baseline as set in the calibration standard injections. Where manual integrations were performed, copies

of all manual integration peak profiles are included in the raw data section of this fraction. Manual integrations were required for data files in this SDG.

System Configuration

This analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
HRP763_1	High-Resolution GC/MS System	Dioxin Analysis	DB-5MS	60m x 0.25mm, 0.25um
HRP763_2	High-Resolution GC/MS System	TCDF Confirmation	DB-225	30m x 0.25mm, 0.25um

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted: Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Sample Data Summary

Cape Fear Analytical, LLC

3306 Kitty Hawk Road Suite 120, Wilmington, NC 28405 - (910) 795-0421 - www.capefearanalytical.com

**Certificate of Analysis Report
for**

TETR001 Tetra Tech EM Incorporated

Client SDG: 3675 CFA Work Order: 3675

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- K Estimated Maximum Possible Concentration
- Q Quantitative Interference
- U Analyte was analyzed for , but not detected above the specified detection limit.

Review/Validation

Cape Fear Analytical requires all analytical data to be verified by a qualified data reviewer.

The following data validator verified the information presented in this case narrative:

Signature: 

Name: Heather Patterson

Date: 11 JUL 2012

Title: Analyst III

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number: 3675
Lab Sample ID: 3675001
Client Sample: 1613B Soil
Client ID: RT66-064
Batch ID: 21417
Run Date: 07/01/2012 00:49
Data File: b29jun12a_4-4
Prep Batch: 21414
Prep Date: 26-JUN-12

Client: TETR001
Date Collected: 06/12/2012 09:00
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 13.88 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		37.5	pg/g	0.0893	0.720
40321-76-4	1,2,3,7,8-PeCDD	J	0.301	pg/g	0.0735	3.60
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.888	pg/g	0.112	3.60
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.00	pg/g	0.118	3.60
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.00	pg/g	0.124	3.60
35822-46-9	1,2,3,4,6,7,8-HpCDD		62.0	pg/g	0.439	3.60
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	3170	pg/g	1.22	7.20
51207-31-9	2,3,7,8-TCDF	J	0.442	pg/g	0.108	0.720
57117-41-6	1,2,3,7,8-PeCDF	J	0.0879	pg/g	0.031	3.60
57117-31-4	2,3,4,7,8-PeCDF	J	0.127	pg/g	0.0321	3.60
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.121	pg/g	0.0622	3.60
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.122	pg/g	0.0628	3.60
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.144	pg/g	0.0718	3.60
72918-21-9	1,2,3,7,8,9-HxCDF	U	.0849	pg/g	0.0849	3.60
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	1.24	pg/g	0.0546	3.60
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.0798	pg/g	0.0798	3.60
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	2.04	pg/g	0.249	7.20

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		119	144	pg/g	82.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		123	144	pg/g	85.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		116	144	pg/g	80.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		120	144	pg/g	83.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		127	144	pg/g	87.9	(23%-140%)
13C-OCDD		280	288	pg/g	97.3	(17%-157%)
13C-2,3,7,8-TCDF		113	144	pg/g	78.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		125	144	pg/g	86.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		126	144	pg/g	87.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		131	144	pg/g	90.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		122	144	pg/g	84.5	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		117	144	pg/g	81.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		143	144	pg/g	99.5	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		118	144	pg/g	82.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		126	144	pg/g	87.2	(26%-138%)
37Cl-2,3,7,8-TCDD		12.2	14.4	pg/g	85.0	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number: 3675
Lab Sample ID: 3675002
Client Sample: 1613B Soil
Client ID: RT66-065
Batch ID: 21417
Run Date: 07/01/2012 01:36
Data File: b29jun12a_4-5
Prep Batch: 21414
Prep Date: 26-JUN-12

Client: TETR001
Date Collected: 06/12/2012 09:00
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.56 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		237	pg/g	0.166	0.687
40321-76-4	1,2,3,7,8-PeCDD	J	0.970	pg/g	0.0556	3.43
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.65	pg/g	0.221	3.43
57653-85-7	1,2,3,6,7,8-HxCDD		4.04	pg/g	0.212	3.43
19408-74-3	1,2,3,7,8,9-HxCDD		6.93	pg/g	0.232	3.43
35822-46-9	1,2,3,4,6,7,8-HpCDD		260	pg/g	0.997	3.43
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	12200	pg/g	1.87	6.87
51207-31-9	2,3,7,8-TCDF		1.96	pg/g	0.137	0.687
57117-41-6	1,2,3,7,8-PeCDF	J	0.295	pg/g	0.0832	3.43
57117-31-4	2,3,4,7,8-PeCDF	J	0.773	pg/g	0.0821	3.43
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.567	pg/g	0.107	3.43
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.512	pg/g	0.105	3.43
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.898	pg/g	0.128	3.43
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.229	pg/g	0.144	3.43
67562-39-4	1,2,3,4,6,7,8-HpCDF		5.42	pg/g	0.130	3.43
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.407	pg/g	0.192	3.43
39001-02-0	1,2,3,4,6,7,8,9-OCDF		9.71	pg/g	0.140	6.87

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		111	137	pg/g	81.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		118	137	pg/g	85.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		109	137	pg/g	79.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		112	137	pg/g	81.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		120	137	pg/g	87.3	(23%-140%)
13C-OCDD		303	275	pg/g	110	(17%-157%)
13C-2,3,7,8-TCDF		106	137	pg/g	77.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		120	137	pg/g	87.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		121	137	pg/g	87.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		118	137	pg/g	86.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		120	137	pg/g	87.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		108	137	pg/g	78.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		135	137	pg/g	98.5	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		113	137	pg/g	82.6	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		119	137	pg/g	86.5	(26%-138%)
37Cl-2,3,7,8-TCDD		12.8	13.7	pg/g	93.5	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675002	Date Collected:	06/12/2012 09:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50	Prep Basis:	As Received
Client ID:	RT66-065	Method:	EPA Method 1613B	Instrument:	HRP763
Batch ID:	21417	Analyst:	MJC	Dilution:	1
Run Date:	07/09/2012 20:34	Prep Method:	SW846 3540C		
Data File:	b09jul12a_2-4	Aliquot:	14.56 g		
Prep Batch:	21414				
Prep Date:	26-JUN-12				

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.72	pg/g	0.229	0.687

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number: 3675
Lab Sample ID: 3675003
Client Sample: 1613B Soil
Client ID: RT66-066
Batch ID: 21417
Run Date: 07/01/2012 02:23
Data File: b29jun12a_4-6
Prep Batch: 21414
Prep Date: 26-JUN-12

Client: TETR001
Date Collected: 06/12/2012 09:00
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 13.74 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		72.9	pg/g	0.137	0.728
40321-76-4	1,2,3,7,8-PeCDD	J	0.863	pg/g	0.0837	3.64
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.27	pg/g	0.240	3.64
57653-85-7	1,2,3,6,7,8-HxCDD		4.08	pg/g	0.250	3.64
19408-74-3	1,2,3,7,8,9-HxCDD		7.00	pg/g	0.263	3.64
35822-46-9	1,2,3,4,6,7,8-HpCDD		214	pg/g	0.908	3.64
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	13500	pg/g	1.70	7.28
51207-31-9	2,3,7,8-TCDF		0.991	pg/g	0.113	0.728
57117-41-6	1,2,3,7,8-PeCDF	J	0.279	pg/g	0.054	3.64
57117-31-4	2,3,4,7,8-PeCDF	J	0.616	pg/g	0.0546	3.64
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.511	pg/g	0.0974	3.64
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.512	pg/g	0.104	3.64
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.914	pg/g	0.121	3.64
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.169	pg/g	0.130	3.64
67562-39-4	1,2,3,4,6,7,8-HpCDF		5.78	pg/g	0.112	3.64
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.313	pg/g	0.175	3.64
39001-02-0	1,2,3,4,6,7,8,9-OCDF		10.2	pg/g	0.288	7.28

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		106	146	pg/g	73.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		115	146	pg/g	78.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		113	146	pg/g	77.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		104	146	pg/g	71.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		116	146	pg/g	79.4	(23%-140%)
13C-OCDD		299	291	pg/g	103	(17%-157%)
13C-2,3,7,8-TCDF		103	146	pg/g	70.5	(24%-169%)
13C-1,2,3,7,8-PeCDF		115	146	pg/g	79.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		118	146	pg/g	81.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		118	146	pg/g	80.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		113	146	pg/g	77.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		106	146	pg/g	73.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		140	146	pg/g	96.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		112	146	pg/g	77.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		114	146	pg/g	78.0	(26%-138%)
37Cl-2,3,7,8-TCDD		11.5	14.6	pg/g	78.9	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675003	Date Collected:	06/12/2012 09:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50	Prep Basis:	As Received
Client ID:	RT66-066	Method:	EPA Method 1613B	Instrument:	HRP763
Batch ID:	21417	Analyst:	MJC	Dilution:	1
Run Date:	07/09/2012 20:54	Prep Method:	SW846 3540C		
Data File:	b09jul12a_2-5	Aliquot:	13.74 g		
Prep Batch:	21414				
Prep Date:	26-JUN-12				

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.865	pg/g	0.333	0.728

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

Page 1 of 1

SDG Number: 3675
Lab Sample ID: 3675004
Client Sample: 1613B Soil
Client ID: RT66-067
Batch ID: 21417
Run Date: 07/01/2012 03:10
Data File: b29jun12a_4-7
Prep Batch: 21414
Prep Date: 26-JUN-12

Client: TETR001
Date Collected: 06/12/2012 09:00
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.61 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		60.4	pg/g	0.142	0.684
40321-76-4	1,2,3,7,8-PeCDD	J	0.805	pg/g	0.0973	3.42
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.40	pg/g	0.225	3.42
57653-85-7	1,2,3,6,7,8-HxCDD		3.81	pg/g	0.230	3.42
19408-74-3	1,2,3,7,8,9-HxCDD		6.98	pg/g	0.244	3.42
35822-46-9	1,2,3,4,6,7,8-HpCDD		221	pg/g	1.07	3.42
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	14100	pg/g	1.94	6.84
51207-31-9	2,3,7,8-TCDF		0.983	pg/g	0.146	0.684
57117-41-6	1,2,3,7,8-PeCDF	J	0.240	pg/g	0.0694	3.42
57117-31-4	2,3,4,7,8-PeCDF	J	0.638	pg/g	0.0674	3.42
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.546	pg/g	0.105	3.42
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.505	pg/g	0.106	3.42
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.775	pg/g	0.125	3.42
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.168	pg/g	0.140	3.42
67562-39-4	1,2,3,4,6,7,8-HpCDF		6.13	pg/g	0.0903	3.42
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.409	pg/g	0.133	3.42
39001-02-0	1,2,3,4,6,7,8,9-OCDF		10.3	pg/g	0.174	6.84

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		99.5	137	pg/g	72.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		104	137	pg/g	75.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		99.4	137	pg/g	72.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		96.9	137	pg/g	70.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		98.3	137	pg/g	71.8	(23%-140%)
13C-OCDD		261	274	pg/g	95.2	(17%-157%)
13C-2,3,7,8-TCDF		96.0	137	pg/g	70.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		107	137	pg/g	78.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		109	137	pg/g	80.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		105	137	pg/g	76.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		98.0	137	pg/g	71.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		94.3	137	pg/g	68.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		122	137	pg/g	88.9	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		97.2	137	pg/g	71.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		99.3	137	pg/g	72.6	(26%-138%)
37Cl-2,3,7,8-TCDD		10.8	13.7	pg/g	78.6	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675004	Date Collected:	06/12/2012 09:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-067			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/09/2012 21:13	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-6			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	14.61 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.906	pg/g	0.212	0.684

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
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Sample Summary**

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675005	Date Collected:	06/12/2012 10:50	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-068			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/01/2012 03:57	Analyst:	EES	Instrument:	HRP763
Data File:	b29jun12a_4-8			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	15.12 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		37.1	pg/g	0.116	0.661
40321-76-4	1,2,3,7,8-PeCDD	J	0.230	pg/g	0.140	3.31
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.825	pg/g	0.155	3.31
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.06	pg/g	0.159	3.31
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.67	pg/g	0.168	3.31
35822-46-9	1,2,3,4,6,7,8-HpCDD		53.4	pg/g	0.509	3.31
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2260	pg/g	1.32	6.61
51207-31-9	2,3,7,8-TCDF	J	0.511	pg/g	0.110	0.661
57117-41-6	1,2,3,7,8-PeCDF	J	0.111	pg/g	0.0915	3.31
57117-31-4	2,3,4,7,8-PeCDF	J	0.136	pg/g	0.0899	3.31
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.139	pg/g	0.0881	3.31
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.119	pg/g	0.0934	3.31
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.220	pg/g	0.106	3.31
72918-21-9	1,2,3,7,8,9-HxCDF	U	.123	pg/g	0.123	3.31
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	1.94	pg/g	0.0786	3.31
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.142	pg/g	0.124	3.31
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	3.67	pg/g	0.337	6.61

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		86.8	132	pg/g	65.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		88.8	132	pg/g	67.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		84.6	132	pg/g	64.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		82.1	132	pg/g	62.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		85.9	132	pg/g	65.0	(23%-140%)
13C-OCDD		186	265	pg/g	70.2	(17%-157%)
13C-2,3,7,8-TCDF		83.9	132	pg/g	63.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		91.1	132	pg/g	68.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		92.0	132	pg/g	69.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		92.2	132	pg/g	69.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		87.0	132	pg/g	65.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		81.9	132	pg/g	61.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		107	132	pg/g	81.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		83.3	132	pg/g	63.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		84.7	132	pg/g	64.0	(26%-138%)
37Cl-2,3,7,8-TCDD		9.21	13.2	pg/g	69.6	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675006	Date Collected:	06/12/2012 10:50	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-069			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/01/2012 04:44	Analyst:	EES	Instrument:	HRP763
Data File:	b29jun12a_4-9			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	14.88 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		15.9	pg/g	0.134	0.672
40321-76-4	1,2,3,7,8-PeCDD	J	0.371	pg/g	0.0685	3.36
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.866	pg/g	0.206	3.36
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.18	pg/g	0.206	3.36
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.92	pg/g	0.220	3.36
35822-46-9	1,2,3,4,6,7,8-HpCDD		60.1	pg/g	0.575	3.36
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	3130	pg/g	1.72	6.72
51207-31-9	2,3,7,8-TCDF	J	0.457	pg/g	0.120	0.672
57117-41-6	1,2,3,7,8-PeCDF	U	.0817	pg/g	0.0817	3.36
57117-31-4	2,3,4,7,8-PeCDF	U	.153	pg/g	0.153	3.36
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.155	pg/g	0.0669	3.36
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.142	pg/g	0.071	3.36
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.163	pg/g	0.0805	3.36
72918-21-9	1,2,3,7,8,9-HxCDF	U	.0968	pg/g	0.0968	3.36
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	1.62	pg/g	0.0785	3.36
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.118	pg/g	0.118	3.36
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	3.28	pg/g	0.298	6.72

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		87.9	134	pg/g	65.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		91.4	134	pg/g	68.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		89.4	134	pg/g	66.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		90.5	134	pg/g	67.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		93.8	134	pg/g	69.8	(23%-140%)
13C-OCDD		203	269	pg/g	75.6	(17%-157%)
13C-2,3,7,8-TCDF		85.8	134	pg/g	63.8	(24%-169%)
13C-1,2,3,7,8-PeCDF		91.9	134	pg/g	68.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		95.1	134	pg/g	70.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		98.1	134	pg/g	73.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		97.3	134	pg/g	72.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		91.3	134	pg/g	67.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		109	134	pg/g	81.4	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		89.2	134	pg/g	66.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		91.6	134	pg/g	68.1	(26%-138%)
37Cl-2,3,7,8-TCDD		9.30	13.4	pg/g	69.2	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675007	Date Collected:	06/12/2012 10:50	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-070			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/01/2012 05:31	Analyst:	EES	Instrument:	HRP763
Data File:	b29jun12a_4-10			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	15.21 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		18.3	pg/g	0.104	0.657
40321-76-4	1,2,3,7,8-PeCDD	J	0.427	pg/g	0.0564	3.29
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.728	pg/g	0.167	3.29
57653-85-7	1,2,3,6,7,8-HxCDD	J	0.928	pg/g	0.170	3.29
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.27	pg/g	0.181	3.29
35822-46-9	1,2,3,4,6,7,8-HpCDD		45.3	pg/g	0.475	3.29
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2000	pg/g	1.71	6.57
51207-31-9	2,3,7,8-TCDF	J	0.401	pg/g	0.127	0.657
57117-41-6	1,2,3,7,8-PeCDF	U	.0571	pg/g	0.0571	3.29
57117-31-4	2,3,4,7,8-PeCDF	U	.146	pg/g	0.146	3.29
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.142	pg/g	0.0621	3.29
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.128	pg/g	0.0623	3.29
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.208	pg/g	0.0747	3.29
72918-21-9	1,2,3,7,8,9-HxCDF	U	.0853	pg/g	0.0853	3.29
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	1.56	pg/g	0.167	3.29
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.275	pg/g	0.275	3.29
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	3.21	pg/g	0.387	6.57

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		102	131	pg/g	77.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		104	131	pg/g	79.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		101	131	pg/g	76.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		101	131	pg/g	76.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		103	131	pg/g	78.0	(23%-140%)
13C-OCDD		221	263	pg/g	84.2	(17%-157%)
13C-2,3,7,8-TCDF		96.3	131	pg/g	73.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		104	131	pg/g	78.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		108	131	pg/g	81.8	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		109	131	pg/g	82.6	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		106	131	pg/g	80.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		97.4	131	pg/g	74.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		120	131	pg/g	91.5	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		98.2	131	pg/g	74.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		100	131	pg/g	76.4	(26%-138%)
37Cl-2,3,7,8-TCDD		10.6	13.1	pg/g	80.6	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
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Sample Summary**

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SDG Number: 3675
Lab Sample ID: 3675008
Client Sample: 1613B Soil
Client ID: RT66-071
Batch ID: 21417
Run Date: 07/01/2012 06:18
Data File: b29jun12a_4-11
Prep Batch: 21414
Prep Date: 26-JUN-12

Client: TETR001
Date Collected: 06/12/2012 10:26
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.91 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		37.0	pg/g	0.146	0.671
40321-76-4	1,2,3,7,8-PeCDD	J	0.464	pg/g	0.0614	3.35
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.25	pg/g	0.196	3.35
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.59	pg/g	0.203	3.35
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.48	pg/g	0.215	3.35
35822-46-9	1,2,3,4,6,7,8-HpCDD		100	pg/g	0.818	3.35
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	4750	pg/g	1.92	6.71
51207-31-9	2,3,7,8-TCDF	J	0.547	pg/g	0.177	0.671
57117-41-6	1,2,3,7,8-PeCDF	U	.164	pg/g	0.164	3.35
57117-31-4	2,3,4,7,8-PeCDF	J	0.232	pg/g	0.156	3.35
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.196	pg/g	0.0971	3.35
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.207	pg/g	0.0931	3.35
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.361	pg/g	0.116	3.35
72918-21-9	1,2,3,7,8,9-HxCDF	U	.137	pg/g	0.137	3.35
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	2.83	pg/g	0.161	3.35
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.24	pg/g	0.240	3.35
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	6.42	pg/g	0.385	6.71

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		94.8	134	pg/g	70.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		94.1	134	pg/g	70.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		88.0	134	pg/g	65.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		91.2	134	pg/g	68.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		99.4	134	pg/g	74.1	(23%-140%)
13C-OCDD		237	268	pg/g	88.2	(17%-157%)
13C-2,3,7,8-TCDF		86.6	134	pg/g	64.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		93.1	134	pg/g	69.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		96.2	134	pg/g	71.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		94.2	134	pg/g	70.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		98.8	134	pg/g	73.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		86.1	134	pg/g	64.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		104	134	pg/g	77.2	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		89.9	134	pg/g	67.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		96.2	134	pg/g	71.7	(26%-138%)
37Cl-2,3,7,8-TCDD		9.81	13.4	pg/g	73.1	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675009	Date Collected:	06/12/2012 10:26	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-072			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/01/2012 07:05	Analyst:	MJC	Instrument:	HRP763
Data File:	b29jun12a_4-12			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	13.85 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		79.6	pg/g	0.136	0.722
40321-76-4	1,2,3,7,8-PeCDD	J	0.524	pg/g	0.0586	3.61
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.41	pg/g	0.211	3.61
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.96	pg/g	0.214	3.61
19408-74-3	1,2,3,7,8,9-HxCDD	J	3.44	pg/g	0.228	3.61
35822-46-9	1,2,3,4,6,7,8-HpCDD		114	pg/g	0.764	3.61
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	6660	pg/g	1.65	7.22
51207-31-9	2,3,7,8-TCDF		0.810	pg/g	0.127	0.722
57117-41-6	1,2,3,7,8-PeCDF	J	0.144	pg/g	0.0592	3.61
57117-31-4	2,3,4,7,8-PeCDF	J	0.250	pg/g	0.0511	3.61
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.228	pg/g	0.0901	3.61
57117-44-9	1,2,3,6,7,8-HxCDF	U	.243	pg/g	0.243	3.61
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.419	pg/g	0.113	3.61
72918-21-9	1,2,3,7,8,9-HxCDF	U	.132	pg/g	0.132	3.61
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	3.51	pg/g	0.0859	3.61
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.212	pg/g	0.131	3.61
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	5.90	pg/g	0.316	7.22

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		115	144	pg/g	79.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		118	144	pg/g	81.6	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		109	144	pg/g	75.7	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		110	144	pg/g	76.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		110	144	pg/g	76.4	(23%-140%)
13C-OCDD		272	289	pg/g	94.2	(17%-157%)
13C-2,3,7,8-TCDF		106	144	pg/g	73.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		117	144	pg/g	80.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		122	144	pg/g	84.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		117	144	pg/g	81.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		112	144	pg/g	77.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		105	144	pg/g	72.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		131	144	pg/g	90.4	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		110	144	pg/g	75.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		110	144	pg/g	76.3	(26%-138%)
37Cl-2,3,7,8-TCDD		11.9	14.4	pg/g	82.7	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

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Sample Summary

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675009	Date Collected:	06/12/2012 10:26	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-072			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/09/2012 21:33	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-7			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	13.85 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.744	pg/g	0.269	0.722

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675010	Date Collected:	06/12/2012 10:26	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-073			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/01/2012 07:52	Analyst:	MJC	Instrument:	HRP763
Data File:	b29jun12a_4-13			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	14.85 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		185	pg/g	0.141	0.673
40321-76-4	1,2,3,7,8-PeCDD	J	0.762	pg/g	0.0795	3.37
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.40	pg/g	0.325	3.37
57653-85-7	1,2,3,6,7,8-HxCDD		3.45	pg/g	0.331	3.37
19408-74-3	1,2,3,7,8,9-HxCDD		5.50	pg/g	0.353	3.37
35822-46-9	1,2,3,4,6,7,8-HpCDD		187	pg/g	0.995	3.37
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	7570	pg/g	2.41	6.73
51207-31-9	2,3,7,8-TCDF		1.41	pg/g	0.149	0.673
57117-41-6	1,2,3,7,8-PeCDF	J	0.234	pg/g	0.0879	3.37
57117-31-4	2,3,4,7,8-PeCDF	U	.477	pg/g	0.477	3.37
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.671	pg/g	0.171	3.37
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.540	pg/g	0.176	3.37
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.925	pg/g	0.213	3.37
72918-21-9	1,2,3,7,8,9-HxCDF	U	.241	pg/g	0.241	3.37
67562-39-4	1,2,3,4,6,7,8-HpCDF		36.7	pg/g	0.178	3.37
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.566	pg/g	0.269	3.37
39001-02-0	1,2,3,4,6,7,8,9-OCDF		27.6	pg/g	0.269	6.73

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		110	135	pg/g	81.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		109	135	pg/g	80.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		106	135	pg/g	78.4	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		105	135	pg/g	78.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		115	135	pg/g	85.7	(23%-140%)
13C-OCDD		278	269	pg/g	103	(17%-157%)
13C-2,3,7,8-TCDF		97.8	135	pg/g	72.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		108	135	pg/g	80.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		111	135	pg/g	82.6	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		113	135	pg/g	83.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		112	135	pg/g	83.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		100	135	pg/g	74.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		127	135	pg/g	94.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		107	135	pg/g	79.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		111	135	pg/g	82.5	(26%-138%)
37Cl-2,3,7,8-TCDD		12.3	13.5	pg/g	91.0	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675010	Date Collected:	06/12/2012 10:26	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-073			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/09/2012 21:53	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-8			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	14.85 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.20	pg/g	0.233	0.673

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675011	Date Collected:	06/12/2012 10:26	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-074			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/01/2012 10:20	Analyst:	EES	Instrument:	HRP763
Data File:	b29jun12a_5-2			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	15.25 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		6.53	pg/g	0.0841	0.656
40321-76-4	1,2,3,7,8-PeCDD	J	0.294	pg/g	0.0824	3.28
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.611	pg/g	0.105	3.28
57653-85-7	1,2,3,6,7,8-HxCDD	J	0.859	pg/g	0.103	3.28
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.35	pg/g	0.111	3.28
35822-46-9	1,2,3,4,6,7,8-HpCDD		46.6	pg/g	0.442	3.28
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1830	pg/g	0.939	6.56
51207-31-9	2,3,7,8-TCDF	J	0.341	pg/g	0.0944	0.656
57117-41-6	1,2,3,7,8-PeCDF	J	0.108	pg/g	0.0572	3.28
57117-31-4	2,3,4,7,8-PeCDF	J	0.115	pg/g	0.0595	3.28
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.176	pg/g	0.0711	3.28
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.143	pg/g	0.0681	3.28
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.228	pg/g	0.0824	3.28
72918-21-9	1,2,3,7,8,9-HxCDF	U	.0938	pg/g	0.0938	3.28
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	1.57	pg/g	0.0505	3.28
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.146	pg/g	0.0716	3.28
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	3.02	pg/g	0.202	6.56

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		106	131	pg/g	80.5	(25%-164%)
13C-1,2,3,7,8-PeCDD		105	131	pg/g	80.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		98.6	131	pg/g	75.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		104	131	pg/g	79.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		110	131	pg/g	84.1	(23%-140%)
13C-OCDD		237	262	pg/g	90.4	(17%-157%)
13C-2,3,7,8-TCDF		100	131	pg/g	76.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		109	131	pg/g	82.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		108	131	pg/g	82.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		106	131	pg/g	81.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		108	131	pg/g	82.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		96.8	131	pg/g	73.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		119	131	pg/g	90.6	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		98.6	131	pg/g	75.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		111	131	pg/g	84.4	(26%-138%)
37Cl-2,3,7,8-TCDD		11.2	13.1	pg/g	85.1	(35%-197%)

Comments:

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

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Sample Summary

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675012	Date Collected:	06/12/2012 10:30	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-075			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/01/2012 11:07	Analyst:	EES	Instrument:	HRP763
Data File:	b29jun12a_5-3			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	15.47 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		65.6	pg/g	0.112	0.646
40321-76-4	1,2,3,7,8-PeCDD	J	0.228	pg/g	0.0613	3.23
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.397	pg/g	0.122	3.23
57653-85-7	1,2,3,6,7,8-HxCDD	J	0.699	pg/g	0.115	3.23
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.04	pg/g	0.127	3.23
35822-46-9	1,2,3,4,6,7,8-HpCDD		32.3	pg/g	0.366	3.23
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1100	pg/g	0.827	6.46
51207-31-9	2,3,7,8-TCDF	J	0.534	pg/g	0.181	0.646
57117-41-6	1,2,3,7,8-PeCDF	J	0.0905	pg/g	0.052	3.23
57117-31-4	2,3,4,7,8-PeCDF	J	0.122	pg/g	0.052	3.23
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.0866	pg/g	0.0559	3.23
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.129	pg/g	0.0517	3.23
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.165	pg/g	0.0652	3.23
72918-21-9	1,2,3,7,8,9-HxCDF	U	.0755	pg/g	0.0755	3.23
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	1.53	pg/g	0.067	3.23
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.101	pg/g	0.101	3.23
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	3.11	pg/g	0.375	6.46

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		106	129	pg/g	82.1	(25%-164%)
13C-1,2,3,7,8-PeCDD		116	129	pg/g	89.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		101	129	pg/g	78.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		102	129	pg/g	79.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		117	129	pg/g	90.2	(23%-140%)
13C-OCDD		238	259	pg/g	91.9	(17%-157%)
13C-2,3,7,8-TCDF		99.7	129	pg/g	77.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		115	129	pg/g	89.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		115	129	pg/g	88.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		105	129	pg/g	81.6	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		113	129	pg/g	87.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		97.8	129	pg/g	75.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		116	129	pg/g	89.6	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		97.0	129	pg/g	75.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		105	129	pg/g	81.3	(26%-138%)
37Cl-2,3,7,8-TCDD		11.6	12.9	pg/g	89.5	(35%-197%)

Comments:

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

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SDG Number: 3675
Lab Sample ID: 3675013
Client Sample: 1613B Soil
Client ID: RT66-076
Batch ID: 21417
Run Date: 07/04/2012 20:57
Data File: b03jul12d_3-7
Prep Batch: 21414
Prep Date: 26-JUN-12

Client: TETR001
Date Collected: 06/12/2012 10:35
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 15.41 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 5

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		566	pg/g	0.436	3.24
40321-76-4	1,2,3,7,8-PeCDD	J	0.950	pg/g	0.276	16.2
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.06	pg/g	0.622	16.2
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.60	pg/g	0.642	16.2
19408-74-3	1,2,3,7,8,9-HxCDD	J	5.79	pg/g	0.679	16.2
35822-46-9	1,2,3,4,6,7,8-HpCDD		174	pg/g	1.95	16.2
3268-87-9	1,2,3,4,6,7,8,9-OCDD		8210	pg/g	5.79	32.4
51207-31-9	2,3,7,8-TCDF	J	2.96	pg/g	0.371	3.24
57117-41-6	1,2,3,7,8-PeCDF	J	0.279	pg/g	0.167	16.2
57117-31-4	2,3,4,7,8-PeCDF	J	0.487	pg/g	0.160	16.2
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.609	pg/g	0.284	16.2
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.593	pg/g	0.301	16.2
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.979	pg/g	0.335	16.2
72918-21-9	1,2,3,7,8,9-HxCDF	U	.422	pg/g	0.422	16.2
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	12.5	pg/g	0.354	16.2
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.661	pg/g	0.506	16.2
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	29.4	pg/g	0.842	32.4

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		89.1	130	pg/g	68.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		84.0	130	pg/g	64.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		82.6	130	pg/g	63.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		86.9	130	pg/g	66.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		87.1	130	pg/g	67.1	(23%-140%)
13C-OCDD		188	260	pg/g	72.5	(17%-157%)
13C-2,3,7,8-TCDF		82.3	130	pg/g	63.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		89.3	130	pg/g	68.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		91.2	130	pg/g	70.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		90.4	130	pg/g	69.6	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		87.8	130	pg/g	67.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		80.9	130	pg/g	62.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		96.6	130	pg/g	74.4	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		81.0	130	pg/g	62.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		86.9	130	pg/g	67.0	(26%-138%)
37Cl-2,3,7,8-TCDD		10.9	13.0	pg/g	83.7	(35%-197%)

Comments:

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number: 3675
Lab Sample ID: 3675014
Client Sample: 1613B Soil
Client ID: RT66-077
Batch ID: 21417
Run Date: 07/04/2012 19:23
Data File: b03jul12d_3-5
Prep Batch: 21414
Prep Date: 26-JUN-12

Client: TETR001
Date Collected: 06/12/2012 10:40
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.41 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		259	pg/g	0.244	0.694
40321-76-4	1,2,3,7,8-PeCDD	J	0.838	pg/g	0.101	3.47
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.87	pg/g	0.260	3.47
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.71	pg/g	0.262	3.47
19408-74-3	1,2,3,7,8,9-HxCDD		4.99	pg/g	0.280	3.47
35822-46-9	1,2,3,4,6,7,8-HpCDD		177	pg/g	1.17	3.47
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	13700	pg/g	3.69	6.94
51207-31-9	2,3,7,8-TCDF		1.56	pg/g	0.222	0.694
57117-41-6	1,2,3,7,8-PeCDF	J	0.171	pg/g	0.0804	3.47
57117-31-4	2,3,4,7,8-PeCDF	U	.35	pg/g	0.350	3.47
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.329	pg/g	0.120	3.47
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.304	pg/g	0.122	3.47
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.426	pg/g	0.149	3.47
72918-21-9	1,2,3,7,8,9-HxCDF	U	.173	pg/g	0.173	3.47
67562-39-4	1,2,3,4,6,7,8-HpCDF		3.71	pg/g	0.143	3.47
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.318	pg/g	0.257	3.47
39001-02-0	1,2,3,4,6,7,8,9-OCDF		7.20	pg/g	0.409	6.94

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		115	139	pg/g	82.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		118	139	pg/g	85.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		110	139	pg/g	79.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		113	139	pg/g	81.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		114	139	pg/g	82.1	(23%-140%)
13C-OCDD		296	278	pg/g	107	(17%-157%)
13C-2,3,7,8-TCDF		100	139	pg/g	72.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		117	139	pg/g	84.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		127	139	pg/g	91.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		120	139	pg/g	86.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		112	139	pg/g	81.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		105	139	pg/g	75.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		128	139	pg/g	92.2	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		117	139	pg/g	84.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		114	139	pg/g	81.8	(26%-138%)
37Cl-2,3,7,8-TCDD		12.6	13.9	pg/g	91.1	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675014	Date Collected:	06/12/2012 10:40	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-077			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/09/2012 22:12	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-9			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	14.41 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.47	pg/g	0.414	0.694

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675015	Date Collected:	06/12/2012 10:45	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-078			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/04/2012 20:10	Analyst:	EES	Instrument:	HRP763
Data File:	b03jul12d_3-6			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	14.69 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		113	pg/g	0.204	0.681
40321-76-4	1,2,3,7,8-PeCDD	J	0.772	pg/g	0.115	3.40
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.32	pg/g	0.365	3.40
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.21	pg/g	0.383	3.40
19408-74-3	1,2,3,7,8,9-HxCDD		5.95	pg/g	0.402	3.40
35822-46-9	1,2,3,4,6,7,8-HpCDD		223	pg/g	1.66	3.40
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	14000	pg/g	3.64	6.81
51207-31-9	2,3,7,8-TCDF		0.975	pg/g	0.196	0.681
57117-41-6	1,2,3,7,8-PeCDF	U	.197	pg/g	0.197	3.40
57117-31-4	2,3,4,7,8-PeCDF	J	0.313	pg/g	0.191	3.40
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.231	pg/g	0.143	3.40
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.225	pg/g	0.139	3.40
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.368	pg/g	0.174	3.40
72918-21-9	1,2,3,7,8,9-HxCDF	U	.212	pg/g	0.212	3.40
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	2.82	pg/g	0.178	3.40
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.27	pg/g	0.270	3.40
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	5.23	pg/g	0.550	6.81

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		109	136	pg/g	79.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		113	136	pg/g	83.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		105	136	pg/g	77.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		104	136	pg/g	76.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		110	136	pg/g	80.9	(23%-140%)
13C-OCDD		271	272	pg/g	99.4	(17%-157%)
13C-2,3,7,8-TCDF		96.8	136	pg/g	71.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		114	136	pg/g	83.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		112	136	pg/g	82.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		107	136	pg/g	78.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		102	136	pg/g	75.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		94.9	136	pg/g	69.7	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		113	136	pg/g	83.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		97.0	136	pg/g	71.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		102	136	pg/g	75.2	(26%-138%)
37Cl-2,3,7,8-TCDD		11.5	13.6	pg/g	84.4	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675015	Date Collected:	06/12/2012 10:45	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-078			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/09/2012 22:32	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-10			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	14.69 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.840	pg/g	0.278	0.681

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3675
Lab Sample ID: 3675016
Client Sample: 1613B Soil
Client ID: RT66-079
Batch ID: 21417
Run Date: 07/01/2012 14:15
Data File: b29jun12a_5-7
Prep Batch: 21414
Prep Date: 26-JUN-12

Client: TETR001
Date Collected: 06/12/2012 10:50
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.82 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		132	pg/g	0.138	0.675
40321-76-4	1,2,3,7,8-PeCDD	J	0.916	pg/g	0.0688	3.37
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.76	pg/g	0.271	3.37
57653-85-7	1,2,3,6,7,8-HxCDD		3.99	pg/g	0.273	3.37
19408-74-3	1,2,3,7,8,9-HxCDD		6.43	pg/g	0.291	3.37
35822-46-9	1,2,3,4,6,7,8-HpCDD		276	pg/g	1.29	3.37
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	16800	pg/g	2.04	6.75
51207-31-9	2,3,7,8-TCDF		1.08	pg/g	0.140	0.675
57117-41-6	1,2,3,7,8-PeCDF	J	0.269	pg/g	0.0791	3.37
57117-31-4	2,3,4,7,8-PeCDF	J	0.516	pg/g	0.0754	3.37
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.601	pg/g	0.122	3.37
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.516	pg/g	0.117	3.37
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.964	pg/g	0.144	3.37
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.179	pg/g	0.170	3.37
67562-39-4	1,2,3,4,6,7,8-HpCDF		13.6	pg/g	0.132	3.37
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.521	pg/g	0.197	3.37
39001-02-0	1,2,3,4,6,7,8,9-OCDF		16.3	pg/g	0.344	6.75

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		108	135	pg/g	79.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		110	135	pg/g	81.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		102	135	pg/g	75.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		104	135	pg/g	76.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		112	135	pg/g	82.8	(23%-140%)
13C-OCDD		286	270	pg/g	106	(17%-157%)
13C-2,3,7,8-TCDF		96.1	135	pg/g	71.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		108	135	pg/g	80.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		109	135	pg/g	81.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		104	135	pg/g	77.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		108	135	pg/g	80.4	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		93.8	135	pg/g	69.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		113	135	pg/g	84.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		98.9	135	pg/g	73.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		107	135	pg/g	79.3	(26%-138%)
37Cl-2,3,7,8-TCDD		11.5	13.5	pg/g	85.4	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675016	Date Collected:	06/12/2012 10:50	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-079			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/09/2012 22:51	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-11			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	14.82 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.06	pg/g	0.255	0.675

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

Page 1 of 1

SDG Number: 3675	Client: TETR001	Project: TETR00112
Lab Sample ID: 3675017	Date Collected: 06/12/2012 10:13	Matrix: SOLID
Client Sample: 1613B Soil	Date Received: 06/21/2012 09:50	
Client ID: RT66-080		Prep Basis: As Received
Batch ID: 21417	Method: EPA Method 1613B	
Run Date: 07/01/2012 15:02	Analyst: EES	Instrument: HRP763
Data File: b29jun12a_5-8		Dilution: 1
Prep Batch: 21414	Prep Method: SW846 3540C	
Prep Date: 26-JUN-12	Aliquot: 14.27 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		214	pg/g	0.154	0.701
40321-76-4	1,2,3,7,8-PeCDD	J	0.782	pg/g	0.0597	3.50
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.35	pg/g	0.263	3.50
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.29	pg/g	0.268	3.50
19408-74-3	1,2,3,7,8,9-HxCDD		5.93	pg/g	0.285	3.50
35822-46-9	1,2,3,4,6,7,8-HpCDD		187	pg/g	0.961	3.50
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	11900	pg/g	1.78	7.01
51207-31-9	2,3,7,8-TCDF		1.60	pg/g	0.149	0.701
57117-41-6	1,2,3,7,8-PeCDF	J	0.207	pg/g	0.0729	3.50
57117-31-4	2,3,4,7,8-PeCDF	J	0.566	pg/g	0.066	3.50
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.499	pg/g	0.100	3.50
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.450	pg/g	0.0999	3.50
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.793	pg/g	0.120	3.50
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.175	pg/g	0.134	3.50
67562-39-4	1,2,3,4,6,7,8-HpCDF		7.94	pg/g	0.115	3.50
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.353	pg/g	0.184	3.50
39001-02-0	1,2,3,4,6,7,8,9-OCDF		11.8	pg/g	0.195	7.01

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		110	140	pg/g	78.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		113	140	pg/g	80.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		101	140	pg/g	72.4	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		109	140	pg/g	78.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		112	140	pg/g	80.0	(23%-140%)
13C-OCDD		289	280	pg/g	103	(17%-157%)
13C-2,3,7,8-TCDF		99.7	140	pg/g	71.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		110	140	pg/g	78.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		117	140	pg/g	83.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		110	140	pg/g	78.5	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		109	140	pg/g	77.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		100	140	pg/g	71.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		128	140	pg/g	91.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		109	140	pg/g	77.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		111	140	pg/g	79.5	(26%-138%)
37Cl-2,3,7,8-TCDD		12.1	14.0	pg/g	86.5	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675017	Date Collected:	06/12/2012 10:13	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-080			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	07/09/2012 23:11	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-12			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	14.27 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.45	pg/g	0.273	0.701

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number: 3675
Lab Sample ID: 3675018
Client Sample: 1613B Soil
Client ID: RT66-081
Batch ID: 21417
Run Date: 07/04/2012 21:44
Data File: b03jul12d_3-8
Prep Batch: 21414
Prep Date: 26-JUN-12

Client: TETR001
Date Collected: 06/12/2012 10:13
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.28 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 5

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		292	pg/g	0.702	3.50
40321-76-4	1,2,3,7,8-PeCDD	J	1.16	pg/g	0.374	17.5
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.33	pg/g	0.634	17.5
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.13	pg/g	0.618	17.5
19408-74-3	1,2,3,7,8,9-HxCDD	J	5.74	pg/g	0.671	17.5
35822-46-9	1,2,3,4,6,7,8-HpCDD		190	pg/g	2.48	17.5
3268-87-9	1,2,3,4,6,7,8,9-OCDD		10200	pg/g	6.25	35.0
51207-31-9	2,3,7,8-TCDF	J	1.83	pg/g	0.405	3.50
57117-41-6	1,2,3,7,8-PeCDF	J	0.255	pg/g	0.207	17.5
57117-31-4	2,3,4,7,8-PeCDF	J	0.501	pg/g	0.207	17.5
70648-26-9	1,2,3,4,7,8-HxCDF	U	.569	pg/g	0.569	17.5
57117-44-9	1,2,3,6,7,8-HxCDF	U	.375	pg/g	0.375	17.5
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.738	pg/g	0.391	17.5
72918-21-9	1,2,3,7,8,9-HxCDF	U	.44	pg/g	0.440	17.5
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	5.84	pg/g	0.314	17.5
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.487	pg/g	0.487	17.5
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	11.3	pg/g	1.05	35.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		106	140	pg/g	75.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		103	140	pg/g	73.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		99.5	140	pg/g	71.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		110	140	pg/g	78.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		104	140	pg/g	74.6	(23%-140%)
13C-OCDD		279	280	pg/g	99.5	(17%-157%)
13C-2,3,7,8-TCDF		98.9	140	pg/g	70.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		109	140	pg/g	77.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		113	140	pg/g	80.6	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		112	140	pg/g	79.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		109	140	pg/g	77.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		102	140	pg/g	72.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		124	140	pg/g	88.5	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		105	140	pg/g	75.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		106	140	pg/g	75.3	(26%-138%)
37Cl-2,3,7,8-TCDD		12.4	14.0	pg/g	88.2	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
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Sample Summary**

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SDG Number: 3675
Lab Sample ID: 3675019
Client Sample: 1613B Soil
Client ID: RT66-082
Batch ID: 21420
Run Date: 07/04/2012 13:00
Data File: b03jul12d_2-11
Prep Batch: 21418
Prep Date: 28-JUN-12

Client: TETR001
Date Collected: 06/12/2012 10:13
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.66 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		249	pg/g	0.217	0.682
40321-76-4	1,2,3,7,8-PeCDD	J	1.13	pg/g	0.277	3.41
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.42	pg/g	0.326	3.41
57653-85-7	1,2,3,6,7,8-HxCDD		3.48	pg/g	0.285	3.41
19408-74-3	1,2,3,7,8,9-HxCDD		6.19	pg/g	0.327	3.41
35822-46-9	1,2,3,4,6,7,8-HpCDD		179	pg/g	1.11	3.41
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	8630	pg/g	1.80	6.82
51207-31-9	2,3,7,8-TCDF		1.88	pg/g	0.263	0.682
57117-41-6	1,2,3,7,8-PeCDF	J	0.981	pg/g	0.169	3.41
57117-31-4	2,3,4,7,8-PeCDF	J	0.688	pg/g	0.175	3.41
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.520	pg/g	0.180	3.41
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.578	pg/g	0.199	3.41
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.980	pg/g	0.224	3.41
72918-21-9	1,2,3,7,8,9-HxCDF	QU	.281	pg/g	0.281	3.41
67562-39-4	1,2,3,4,6,7,8-HpCDF		6.93	pg/g	0.165	3.41
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.446	pg/g	0.235	3.41
39001-02-0	1,2,3,4,6,7,8,9-OCDF		13.9	pg/g	0.250	6.82

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		110	136	pg/g	80.5	(25%-164%)
13C-1,2,3,7,8-PeCDD		115	136	pg/g	84.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		96.7	136	pg/g	70.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		97.5	136	pg/g	71.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		109	136	pg/g	79.8	(23%-140%)
13C-OCDD		229	273	pg/g	83.8	(17%-157%)
13C-2,3,7,8-TCDF		92.4	136	pg/g	67.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		114	136	pg/g	83.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		121	136	pg/g	88.8	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		109	136	pg/g	79.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		89.7	136	pg/g	65.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		88.1	136	pg/g	64.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF	Q	54.7	136	pg/g	40.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		97.3	136	pg/g	71.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		107	136	pg/g	78.1	(26%-138%)
37Cl-2,3,7,8-TCDD		11.5	13.6	pg/g	84.6	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
J Value is estimated
Q Quantitative Interference
U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675019	Date Collected:	06/12/2012 10:13	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-082			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/09/2012 23:30	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-13			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	14.66 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.74	pg/g	0.349	0.682

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
J Value is estimated
Q Quantitative Interference
U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
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SDG Number: 3675
Lab Sample ID: 3675020
Client Sample: 1613B Soil
Client ID: RT66-083
Batch ID: 21420
Run Date: 07/06/2012 03:18
Data File: b05jul12a-14
Prep Batch: 21418
Prep Date: 28-JUN-12

Client: TETR001
Date Collected: 06/12/2012 09:40
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.36 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 5

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		515	pg/g	0.604	3.48
40321-76-4	1,2,3,7,8-PeCDD	J	1.14	pg/g	0.269	17.4
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.79	pg/g	0.852	17.4
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.59	pg/g	0.855	17.4
19408-74-3	1,2,3,7,8,9-HxCDD	J	6.73	pg/g	0.915	17.4
35822-46-9	1,2,3,4,6,7,8-HpCDD		211	pg/g	3.31	17.4
3268-87-9	1,2,3,4,6,7,8,9-OCDD		12300	pg/g	13.6	34.8
51207-31-9	2,3,7,8-TCDF	J	2.55	pg/g	0.536	3.48
57117-41-6	1,2,3,7,8-PeCDF	J	0.504	pg/g	0.376	17.4
57117-31-4	2,3,4,7,8-PeCDF	J	0.695	pg/g	0.383	17.4
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.875	pg/g	0.461	17.4
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.558	pg/g	0.448	17.4
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.904	pg/g	0.558	17.4
72918-21-9	1,2,3,7,8,9-HxCDF	U	.621	pg/g	0.621	17.4
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	6.49	pg/g	0.689	17.4
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	1.08	pg/g	1.08	17.4
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	11.8	pg/g	1.33	34.8

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		104	139	pg/g	74.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		124	139	pg/g	89.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		96.8	139	pg/g	69.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		103	139	pg/g	73.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		106	139	pg/g	76.4	(23%-140%)
13C-OCDD		237	279	pg/g	85.1	(17%-157%)
13C-2,3,7,8-TCDF		106	139	pg/g	76.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		118	139	pg/g	84.7	(24%-185%)
13C-2,3,4,7,8-PeCDF		122	139	pg/g	87.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		100	139	pg/g	72.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		104	139	pg/g	74.8	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		93.9	139	pg/g	67.4	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		118	139	pg/g	84.5	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		94.6	139	pg/g	67.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		100	139	pg/g	71.9	(26%-138%)
37Cl-2,3,7,8-TCDD		13.0	13.9	pg/g	93.4	(35%-197%)

Comments:

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675021	Date Collected:	06/12/2012 09:40	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-084			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/07/2012 06:18	Analyst:	EES	Instrument:	HRP763
Data File:	b05jul12a_4-9			Dilution:	5
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	11.52 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		385	pg/g	0.736	4.34
40321-76-4	1,2,3,7,8-PeCDD	J	1.27	pg/g	0.394	21.7
39227-28-6	1,2,3,4,7,8-HxCDD	J	3.10	pg/g	1.06	21.7
57653-85-7	1,2,3,6,7,8-HxCDD	J	4.91	pg/g	1.15	21.7
19408-74-3	1,2,3,7,8,9-HxCDD	J	6.91	pg/g	1.19	21.7
35822-46-9	1,2,3,4,6,7,8-HpCDD		260	pg/g	4.27	21.7
3268-87-9	1,2,3,4,6,7,8,9-OCDD		11100	pg/g	12.4	43.4
51207-31-9	2,3,7,8-TCDF	J	2.95	pg/g	0.686	4.34
57117-41-6	1,2,3,7,8-PeCDF	J	0.812	pg/g	0.545	21.7
57117-31-4	2,3,4,7,8-PeCDF	J	1.26	pg/g	0.457	21.7
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.60	pg/g	0.512	21.7
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.29	pg/g	0.500	21.7
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.60	pg/g	0.611	21.7
72918-21-9	1,2,3,7,8,9-HxCDF	U	.674	pg/g	0.674	21.7
67562-39-4	1,2,3,4,6,7,8-HpCDF		28.9	pg/g	0.910	21.7
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	1.42	pg/g	1.42	21.7
39001-02-0	1,2,3,4,6,7,8,9-OCDF		76.9	pg/g	3.11	43.4

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		137	174	pg/g	78.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		160	174	pg/g	92.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		112	174	pg/g	64.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		130	174	pg/g	74.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		128	174	pg/g	73.9	(23%-140%)
13C-OCDD		276	347	pg/g	79.4	(17%-157%)
13C-2,3,7,8-TCDF		140	174	pg/g	80.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		155	174	pg/g	89.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		158	174	pg/g	91.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		120	174	pg/g	69.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		131	174	pg/g	75.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		115	174	pg/g	66.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		138	174	pg/g	79.5	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		116	174	pg/g	67.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		119	174	pg/g	68.6	(26%-138%)
37Cl-2,3,7,8-TCDD		16.1	17.4	pg/g	93.0	(35%-197%)

Comments:

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number: 3675
Lab Sample ID: 3675022
Client Sample: 1613B Soil
Client ID: RT66-085
Batch ID: 21420
Run Date: 07/05/2012 00:05
Data File: b03jul12d_3-11
Prep Batch: 21418
Prep Date: 28-JUN-12

Client: TETR001
Date Collected: 06/12/2012 09:40
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.34 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		167	pg/g	0.205	0.697
40321-76-4	1,2,3,7,8-PeCDD	J	1.80	pg/g	0.084	3.49
39227-28-6	1,2,3,4,7,8-HxCDD		3.84	pg/g	0.413	3.49
57653-85-7	1,2,3,6,7,8-HxCDD		9.00	pg/g	0.414	3.49
19408-74-3	1,2,3,7,8,9-HxCDD		9.63	pg/g	0.444	3.49
35822-46-9	1,2,3,4,6,7,8-HpCDD		316	pg/g	1.22	3.49
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	11600	pg/g	3.11	6.97
51207-31-9	2,3,7,8-TCDF		1.50	pg/g	0.237	0.697
57117-41-6	1,2,3,7,8-PeCDF	J	0.434	pg/g	0.158	3.49
57117-31-4	2,3,4,7,8-PeCDF	J	0.750	pg/g	0.144	3.49
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.73	pg/g	0.258	3.49
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.35	pg/g	0.219	3.49
60851-34-5	2,3,4,6,7,8-HxCDF	J	2.03	pg/g	0.259	3.49
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.336	pg/g	0.169	3.49
67562-39-4	1,2,3,4,6,7,8-HpCDF		47.0	pg/g	0.321	3.49
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	2.70	pg/g	0.456	3.49
39001-02-0	1,2,3,4,6,7,8,9-OCDF		143	pg/g	0.594	6.97

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		109	139	pg/g	78.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		110	139	pg/g	78.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		99.0	139	pg/g	71.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		99.1	139	pg/g	71.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		113	139	pg/g	81.3	(23%-140%)
13C-OCDD		254	279	pg/g	91.0	(17%-157%)
13C-2,3,7,8-TCDF		100	139	pg/g	71.8	(24%-169%)
13C-1,2,3,7,8-PeCDF		112	139	pg/g	80.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		117	139	pg/g	84.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		101	139	pg/g	72.5	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		113	139	pg/g	81.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		96.5	139	pg/g	69.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		140	139	pg/g	100	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		101	139	pg/g	72.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		108	139	pg/g	77.4	(26%-138%)
37Cl-2,3,7,8-TCDD		12.1	13.9	pg/g	86.6	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675022	Date Collected:	06/12/2012 09:40	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-085			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/09/2012 23:50	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-14			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	14.34 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.33	pg/g	0.356	0.697

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3675
Lab Sample ID: 3675023
Client Sample: 1613B Soil
Client ID: RT66-086
Batch ID: 21420
Run Date: 07/05/2012 00:51
Data File: b03jul12d_3-12
Prep Batch: 21418
Prep Date: 28-JUN-12

Client: TETR001
Date Collected: 06/06/2012 15:15
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.99 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		30.0	pg/g	0.119	0.667
40321-76-4	1,2,3,7,8-PeCDD	J	0.619	pg/g	0.0753	3.34
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.04	pg/g	0.231	3.34
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.54	pg/g	0.224	3.34
19408-74-3	1,2,3,7,8,9-HxCDD		4.01	pg/g	0.244	3.34
35822-46-9	1,2,3,4,6,7,8-HpCDD		180	pg/g	1.21	3.34
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	9750	pg/g	2.68	6.67
51207-31-9	2,3,7,8-TCDF	J	0.619	pg/g	0.176	0.667
57117-41-6	1,2,3,7,8-PeCDF	J	0.442	pg/g	0.0786	3.34
57117-31-4	2,3,4,7,8-PeCDF	J	1.46	pg/g	0.0803	3.34
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.755	pg/g	0.139	3.34
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.679	pg/g	0.137	3.34
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.986	pg/g	0.177	3.34
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.196	pg/g	0.193	3.34
67562-39-4	1,2,3,4,6,7,8-HpCDF		5.18	pg/g	0.151	3.34
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.428	pg/g	0.237	3.34
39001-02-0	1,2,3,4,6,7,8,9-OCDF		11.6	pg/g	0.280	6.67

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		105	133	pg/g	78.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		108	133	pg/g	81.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		99.2	133	pg/g	74.4	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		100	133	pg/g	75.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		107	133	pg/g	80.4	(23%-140%)
13C-OCDD		243	267	pg/g	91.1	(17%-157%)
13C-2,3,7,8-TCDF		98.2	133	pg/g	73.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		111	133	pg/g	83.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		113	133	pg/g	84.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		105	133	pg/g	79.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		108	133	pg/g	81.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		96.4	133	pg/g	72.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		121	133	pg/g	90.8	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		99.4	133	pg/g	74.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		103	133	pg/g	77.2	(26%-138%)
37Cl-2,3,7,8-TCDD		10.4	13.3	pg/g	78.0	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number: 3675
Lab Sample ID: 3675024
Client Sample: 1613B Soil
Client ID: RT66-087
Batch ID: 21420
Run Date: 07/05/2012 01:38
Data File: b03jul12d_3-13
Prep Batch: 21418
Prep Date: 28-JUN-12

Client: TETR001
Date Collected: 06/06/2012 15:30
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 15.62 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		38.1	pg/g	0.115	0.640
40321-76-4	1,2,3,7,8-PeCDD	J	0.533	pg/g	0.083	3.20
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.71	pg/g	0.251	3.20
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.22	pg/g	0.251	3.20
19408-74-3	1,2,3,7,8,9-HxCDD		3.26	pg/g	0.270	3.20
35822-46-9	1,2,3,4,6,7,8-HpCDD		170	pg/g	1.08	3.20
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	9510	pg/g	2.69	6.40
51207-31-9	2,3,7,8-TCDF	J	0.453	pg/g	0.133	0.640
57117-41-6	1,2,3,7,8-PeCDF	U	.312	pg/g	0.312	3.20
57117-31-4	2,3,4,7,8-PeCDF	J	0.384	pg/g	0.0881	3.20
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.341	pg/g	0.119	3.20
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.282	pg/g	0.120	3.20
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.480	pg/g	0.151	3.20
72918-21-9	1,2,3,7,8,9-HxCDF	U	.15	pg/g	0.150	3.20
67562-39-4	1,2,3,4,6,7,8-HpCDF		3.20	pg/g	0.107	3.20
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.198	pg/g	0.161	3.20
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	6.22	pg/g	0.246	6.40

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		99.2	128	pg/g	77.5	(25%-164%)
13C-1,2,3,7,8-PeCDD		99.1	128	pg/g	77.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		92.8	128	pg/g	72.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		95.2	128	pg/g	74.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		100	128	pg/g	78.3	(23%-140%)
13C-OCDD		229	256	pg/g	89.4	(17%-157%)
13C-2,3,7,8-TCDF		90.4	128	pg/g	70.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		104	128	pg/g	80.9	(24%-185%)
13C-2,3,4,7,8-PeCDF		106	128	pg/g	82.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		99.5	128	pg/g	77.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		101	128	pg/g	79.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		90.6	128	pg/g	70.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		118	128	pg/g	92.2	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		92.4	128	pg/g	72.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		97.1	128	pg/g	75.8	(26%-138%)
37Cl-2,3,7,8-TCDD		9.80	12.8	pg/g	76.6	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3675	Client: TETR001	Project: TETR00112
Lab Sample ID: 3675025	Date Collected: 06/07/2012 10:25	Matrix: SOLID
Client Sample: 1613B Soil	Date Received: 06/21/2012 09:50	
Client ID: RT66-088		Prep Basis: As Received
Batch ID: 21420	Method: EPA Method 1613B	
Run Date: 07/05/2012 04:07	Analyst: EES	Instrument: HRP763
Data File: b03jul12d_4-2		Dilution: 1
Prep Batch: 21418	Prep Method: SW846 3540C	
Prep Date: 28-JUN-12	Aliquot: 15.28 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		23.4	pg/g	0.111	0.654
40321-76-4	1,2,3,7,8-PeCDD	J	0.726	pg/g	0.140	3.27
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.80	pg/g	0.195	3.27
57653-85-7	1,2,3,6,7,8-HxCDD		3.54	pg/g	0.204	3.27
19408-74-3	1,2,3,7,8,9-HxCDD		4.29	pg/g	0.215	3.27
35822-46-9	1,2,3,4,6,7,8-HpCDD		155	pg/g	0.737	3.27
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	3250	pg/g	2.16	6.54
51207-31-9	2,3,7,8-TCDF	J	0.480	pg/g	0.158	0.654
57117-41-6	1,2,3,7,8-PeCDF	J	1.08	pg/g	0.120	3.27
57117-31-4	2,3,4,7,8-PeCDF	J	0.402	pg/g	0.115	3.27
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.67	pg/g	0.119	3.27
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.630	pg/g	0.108	3.27
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.03	pg/g	0.135	3.27
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.199	pg/g	0.131	3.27
67562-39-4	1,2,3,4,6,7,8-HpCDF		23.0	pg/g	0.191	3.27
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.21	pg/g	0.298	3.27
39001-02-0	1,2,3,4,6,7,8,9-OCDF		72.4	pg/g	0.351	6.54

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		101	131	pg/g	77.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		101	131	pg/g	76.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		92.5	131	pg/g	70.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		92.3	131	pg/g	70.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		104	131	pg/g	79.2	(23%-140%)
13C-OCDD		204	262	pg/g	77.8	(17%-157%)
13C-2,3,7,8-TCDF		91.6	131	pg/g	70.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		102	131	pg/g	78.3	(24%-185%)
13C-2,3,4,7,8-PeCDF		107	131	pg/g	81.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		94.2	131	pg/g	72.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		99.6	131	pg/g	76.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		87.7	131	pg/g	67.0	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		117	131	pg/g	89.7	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		93.4	131	pg/g	71.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		96.2	131	pg/g	73.5	(26%-138%)
37Cl-2,3,7,8-TCDD		10.8	13.1	pg/g	82.8	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
J Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675026	Date Collected:	06/07/2012 10:55	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-089			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/05/2012 04:54	Analyst:	EES	Instrument:	HRP763
Data File:	b03jul12d_4-3			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	14.75 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		79.4	pg/g	0.104	0.678
40321-76-4	1,2,3,7,8-PeCDD	J	0.464	pg/g	0.0736	3.39
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.06	pg/g	0.217	3.39
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.82	pg/g	0.221	3.39
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.20	pg/g	0.236	3.39
35822-46-9	1,2,3,4,6,7,8-HpCDD		87.4	pg/g	0.689	3.39
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2440	pg/g	1.97	6.78
51207-31-9	2,3,7,8-TCDF		0.795	pg/g	0.153	0.678
57117-41-6	1,2,3,7,8-PeCDF	J	0.864	pg/g	0.100	3.39
57117-31-4	2,3,4,7,8-PeCDF	J	0.428	pg/g	0.101	3.39
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.13	pg/g	0.0871	3.39
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.381	pg/g	0.0881	3.39
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.658	pg/g	0.106	3.39
72918-21-9	1,2,3,7,8,9-HxCDF	U	.119	pg/g	0.119	3.39
67562-39-4	1,2,3,4,6,7,8-HpCDF		6.75	pg/g	0.135	3.39
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.452	pg/g	0.217	3.39
39001-02-0	1,2,3,4,6,7,8,9-OCDF		22.5	pg/g	0.256	6.78

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		108	136	pg/g	79.9	(25%-164%)
13C-1,2,3,7,8-PeCDD		109	136	pg/g	80.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		105	136	pg/g	77.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		105	136	pg/g	77.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		116	136	pg/g	85.9	(23%-140%)
13C-OCDD		254	271	pg/g	93.6	(17%-157%)
13C-2,3,7,8-TCDF		96.2	136	pg/g	70.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		110	136	pg/g	81.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		113	136	pg/g	83.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		112	136	pg/g	82.5	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		117	136	pg/g	86.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		102	136	pg/g	75.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		132	136	pg/g	97.3	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		106	136	pg/g	78.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		108	136	pg/g	79.6	(26%-138%)
37Cl-2,3,7,8-TCDD		10.7	13.6	pg/g	79.1	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675026	Date Collected:	06/07/2012 10:55	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-089			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/10/2012 00:10	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-15			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	14.75 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF	J	0.659	pg/g	0.263	0.678

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- J Value is estimated
U Analyte was analyzed for , but not detected above the specified detection limit.

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SDG Number: 3675	Client: TETR001	Project: TETR00112
Lab Sample ID: 3675027	Date Collected: 06/07/2012 10:55	Matrix: SOLID
Client Sample: 1613B Soil	Date Received: 06/21/2012 09:50	
Client ID: RT66-089D		Prep Basis: As Received
Batch ID: 21420	Method: EPA Method 1613B	
Run Date: 07/05/2012 05:40	Analyst: EES	Instrument: HRP763
Data File: b03jul12d_4-4		Dilution: 1
Prep Batch: 21418	Prep Method: SW846 3540C	
Prep Date: 28-JUN-12	Aliquot: 14.94 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		76.6	pg/g	0.139	0.669
40321-76-4	1,2,3,7,8-PeCDD	J	0.416	pg/g	0.0747	3.35
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.02	pg/g	0.173	3.35
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.58	pg/g	0.169	3.35
19408-74-3	1,2,3,7,8,9-HxCDD	J	2.13	pg/g	0.183	3.35
35822-46-9	1,2,3,4,6,7,8-HpCDD		81.9	pg/g	0.724	3.35
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2370	pg/g	2.34	6.69
51207-31-9	2,3,7,8-TCDF		0.736	pg/g	0.162	0.669
57117-41-6	1,2,3,7,8-PeCDF	J	0.787	pg/g	0.102	3.35
57117-31-4	2,3,4,7,8-PeCDF	J	0.333	pg/g	0.0981	3.35
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.922	pg/g	0.112	3.35
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.375	pg/g	0.116	3.35
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.699	pg/g	0.137	3.35
72918-21-9	1,2,3,7,8,9-HxCDF	U	.155	pg/g	0.155	3.35
67562-39-4	1,2,3,4,6,7,8-HpCDF		6.93	pg/g	0.133	3.35
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.388	pg/g	0.212	3.35
39001-02-0	1,2,3,4,6,7,8,9-OCDF		22.7	pg/g	0.578	6.69

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		105	134	pg/g	78.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		104	134	pg/g	78.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		89.9	134	pg/g	67.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		99.4	134	pg/g	74.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		99.5	134	pg/g	74.3	(23%-140%)
13C-OCDD		222	268	pg/g	82.8	(17%-157%)
13C-2,3,7,8-TCDF		94.0	134	pg/g	70.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		110	134	pg/g	82.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		110	134	pg/g	82.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		101	134	pg/g	75.3	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		97.8	134	pg/g	73.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		90.4	134	pg/g	67.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		119	134	pg/g	89.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		97.2	134	pg/g	72.6	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		98.0	134	pg/g	73.2	(26%-138%)
37Cl-2,3,7,8-TCDD		10.9	13.4	pg/g	81.6	(35%-197%)

Comments:**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675027	Date Collected:	06/07/2012 10:55	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-089D			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/10/2012 00:29	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-16			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	14.94 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF	J	0.565	pg/g	0.308	0.669

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- J Value is estimated
U Analyte was analyzed for , but not detected above the specified detection limit.

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675028	Date Collected:	06/12/2012 13:30	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-090			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/05/2012 06:27	Analyst:	EES	Instrument:	HRP763
Data File:	b03jul12d_4-5			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	15.46 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		101	pg/g	0.153	0.647
40321-76-4	1,2,3,7,8-PeCDD	J	0.633	pg/g	0.0926	3.23
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.81	pg/g	0.464	3.23
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.50	pg/g	0.459	3.23
19408-74-3	1,2,3,7,8,9-HxCDD		4.82	pg/g	0.495	3.23
35822-46-9	1,2,3,4,6,7,8-HpCDD		155	pg/g	1.21	3.23
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	8330	pg/g	2.65	6.47
51207-31-9	2,3,7,8-TCDF		0.986	pg/g	0.163	0.647
57117-41-6	1,2,3,7,8-PeCDF	U	.692	pg/g	0.692	3.23
57117-31-4	2,3,4,7,8-PeCDF	J	0.353	pg/g	0.0891	3.23
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.533	pg/g	0.0909	3.23
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.300	pg/g	0.092	3.23
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.457	pg/g	0.114	3.23
72918-21-9	1,2,3,7,8,9-HxCDF	U	.126	pg/g	0.126	3.23
67562-39-4	1,2,3,4,6,7,8-HpCDF		4.07	pg/g	0.133	3.23
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.318	pg/g	0.208	3.23
39001-02-0	1,2,3,4,6,7,8,9-OCDF		7.70	pg/g	0.320	6.47

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		100	129	pg/g	77.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		101	129	pg/g	78.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		96.5	129	pg/g	74.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		97.5	129	pg/g	75.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		105	129	pg/g	81.4	(23%-140%)
13C-OCDD		236	259	pg/g	91.1	(17%-157%)
13C-2,3,7,8-TCDF		91.6	129	pg/g	70.8	(24%-169%)
13C-1,2,3,7,8-PeCDF		105	129	pg/g	81.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		106	129	pg/g	82.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		108	129	pg/g	83.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		101	129	pg/g	78.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		95.1	129	pg/g	73.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		123	129	pg/g	95.2	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		99.8	129	pg/g	77.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		104	129	pg/g	80.1	(26%-138%)
37Cl-2,3,7,8-TCDD		10.5	12.9	pg/g	81.4	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675028	Date Collected:	06/12/2012 13:30	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-090			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/10/2012 00:49	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-17			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	15.46 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.856	pg/g	0.344	0.647

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

**Hi-Res Dioxins/Furans
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SDG Number: 3675	Client: TETR001	Project: TETR00112
Lab Sample ID: 3675029	Date Collected: 06/12/2012 13:30	Matrix: SOLID
Client Sample: 1613B Soil	Date Received: 06/21/2012 09:50	
Client ID: RT66-091		Prep Basis: As Received
Batch ID: 21420	Method: EPA Method 1613B	
Run Date: 07/05/2012 07:14	Analyst: EES	Instrument: HRP763
Data File: b03jul12d_4-6		Dilution: 1
Prep Batch: 21418	Prep Method: SW846 3540C	
Prep Date: 28-JUN-12	Aliquot: 13.86 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		90.9	pg/g	0.156	0.722
40321-76-4	1,2,3,7,8-PeCDD	J	0.622	pg/g	0.0984	3.61
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.64	pg/g	0.297	3.61
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.54	pg/g	0.296	3.61
19408-74-3	1,2,3,7,8,9-HxCDD		5.25	pg/g	0.319	3.61
35822-46-9	1,2,3,4,6,7,8-HpCDD		158	pg/g	1.25	3.61
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	9020	pg/g	3.09	7.22
51207-31-9	2,3,7,8-TCDF		1.04	pg/g	0.160	0.722
57117-41-6	1,2,3,7,8-PeCDF	J	0.658	pg/g	0.134	3.61
57117-31-4	2,3,4,7,8-PeCDF	J	0.358	pg/g	0.138	3.61
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.498	pg/g	0.157	3.61
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.284	pg/g	0.152	3.61
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.440	pg/g	0.188	3.61
72918-21-9	1,2,3,7,8,9-HxCDF	U	.144	pg/g	0.144	3.61
67562-39-4	1,2,3,4,6,7,8-HpCDF		3.86	pg/g	0.113	3.61
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.267	pg/g	0.172	3.61
39001-02-0	1,2,3,4,6,7,8,9-OCDF		8.00	pg/g	0.263	7.22

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		116	144	pg/g	80.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		122	144	pg/g	84.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		110	144	pg/g	76.4	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		108	144	pg/g	75.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		122	144	pg/g	84.8	(23%-140%)
13C-OCDD		264	289	pg/g	91.6	(17%-157%)
13C-2,3,7,8-TCDF		106	144	pg/g	73.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		124	144	pg/g	86.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		126	144	pg/g	87.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		118	144	pg/g	81.7	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		119	144	pg/g	82.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		107	144	pg/g	74.3	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		148	144	pg/g	102	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		113	144	pg/g	78.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		119	144	pg/g	82.4	(26%-138%)
37Cl-2,3,7,8-TCDD		11.8	14.4	pg/g	81.4	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
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Sample Summary

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675029	Date Collected:	06/12/2012 13:30	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-091			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/10/2012 01:08	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-18			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	13.86 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.970	pg/g	0.358	0.722

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675030	Date Collected:	06/12/2012 13:30	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-092			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/05/2012 08:01	Analyst:	EES	Instrument:	HRP763
Data File:	b03jul12d_4-7			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	13.8 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		102	pg/g	0.172	0.725
40321-76-4	1,2,3,7,8-PeCDD	J	0.574	pg/g	0.102	3.62
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.77	pg/g	0.259	3.62
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.38	pg/g	0.251	3.62
19408-74-3	1,2,3,7,8,9-HxCDD		5.02	pg/g	0.272	3.62
35822-46-9	1,2,3,4,6,7,8-HpCDD		152	pg/g	1.16	3.62
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	11400	pg/g	3.16	7.25
51207-31-9	2,3,7,8-TCDF		1.03	pg/g	0.209	0.725
57117-41-6	1,2,3,7,8-PeCDF	J	0.452	pg/g	0.115	3.62
57117-31-4	2,3,4,7,8-PeCDF	J	0.399	pg/g	0.112	3.62
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.403	pg/g	0.142	3.62
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.291	pg/g	0.142	3.62
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.525	pg/g	0.172	3.62
72918-21-9	1,2,3,7,8,9-HxCDF	U	.191	pg/g	0.191	3.62
67562-39-4	1,2,3,4,6,7,8-HpCDF		4.23	pg/g	0.183	3.62
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.271	pg/g	0.271	3.62
39001-02-0	1,2,3,4,6,7,8,9-OCDF		8.50	pg/g	0.346	7.25

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		112	145	pg/g	77.5	(25%-164%)
13C-1,2,3,7,8-PeCDD		118	145	pg/g	81.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		101	145	pg/g	69.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		111	145	pg/g	76.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		116	145	pg/g	80.0	(23%-140%)
13C-OCDD		269	290	pg/g	92.9	(17%-157%)
13C-2,3,7,8-TCDF		105	145	pg/g	72.5	(24%-169%)
13C-1,2,3,7,8-PeCDF		124	145	pg/g	85.4	(24%-185%)
13C-2,3,4,7,8-PeCDF		124	145	pg/g	85.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		112	145	pg/g	77.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		109	145	pg/g	75.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		101	145	pg/g	69.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		126	145	pg/g	87.1	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		105	145	pg/g	72.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		112	145	pg/g	77.3	(26%-138%)
37Cl-2,3,7,8-TCDD		11.5	14.5	pg/g	79.4	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675030	Date Collected:	06/12/2012 13:30	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-092			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/10/2012 01:28	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-19			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	13.8 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.890	pg/g	0.384	0.725

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675031	Date Collected:	06/12/2012 13:40	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-093			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/05/2012 08:48	Analyst:	EES	Instrument:	HRP763
Data File:	b03jul12d_4-8			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	14.86 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		112	pg/g	0.167	0.673
40321-76-4	1,2,3,7,8-PeCDD	J	0.654	pg/g	0.0888	3.36
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.81	pg/g	0.231	3.36
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.56	pg/g	0.231	3.36
19408-74-3	1,2,3,7,8,9-HxCDD		5.04	pg/g	0.249	3.36
35822-46-9	1,2,3,4,6,7,8-HpCDD		153	pg/g	1.22	3.36
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	8580	pg/g	3.00	6.73
51207-31-9	2,3,7,8-TCDF		1.08	pg/g	0.210	0.673
57117-41-6	1,2,3,7,8-PeCDF	J	1.23	pg/g	0.0993	3.36
57117-31-4	2,3,4,7,8-PeCDF	J	0.380	pg/g	0.0921	3.36
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.766	pg/g	0.108	3.36
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.310	pg/g	0.106	3.36
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.491	pg/g	0.128	3.36
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.148	pg/g	0.147	3.36
67562-39-4	1,2,3,4,6,7,8-HpCDF		4.70	pg/g	0.127	3.36
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.318	pg/g	0.206	3.36
39001-02-0	1,2,3,4,6,7,8,9-OCDF		9.11	pg/g	0.283	6.73

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		107	135	pg/g	79.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		111	135	pg/g	82.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		93.2	135	pg/g	69.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		101	135	pg/g	75.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		104	135	pg/g	77.1	(23%-140%)
13C-OCDD		228	269	pg/g	84.7	(17%-157%)
13C-2,3,7,8-TCDF		101	135	pg/g	74.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		118	135	pg/g	88.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		119	135	pg/g	88.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		104	135	pg/g	77.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		102	135	pg/g	75.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		95.3	135	pg/g	70.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		119	135	pg/g	88.2	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		96.7	135	pg/g	71.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		99.8	135	pg/g	74.2	(26%-138%)
37Cl-2,3,7,8-TCDD		10.8	13.5	pg/g	80.2	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675031	Date Collected:	06/12/2012 13:40	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-093			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/10/2012 01:47	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-20			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	14.86 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.857	pg/g	0.421	0.673

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675032	Date Collected:	06/12/2012 13:50	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-094			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/05/2012 09:35	Analyst:	EES	Instrument:	HRP763
Data File:	b03jul12d_4-9			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	14.46 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		138	pg/g	0.165	0.692
40321-76-4	1,2,3,7,8-PeCDD	J	0.636	pg/g	0.144	3.46
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.82	pg/g	0.249	3.46
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.64	pg/g	0.261	3.46
19408-74-3	1,2,3,7,8,9-HxCDD		5.43	pg/g	0.274	3.46
35822-46-9	1,2,3,4,6,7,8-HpCDD		171	pg/g	1.34	3.46
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	8400	pg/g	2.70	6.92
51207-31-9	2,3,7,8-TCDF		1.08	pg/g	0.220	0.692
57117-41-6	1,2,3,7,8-PeCDF	J	0.935	pg/g	0.109	3.46
57117-31-4	2,3,4,7,8-PeCDF	J	0.357	pg/g	0.110	3.46
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.768	pg/g	0.127	3.46
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.308	pg/g	0.127	3.46
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.560	pg/g	0.155	3.46
72918-21-9	1,2,3,7,8,9-HxCDF	U	.187	pg/g	0.187	3.46
67562-39-4	1,2,3,4,6,7,8-HpCDF		4.75	pg/g	0.142	3.46
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.335	pg/g	0.234	3.46
39001-02-0	1,2,3,4,6,7,8,9-OCDF		8.06	pg/g	0.512	6.92

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		109	138	pg/g	78.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		112	138	pg/g	81.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		98.2	138	pg/g	71.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		104	138	pg/g	74.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		101	138	pg/g	73.3	(23%-140%)
13C-OCDD		222	277	pg/g	80.3	(17%-157%)
13C-2,3,7,8-TCDF		102	138	pg/g	73.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		121	138	pg/g	87.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		120	138	pg/g	86.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		105	138	pg/g	76.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		102	138	pg/g	74.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		93.8	138	pg/g	67.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		116	138	pg/g	83.8	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		94.9	138	pg/g	68.6	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		96.6	138	pg/g	69.8	(26%-138%)
37Cl-2,3,7,8-TCDD		11.0	13.8	pg/g	79.7	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675032	Date Collected:	06/12/2012 13:50	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-094			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/10/2012 02:07	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-21			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	14.46 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		1.40	pg/g	0.357	0.692

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

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SDG Number: 3675
Lab Sample ID: 3675033
Client Sample: 1613B Soil
Client ID: RT66-095
Batch ID: 21420
Run Date: 07/05/2012 10:22
Data File: b03jul12d_4-10
Prep Batch: 21418
Prep Date: 28-JUN-12

Client: TETR001
Date Collected: 06/12/2012 14:00
Date Received: 06/21/2012 09:50

Method: EPA Method 1613B
Analyst: EES

Prep Method: SW846 3540C
Aliquot: 14.09 g

Project: TETR00112
Matrix: SOLID

Prep Basis: As Received

Instrument: HRP763
Dilution: 1

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		37.6	pg/g	0.167	0.710
40321-76-4	1,2,3,7,8-PeCDD	J	0.846	pg/g	0.0894	3.55
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.03	pg/g	0.300	3.55
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.31	pg/g	0.312	3.55
19408-74-3	1,2,3,7,8,9-HxCDD		6.46	pg/g	0.329	3.55
35822-46-9	1,2,3,4,6,7,8-HpCDD		215	pg/g	1.46	3.55
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	14200	pg/g	3.26	7.10
51207-31-9	2,3,7,8-TCDF		0.721	pg/g	0.251	0.710
57117-41-6	1,2,3,7,8-PeCDF	J	0.646	pg/g	0.138	3.55
57117-31-4	2,3,4,7,8-PeCDF	J	0.842	pg/g	0.137	3.55
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.633	pg/g	0.169	3.55
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.505	pg/g	0.166	3.55
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.839	pg/g	0.204	3.55
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.196	pg/g	0.176	3.55
67562-39-4	1,2,3,4,6,7,8-HpCDF		5.53	pg/g	0.135	3.55
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.338	pg/g	0.203	3.55
39001-02-0	1,2,3,4,6,7,8,9-OCDF		8.77	pg/g	0.491	7.10

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		121	142	pg/g	85.4	(25%-164%)
13C-1,2,3,7,8-PeCDD		129	142	pg/g	90.6	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		111	142	pg/g	78.4	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		104	142	pg/g	73.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		116	142	pg/g	81.9	(23%-140%)
13C-OCDD		272	284	pg/g	95.7	(17%-157%)
13C-2,3,7,8-TCDF		108	142	pg/g	75.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		129	142	pg/g	90.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		132	142	pg/g	92.8	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		111	142	pg/g	78.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		113	142	pg/g	79.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		101	142	pg/g	70.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		133	142	pg/g	94.0	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		106	142	pg/g	74.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		112	142	pg/g	79.1	(26%-138%)
37Cl-2,3,7,8-TCDD		11.8	14.2	pg/g	83.2	(35%-197%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675033	Date Collected:	06/12/2012 14:00	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-095			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/10/2012 02:26	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_2-22			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	14.09 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.768	pg/g	0.380	0.710

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675034	Date Collected:	06/12/2012 14:30	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-096			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/05/2012 11:09	Analyst:	EES	Instrument:	HRP763
Data File:	b03jul12d_4-11			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	14.24 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		52.8	pg/g	0.154	0.702
40321-76-4	1,2,3,7,8-PeCDD	J	1.02	pg/g	0.0806	3.51
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.19	pg/g	0.254	3.51
57653-85-7	1,2,3,6,7,8-HxCDD		4.50	pg/g	0.251	3.51
19408-74-3	1,2,3,7,8,9-HxCDD		4.78	pg/g	0.272	3.51
35822-46-9	1,2,3,4,6,7,8-HpCDD		265	pg/g	1.39	3.51
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	14900	pg/g	2.77	7.02
51207-31-9	2,3,7,8-TCDF		0.761	pg/g	0.159	0.702
57117-41-6	1,2,3,7,8-PeCDF	J	0.404	pg/g	0.120	3.51
57117-31-4	2,3,4,7,8-PeCDF	J	0.513	pg/g	0.114	3.51
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.492	pg/g	0.128	3.51
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.465	pg/g	0.126	3.51
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.739	pg/g	0.157	3.51
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.183	pg/g	0.147	3.51
67562-39-4	1,2,3,4,6,7,8-HpCDF		12.9	pg/g	0.173	3.51
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.742	pg/g	0.272	3.51
39001-02-0	1,2,3,4,6,7,8,9-OCDF		40.4	pg/g	0.412	7.02

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		118	140	pg/g	83.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		126	140	pg/g	89.7	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		113	140	pg/g	80.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		110	140	pg/g	78.1	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		121	140	pg/g	86.3	(23%-140%)
13C-OCDD		292	281	pg/g	104	(17%-157%)
13C-2,3,7,8-TCDF		108	140	pg/g	76.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		127	140	pg/g	90.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		130	140	pg/g	92.5	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		118	140	pg/g	84.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		118	140	pg/g	84.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		106	140	pg/g	75.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		138	140	pg/g	97.9	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		112	140	pg/g	79.7	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		117	140	pg/g	83.6	(26%-138%)
37Cl-2,3,7,8-TCDD		11.6	14.0	pg/g	82.9	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated

**Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary**

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675034	Date Collected:	06/12/2012 14:30	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-096			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/10/2012 03:46	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_3-3			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	14.24 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		0.729	pg/g	0.232	0.702

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range

J Value is estimated

Hi-Res Dioxins/Furans Certificate of Analysis Sample Summary

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675035	Date Collected:	06/12/2012 15:07	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-097			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/06/2012 14:23	Analyst:	EES	Instrument:	HRP763
Data File:	b05jul12a_2-13			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	13.42 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		184	pg/g	0.204	0.745
40321-76-4	1,2,3,7,8-PeCDD	J	0.841	pg/g	0.114	3.73
39227-28-6	1,2,3,4,7,8-HxCDD	J	1.95	pg/g	0.423	3.73
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.23	pg/g	0.423	3.73
19408-74-3	1,2,3,7,8,9-HxCDD		3.77	pg/g	0.453	3.73
35822-46-9	1,2,3,4,6,7,8-HpCDD		169	pg/g	1.45	3.73
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	8300	pg/g	4.13	7.45
51207-31-9	2,3,7,8-TCDF		3.35	pg/g	0.282	0.745
57117-41-6	1,2,3,7,8-PeCDF	J	0.800	pg/g	0.168	3.73
57117-31-4	2,3,4,7,8-PeCDF	J	0.948	pg/g	0.146	3.73
70648-26-9	1,2,3,4,7,8-HxCDF	J	0.703	pg/g	0.225	3.73
57117-44-9	1,2,3,6,7,8-HxCDF	J	0.692	pg/g	0.222	3.73
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.02	pg/g	0.276	3.73
72918-21-9	1,2,3,7,8,9-HxCDF	U	.277	pg/g	0.277	3.73
67562-39-4	1,2,3,4,6,7,8-HpCDF		10.4	pg/g	0.204	3.73
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.565	pg/g	0.334	3.73
39001-02-0	1,2,3,4,6,7,8,9-OCDF		24.6	pg/g	0.505	7.45

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		116	149	pg/g	78.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		126	149	pg/g	84.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		100	149	pg/g	67.4	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		107	149	pg/g	71.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		116	149	pg/g	77.7	(23%-140%)
13C-OCDD		257	298	pg/g	86.3	(17%-157%)
13C-2,3,7,8-TCDF		110	149	pg/g	74.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		119	149	pg/g	80.1	(24%-185%)
13C-2,3,4,7,8-PeCDF		121	149	pg/g	81.4	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		102	149	pg/g	68.4	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		108	149	pg/g	72.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		95.5	149	pg/g	64.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		117	149	pg/g	78.6	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		99.8	149	pg/g	66.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		104	149	pg/g	69.8	(26%-138%)
37Cl-2,3,7,8-TCDD		12.2	14.9	pg/g	81.8	(35%-197%)

Comments:**E** Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**J** Value is estimated**U** Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

Page 1 of 1

SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	3675035	Date Collected:	06/12/2012 15:07	Matrix:	SOLID
Client Sample:	1613B Soil	Date Received:	06/21/2012 09:50		
Client ID:	RT66-097			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/10/2012 04:06	Analyst:	MJC	Instrument:	HRP763
Data File:	b09jul12a_3-4			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	13.42 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		3.07	pg/g	0.408	0.745

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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Comments:

- E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for , but not detected above the specified detection limit.

Quality Control Summary

Hi-Res Dioxins/Furans **Surrogate Recovery Report**

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12006281	LCS for batch 21414	13C-2,3,7,8-TCDD		76.2	(20%-175%)
		13C-1,2,3,7,8-PeCDD		84.1	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		77.7	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		73.4	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		82.2	(22%-166%)
		13C-OCDD		76.6	(13%-199%)
		13C-2,3,7,8-TCDF		72.5	(22%-152%)
		13C-1,2,3,7,8-PeCDF		81.5	(21%-192%)
		13C-2,3,4,7,8-PeCDF		83.5	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		81.5	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		75.5	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		72.9	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		84.6	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		71.9	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		78.8	(20%-186%)
		37Cl-2,3,7,8-TCDD		79.9	(31%-191%)
12006282	LCSD for batch 21414	13C-2,3,7,8-TCDD		80.0	(20%-175%)
		13C-1,2,3,7,8-PeCDD		83.1	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		77.5	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		76.6	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		83.0	(22%-166%)
		13C-OCDD		76.9	(13%-199%)
		13C-2,3,7,8-TCDF		75.8	(22%-152%)
		13C-1,2,3,7,8-PeCDF		81.5	(21%-192%)
		13C-2,3,4,7,8-PeCDF		83.8	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		80.2	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		76.4	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		76.0	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		83.7	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		76.3	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		80.3	(20%-186%)
		37Cl-2,3,7,8-TCDD		81.9	(31%-191%)
12006280	MB for batch 21414	13C-2,3,7,8-TCDD		61.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		66.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		63.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		64.7	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		71.3	(23%-140%)
		13C-OCDD		65.9	(17%-157%)
		13C-2,3,7,8-TCDF		58.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		65.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		69.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		67.5	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		66.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		63.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		71.4	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		66.6	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		68.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		62.8	(35%-197%)
3675001	RT66-064	13C-2,3,7,8-TCDD		82.2	(25%-164%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3675001	RT66-064	13C-1,2,3,7,8-PeCDD		85.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		80.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		83.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		87.9	(23%-140%)
		13C-OCDD		97.3	(17%-157%)
		13C-2,3,7,8-TCDF		78.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		86.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		87.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		90.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		84.5	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		81.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		99.5	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		82.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		87.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		85.0	(35%-197%)
3675002	RT66-065	13C-2,3,7,8-TCDD		81.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		85.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		79.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		81.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		87.3	(23%-140%)
		13C-OCDD		110	(17%-157%)
		13C-2,3,7,8-TCDF		77.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		87.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		87.9	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		86.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		87.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		78.4	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		98.5	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		82.6	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		86.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		93.5	(35%-197%)
3675003	RT66-066	13C-2,3,7,8-TCDD		73.0	(25%-164%)
		13C-1,2,3,7,8-PeCDD		78.7	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		77.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		71.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		79.4	(23%-140%)
		13C-OCDD		103	(17%-157%)
		13C-2,3,7,8-TCDF		70.5	(24%-169%)
		13C-1,2,3,7,8-PeCDF		79.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		81.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		80.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		77.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.0	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		96.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		77.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		78.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		78.9	(35%-197%)
3675004	RT66-067	13C-2,3,7,8-TCDD		72.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		75.8	(25%-181%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3675004	RT66-067	13C-1,2,3,4,7,8-HxCDD		72.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		70.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		71.8	(23%-140%)
		13C-OCDD		95.2	(17%-157%)
		13C-2,3,7,8-TCDF		70.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		78.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		80.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		76.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		71.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		68.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		88.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		71.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		72.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		78.6	(35%-197%)
3675005	RT66-068	13C-2,3,7,8-TCDD		65.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		67.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		64.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		62.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		65.0	(23%-140%)
		13C-OCDD		70.2	(17%-157%)
		13C-2,3,7,8-TCDF		63.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		68.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		69.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		69.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		65.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		61.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		81.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		63.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		64.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		69.6	(35%-197%)
3675006	RT66-069	13C-2,3,7,8-TCDD		65.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		68.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		66.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		67.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		69.8	(23%-140%)
		13C-OCDD		75.6	(17%-157%)
		13C-2,3,7,8-TCDF		63.8	(24%-169%)
		13C-1,2,3,7,8-PeCDF		68.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		70.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		73.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		72.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		67.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		81.4	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		66.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		68.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		69.2	(35%-197%)
3675007	RT66-070	13C-2,3,7,8-TCDD		77.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		79.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		76.6	(32%-141%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3675007	RT66-070	13C-1,2,3,6,7,8-HxCDD		76.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		78.0	(23%-140%)
		13C-OCDD		84.2	(17%-157%)
		13C-2,3,7,8-TCDF		73.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		78.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		81.8	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		82.6	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		80.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		74.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		91.5	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		74.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		76.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		80.6	(35%-197%)
3675008	RT66-071	13C-2,3,7,8-TCDD		70.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		70.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		65.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		68.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		74.1	(23%-140%)
		13C-OCDD		88.2	(17%-157%)
		13C-2,3,7,8-TCDF		64.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		69.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		71.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		70.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		73.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		64.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		77.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		67.0	(28%-143%)
3675009	RT66-072	13C-1,2,3,4,7,8,9-HpCDF		71.7	(26%-138%)
		37Cl-2,3,7,8-TCDD		73.1	(35%-197%)
		13C-2,3,7,8-TCDD		79.6	(25%-164%)
		13C-1,2,3,7,8-PeCDD		81.6	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		75.7	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		76.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		76.4	(23%-140%)
		13C-OCDD		94.2	(17%-157%)
		13C-2,3,7,8-TCDF		73.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		80.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		84.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		81.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		77.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		72.5	(28%-136%)
3675010	RT66-073	13C-1,2,3,7,8,9-HpCDF		90.4	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		75.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		76.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		82.7	(35%-197%)
		13C-2,3,7,8-TCDD		81.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		80.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		78.4	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		78.3	(28%-130%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3675010	RT66-073	13C-1,2,3,4,6,7,8-HpCDD		85.7	(23%-140%)
		13C-OCDD		103	(17%-157%)
		13C-2,3,7,8-TCDF		72.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		80.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		82.6	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		83.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		83.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		74.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		94.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		79.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		82.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		91.0	(35%-197%)
3675011	RT66-074	13C-2,3,7,8-TCDD		80.5	(25%-164%)
		13C-1,2,3,7,8-PeCDD		80.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		75.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		79.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		84.1	(23%-140%)
		13C-OCDD		90.4	(17%-157%)
		13C-2,3,7,8-TCDF		76.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		82.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		82.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		81.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		82.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		90.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		75.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		84.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		85.1	(35%-197%)
3675012	RT66-075	13C-2,3,7,8-TCDD		82.1	(25%-164%)
		13C-1,2,3,7,8-PeCDD		89.5	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		78.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		79.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		90.2	(23%-140%)
		13C-OCDD		91.9	(17%-157%)
		13C-2,3,7,8-TCDF		77.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		89.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		88.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		81.6	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		87.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		75.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		89.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		75.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		81.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		89.5	(35%-197%)
3675016	RT66-079	13C-2,3,7,8-TCDD		79.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		81.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		75.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		76.7	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		82.8	(23%-140%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3675016	RT66-079	13C-OCDD		106	(17%-157%)
		13C-2,3,7,8-TCDF		71.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		80.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		81.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		77.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		80.4	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		69.5	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		84.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		73.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		79.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		85.4	(35%-197%)
3675017	RT66-080	13C-2,3,7,8-TCDD		78.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		80.7	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		72.4	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		78.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		80.0	(23%-140%)
		13C-OCDD		103	(17%-157%)
		13C-2,3,7,8-TCDF		71.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		78.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		83.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		78.5	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		77.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		71.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		91.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		77.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		79.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		86.5	(35%-197%)
12006286	LCS for batch 21418	13C-2,3,7,8-TCDD		74.6	(20%-175%)
		13C-1,2,3,7,8-PeCDD		74.8	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		67.1	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		73.3	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		71.7	(22%-166%)
		13C-OCDD		60.6	(13%-199%)
		13C-2,3,7,8-TCDF		66.2	(22%-152%)
		13C-1,2,3,7,8-PeCDF		72.4	(21%-192%)
		13C-2,3,4,7,8-PeCDF		72.4	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		71.7	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		76.3	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		66.8	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		75.1	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		68.9	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		67.4	(20%-186%)
		37Cl-2,3,7,8-TCDD		73.6	(31%-191%)
12006287	LCSD for batch 21418	13C-2,3,7,8-TCDD		79.9	(20%-175%)
		13C-1,2,3,7,8-PeCDD		79.8	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		73.8	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		76.4	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		74.1	(22%-166%)
		13C-OCDD		66.8	(13%-199%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12006287	LCSD for batch 21418	13C-2,3,7,8-TCDF		70.2	(22%-152%)
		13C-1,2,3,7,8-PeCDF		77.8	(21%-192%)
		13C-2,3,4,7,8-PeCDF		78.9	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		77.7	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		78.7	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		70.3	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		77.9	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		70.7	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		70.8	(20%-186%)
12006285	MB for batch 21418	37Cl-2,3,7,8-TCDD		80.0	(31%-191%)
		13C-2,3,7,8-TCDD		74.1	(25%-164%)
		13C-1,2,3,7,8-PeCDD		72.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		65.7	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		73.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		69.4	(23%-140%)
		13C-OCDD		61.5	(17%-157%)
		13C-2,3,7,8-TCDF		67.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		72.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		74.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		71.6	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		75.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		68.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		75.5	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		66.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		66.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		76.4	(35%-197%)
3675019	RT66-082	13C-2,3,7,8-TCDD		80.5	(25%-164%)
		13C-1,2,3,7,8-PeCDD		84.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		70.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		71.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		79.8	(23%-140%)
		13C-OCDD		83.8	(17%-157%)
		13C-2,3,7,8-TCDF		67.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		83.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		88.8	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		79.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		65.8	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		64.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF	Q	40.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		71.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		78.1	(26%-138%)
3675014	RT66-077	37Cl-2,3,7,8-TCDD		84.6	(35%-197%)
		13C-2,3,7,8-TCDD		82.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		85.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		79.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		81.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		82.1	(23%-140%)
		13C-OCDD		107	(17%-157%)
		13C-2,3,7,8-TCDF		72.4	(24%-169%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3675014	RT66-077	13C-1,2,3,7,8-PeCDF		84.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		91.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		86.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		81.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		75.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		92.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		84.4	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		81.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		91.1	(35%-197%)
3675015	RT66-078	13C-2,3,7,8-TCDD		79.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		83.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		77.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		76.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		80.9	(23%-140%)
		13C-OCDD		99.4	(17%-157%)
		13C-2,3,7,8-TCDF		71.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		83.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		82.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		78.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		75.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		69.7	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		83.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		71.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		75.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		84.4	(35%-197%)
3675013	RT66-076	13C-2,3,7,8-TCDD		68.7	D (25%-164%)
		13C-1,2,3,7,8-PeCDD		64.7	D (25%-181%)
		13C-1,2,3,4,7,8-HxCDD		63.6	D (32%-141%)
		13C-1,2,3,6,7,8-HxCDD		66.9	D (28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		67.1	D (23%-140%)
		13C-OCDD		72.5	D (17%-157%)
		13C-2,3,7,8-TCDF		63.4	D (24%-169%)
		13C-1,2,3,7,8-PeCDF		68.8	D (24%-185%)
		13C-2,3,4,7,8-PeCDF		70.3	D (21%-178%)
		13C-1,2,3,4,7,8-HxCDF		69.6	D (26%-152%)
		13C-1,2,3,6,7,8-HxCDF		67.6	D (26%-123%)
		13C-2,3,4,6,7,8-HxCDF		62.3	D (28%-136%)
		13C-1,2,3,7,8,9-HxCDF		74.4	D (29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		62.4	D (28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		67.0	D (26%-138%)
		37Cl-2,3,7,8-TCDD		83.7	D (35%-197%)
3675018	RT66-081	13C-2,3,7,8-TCDD		75.9	D (25%-164%)
		13C-1,2,3,7,8-PeCDD		73.2	D (25%-181%)
		13C-1,2,3,4,7,8-HxCDD		71.0	D (32%-141%)
		13C-1,2,3,6,7,8-HxCDD		78.6	D (28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		74.6	D (23%-140%)
		13C-OCDD		99.5	D (17%-157%)
		13C-2,3,7,8-TCDF		70.6	D (24%-169%)
		13C-1,2,3,7,8-PeCDF		77.9	D (24%-185%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3675018	RT66-081	13C-2,3,4,7,8-PeCDF		80.6 D	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		79.8 D	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		77.7 D	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		72.9 D	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		88.5 D	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		75.3 D	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		75.3 D	(26%-138%)
		37Cl-2,3,7,8-TCDD		88.2 D	(35%-197%)
3675022	RT66-085	13C-2,3,7,8-TCDD		78.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		78.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		71.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		71.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		81.3	(23%-140%)
		13C-OCDD		91.0	(17%-157%)
		13C-2,3,7,8-TCDF		71.8	(24%-169%)
		13C-1,2,3,7,8-PeCDF		80.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		84.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		72.5	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		81.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		69.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		100	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		72.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		77.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		86.6	(35%-197%)
3675023	RT66-086	13C-2,3,7,8-TCDD		78.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		81.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		74.4	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		80.4	(23%-140%)
		13C-OCDD		91.1	(17%-157%)
		13C-2,3,7,8-TCDF		73.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		83.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		84.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		79.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		81.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		72.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		90.8	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		74.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		77.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		78.0	(35%-197%)
3675024	RT66-087	13C-2,3,7,8-TCDD		77.5	(25%-164%)
		13C-1,2,3,7,8-PeCDD		77.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		72.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		74.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		78.3	(23%-140%)
		13C-OCDD		89.4	(17%-157%)
		13C-2,3,7,8-TCDF		70.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		80.9	(24%-185%)
		13C-2,3,4,7,8-PeCDF		82.5	(21%-178%)

Hi-Res Dioxins/Furans **Surrogate Recovery Report**

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3675024	RT66-087	13C-1,2,3,4,7,8-HxCDF		77.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		79.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		70.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		92.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		72.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		75.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		76.6	(35%-197%)
3675025	RT66-088	13C-2,3,7,8-TCDD		77.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		76.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		70.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		70.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		79.2	(23%-140%)
		13C-OCDD		77.8	(17%-157%)
		13C-2,3,7,8-TCDF		70.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		78.3	(24%-185%)
		13C-2,3,4,7,8-PeCDF		81.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		72.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		76.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		67.0	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		89.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		71.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		73.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		82.8	(35%-197%)
3675026	RT66-089	13C-2,3,7,8-TCDD		79.9	(25%-164%)
		13C-1,2,3,7,8-PeCDD		80.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		77.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		85.9	(23%-140%)
		13C-OCDD		93.6	(17%-157%)
		13C-2,3,7,8-TCDF		70.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		81.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		83.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		82.5	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		86.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		75.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		97.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		78.2	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		79.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		79.1	(35%-197%)
3675027	RT66-089D	13C-2,3,7,8-TCDD		78.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		78.0	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		67.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		74.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		74.3	(23%-140%)
		13C-OCDD		82.8	(17%-157%)
		13C-2,3,7,8-TCDF		70.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		82.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		82.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		75.3	(26%-152%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3675027	RT66-089D	13C-1,2,3,6,7,8-HxCDF		73.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		67.5	(28%-136%)
		13C-1,2,3,7,8-HxCDF		89.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		72.6	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		73.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		81.6	(35%-197%)
3675028	RT66-090	13C-2,3,7,8-TCDD		77.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		78.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		74.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		81.4	(23%-140%)
		13C-OCDD		91.1	(17%-157%)
		13C-2,3,7,8-TCDF		70.8	(24%-169%)
		13C-1,2,3,7,8-PeCDF		81.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		82.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		83.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		78.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.5	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		95.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		77.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		80.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		81.4	(35%-197%)
3675029	RT66-091	13C-2,3,7,8-TCDD		80.6	(25%-164%)
		13C-1,2,3,7,8-PeCDD		84.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		76.4	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		84.8	(23%-140%)
		13C-OCDD		91.6	(17%-157%)
		13C-2,3,7,8-TCDF		73.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		86.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		87.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		81.7	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		82.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		74.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		102	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		78.3	(28%-143%)
3675030	RT66-092	13C-1,2,3,4,7,8,9-HpCDF		82.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		81.4	(35%-197%)
		13C-2,3,7,8-TCDD		77.5	(25%-164%)
		13C-1,2,3,7,8-PeCDD		81.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		69.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		76.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		80.0	(23%-140%)
		13C-OCDD		92.9	(17%-157%)
		13C-2,3,7,8-TCDF		72.5	(24%-169%)
		13C-1,2,3,7,8-PeCDF		85.4	(24%-185%)
		13C-2,3,4,7,8-PeCDF		85.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		77.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		75.3	(26%-123%)

Hi-Res Dioxins/Furans **Surrogate Recovery Report**

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3675030	RT66-092	13C-2,3,4,6,7,8-HxCDF		69.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		87.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		72.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		77.3	(26%-138%)
		37Cl-2,3,7,8-TCDD		79.4	(35%-197%)
3675031	RT66-093	13C-2,3,7,8-TCDD		79.6	(25%-164%)
		13C-1,2,3,7,8-PeCDD		82.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		69.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		77.1	(23%-140%)
		13C-OCDD		84.7	(17%-157%)
		13C-2,3,7,8-TCDF		74.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		88.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		88.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		77.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		75.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		70.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		88.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		71.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		74.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		80.2	(35%-197%)
3675032	RT66-094	13C-2,3,7,8-TCDD		78.6	(25%-164%)
		13C-1,2,3,7,8-PeCDD		81.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		71.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		74.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		73.3	(23%-140%)
		13C-OCDD		80.3	(17%-157%)
		13C-2,3,7,8-TCDF		73.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		87.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		86.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		76.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		74.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		67.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		83.8	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		68.6	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		69.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		79.7	(35%-197%)
3675033	RT66-095	13C-2,3,7,8-TCDD		85.4	(25%-164%)
		13C-1,2,3,7,8-PeCDD		90.6	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		78.4	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		73.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		81.9	(23%-140%)
		13C-OCDD		95.7	(17%-157%)
		13C-2,3,7,8-TCDF		75.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		90.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		92.8	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		78.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		79.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		70.9	(28%-136%)

Hi-Res Dioxins/Furans Surrogate Recovery Report

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3675033	RT66-095	13C-1,2,3,7,8,9-HxCDF		94.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		74.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		79.1	(26%-138%)
		37Cl-2,3,7,8-TCDD		83.2	(35%-197%)
3675034	RT66-096	13C-2,3,7,8-TCDD		83.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		89.7	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		80.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		78.1	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		86.3	(23%-140%)
		13C-OCDD		104	(17%-157%)
		13C-2,3,7,8-TCDF		76.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		90.8	(24%-185%)
		13C-2,3,4,7,8-PeCDF		92.5	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		84.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		84.1	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		75.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		97.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		79.7	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		83.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		82.9	(35%-197%)
3675020	RT66-083	13C-2,3,7,8-TCDD		74.7	D (25%-164%)
		13C-1,2,3,7,8-PeCDD		89.0	D (25%-181%)
		13C-1,2,3,4,7,8-HxCDD		69.5	D (32%-141%)
		13C-1,2,3,6,7,8-HxCDD		73.7	D (28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		76.4	D (23%-140%)
		13C-OCDD		85.1	D (17%-157%)
		13C-2,3,7,8-TCDF		76.2	D (24%-169%)
		13C-1,2,3,7,8-PeCDF		84.7	D (24%-185%)
		13C-2,3,4,7,8-PeCDF		87.3	D (21%-178%)
		13C-1,2,3,4,7,8-HxCDF		72.1	D (26%-152%)
		13C-1,2,3,6,7,8-HxCDF		74.8	D (26%-123%)
		13C-2,3,4,6,7,8-HxCDF		67.4	D (28%-136%)
		13C-1,2,3,7,8,9-HxCDF		84.5	D (29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		67.9	D (28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		71.9	D (26%-138%)
		37Cl-2,3,7,8-TCDD		93.4	D (35%-197%)
3675035	RT66-097	13C-2,3,7,8-TCDD		78.0	(25%-164%)
		13C-1,2,3,7,8-PeCDD		84.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		67.4	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		71.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		77.7	(23%-140%)
		13C-OCDD		86.3	(17%-157%)
		13C-2,3,7,8-TCDF		74.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		80.1	(24%-185%)
		13C-2,3,4,7,8-PeCDF		81.4	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		68.4	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		72.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		64.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		78.6	(29%-147%)

**Hi-Res Dioxins/Furans
Surrogate Recovery Report**

SDG Number: 3675

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
3675035	RT66-097	13C-1,2,3,4,6,7,8-HpCDF		66.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		69.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		81.8	(35%-197%)
3675021	RT66-084	13C-2,3,7,8-TCDD		78.7	D (25%-164%)
		13C-1,2,3,7,8-PeCDD		92.0	D (25%-181%)
		13C-1,2,3,4,7,8-HxCDD		64.5	D (32%-141%)
		13C-1,2,3,6,7,8-HxCDD		74.6	D (28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		73.9	D (23%-140%)
		13C-OCDD		79.4	D (17%-157%)
		13C-2,3,7,8-TCDF		80.4	D (24%-169%)
		13C-1,2,3,7,8-PeCDF		89.2	D (24%-185%)
		13C-2,3,4,7,8-PeCDF		91.0	D (21%-178%)
		13C-1,2,3,4,7,8-HxCDF		69.2	D (26%-152%)
		13C-1,2,3,6,7,8-HxCDF		75.6	D (26%-123%)
		13C-2,3,4,6,7,8-HxCDF		66.5	D (28%-136%)
		13C-1,2,3,7,8,9-HxCDF		79.5	D (29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		67.1	D (28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		68.6	D (26%-138%)
		37Cl-2,3,7,8-TCDD		93.0	D (35%-197%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Hi-Res Dioxins/Furans
Quality Control Summary
Spike Recovery Report

Page 1 of 2

SDG Number: 3675
Client ID: LCS for batch 21414
Lab Sample ID: 12006281
Instrument: HRP763
Analyst: EES

Sample Type: Laboratory Control Sample
Matrix: SOLID
Analysis Date: 06/30/2012 22:29
Prep Batch ID: 21414
Batch ID: 21417

Dilution: 1

CAS No.	Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	LCS 2,3,7,8-TCDD	20.0	19.0	95.2	67-158
40321-76-4	LCS 1,2,3,7,8-PeCDD	100	104	104	70-142
39227-28-6	LCS 1,2,3,4,7,8-HxCDD	100	115	115	70-164
57653-85-7	LCS 1,2,3,6,7,8-HxCDD	100	116	116	76-134
19408-74-3	LCS 1,2,3,7,8,9-HxCDD	100	125	125	64-162
35822-46-9	LCS 1,2,3,4,6,7,8-HpCDD	100	109	109	70-140
3268-87-9	LCS 1,2,3,4,6,7,8,9-OCDD	200	228	114	78-144
51207-31-9	LCS 2,3,7,8-TCDF	20.0	21.8	109	75-158
57117-41-6	LCS 1,2,3,7,8-PeCDF	100	99.7	99.7	80-134
57117-31-4	LCS 2,3,4,7,8-PeCDF	100	98.4	98.4	68-160
70648-26-9	LCS 1,2,3,4,7,8-HxCDF	100	97.1	97.1	72-134
57117-44-9	LCS 1,2,3,6,7,8-HxCDF	100	102	102	84-130
60851-34-5	LCS 2,3,4,6,7,8-HxCDF	100	108	108	70-156
72918-21-9	LCS 1,2,3,7,8,9-HxCDF	100	98.8	98.8	78-130
67562-39-4	LCS 1,2,3,4,6,7,8-HpCDF	100	105	105	82-122
55673-89-7	LCS 1,2,3,4,7,8,9-HpCDF	100	100	100	78-138
39001-02-0	LCS 1,2,3,4,6,7,8,9-OCDF	200	202	101	63-170

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Hi-Res Dioxins/Furans
Quality Control Summary
Spike Recovery Report

Page 2 of 2

SDG Number: 3675
Client ID: LCSD for batch 21414
Lab Sample ID: 12006282
Instrument: HRP763
Analyst: EES

Sample Type: Laboratory Control Sample Duplicate
Matrix: SOLID
Analysis Date: 06/30/2012 23:16
Dilution: 1
Prep Batch ID: 21414
Batch ID: 21417

CAS No.	Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD 2,3,7,8-TCDD	20.0	18.4	92.1	67-158	3.35	0-20
40321-76-4	LCSD 1,2,3,7,8-PeCDD	100	102	102	70-142	1.47	0-20
39227-28-6	LCSD 1,2,3,4,7,8-HxCDD	100	114	114	70-164	1.01	0-20
57653-85-7	LCSD 1,2,3,6,7,8-HxCDD	100	115	115	76-134	0.522	0-20
19408-74-3	LCSD 1,2,3,7,8,9-HxCDD	100	118	118	64-162	5.67	0-20
35822-46-9	LCSD 1,2,3,4,6,7,8-HpCDD	100	106	106	70-140	2.60	0-20
3268-87-9	LCSD 1,2,3,4,6,7,8,9-OCDD	200	232	116	78-144	1.63	0-20
51207-31-9	LCSD 2,3,7,8-TCDF	20.0	21.9	109	75-158	0.275	0-20
57117-41-6	LCSD 1,2,3,7,8-PeCDF	100	101	101	80-134	0.869	0-20
57117-31-4	LCSD 2,3,4,7,8-PeCDF	100	97.2	97.2	68-160	1.21	0-20
70648-26-9	LCSD 1,2,3,4,7,8-HxCDF	100	98.8	98.8	72-134	1.74	0-20
57117-44-9	LCSD 1,2,3,6,7,8-HxCDF	100	99.2	99.2	84-130	3.08	0-20
60851-34-5	LCSD 2,3,4,6,7,8-HxCDF	100	107	107	70-156	0.294	0-20
72918-21-9	LCSD 1,2,3,7,8,9-HxCDF	100	97.4	97.4	78-130	1.45	0-20
67562-39-4	LCSD 1,2,3,4,6,7,8-HpCDF	100	104	104	82-122	1.20	0-20
55673-89-7	LCSD 1,2,3,4,7,8,9-HpCDF	100	99.2	99.2	78-138	0.827	0-20
39001-02-0	LCSD 1,2,3,4,6,7,8,9-OCDF	200	201	101	63-170	0.462	0-20

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Hi-Res Dioxins/Furans
Quality Control Summary
Spike Recovery Report

Page 1 of 2

SDG Number: 3675
Client ID: LCS for batch 21418
Lab Sample ID: 12006286
Instrument: HRP763
Analyst: EES

Sample Type: Laboratory Control Sample
Matrix: SOLID
Analysis Date: 07/04/2012 05:11
Prep Batch ID: 21418
Batch ID: 21420

Dilution: 1

CAS No.	Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	LCS 2,3,7,8-TCDD	20.0	18.3	91.5	67-158
40321-76-4	LCS 1,2,3,7,8-PeCDD	100	102	102	70-142
39227-28-6	LCS 1,2,3,4,7,8-HxCDD	100	111	111	70-164
57653-85-7	LCS 1,2,3,6,7,8-HxCDD	100	115	115	76-134
19408-74-3	LCS 1,2,3,7,8,9-HxCDD	100	122	122	64-162
35822-46-9	LCS 1,2,3,4,6,7,8-HpCDD	100	105	105	70-140
3268-87-9	LCS 1,2,3,4,6,7,8,9-OCDD	200	221	110	78-144
51207-31-9	LCS 2,3,7,8-TCDF	20.0	21.5	108	75-158
57117-41-6	LCS 1,2,3,7,8-PeCDF	100	97.7	97.7	80-134
57117-31-4	LCS 2,3,4,7,8-PeCDF	100	99.3	99.3	68-160
70648-26-9	LCS 1,2,3,4,7,8-HxCDF	100	96.0	96	72-134
57117-44-9	LCS 1,2,3,6,7,8-HxCDF	100	104	104	84-130
60851-34-5	LCS 2,3,4,6,7,8-HxCDF	100	107	107	70-156
72918-21-9	LCS 1,2,3,7,8,9-HxCDF	100	96.7	96.7	78-130
67562-39-4	LCS 1,2,3,4,6,7,8-HpCDF	100	103	103	82-122
55673-89-7	LCS 1,2,3,4,7,8,9-HpCDF	100	95.8	95.8	78-138
39001-02-0	LCS 1,2,3,4,6,7,8,9-OCDF	200	201	100	63-170

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Hi-Res Dioxins/Furans
Quality Control Summary
Spike Recovery Report

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SDG Number: 3675
Client ID: LCSD for batch 21418
Lab Sample ID: 12006287
Instrument: HRP763
Analyst: EES

Sample Type: Laboratory Control Sample Duplicate
Matrix: SOLID
Analysis Date: 07/04/2012 05:57
Dilution: 1
Prep Batch ID: 21418
Batch ID: 21420

CAS No.	Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD 2,3,7,8-TCDD	20.0	18.4	91.8	67-158	0.327	0-20
40321-76-4	LCSD 1,2,3,7,8-PeCDD	100	104	104	70-142	1.86	0-20
39227-28-6	LCSD 1,2,3,4,7,8-HxCDD	100	113	113	70-164	1.61	0-20
57653-85-7	LCSD 1,2,3,6,7,8-HxCDD	100	110	110	76-134	4.06	0-20
19408-74-3	LCSD 1,2,3,7,8,9-HxCDD	100	115	115	64-162	5.86	0-20
35822-46-9	LCSD 1,2,3,4,6,7,8-HpCDD	100	110	110	70-140	4.46	0-20
3268-87-9	LCSD 1,2,3,4,6,7,8,9-OCDD	200	218	109	78-144	1.19	0-20
51207-31-9	LCSD 2,3,7,8-TCDF	20.0	22.0	110	75-158	2.11	0-20
57117-41-6	LCSD 1,2,3,7,8-PeCDF	100	102	102	80-134	4.54	0-20
57117-31-4	LCSD 2,3,4,7,8-PeCDF	100	101	101	68-160	1.23	0-20
70648-26-9	LCSD 1,2,3,4,7,8-HxCDF	100	99.2	99.2	72-134	3.19	0-20
57117-44-9	LCSD 1,2,3,6,7,8-HxCDF	100	105	105	84-130	0.942	0-20
60851-34-5	LCSD 2,3,4,6,7,8-HxCDF	100	108	108	70-156	0.951	0-20
72918-21-9	LCSD 1,2,3,7,8,9-HxCDF	100	101	101	78-130	4.66	0-20
67562-39-4	LCSD 1,2,3,4,6,7,8-HpCDF	100	106	106	82-122	2.45	0-20
55673-89-7	LCSD 1,2,3,4,7,8,9-HpCDF	100	99.9	99.9	78-138	4.14	0-20
39001-02-0	LCSD 1,2,3,4,6,7,8,9-OCDF	200	199	99.3	63-170	0.986	0-20

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Method Blank Summary

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SDG Number: 3675
Client ID: MB for batch 21414
Lab Sample ID: 12006280
Column:

Client: TETR001
Instrument ID: HRP763
Prep Date: 26-JUN-12

Matrix: SOLID
Data File: b29jun12a_4-3
Analyzed: 07/01/12 00:03

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 21414	12006281	b29jun12a_4-1	06/30/12	2229
02 LCSD for batch 21414	12006282	b29jun12a_4-2	06/30/12	2316
03 RT66-064	3675001	b29jun12a_4-4	07/01/12	0049
04 RT66-065	3675002	b29jun12a_4-5	07/01/12	0136
05 RT66-066	3675003	b29jun12a_4-6	07/01/12	0223
06 RT66-067	3675004	b29jun12a_4-7	07/01/12	0310
07 RT66-068	3675005	b29jun12a_4-8	07/01/12	0357
08 RT66-069	3675006	b29jun12a_4-9	07/01/12	0444
09 RT66-070	3675007	b29jun12a_4-10	07/01/12	0531
10 RT66-071	3675008	b29jun12a_4-11	07/01/12	0618
11 RT66-072	3675009	b29jun12a_4-12	07/01/12	0705
12 RT66-073	3675010	b29jun12a_4-13	07/01/12	0752
13 RT66-074	3675011	b29jun12a_5-2	07/01/12	1020
14 RT66-075	3675012	b29jun12a_5-3	07/01/12	1107
15 RT66-079	3675016	b29jun12a_5-7	07/01/12	1415
16 RT66-080	3675017	b29jun12a_5-8	07/01/12	1502
17 RT66-077	3675014	b03jul12d_3-5	07/04/12	1923
18 RT66-078	3675015	b03jul12d_3-6	07/04/12	2010
19 RT66-076	3675013	b03jul12d_3-7	07/04/12	2057
20 RT66-081	3675018	b03jul12d_3-8	07/04/12	2144
21 RT66-065	3675002	b09jul12a_2-4	07/09/12	2034
22 RT66-066	3675003	b09jul12a_2-5	07/09/12	2054
23 RT66-067	3675004	b09jul12a_2-6	07/09/12	2113
24 RT66-072	3675009	b09jul12a_2-7	07/09/12	2133
25 RT66-073	3675010	b09jul12a_2-8	07/09/12	2153
26 RT66-077	3675014	b09jul12a_2-9	07/09/12	2212
27 RT66-078	3675015	b09jul12a_2-10	07/09/12	2232
28 RT66-079	3675016	b09jul12a_2-11	07/09/12	2251
29 RT66-080	3675017	b09jul12a_2-12	07/09/12	2311

Method Blank Summary

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SDG Number: 3675
Client ID: MB for batch 21418
Lab Sample ID: 12006285
Column:

Client: TETR001
Instrument ID: HRP763
Prep Date: 28-JUN-12

Matrix: SOLID
Data File: b03jul12d_2-3
Analyzed: 07/04/12 06:44

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 21418	12006286	b03jul12d_2-1	07/04/12	0511
02 LCSD for batch 21418	12006287	b03jul12d_2-2	07/04/12	0557
03 RT66-082	3675019	b03jul12d_2-11	07/04/12	1300
04 RT66-085	3675022	b03jul12d_3-11	07/05/12	0005
05 RT66-086	3675023	b03jul12d_3-12	07/05/12	0051
06 RT66-087	3675024	b03jul12d_3-13	07/05/12	0138
07 RT66-088	3675025	b03jul12d_4-2	07/05/12	0407
08 RT66-089	3675026	b03jul12d_4-3	07/05/12	0454
09 RT66-089D	3675027	b03jul12d_4-4	07/05/12	0540
10 RT66-090	3675028	b03jul12d_4-5	07/05/12	0627
11 RT66-091	3675029	b03jul12d_4-6	07/05/12	0714
12 RT66-092	3675030	b03jul12d_4-7	07/05/12	0801
13 RT66-093	3675031	b03jul12d_4-8	07/05/12	0848
14 RT66-094	3675032	b03jul12d_4-9	07/05/12	0935
15 RT66-095	3675033	b03jul12d_4-10	07/05/12	1022
16 RT66-096	3675034	b03jul12d_4-11	07/05/12	1109
17 RT66-083	3675020	b05jul12a-14	07/06/12	0318
18 RT66-097	3675035	b05jul12a_2-13	07/06/12	1423
19 RT66-084	3675021	b05jul12a_4-9	07/07/12	0618
20 RT66-082	3675019	b09jul12a_2-13	07/09/12	2330
21 RT66-085	3675022	b09jul12a_2-14	07/09/12	2350
22 RT66-089	3675026	b09jul12a_2-15	07/10/12	0010
23 RT66-089D	3675027	b09jul12a_2-16	07/10/12	0029
24 RT66-090	3675028	b09jul12a_2-17	07/10/12	0049
25 RT66-091	3675029	b09jul12a_2-18	07/10/12	0108
26 RT66-092	3675030	b09jul12a_2-19	07/10/12	0128
27 RT66-093	3675031	b09jul12a_2-20	07/10/12	0147
28 RT66-094	3675032	b09jul12a_2-21	07/10/12	0207
29 RT66-095	3675033	b09jul12a_2-22	07/10/12	0226
30 RT66-096	3675034	b09jul12a_3-3	07/10/12	0346
31 RT66-097	3675035	b09jul12a_3-4	07/10/12	0406

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

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SDG Number: 3675	Client: TETR001	Project: TETR00112
Lab Sample ID: 12006280		Matrix: SOLID
Client Sample: QC for batch 21414		
Client ID: MB for batch 21414		Prep Basis: As Received
Batch ID: 21417	Method: EPA Method 1613B	
Run Date: 07/01/2012 00:03	Analyst: EES	Instrument: HRP763
Data File: b29jun12a_4-3		Dilution: 1
Prep Batch: 21414	Prep Method: SW846 3540C	
Prep Date: 26-JUN-12	Aliquot: 10 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	.107	pg/g	0.107	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	.0766	pg/g	0.0766	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	.111	pg/g	0.111	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	.109	pg/g	0.109	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	.118	pg/g	0.118	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	.286	pg/g	0.286	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	J	1.06	pg/g	0.338	10.0
51207-31-9	2,3,7,8-TCDF	J	0.254	pg/g	0.0944	1.00
57117-41-6	1,2,3,7,8-PeCDF	U	.068	pg/g	0.068	5.00
57117-31-4	2,3,4,7,8-PeCDF	U	.0496	pg/g	0.0496	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	U	.0754	pg/g	0.0754	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	U	.0762	pg/g	0.0762	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	.0868	pg/g	0.0868	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	.104	pg/g	0.104	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	.0746	pg/g	0.0746	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.111	pg/g	0.111	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	.246	pg/g	0.246	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		122	200	pg/g	61.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		133	200	pg/g	66.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		128	200	pg/g	63.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		129	200	pg/g	64.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		143	200	pg/g	71.3	(23%-140%)
13C-OCDD		264	400	pg/g	65.9	(17%-157%)
13C-2,3,7,8-TCDF		117	200	pg/g	58.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		132	200	pg/g	65.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		138	200	pg/g	69.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		135	200	pg/g	67.5	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		133	200	pg/g	66.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		127	200	pg/g	63.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		143	200	pg/g	71.4	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		133	200	pg/g	66.6	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		136	200	pg/g	68.2	(26%-138%)
37Cl-2,3,7,8-TCDD		12.6	20.0	pg/g	62.8	(35%-197%)

Comments:

- J Value is estimated
U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
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Sample Summary

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	12006281			Matrix:	SOLID
Client Sample:	QC for batch 21414				
Client ID:	LCS for batch 21414			Prep Basis:	As Received
Batch ID:	21417	Method:	EPA Method 1613B		
Run Date:	06/30/2012 22:29	Analyst:	EES	Instrument:	HRP763
Data File:	b29jun12a_4-1			Dilution:	1
Prep Batch:	21414	Prep Method:	SW846 3540C		
Prep Date:	26-JUN-12	Aliquot:	10 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		19.0	pg/g	0.106	1.00
40321-76-4	1,2,3,7,8-PeCDD		104	pg/g	0.101	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		115	pg/g	0.276	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		116	pg/g	0.286	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		125	pg/g	0.302	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		109	pg/g	0.360	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		228	pg/g	0.608	10.0
51207-31-9	2,3,7,8-TCDF		21.8	pg/g	0.081	1.00
57117-41-6	1,2,3,7,8-PeCDF		99.7	pg/g	0.158	5.00
57117-31-4	2,3,4,7,8-PeCDF		98.4	pg/g	0.149	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		97.1	pg/g	0.232	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		102	pg/g	0.232	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		108	pg/g	0.270	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		98.8	pg/g	0.316	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		105	pg/g	0.208	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		100	pg/g	0.300	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		202	pg/g	0.548	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		152	200	pg/g	76.2	(20%-175%)
13C-1,2,3,7,8-PeCDD		168	200	pg/g	84.1	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		155	200	pg/g	77.7	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		147	200	pg/g	73.4	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		164	200	pg/g	82.2	(22%-166%)
13C-OCDD		306	400	pg/g	76.6	(13%-199%)
13C-2,3,7,8-TCDF		145	200	pg/g	72.5	(22%-152%)
13C-1,2,3,7,8-PeCDF		163	200	pg/g	81.5	(21%-192%)
13C-2,3,4,7,8-PeCDF		167	200	pg/g	83.5	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		163	200	pg/g	81.5	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		151	200	pg/g	75.5	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		146	200	pg/g	72.9	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		169	200	pg/g	84.6	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		144	200	pg/g	71.9	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		158	200	pg/g	78.8	(20%-186%)
37Cl-2,3,7,8-TCDD		16.0	20.0	pg/g	79.9	(31%-191%)

Comments:

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SDG Number: 3675	Client: TETR001	Project: TETR00112
Lab Sample ID: 12006282		Matrix: SOLID
Client Sample: QC for batch 21414		
Client ID: LCSD for batch 21414		Prep Basis: As Received
Batch ID: 21417	Method: EPA Method 1613B	
Run Date: 06/30/2012 23:16	Analyst: EES	Instrument: HRP763
Data File: b29jun12a_4-2		Dilution: 1
Prep Batch: 21414	Prep Method: SW846 3540C	
Prep Date: 26-JUN-12	Aliquot: 10 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		18.4	pg/g	0.107	1.00
40321-76-4	1,2,3,7,8-PeCDD		102	pg/g	0.159	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		114	pg/g	0.264	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		115	pg/g	0.276	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		118	pg/g	0.290	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		106	pg/g	0.238	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		232	pg/g	0.638	10.0
51207-31-9	2,3,7,8-TCDF		21.9	pg/g	0.102	1.00
57117-41-6	1,2,3,7,8-PeCDF		101	pg/g	0.152	5.00
57117-31-4	2,3,4,7,8-PeCDF		97.2	pg/g	0.153	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		98.8	pg/g	0.366	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		99.2	pg/g	0.372	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		107	pg/g	0.422	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		97.4	pg/g	0.476	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		104	pg/g	0.292	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		99.2	pg/g	0.436	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		201	pg/g	0.876	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		160	200	pg/g	80.0	(20%-175%)
13C-1,2,3,7,8-PeCDD		166	200	pg/g	83.1	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		155	200	pg/g	77.5	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		153	200	pg/g	76.6	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		166	200	pg/g	83.0	(22%-166%)
13C-OCDD		308	400	pg/g	76.9	(13%-199%)
13C-2,3,7,8-TCDF		152	200	pg/g	75.8	(22%-152%)
13C-1,2,3,7,8-PeCDF		163	200	pg/g	81.5	(21%-192%)
13C-2,3,4,7,8-PeCDF		168	200	pg/g	83.8	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		160	200	pg/g	80.2	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		153	200	pg/g	76.4	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		152	200	pg/g	76.0	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		167	200	pg/g	83.7	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		153	200	pg/g	76.3	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		161	200	pg/g	80.3	(20%-186%)
37Cl-2,3,7,8-TCDD		16.4	20.0	pg/g	81.9	(31%-191%)

Comments:

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Sample Summary**

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	12006285			Matrix:	SOLID
Client Sample:	QC for batch 21418				
Client ID:	MB for batch 21418			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/04/2012 06:44	Analyst:	EES	Instrument:	HRP763
Data File:	b03jul12d_2-3			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	10 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	.105	pg/g	0.105	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	.0796	pg/g	0.0796	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	.117	pg/g	0.117	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	.116	pg/g	0.116	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	.125	pg/g	0.125	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	.204	pg/g	0.204	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	J	0.554	pg/g	0.410	10.0
51207-31-9	2,3,7,8-TCDF	J	0.278	pg/g	0.140	1.00
57117-41-6	1,2,3,7,8-PeCDF	U	.094	pg/g	0.094	5.00
57117-31-4	2,3,4,7,8-PeCDF	U	.056	pg/g	0.056	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	U	.0852	pg/g	0.0852	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	U	.0832	pg/g	0.0832	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	.098	pg/g	0.098	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	.128	pg/g	0.128	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	J	0.090	pg/g	0.070	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.11	pg/g	0.110	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	.268	pg/g	0.268	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		148	200	pg/g	74.1	(25%-164%)
13C-1,2,3,7,8-PeCDD		144	200	pg/g	72.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		131	200	pg/g	65.7	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		147	200	pg/g	73.4	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		139	200	pg/g	69.4	(23%-140%)
13C-OCDD		246	400	pg/g	61.5	(17%-157%)
13C-2,3,7,8-TCDF		134	200	pg/g	67.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		146	200	pg/g	72.8	(24%-185%)
13C-2,3,4,7,8-PeCDF		149	200	pg/g	74.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		143	200	pg/g	71.6	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		150	200	pg/g	75.1	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		136	200	pg/g	68.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		151	200	pg/g	75.5	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		132	200	pg/g	66.2	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		133	200	pg/g	66.4	(26%-138%)
37Cl-2,3,7,8-TCDD		15.3	20.0	pg/g	76.4	(35%-197%)

Comments:

- J** Value is estimated
K Estimated Maximum Possible Concentration
U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
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Sample Summary

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SDG Number:	3675	Client:	TETR001	Project:	TETR00112
Lab Sample ID:	12006286			Matrix:	SOLID
Client Sample:	QC for batch 21418				
Client ID:	LCS for batch 21418			Prep Basis:	As Received
Batch ID:	21420	Method:	EPA Method 1613B		
Run Date:	07/04/2012 05:11	Analyst:	EES	Instrument:	HRP763
Data File:	b03jul12d_2-1			Dilution:	1
Prep Batch:	21418	Prep Method:	SW846 3540C		
Prep Date:	28-JUN-12	Aliquot:	10 g		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		18.3	pg/g	0.122	1.00
40321-76-4	1,2,3,7,8-PeCDD		102	pg/g	0.204	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		111	pg/g	0.454	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		115	pg/g	0.456	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		122	pg/g	0.488	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		105	pg/g	0.566	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		221	pg/g	1.53	10.0
51207-31-9	2,3,7,8-TCDF		21.5	pg/g	0.115	1.00
57117-41-6	1,2,3,7,8-PeCDF		97.7	pg/g	0.210	5.00
57117-31-4	2,3,4,7,8-PeCDF		99.3	pg/g	0.210	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		96.0	pg/g	0.536	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		104	pg/g	0.522	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		107	pg/g	0.632	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		96.7	pg/g	0.808	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		103	pg/g	0.446	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		95.8	pg/g	0.736	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		201	pg/g	1.08	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		149	200	pg/g	74.6	(20%-175%)
13C-1,2,3,7,8-PeCDD		150	200	pg/g	74.8	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		134	200	pg/g	67.1	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		147	200	pg/g	73.3	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		143	200	pg/g	71.7	(22%-166%)
13C-OCDD		242	400	pg/g	60.6	(13%-199%)
13C-2,3,7,8-TCDF		132	200	pg/g	66.2	(22%-152%)
13C-1,2,3,7,8-PeCDF		145	200	pg/g	72.4	(21%-192%)
13C-2,3,4,7,8-PeCDF		145	200	pg/g	72.4	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		143	200	pg/g	71.7	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		153	200	pg/g	76.3	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		134	200	pg/g	66.8	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		150	200	pg/g	75.1	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		138	200	pg/g	68.9	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		135	200	pg/g	67.4	(20%-186%)
37Cl-2,3,7,8-TCDD		14.7	20.0	pg/g	73.6	(31%-191%)

Comments:

K Estimated Maximum Possible Concentration

Hi-Res Dioxins/Furans
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Sample Summary

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SDG Number: 3675	Client: TETR001	Project: TETR00112
Lab Sample ID: 12006287		Matrix: SOLID
Client Sample: QC for batch 21418		
Client ID: LCSD for batch 21418		Prep Basis: As Received
Batch ID: 21420	Method: EPA Method 1613B	
Run Date: 07/04/2012 05:57	Analyst: EES	Instrument: HRP763
Data File: b03jul12d_2-2		Dilution: 1
Prep Batch: 21418	Prep Method: SW846 3540C	
Prep Date: 28-JUN-12	Aliquot: 10 g	

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		18.4	pg/g	0.129	1.00
40321-76-4	1,2,3,7,8-PeCDD		104	pg/g	0.154	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		113	pg/g	0.366	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		110	pg/g	0.368	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		115	pg/g	0.394	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		110	pg/g	0.508	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		218	pg/g	1.36	10.0
51207-31-9	2,3,7,8-TCDF		22.0	pg/g	0.120	1.00
57117-41-6	1,2,3,7,8-PeCDF		102	pg/g	0.222	5.00
57117-31-4	2,3,4,7,8-PeCDF		101	pg/g	0.216	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		99.2	pg/g	0.414	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		105	pg/g	0.402	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		108	pg/g	0.504	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		101	pg/g	0.666	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		106	pg/g	0.472	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		99.9	pg/g	0.730	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		199	pg/g	1.33	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		160	200	pg/g	79.9	(20%-175%)
13C-1,2,3,7,8-PeCDD		160	200	pg/g	79.8	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		148	200	pg/g	73.8	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		153	200	pg/g	76.4	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		148	200	pg/g	74.1	(22%-166%)
13C-OCDD		267	400	pg/g	66.8	(13%-199%)
13C-2,3,7,8-TCDF		140	200	pg/g	70.2	(22%-152%)
13C-1,2,3,7,8-PeCDF		156	200	pg/g	77.8	(21%-192%)
13C-2,3,4,7,8-PeCDF		158	200	pg/g	78.9	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		155	200	pg/g	77.7	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		157	200	pg/g	78.7	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		141	200	pg/g	70.3	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		156	200	pg/g	77.9	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		141	200	pg/g	70.7	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		142	200	pg/g	70.8	(20%-186%)
37Cl-2,3,7,8-TCDD		16.0	20.0	pg/g	80.0	(31%-191%)

Comments:

K Estimated Maximum Possible Concentration

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-001
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-5-12
TIME: 8:38

Team Leader: Kiuroth

Samplers: EPA
START

Sample Depth: 0-2 in.
No. of Aliquots: 36

COMMENTS:

SOR-RES-DU1 = Map DU 1

South Outer Road Residential DU 1
Southeast

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-002
Contract Number:

Priority: High
Medium:

Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 8:55

Team Leader: Kinroth

Samplers: EPA
START

Sample Depth: 0-2 in.

No. of Aliquots: 36

COMMENTS:

SOR-RES-DUZ = Map DUZ
South Outer Road Residential DUZ
South west

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-003
Contract Number:

Priority:
Medium:

High
Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12
TIME: 9:21

Team Leader: Kiuroth

Samplers: price

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

SOR-15 = Map DU3A
South Outer Roadside Strip 15
1st strip closest to Road Shoulder
10' X 1000'

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-004
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12
TIME: 9:21

Team Leader: Kiuroth

Samplers: Larson

Sample Depth: 0-2 in.
No. of Aliquots: 30

COMMENTS:

SOR-2S = Map DU 3B
South Outer Roadside Strip 2S
2nd strip linear composite sample
20 feet off the road shoulder
10'X 1000'

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-005
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 9:21

Team Leader: Kinneth

Samplers: Nold

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

SOR-3S = Map DU 3C
South Outer Road Strip 3S
3rd linear composite cell 30 feet
South of road shoulder
10' X 1000'

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-006
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-5-12
TIME: 9:21

Team Leader: Kiuroth

Samplers: Harvester

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

SOR-4S Map DU 3D
South Outer Road Strip 4S
4th Strip South of road shoulder
by 40 feet - 10' x 1000'

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-006D
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12
TIME: 9:21

Team Leader: Kinroth

Samplers: Harvester

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

SOR-4S duplicate
Map DU 3D

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-007
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 10:40

Team Leader: Kiunoth

Samplers: EPA
START

Sample Depth: 0-2 in.

No. of Aliquots: 36

COMMENTS:

PUA-1 = Map DU 4

Public Use Area DU 1

Dogwood Shelter

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-008
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 11:00

Team Leader: Kingth

Samplers:

EPA

START

Sample Depth: 0-2 in.

No. of Aliquots:

3627

ADK
6-11-12

COMMENTS:

PUA - 2 = Map DU 5

Public Use Area DU 2

Forest Shelter

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-009
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-5-12
TIME: 1450

Team Leader: Kiuroth

Samplers: EPA
START

Sample Depth: 0-2 in.
No. Of Aliquots: 36

COMMENTS:

POA-3 = Map DU 6
Public Use Area DU # ~~3~~ ⁶⁻¹¹⁻¹²
Main Picnic Area South
Portion - south of path &
playground

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-010
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12
TIME: 1432

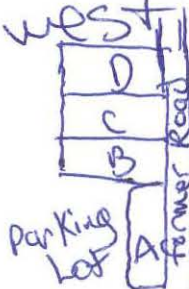
Team Leader: Kiuroth

Samplers: START
EPA

Sample Depth: 0-2 in.
No. of Aliquots: 36

COMMENTS:

POA-4 = Map DU7
Main Picnic Area Northwest
Portion - North of path to
playground and west of old road
bed



SAMPLE CONTAINER

PRESERVATIVE

ANALYSIS REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.Site Name: Route 66 State Park
City/State: Eureka, MOSuperfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-011
Contract Number:Priority: High
Medium: SoilClean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 1446

Team Leader: Kiuroth

Samplers: START
EPA

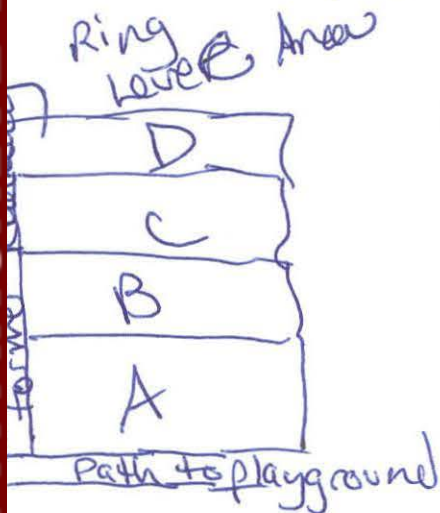
Sample Depth: 0-2 in.

No. of Aliquots: 36

COMMENTS:

PUA-5 = Map DU 8

Public Use Area DU #5

Main Picnic Area Northeast
north of path & playground and
east of former road bed

SAMPLE CONTAINER

PRESERVATIVE

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-011D
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12
TIME: 12:46

Team Leader: Kiuroth

Samplers: EPA
START

Sample Depth: 0-2 in.
No. of Aliquots: 36

COMMENTS:

Duplicate of PUA-5
map DU 8

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-012
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12
TIME: 1:50 P

Team Leader: Kinroth

Samplers: EPA
START

Sample Depth: 0-2 in.
No. of Aliquots: 36

COMMENTS:

PUA-6 = Map DU 9
Playground DU

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-013
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 1515

Team Leader: Kinnorth

Samplers: START
& EPA

Sample Depth: 0-2 in.

No. of Aliquots: 36

COMMENTS:

PJA-7 = Map DU 10

Public Use Area DU #7

Playground perimeter strips

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-014
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 1:553

Team Leader: Kinroth

Samplers: EPA
START

Sample Depth: 0-2 in.

No. Of Aliquots: 36

COMMENTS:

PUA-8 = Map DU 11

Dog Park DU 11

(South of Blakey Next to
Front Parking Lot)

145' x 265'

East to West South to North

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-015
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12
TIME: 16.24

Team Leader: Kiuroth

Samplers: EPA
START

Sample Depth: 0-2 in.
No. of Aliquots: 36

COMMENTS:

Sample was Not Submitted - Wrong
Location Sampled -
omitted
PUA-9

Dog Park Area #2 DU

(North of Blakey and South
of land fill area)

145 X 265

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-016
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12
TIME: 8:50

Team Leader: Kiuroth

Samplers: Davis

Sample Depth: 0-2 in.

No. of Aliquots: 10

COMMENTS:

TRA-1 = Map DU 12

Trail #1 = "W" Trail 500 feet
from parking lot to end of run
down center of trail

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.Site Name: Route 66 State Park
City/State: Eureka, MOSuperfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-017
Contract Number:Priority: High
Medium:

Soil

Clean-up Area NA
LayerDate Collected: 6-6-12
TIME: 850

Team Leader: Kiuroth

Samplers: Privy
NoloSample Depth: 0-2 in.
No. of Aliquots: 20

COMMENTS:

TRA-1A = Map DU 12A

"w" trail perimeter strip 1A
trail edge linear compositesC
B
1A
1A Trail
B
C

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-018
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12
TIME: 8:50

Team Leader: Kiuroth

Samplers: Harvester
Engemann

Sample Depth: 0-2 in.
No. Of Aliquots: 20

COMMENTS:

TRA-1B = Map DU 12 B

"W" Trail perimeter strips 1B
2nd strip out from center of
trail along shoulder
sections

C
B
A
A
B
C

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.Site Name: Route 66 State Park
City/State: Eureka, MOSuperfund Site No:
Site Code:

MOD 980685226

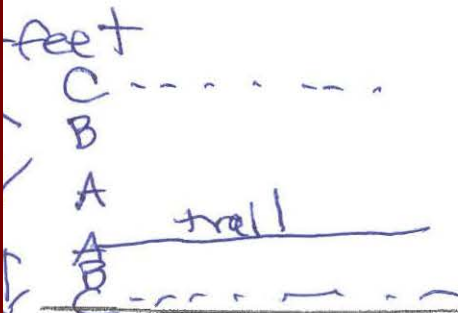
Epa Number: RT66-019
Contract Number:Priority: High
Medium: SoilClean-up Area NA
LayerDate Collected: 6-6-12
TIME: 8:50

Team Leader: Kinnroth

Samplers: Heltman
FrejSample Depth: 0-2 in.
No. of Aliquots: 20

COMMENTS:

TRA-1C = Map DU 12C

w trail perimeter strips 1C
3rd strip out from center of
trail about 5 feet from
edge of trail

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-020
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12
TIME: 9:20

Team Leader: Kinroth

Samplers: Davis

Sample Depth: 0-2 in.

No. of Aliquots: 10

COMMENTS:

TRA-2 = map DU 13

Center of the former Park
Drive Trail in the park interior
500 feet

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-021
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12

TIME: 9:28

Team Leader: Kinroth

Samplers: Price
Nolo

Sample Depth: 0-2 in.

No. Of Aliquots: 20

COMMENTS:

TRA-2A = Map DU BA

Park Trail perimeter strips 2A
trail edge line composite
along shoulders of the trail

2A - - - - -
former Park Drive Trail
2A - - - - -

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-022
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12
TIME: 9:28

Team Leader: Kiuroth

Samplers: Harvester
Engemann

Sample Depth: 0-2 in.
No. of Aliquots: 20

COMMENTS:

TRA-2B Map DU 13B

Park Trail perimeter strips 2B
2nd strip out on shoulder from
center of the trail

C
2B
A
former Park Drive Trail
A
2B
C

SAMPLE CONTAINER

PRESERVATIVE

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-023
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12

TIME: 9:20

Team Leader: Kiuroth

Samplers: Heitman
Frey

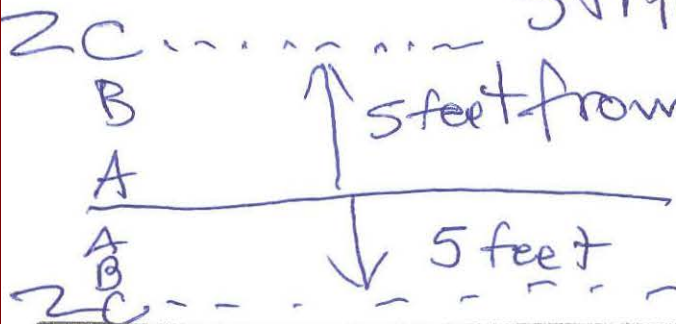
Sample Depth: 0-2 in.

No. of Aliquots: 20

COMMENTS:

TRA-ZC Map DU 13 C

Park Drive Trail 3rd Shoulder
Strips C-5 feet out



SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-024
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12

TIME: 10.00

Team Leader: Kiuroth

Samplers: Davis

Sample Depth: 0-2 in.

No. of Aliquots: 10

COMMENTS:

TRA -3 = Map DU 14

Center composite of Beach
Trail 500 feet in from Riverside
(former drive intersection)

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-025
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12
TIME: 10:00

Team Leader: Kingth

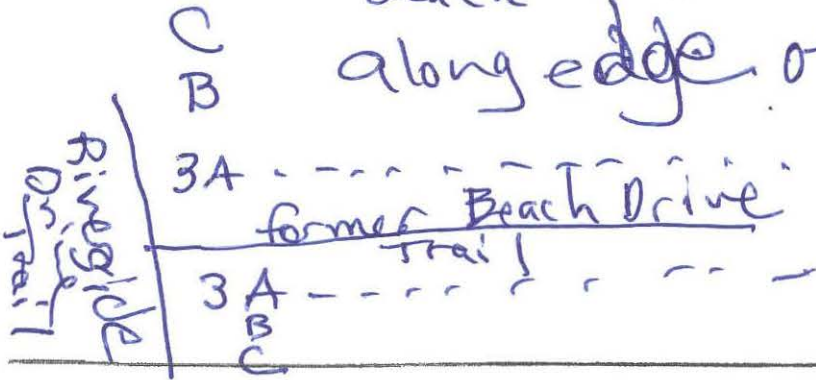
Samplers: Nold
Price

Sample Depth: 0-2 in.
No. of Aliquots: 20

COMMENTS:

TRA-3A = Map DU 14A

Beach Trail Side Strips 3A
along edge of the trail shoulder



SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-026
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12
TIME: 1:00

Team Leader: Kinroth

Samplers: Harvester
Engemann

Sample Depth: 0-2 in.
No. of Aliquots: 20

COMMENTS: TRA-3B = Map DU 14B

Beach trail side strips 3B
along trail shoulders

river side

C
3B
A
A
3B
C

Beach

SAMPLE CONTAINER

PRESERVATIVE

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-027
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12
TIME: 1:00:00

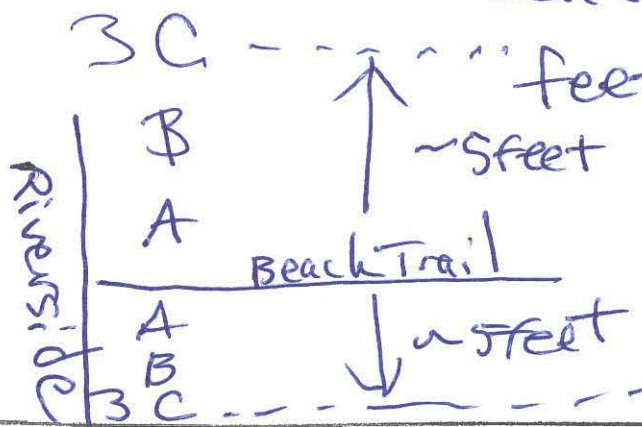
Team Leader: Kinroth
Samplers: Heitman
Frey

Sample Depth: 0-2 in.
No. of Aliquots: 20

COMMENTS:

TRA-3C = Map DU 14C

Beach Trail side strips 5
feet out from trail edge



SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:
MOD980685226

Epa Number: RT66-028
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12
TIME: 10:15

Team Leader: Kinroth

Samplers: Davis

Sample Depth: 0-2 in.

No. Of Aliquots: 10

COMMENTS:

TRA-4 = Map DU 15

Trail Section 4 - Riverside Drive
Trail 500 feet trending
North west from Beach Trail
Center of trail

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-029
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12
TIME: 1015

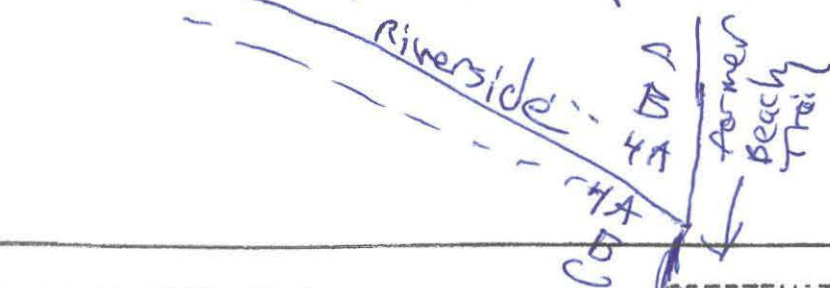
Team Leader: Kingth
Samplers: Nole
Price

Sample Depth: 0-2 in.
No. of Aliquots: 20

COMMENTS:

TRA-4A = Map DU 15A

Riverside Drive Trail Shoulder
Strips A from Beach to NW
500 feet



SAMPLE CONTAINER

PRESERVATIVE

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-030
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12

TIME: 10:15

Team Leader: Kiuroth

Samplers: ~~Hanner~~
Engemann

Sample Depth: 0-2 in.

No. of Aliquots: 20

COMMENTS:

TRA-4B = Map DU 15B
C
2B
A
A
2B
C
Riverside
Former
Beach
Drive
Trail

2nd strip Sections
out from shoulder
of Riverside Drive
Trail

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-031
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12
TIME: 10:15

Team Leader: Kiuroth

Samplers: Heitman
Frey

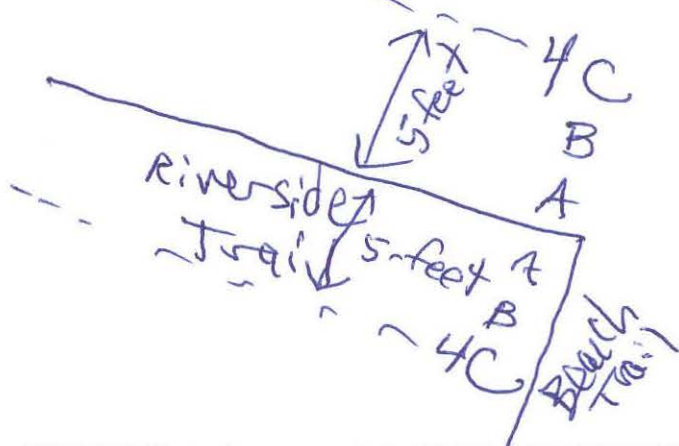
Sample Depth: 0-2 in.

No. of Aliquots: 20

COMMENTS:

TRA-4C = Map DU 15C

3rd strip shoulder sections
5 feet out from edge
of Riverside Trail
500 feet to NW
of former Beach
trail intersection



SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-031D
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12

TIME: 10.15

Team Leader: Kiuroth

Samplers: Heitman
Frey

Sample Depth: 0-2 in.

No. of Aliquots: 20

COMMENTS:

Duplicate TRA-4C
Map DU 15C

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-032
Contract Number:

Priority:
Medium:

High
Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 1415

Team Leader: Kinroth

Samplers: Silver

Sample Depth: 0-2 in.

No. of Aliquots: 5
Map

COMMENTS:

Outfall Area #1 = DU16

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-033
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-5-12
TIME: 1430

Team Leader: Kiuroth

Samplers: Silver

Sample Depth: 0-2 in.

No. of Aliquots: 5

COMMENTS:

Outfall Area #2 = Map DU 17

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-033D
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12
TIME: 1.43.0

Team Leader: Kinroth

Samplers: Silver

Sample Depth: 0-2 in.

No. of Aliquots: 5

COMMENTS:

Outfall #2 duplicate = Map DU 17

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-034
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12
TIME: 1:345

Team Leader: Kiuroth

Samplers: Harvester

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

Utility Line 1A - South edge along Forest
from Beach Trail 1000' to SE

Map DU
18A

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-035
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 13.45

Team Leader: Kiuroth

Samplers: Price

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

UTL-1B

Utility Line 1B - center - along Forest
from Beach Trail to SE 1000'

Map DU 18B

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-036
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 1:345

Team Leader: Kinroth

Samplers: Davis

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

UTL-1C Utility Line 1C - North edge of
line running from Beech Trail
1000 feet to SE
Map DU 18C

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-037
Contract Number:

Priority:
Medium:

High
Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 1415

Team Leader: Kiuroth

Samplers: Harvester

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

UTL-ZA

Utility Line ZA - South edge of
Forest Line - 630' to NNW of
Beach Trail

Map DU

19A

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-038
Contract Number:

Priority:
Medium:

High
Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 1.4.15

Team Leader: Kinroth

Samplers: Price

Sample Depth: 0-2 in.

No. Of Aliquots: 30

COMMENTS:

UTL-ZB

Map DU
19B

Utility line ZB - Center of Forest
Utility line Area - 630' trending
NNW of Beach Trail

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-039
Contract Number:

Priority:
Medium:

High
Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 1:415

Team Leader: Kinroth

Samplers: Davis

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

UTL-2C

North edge
Utility line 2C - Forest Line trending
from Beach Trail 630' to NNW

Map
DU
19C

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-040
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12
TIME: 1345

Team Leader: Kinroth
Samplers: Harvester

Sample Depth: 0-2 in.
No. of Aliquots: 30

COMMENTS:

UTL-3A

Utility Line 3A - South Edge
Dogwood Line
1000' trending SE from Beach

Map DU
20A

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-041
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-5-12
TIME: 1345

Team Leader: Kiuroth

Samplers: Price

Sample Depth: 0-2 in.

No. Of Aliquots: 30

COMMENTS:

UTL-3B

Utility Line 3B - Center Dogwood Utility Lines
1000' trending SE from Beach Trail

Map DU
ZOB

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-042
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 13.45

Team Leader: Kinroth

Samplers: Davis

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

UTL-3C

MapDU
ZOC

Utility Line 3C - North Edge
Dogwood Lines
trending 1000' SE from the
Beach Trail

SAMPLE CONTAINER

PRESERVATIVE

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-042D
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-5-12

TIME: 1.3.45

Team Leader: Kinroth

Samplers: Davis

Sample Depth: 0-2 in.

No. Of Aliquots: 30

COMMENTS:

UTL -3C Duplicate
Map DU 20C

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-043
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12
TIME: 1530

Team Leader: Kinnorth

Samplers: Nold

Sample Depth: 0-2 in.
No. of Aliquots: 27

COMMENTS:

UTA 1 Utility Areas of disturbance
UTA 1 A B & C combined
1A Dogwood Shelter
1B Forest Shelter
1C Main Lift Station Area

MAP
DU
21
Areas

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-0430
Contract Number:

Priority: High
Medium: Soil

Cleanup Area NA
Layer

Date Collected: 6-6-12

TIME: 1530

Team Leader: Kinroth

Samplers: Nold

Sample Depth: 0-2 in.

No. of Aliquots:

COMMENTS:

UTA 1 Duplicate

Map DU
21 Areas

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-044
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12
TIME: 1.3.00

Team Leader: Kinneth

Samplers: Engemann

Sample Depth: 0-2 in.
No. Of Aliquots: 30

COMMENTS:

DU 22A RDW1-15 Road way Sample
Groove from orchid (by Ring levee)
to Woodland (~ 1000 feet) - strip
~ 10 feet from road edge to south

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-045
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12
TIME: 1.3.00

Team Leader: Kinneth

Samplers: Frey

Sample Depth: 0-2 in.
No. of Aliquots: 30

COMMENTS:

RDW 1-25

Grave Roadway Strip 20 feet
south of roadside

= DU 22B

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-046
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12
TIME: 1300

Team Leader: Kinroth

Samplers: Frey

Sample Depth: 0-2 in.
No. Of Aliquots: 30

COMMENTS:

RDW1-25 Grove Roadway Strip 20 feet South
of roadside -

Sample passed through #10 (2mm) sieve
during processing

DU 22B

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-047
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12

TIME: 1.3.00

Team Leader: Kinneth

Samplers: Heitman

Sample Depth: 0-2 in.

No. Of Aliquots: 30

COMMENTS:

ROW1-3S

DJ 22C

Grove Roadway Segment
30 feet south of road
edge

unsieved sample

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-048
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12

TIME: 1300

Team Leader: Kuroth

Samplers: Heidman

Sample Depth: 0-2 in.

No. Of Aliquots:

COMMENTS:

RDW1-35

Grove Road Segment 30 feet
South of road

DJ22C

Sample passed through #10 (2mm)
sieve

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-049
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12
TIME: 1:300

Team Leader: Kiuroth

Samplers: Harvester

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

RDWI-4S Grove Road Segment 4S
DUZZD 40 feet south of road edge

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-050
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12

TIME: 1:00

Team Leader: Kiuroth

Samplers: Harvester

Sample Depth: 0-2 in.

No. Of Aliquots: 30

COMMENTS:

RDW1-1N

DJ 22E

1N
Grove Road Strip Segment
10 foot strip off of North
shoulder edge of road

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-051
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12
TIME: 1:400

Team Leader: Kuroth

Samplers: Engemann

Sample Depth: 0-2 in.
No. of Aliquots: 30

COMMENTS:

RDW1-ZN
DUZZF

Grove Road segment Z^N
strip 20 feet off road
shoulder to North

unsieved sample

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-052
Contract Number:

Priority:
Medium:

High
Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12
TIME: 1:400

Team Leader: Kiuroth

Samplers: ~~Silver~~ ^{WOK} 6-13-12
Engemann

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

RDW1-ZN

Grove Road segment ZN

DJ
ZZF

sample passed through #10 (2mm) sieve

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-053
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12
TIME: 1400

Team Leader: Kinroth

Samplers: Silver

Sample Depth: 0-2 in.
No. Of Aliquots: 30

COMMENTS:

RDW1-3N
= DU 226

Grove Road Segment 3N-strip
30 foot north of road shoulder
(1000' X 10' from orchid to woodland)

unsieved sample

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-054
Contract Number:

Priority: High
Medium: Soil

Cleanup Area NA
Laver

Date Collected: 6-6-12

TIME: 1:400

Team Leader: Kiuroth

Samplers: Silver

Sample Depth: 0-2 in.

No. Of Aliquots: 30

COMMENTS:

ROW 1-3N

Grove Road Segment 3N

DU 226

sample passed through #10 (2mm)
sieve

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-055
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-6-12

TIME: 1:400

Team Leader: Kinroth

Samplers: Frey

Sample Depth: 0-2 in.

No. Of Aliquots: 30

COMMENTS:

RDW1-4N
= DUZZH

Grove Road Segment 4 N
40 feet North of road shoulder
edge from Orchid (byring
tree)
to Woodland (~1000 X 10 feet
strip section)

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-056
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-7-12

TIME: 0920

Team Leader: Kinroth

Samplers: Engemann

Sample Depth: 0-2 in.

No. of Aliquots: 25

COMMENTS:

RDWZ-1S

DJ 23A

Oak Road Segment 1S
10 feet south of road shoulder
strip cell DU (750' x 10')
along shoulder south of
Oak from Dahlia to Beach
and extended on to Blakey
crossing

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-057
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-7-12

TIME: 0920

Team Leader: Kinroth

Samplers: Heitman

Sample Depth: 0-2 in.

No. Of Aliquots: 25

COMMENTS:

RDW 2-2S
DU 23B

Oak Road Segment + 20 feet
South of Road Shoulder
(750' X 10' strip section)

SAMPLE CONTAINER

PRESERVATIVE

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-058
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-7-12
TIME: 9:20

Team Leader: Kiuroth
Samplers: Price

Sample Depth: 0-2 in.
No. of Aliquots: 25

COMMENTS:

RDW2-3S
DU 23C

Oak Road Segment 3S
strip 30 feet south of
shoulder (750' x 10')

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-059
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-7-12
TIME: 9:20

Team Leader: Kiuroth

Samplers: Harvester

Sample Depth: 0-2 in.

No. Of Aliquots: 25

COMMENTS:

RDW2-4S
DU 23D

Oak Road Segment 4S
40 feet south of road
Shoulder from Dahlia
running 750 feet
east toward Beach
1/2 Blakey

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-060
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-7-12

TIME: 1000

Team Leader: Kiuroth

Samplers: Engemann

Sample Depth: 0-2 in.

No. of Aliquots: 25

COMMENTS:

RDWZ-1N

DU 23E

Oak Road Segment 1N
10 feet north of road shoulder

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-061
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-7-12

TIME: 1000

Team Leader: Kiuroth

Samplers: Heitman

Sample Depth: 0-2 in.

No. of Aliquots: 25

COMMENTS:

RDW 2-2N
DU 23F

Oak Road Segment 2N
20 foot strip north of
Road shoulder

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-062
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-7-12
TIME: 1000

Team Leader: Kiuroth
Samplers: price

Sample Depth: 0-2 in.
No. Of Aliquots: 25

COMMENTS:

RDWZ-3N

DU 236

Oak Road Segment 3N
30 feet North of road
Shoulder from Dahlia
to Beach and extends on
toward Blakey Road Shoulder
(750' x 10')

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-D63
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-7-12

TIME: 1:00

Team Leader: Kiuroth

Samplers: Harvester

Sample Depth: 0-2 in.

No. of Aliquots: 25

COMMENTS:

RDWZ-4N

DU23H

Oak Road Segment 4N
40 feet north of road
Shoulder - strip section
(750' x 10')

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:
MOD980685226

Epa Number: RT66-064
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-12-12
TIME: 0900

Team Leader: Kinneth

Samplers: Nold

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

RDW3-15

DJ 24A

Maple Road Segment 15
(600' x 20') South of Road edge
to 20 feet between Dahlia
& Beach

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-065
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12
TIME: 9:00

Team Leader: Kinroth

Samplers: Coffey

Sample Depth: 0-2 in.
No. of Aliquots: 30

COMMENTS:

RDW3-2S
DJ 24B

2S
Maple Road Segment 20-40 feet
south of road shoulder between
Dahlia & Beach (20'x600 strip)

SAMPLE CONTAINER

PRESERVATIVE

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-066
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 9:00

Team Leader: Kiuroth

Samplers: Engemann

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

RDW3-3S
DU 24C

South side
40-60 feet segment of Maple
Shoulder between Dahlia &
Beach

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-067
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 9:00

Team Leader: Kiuroth

Samplers: Frey

Sample Depth: 0-2 in.

No. of Aliquots: 30

COMMENTS:

RDWS-4S

60-80 strip south of Maple
segment = 4S

DU 24D

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-068
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 10.50

Team Leader: Kiuroth

Samplers: Frye

Sample Depth: 0-2 in.

No. of Aliquots: 10

COMMENTS:

RDW3-1N-A
DU24E

Maple Road Segment 1N
A triplicate sample
20 x 600 strip section of North
shoulder of Maple between
Beach & Dahlia

SAMPLE CONTAINER

PRESERVATIVE

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-069
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 1050

Team Leader: Kingth

Samplers: Nold

Sample Depth: 0-2 in.

No. of Aliquots: 10

COMMENTS:

RDW3-1NB

DJ 24 E

Maple Road Segment 1N
B triplicate sample

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-070
Contract Number:

Priority:
Medium:

High
Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 1050

Team Leader: Kiuroth

Samplers: Engemann

Sample Depth: 0-2 in.

No. of Aliquots: 10

COMMENTS:

RDW3-INC

DJ24E

Maple Road Segment 1N
C triplicate sample

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-071
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 1026

Team Leader: Kingth

Samplers: Nold

Sample Depth: 0-2 in.

No. of Aliquots:

COMMENTS:

RDW3 - ZN-A
DU 24F

Maple Road Segment ZN
A triplicate
20-40 North of Maple
Road Shoulder - 20' x 600'
Strip from Dahlia
to Beach

SAMPLE CONTAINER

PRESERVATIVE

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:

Site Code:

MOD980685226

Epa Number: RT66-072
Contract Number:

Priority:

Medium:

High

Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 10:26

Team Leader: Kiuroth

Samplers: Frye

Sample Depth: 0-2 in.

No. Of Aliquots: 10

COMMENTS:

RDW3-ZN-B

DU 24F

Maple Segment ZN
B triplicate sample

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-073
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-12-12

TIME: 10:26

Team Leader: Kiuroth

Samplers: Engemann

Sample Depth: 0-2 in.

No. of Aliquots: 10

COMMENTS:

RDW3-ZN-C
DU 24 F

Maple Road Segment ZN
C triplicate sample

SAMPLE CONTAINER

PRESERVATIVE

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.Site Name: Route 66 State Park
City/State: Eureka, MOSuperfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-074
Contract Number:Priority: High
Medium: SoilClean-up Area NA
Laver

Date Collected: 6-12-12

TIME: 1.0.26

Team Leader: Kinnroth
Samplers: KinnrothSample Depth: 0-2 in.
No. of Aliquots: 5

COMMENTS:

RDW3-2N-D1

Discrete location
5 Aliquot Composite Sample
Maple Road Segment
2N - West End
Sample of DU 24F

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-075
Contract Number:

Priority:
Medium:

High
Soil

Clean-up Area NA
Laver

Date Collected: 6-12-12

TIME: 1.0.30

Team Leader: Kinroth

Samplers: Kinroth

Sample Depth: 0-2 in.

No. of Aliquots: 5

COMMENTS:

RDW3-ZN-D2

Maple Road Segment + ZN
discrete aliquot composite sample
centered 180' east of Dahlia
and 20 to 40 feet North of
road shoulder - DU24F

SAMPLE CONTAINER

PRESERVATIVE

ANAL REQ REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:

Site Code:

MOD980685226

Epa Number: RT66-076
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-12-12

TIME: 1.0.35

Team Leader: Kinroth

Samplers: Kinroth

Sample Depth: 0-2 in.

No. of Aliquots: 5

COMMENTS:

RDW3-ZN-D3

discrete location
5 aliquot composite
Maple Road Segment
ZN - middle section
300 feet from Dahlia
to the east and 20 to 40
foot section strip - DV
24F

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-077
Contract Number:

Priority:
Medium:

High
Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 10:40

Team Leader: Kinneth

Samplers: Kinneth

Sample Depth: 0-2 in.

No. Of Aliquots: 5

COMMENTS:

RDW3-ZN-D4

Maple Road Segment ZN
Centered on 360' east
of Dahlia - 5 aliquot
Composite sample - discrete
location in DV24F

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-078
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 10.45

Team Leader: Kinroth

Samplers: Kinroth

Sample Depth: 0-2 in.

No. of Aliquots: 5

COMMENTS:

RDW3-ZN-D5

Maple Road Segment ZN
480 feet east of
Dahlia and 20-40
foot strip north of
road shoulder - Salquist
composite sample
discrete location in
DU Z4F

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-079
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 10:50

Team Leader: Kinroth

Samplers: Kinroth

Sample Depth: 0-2 in.

No. Of Aliquots: 5

COMMENTS:

RDW3-ZN-D6

Maple Road Segment ZN
5 aliquot composite sample
East end ~540 feet
East of Dahlia and about
90 feet west of Beach
Intersection - 20-40 foot
section North of road shoulder
discrete location sample
in DV 24F

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-080
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-12-12

TIME: 10:13

Team Leader: Kiuroth

Samplers: Engemann

Sample Depth: 0-2 in.

No. of Aliquots: 10

COMMENTS:

RDW3-3N-A

DU 24 G

Maple Road Segment 3N
40-60 North of road
Shoulder - strip from
Dahlia to Beach 600'
length - A triplicate
sample

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-081
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Laver

Date Collected: 6-12-12

TIME: 10.13

Team Leader: Kinroth

Samplers: Frey

Sample Depth: 0-2 in.

No. of Aliquots: 10

COMMENTS:

RPW3-3N-B

B triplicate sample

DJ 246

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:

Site Code:

MOD980685226

Epa Number: RT66-082
Contract Number:

Priority:

Medium:

High

Soil

Clean-up Area NA
Laver

Date Collected: 6-12-12

TIME: _ _ _ _

Team Leader: Kinroth

Samplers: Silver

Sample Depth: 0-2 in.

No. of Aliquots: _

COMMENTS:

RDW3-3N-C

c+triplicate sample

DU 24 G

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-083
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 9:40

Team Leader: Kiuroth

Samplers: Engemann

Sample Depth: 0-2 in.

No. of Aliquots: 10

COMMENTS:

RDW3-4N-A

= DU 24H

Maple Road Segment 4N
60-80 feet North of road
Shoulder and spanning
600' east to west between
Beach & Dahlia

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.Site Name: Route 66 State Park
City/State: Eureka, MOSuperfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-284
Contract Number:Priority: High
Medium: SoilClean-up Area NA
LayerDate Collected: 6-12-12
TIME: 9:40

Team Leader: Kiuroth

Samplers: Frey

Sample Depth: 0-2 in.
No. of Aliquots: 10

COMMENTS:

RDW3-4N-B
DU 24HMaple Road Segment 4N
B triplicate sample

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-085
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 9:40

Team Leader: Kinroth

Samplers: Silver

Sample Depth: 0-2 in.

No. of Aliquots: 10

COMMENTS:

RDW3-4N-C

DU 24H

triplicate sample
of Maple Road Segment
4N 60-80 feet
north of road shoulder

SAMPLE CONTAINER

PRESERVATIVE

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-086
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12
TIME: 1.5.15

Team Leader: Kiuroth

Samplers: EPA &
START

Sample Depth: 0-2 in.
No. of Aliquots: 36

COMMENTS:

RES-1

= DU 25

Residential lot at Southwest
corner of Intersection of Forest
& Orchid - North of Grove
Approximately 85 x 100'

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-087
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-6-12

TIME: 1.530

Team Leader: Kinroth

Samplers: EPA 1
START

Sample Depth: 0-2 in.

No. of Aliquots: 36

COMMENTS:

RES-2
= DU 26

Residential hot Area
North side of Grovel
250' west of the NW
Corner of orchid & Grovel

SAMPLE CONTAINER

SPREEDSHEET

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-088
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-7-12

TIME: 1.025

Team Leader: Kiunroth

Samplers: EPA &
START

Sample Depth: 0-2 in.

No. of Aliquots: 36

COMMENTS:

RES-3

Residential Lot Area 3
South of Hwy & Park
Approximately 100' x 100'

DU 27

GPS

38.50455

-90.59989

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-089
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-7-12

TIME: 10:55

Team Leader: Kiuroth

Samplers: EPA &
STATE

Sample Depth: 0-2 in.

No. of Aliquots: 36

COMMENTS:

RES-4

= DU 20

Residential Lot Area 4
NW Corner Intersection of
Ivy & Park

GPS
38.50494
-90.60004

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-089D
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-7-12

TIME: 10:55

Team Leader: Kinroth

Samplers: EPA §
START

Sample Depth: 0-2 in.

No. of Aliquots: 36

COMMENTS:

RES-4 duplicate

DU 28

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-090
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 1.3.30

Team Leader: Kinroth

Samplers: EPA &
START

Sample Depth: 0-2 in.

No. of Aliquots: 36

COMMENTS:

RES 5
Field Replicate #1

Residential Lot Area on Northside
of Maple 170' East of Dahlia

DU 29 Slabcake Processing Replicate #1

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-091
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 1.3.30

Team Leader: Kiuroth

Samplers: EPA
START

Sample Depth: 0-2 in.

No. of Aliquots: 36

COMMENTS:

RES 5
Field Replicate #1

Slabcake Processing Replicate #2

Residential Lot Area 5 - north
side of Mapk 170' east of Dehbra

DJ
29

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-092
Contract Number:

Priority:
Medium:

High
Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12
TIME: 1.330

Team Leader: Kinroth

Samplers: EPA
START

Sample Depth: 0-2 in.
No. of Aliquots: 36

COMMENTS:

RES 5

Field Replicate #1

Slabcake Processing Replicate #3

Residential Lot Area 5

DJ
29

SAMPLE CONTAINER

PRESERVATIVE

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-093
Contract Number:

Priority:
Medium:

High
Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 1:30

Team Leader: Kiuroth

Samplers: EPA &
START

Sample Depth: 0-2 in.

No. of Aliquots: 36

COMMENTS:

RES 5

Field Replicate #2

DV29

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-094
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12
TIME: 1.3.50

Team Leader: Kiuroth

Samplers: EPA &
START

Sample Depth: 0-2 in.

No. of Aliquots: 36

COMMENTS:

RES 5

Field Replicate #3

DJ29

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:

Site Code:

MOD980685226

Epa Number: RT66-095
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12

TIME: 1400

Team Leader: Kiuroth

Samplers: EPA +
START

Sample Depth: 0-2 in.

No. of Aliquots: 36

COMMENTS:

RES 6
= DU 30

Residential Lot Area #6
on south side of Maple
about 170' east of Dahlia
(and directly south of RES 5
across former Maple St.)

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII
ENVIRONMENTAL SERVICES DIV. KANSAS CITY, KS.

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD980685226

Epa Number: RT66-096
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12
TIME: 1:430

Team Leader: Kiunroth

Samplers: EPA
START

Sample Depth: 0-2 in.

No. Of Aliquots: 36

COMMENTS:

RES 7
= DU 31

Residential hot Area #7
North side of Oak east of
Dahlia (off the w trail path
to east)

SAMPLE CONTAINER

PRESERVATIVE

ANAL RES REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

Site Name: Route 66 State Park
City/State: Eureka, MO

Superfund Site No:
Site Code:

MOD 980685226

Epa Number: RT66-097
Contract Number:

Priority: High
Medium: Soil

Clean-up Area NA
Layer

Date Collected: 6-12-12
TIME: 1507

Team Leader: Kiuroth

Samplers: EPA +
START

Sample Depth: 0-2 in.
No. of Aliquots: 36

COMMENTS:

RES 8
= DU32

Residential Lot Area #8
North side of Oak St. directly
adjacent to RES #7 to
the east

SAMPLE CONTAINER

PRESERVATIVE

ANAL. REQ. REQUESTED

4oz. amber
glass

ICE

1613 B

Dioxin/Furans
TEQ Compounds

APPENDIX E
PHOTOGRAPHIC RECORD OF SITE ACTIVITIES

**Missouri Dioxin Sites Re-Evaluation - Route 66 State Park
Eureka, Missouri**



TETRA TECH PROJECT NO. X9004.12.0293.000 DIRECTION: South	DESCRIPTION	EPA Region 7 personnel conducting incremental composite sampling of surface soils along the South Outer Road.	1
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/05/12
	PHOTOGRAPHER	Dave Kinroth	



TETRA TECH PROJECT NO. X9004.12.0293.000 DIRECTION: Northeast	DESCRIPTION	EPA and START personnel conducting incremental composite sampling of the West Trail on site.	2
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/06/12
	PHOTOGRAPHER	Jim Silver	

**Missouri Dioxin Sites Re-Evaluation - Route 66 State Park
Eureka, Missouri**



TETRA TECH PROJECT NO. X9004.12.0293.000 DIRECTION: Southwest	DESCRIPTION	EPA personnel conducting incremental composite sampling of surface soils in a former residential lot.	3
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/06/12
	PHOTOGRAPHER	Dave Kinroth	



TETRA TECH PROJECT NO. X9004.12.0293.000 DIRECTION: Southwest	DESCRIPTION	EPA and START personnel conducting incremental composite sampling of former roadway shoulders.	4
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/07/12
	PHOTOGRAPHER	Dave Kinroth	