RELEASE ABATEMENT MEASURE COMPLETION REPORT

SOIL EXCAVATION AND REMOVAL AT NEW BEDFORD HIGH SCHOOL

NEW BEDFORD, MASSACHUSETTS

Release Tracking Number 4-15685

Prepared for:

City of New Bedford
133 William Street
New Bedford, Massachusetts 02740

Prepared by:

TRC Environmental Corporation
Wannalancit Mills
650 Suffolk Street
Lowell, Massachusetts 01854
(978) 970-5600

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Acronyms

ACEC	Areas of Critical Environmental Concern
AUL	Activity and Use Limitation
BOL	Bill-of-Lading
CGP	Construction General Permit
CHES	Clean Harbors Environmental Services, Incorporated
cm/sec	Centimeters per Second
DPF	Department of Public Facilities
DPI	Department of Public Infrastructure
EPA	United States Environmental Protection Agency
EPC	Exposure Point Concentration
KMS	Keith Middle School
LSP	Licensed Site Professional
MassDEP	Massachusetts Department of Environmental Protection
MCP	Massachusetts Contingency Plan
msl	Mean Sea Level
$\mu g/m^3$	Micrograms per Cubic Meter
NBHS	New Bedford High School
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NOI	Notice of Intent
PID	Photoionization Detector
PSWS	Parker Street Waste Site
RAM	Release Abatement Measure
RfD	Reference Dose
RTN	Release Tracking Number
SOP	Standard Operating Procedures
TEQ	Toxic Equivalent
TRC	TRC Environmental Corporation
UCL	Upper Concentration Limit
USGS	United States Geological Survey
VHB	Vanasse Hangen Brustlin, Incorporated
VOCs	Volatile Organic Compounds

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Soil Excavation and Removal
New Bedford High School
New Bedford, Massachusetts

Release Tracking Number (RTN) 4-15685

TRC Project Number: 115058

TRC Environmental Corporation (TRC) is submitting this Release Abatement Measure Completion Report (RAM Completion Report) to the Massachusetts Department of Environmental Protection (MassDEP) on behalf of the City of New Bedford (City) per 310 CMR 40.0446 of the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000). This RAM Completion Report addresses impacted soil removal and site restoration activities conducted at the New Bedford High School (NBHS) Campus ("the Site"), under a RAM Plan submitted to MassDEP on April 6, 2011 (TRC, 2011a) and conditionally approved by MassDEP on April 15, 2011. Additional activities were proposed in the RAM Plan Modification (TRC, 2011b) submitted to MassDEP on July 22, 2011 and conditionally approved on August 1, 2011.

A Site Location Map is provided as Figure 1. The NBHS Campus is a portion of the disposal site managed under the MCP and tracked by MassDEP under Release Tracking Number (RTN) 4-15685. On April 17, 2014, the City submitted a Tier Classification to MassDEP for RTN 4-15685. The Tier Classification, which included a summary of compliance history and a Conceptual Phase II Scope of Work, was submitted consistent with the proposed amendments to the MCP (310 CMR 40.0510).[1] RTN 4-15685 was given a Tier II Classification consistent with the criteria provided in 310 CMR 40.0520(2) of the revised MCP (MassDEP, 2014).

This RAM Completion Report is organized as follows: Section 1.0 (Introduction) briefly summarizes information pertaining to RAM-related activities. Section 2.0 (RAM Completion Report) provides the information required for a RAM Completion Report per the MCP (310 CMR 40.0446). Section 3.0 (References) lists information sources relied upon in the preparation of this RAM Completion Report.

Appendix A contains the soil boring logs associated with supplemental investigation activities in the vicinity of sampling location HB-22. Appendix B contains laboratory analytical data collected subsequent to the submittal of the previous RAM Status Report dated February 11, 2014. Appendix C contains a photographic log depicting RAM-related excavation activities conducted on April 24, 2014. Appendix D contains a copy of the Bill-of-Lading (BOL) associated with supplemental soil removal activities. Appendix E contains a copy of the letter attesting to the source of the backfill materials. Appendix F contains dust monitoring data recorded during excavation activities in the vicinity of sampling location HB-22.

[1] Final amendments were published on April 25, 2014 with an effective date of June 20, 2014. The City received concurrence from MassDEP to submit the Tier Classification consistent with the proposed amendments in advance of the final published and effective dates.

1.0 BACKGROUND

The RAM Plan (TRC, 2011a) and subsequent RAM Plan Modification (TRC, 2011b) were based on a soil delineation and pre-determined excavation approach similar to that employed by the City for other portions of the Parker Street Waste Site (PSWS). The objective of the RAM-related activities at the NBHS Campus was to mitigate the current risks associated with soil as supported by the risk characterization included in the Phase II Comprehensive Site Assessment (Phase II) submitted to MassDEP on January 4, 2011 (TRC 2011c).

Prior to implementation of the RAM, supplemental soil sampling was conducted to refine the delineation of impacted areas and to support remedial planning. Soil sampling was conducted along concentric rings (i.e., step-out sampling) around sampling locations identified for potential excavation. The supplemental sampling investigation was performed to pre-define excavation boundaries. During the supplemental soil data collection and concurrent remedial planning phase, the remedial goals were exposure point concentrations (EPCs) less than or equal to Method 1/Method 2 S-1 soil standards focused on a vertical depth of up to three feet below ground surface in unpaved areas (i.e., targeting currently accessible soils). A summary of supplemental environmental sampling activities completed throughout the exterior of the NBHS Campus is presented in the Phase II (TRC 2011c).

The following provides a brief summary of the Site background, including Site description and investigation history, leading to design and implementation of the RAM-related scope of work described herein.

Site Description

This RAM Completion Report is for the NBHS Campus, which is composed of the following land parcels in the City of New Bedford: map 75 block 12, map 69 block 345, and map 70 block 1. The NBHS Campus is located on the north side of Parker Street between Hathaway Boulevard to the west and Liberty Street to the east. The NBHS Campus is bordered by the Hetland Rink Property to the north. A Site location map is provided as Figure 1.

Review of the United States Geological Survey (USGS) Topographic Quadrangles for New Bedford South dated 1977 and New Bedford North dated 1979 indicates that the NBHS Campus is located at approximately 90 feet above mean sea level (msl). The NBHS Campus topography is level with hills to the east and west. New Bedford Harbor is located approximately 1.3 miles east of the NBHS Campus.

NBHS consists of a single 529,192 square foot building (with a footprint of approximately 233,903 square feet) including three main areas (i.e., series of four “Houses”, auditorium and gym/pool). The NBHS building is surrounded by paved parking areas and road/pathways, lawn and landscaped areas for recreational use, and paved tennis courts. Approximately 48-percent of the NBHS Campus is covered by impervious surfaces (e.g., pavement or building).

Investigation History

As described previously, the NBHS Campus is being managed under RTN 4-15685. The disposal site was subject to land disturbance or disposal activity in the 1930s through the 1960s. Historical documentation indicates that the area was an undeveloped wetland prior to the land disturbance or disposal activities.

Supplemental environmental sampling was conducted to address data gaps and supplement previous work at the NBHS Campus by Vanasse Hangen Brustlin, Incorporated (VHB) and the BETA Group, Incorporated (BETA), and to refine the delineation of impacted soil areas and support remedial planning. The Phase II (TRC 2011c) presents a complete description of the NBHS Campus investigative history, previous IRA activities, geologic and hydrologic conditions and the nature and extent of impacts. Data summary tables identifying soils to be removed and/or expansion of paved surfaces to prevent direct contact exposure to impacted soils were included in the RAM Plan and subsequent documentation (as needed).

Prior RAM-related activities were described in the following reports submitted to MassDEP by the City:

- *Release Abatement Measure Plan – Soil Excavation and Removal, New Bedford High School, New Bedford, Massachusetts.* April 2011 (TRC, 2011a)
- Release Abatement Measure Plan Modification – *Soil Excavation and Removal, New Bedford High School, New Bedford, Massachusetts.* July 2011 (TRC, 2011b)
- *Phase II Comprehensive Site Assessment, New Bedford High School Campus at the Parker Street Waste Site, New Bedford, Massachusetts.* April 2011 (TRC, 2011c)
- *Release Abatement Measure Status Report – Soil Excavation and Removal, New Bedford High School, New Bedford, Massachusetts.* August 2011 (TRC, 2011d)
- *Release Abatement Measure Status Report – Soil Excavation and Removal, New Bedford High School, New Bedford, Massachusetts.* February 2012 (TRC, 2012a)
- *Release Abatement Measure Status Report – Soil Excavation and Removal, New Bedford High School, New Bedford, Massachusetts.* August 2012 (TRC, 2012b)
- *Release Abatement Measure Status Report – Soil Excavation and Removal, New Bedford High School, New Bedford, Massachusetts.* February 2013 (TRC, 2013a)
- *Release Abatement Measure Status Report – Soil Excavation and Removal, New Bedford High School, New Bedford, Massachusetts.* September 2013 (TRC, 2013b)
- *Release Abatement Measure Status Report – Soil Excavation and Removal, New Bedford High School, New Bedford, Massachusetts.* February 2014 (TRC, 2014)

RAM Scope of Work

Work to be performed under the RAM Plan (TRC, 2011a) included:

- **Excavation –** Excavation of impacted soil that contributes to EPCs in excess of MCP Method 1/Method 2 S-1 soil standards in the top three feet in landscaped areas as well as excavation of impacted soil with a benzo(a)pyrene Upper Concentration Limit (UCL) exceedance at sample location SB-308 (five feet below ground surface);
- **Paving –** The use of paving in select areas to prevent direct contact exposure to impacted soil, and excavation and grading of soil in support thereof;
- **Soil Management –** Temporary soil stockpiling and stockpile management at an off-site City-owned and possibly in the NBHS northern parking lot locations prior to disposal;
- **Disposal –** Off-site disposal or reuse of excavated soil at appropriately licensed facilities, and;
- **Restoration –** Backfilling of soil excavations with documented compliant fill material screened in advance for the presence of regulated chemicals in excess of Method 1 S-1 soil standards.

The additional activities included in the RAM Plan Modification (TRC, 2011b) included:

- **Drainage Structures –** Installation of subsurface stormwater retention structures in Exposure Point Area HS-5 (Flag Pole Area) to abate peak runoff volumes;
- **Reduce Proposed Paving with Alternate Risk Reduction Measures –** The implementation of risk reduction measures in the northern portion of the NBHS Campus at Exposure Point Area HS-8 in support of use as a solar park;
- **Consideration for Existing Stands of Trees –** In the areas targeted for excavation or paving where pre-existing trees were located, excavation to a depth of three feet in soils surrounding the trees and root systems.

TRC used a Method 1/Method 2 risk characterization approach to demonstrate that, following soil removal in areas targeted for remediation or paved to prevent direct contact exposure, a Condition of No Significant Risk would exist at the NBHS Campus for the top three feet of soil in remaining unpaved areas. This conclusion was then verified using a Method 3 risk characterization approach prior to implementation of remedial activities.

For the purposes of the risk characterization, the NBHS Campus was divided into the following distinct potential exposure points:

- HS-1: Children's Playground Area
- HS-2: Fenced Playing Field Area
- HS-3: Unfenced Playing Field Area
- HS-4: Gym Area
- HS-5: Flag Pole Area
- HS-6: House Area
- HS-7: Student Congregating Area
- HS-8: Junior High School Gym Class Area

- HS-9: Beneath Pavement/Building Area
- HS-10: Tree Belts Area

The current (post-remediation) exposure point areas are depicted in Figure 2. This RAM Plan (TRC, 2011a) and Phase II (TRC, 2011c) provide detailed discussions of the analytical results by the above-defined exposure point areas.

Although RAM-related activities have been completed and a Condition of No Significant Risk has been achieved for the top three feet of soils in unpaved areas, an Activity and Use Limitation (AUL) will need to be placed on the property to control certain site uses and activities and to mitigate/control potential exposure to impacted soils greater than three feet below ground surface in unpaved areas and below paved surfaces where impacted soils will be present at shallower depths. The AUL will be included with the filing of a Permanent Solution for the NBHS Campus portion of RTN 4-15685.

2.0 RELEASE ABATEMENT MEASURE COMPLETION REPORT (310 CMR 40.0446)

This RAM Completion Report is organized according to the information needs set forth under 310 CMR 40.0446(4)(a) through (f) of the MCP.

(a) Description of Release, Site Conditions and Surrounding Receptors

Description of Release

The disposal site managed as RTN 4-15685 was subject to land disturbance or disposal activity in the 1930s through the 1960s. Historical documentation indicates that the site was an undeveloped wetland prior to the land disturbance or disposal activities. The nature and extent of impacted soil, discussed as separate exposure point areas based on the identification of varied activities and uses throughout the different areas of the NBHS Campus Site, and is described in detail in the Phase II (TRC, 2011c). The current exposure point area boundaries and sample locations are illustrated in Figure 2.

Site Conditions

The NBHS Campus, including the vicinity of sample location HB-22, is underlain by topsoil and up to approximately 6 feet of material that includes sandy soil with ash. In places, the ash includes broken glass, brick fragments, rubber, slag, coal, cinders, plastic and/or metallic fragments. Traces of land disturbance or disposal related fill were identified in soils 6 inches below ground surface, with a defined layer of fill identified at 24 inches to 36 inches below ground surface. Disposal-related fill thickness across the NBHS Campus ranges from 0.1 feet to 11.0 feet. Anthropogenic fill materials within the NBHS Campus are underlain by approximately 0.25 to 6.0 feet of native dark brown organic peat material, mixed with silt and clay in places from the wetland that predates the development of the area. Native soils below the organic peat are characterized by gray fine silty sands with trace gravel and/or medium sand in places.

Observation of NBHS Campus Site soils and review of historic topographic maps indicates that the surficial geology consists of glacial outwash sediments. Drumlins flank the NBHS Campus to the east and west.

Based on review of the USGS Bedrock Geologic Map of Massachusetts (Zen et al., 1983), bedrock beneath the NBHS Campus is light gray, pinkish-gray to tan, mafic-poor granite known as Alaskite.

Based on literature values, the peat layer is expected to exhibit low hydraulic conductivity, on the range of 10^{-6} to 10^{-3} centimeters per second (cm/sec), while glacial outwash deposits having relatively less fine material could exhibit a hydraulic conductivity range of 10^{-3} to 15 cm/sec. The hydraulic conductivity of the ash fill could be as low as approximately $4.4x10^{-5}$ cm/sec with higher hydraulic conductivities (10^{-1} cm/sec) a possibility depending on the relative amounts of sand and ash. Since the deposition in the fill material is fairly loose, based on

observations made during boring advancement, the hydraulic conductivity of the fill material is estimated to be higher than the underlying peat layer.

The City of New Bedford receives an average of 47.34 inches of precipitation annually (www.fedstats.gov). There are no surface water bodies at the NBHS Campus.

Surrounding Receptors

The NBHS Campus Site lies within 500 feet of residential properties and also includes the following properties and land uses:

- The Walsh Field is located to the south of the NBHS Campus across Parker Street;
- City Yard is located south of Parker Street to the east of Walsh Field;
- A church is located at the intersection of Parker Street and Hathaway Boulevard;
- An apartment complex and indoor rock climbing gym are located across Parker Street from the southwest corner of the NBHS Campus;
- The Keith Middle School (KMS) is located to the west of the NBHS Campus across Hathaway Boulevard;
- The Hetland Memorial Skating Rink is located to the north of the NBHS Campus;
- A Department of Public Infrastructure (DPI)/Department of Public Facilities (DPF) storage area is located east of the NBHS Campus across Liberty Street; and
- The Oakgrove Cemetery is located to the east of the NBHS Campus, beyond the DPI/DPF storage area.

Groundwater categories at the NBHS Campus Site include actual or potential GW-2, depending upon proximity to occupied structures (groundwater is generally encountered at approximately 2 to 10 feet below ground surface based on groundwater monitoring well installations at NBHS), and GW-3, which applies to all groundwater throughout the Commonwealth.

Based on review of on-line MassDEP Priority Resource Map data available from Massachusetts Geographic Information System (MassGIS), the NBHS Campus is not located within a Current or Potential Drinking Water Source Area (MassGIS, 2008).

The NBHS Campus Site is not located in a wetland resource area. No other documented sensitive ecological receptor areas (e.g., Areas of Critical Environmental Concern [ACECs]) are known to be located at or near the NBHS Campus. No municipal or residential wells are known to be within 500 feet of the NBHS Campus.

(b) Description of RAM completed at the Site

The following provides a brief summary of RAM-related activities completed prior to the submittal of the RAM Status Report dated February 11, 2014. In addition, a detailed description of RAM-related activities completed following submittal of the previous RAM Status Report,

resulting in the completion of remedial activities specified in the RAM Plan and associated RAM Plan Modification, is also provided below.

As of the prior RAM Status Report submitted on February 11, 2014, the following items were completed in accordance with the RAM Plan and RAM Plan Modification:

- **Excavation –** With the exception of additional soil removal in the vicinity of soil sample location HB-22, excavation of impacted soil that contributes to EPCs in excess of MCP Method 1/Method 2 S-1 soil standards in the top three feet in landscaped areas as well as excavation of impacted soil with a benzo(a)pyrene UCL exceedance at sample location SB-308 (five feet below ground surface)[2];
- **Paving –** Paving of select areas to prevent direct contact exposure to impacted soil, and excavation and grading of soil in support thereof;
- **Soil Management –** Temporary soil stockpiling and stockpile management at an off-site City-owned and possibly in the NBHS northern parking lot locations prior to disposal;
- **Disposal –** Off-site disposal or reuse of excavated soil at appropriately licensed facilities;
- **Restoration –** Backfilling of soil excavations with documented compliant fill material screened in advance for the presence of regulated chemicals in excess of Method 1 S-1 soil standards.
- **Drainage Structures –** Installation of subsurface stormwater retention structures in Exposure Point Area HS-5 (Flag Pole Area) to abate peak runoff volumes;
- **Reduce Proposed Paving with Alternate Risk Reduction Measures –** The implementation of risk reduction measures in the northern portion of the NBHS Campus at Exposure Point Area HS-8 in support of use as a solar park;
- **Consideration for Existing Stands of Trees –** In the areas targeted for excavation or paving where pre-existing trees were located, excavation to a depth of three feet in soils surrounding the trees and root systems.

Additional RAM-related activities, including supplemental soil removal activities in the vicinity of HB-22, completed following submittal of the previous RAM Status Report on February 11, 2014 are described below.

(c) Investigatory and Monitoring Data

The following section includes a brief summary of investigatory and monitoring data collected in association with the RAM Plan and RAM Plan Modification prior to submittal of the previous RAM Status Report on February 11, 2014. In addition, a detailed description of RAM-related activities completed following submittal of the prior RAM Status Report, including supplemental investigation and remedial actions in the vicinity of sample location HB-22 and recent stormwater management activities, are presented below.

[2] The City elected to conducted additional soil removal from the HB-22 area, which is described in the following section of this RAM Completion Report.

Prior RAM-Related Activities

As previously noted, previously completed RAM-related activities, including all investigatory and monitoring data obtained prior to and during implementation of RAM-related activities, were described in the following reports submitted to MassDEP by the City:

- *Release Abatement Measure Plan – Soil Excavation and Removal, New Bedford High School, New Bedford, Massachusetts.* April 2011 (TRC, 2011a)
- Release Abatement Measure Plan Modification – *Soil Excavation and Removal, New Bedford High School, New Bedford, Massachusetts.* July 2011 (TRC, 2011b)
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- *Release Abatement Measure Status Report – Soil Excavation and Removal, New Bedford High School, New Bedford, Massachusetts.* February 2014 (TRC, 2014)

Recently Completed RAM-Related Activities

The following describes RAM-related activities completed following submittal of the previous RAM Status Report dated February 11, 2014. These activities include additional delineation and excavation of soil material, with associated environmental monitoring and waste disposal, in the vicinity of sample location HB-22 and on-going stormwater management activities.

Supplemental HB-22 Soil Removal

Background - As described in TRC's February 2014 RAM Status Report (TRC, 2014), an investigation of dioxin in soil at the NBHS Campus was conducted in April 2010 as an initial step in an iterative evaluation. The results of the April 2010 dioxin compound sampling were provided in the July 6, 2010 memorandum explaining the Toxic Equivalent (TEQ) approach unique to expressing environmental data for polychlorinated dibenzo-p-dioxins (dioxins) and polychlorinated dibenzofurans (furans), as well as PCB Congeners that exhibit dioxin-like toxicity.

In a January 13, 2011 letter to the City, the MassDEP acknowledged that the technical approach utilized for the April 2010 soil sampling for dioxin compounds was designed to capture the worst-case conditions. However, MassDEP suggested further sampling at locations where dioxin precursors may be present, as well as where exposure potential is likely to support additional quantification of risk.

In response to the MassDEP letter, supplemental soil sampling at NBHS was conducted between June 7 and 10, 2011, for dioxins, furans and dioxin-like PCB Congeners. The sampling locations included previous sample locations estimated as worst case scenarios based on a review of all soil data collected, and locations that provided data that are representative of potential exposures across the NBHS Campus. The results were summarized in a memorandum entitled *Summary of June 2011 New Bedford High School Dioxin and PCB Congener Soil Sampling Results and Explanation of Dioxin Toxic Equivalents (TEQs)* dated September 22, 2011.

Under a site-specific Method 3 risk characterization approach, the sum of dioxin-like PCB Congeners TEQs and dioxin/furan TEQs (collectively, the "TEQ Summation") for the 1 to 3 foot depth interval at soil sampling location HB-22 indicated that remedial action (i.e., soil removal) was required to achieve a condition of No Significant Risk for the NBHS Campus. An additional investigation of dioxins and furans in the vicinity of sampling location HB-22 was described in the *Proposed HB-22 Dioxin Sampling Technical Approach* memorandum dated October 12, 2011. Supplemental soil sampling activities were conducted on October 20, 2011. Based on the supplemental analytical results and per the conditional approval of the RAM Plan Modification, MassDEP was notified of the proposed risk-based spot excavation activities to remove impacted soil material in the vicinity of sampling location HB-22. The proposed excavation activities were approved by MassDEP as a minor modification to the RAM Plan and soil removal activities were subsequently completed on December 17, 2011.

At the time, the December 2011 removal activities were consistent with the achievement of a Condition of No Significant Risk for NBHS Campus; however, RAM-related activities were on-going and following completion of the HB-22 removal activities, MassDEP adopted the Environmental Protection Agency's (EPA's) newly published reference dose (RfD) for risk estimation of total TEQs using a Method 3 risk assessment. Consequently, a condition of no significant risk for non-cancer health effects associated with exposures to the total TEQ EPC in soil was no longer supported within the 0 to 3 foot interval at the NBHS Campus, specifically for the daycare child receptor. The issue primarily resulted from the small size of the total TEQ data set for the 0 to 3 foot interval as a result of the execution of the RAM-related spot excavation program coupled with the variability in the remaining data set, which resulted in an EPC, based on the 95% UCL on the arithmetic mean, higher than the threshold for non-cancer health effects for this receptor.[3]

As a result of the changes in the toxicity value and consistent with discussions between the City and MassDEP, it was deemed necessary and appropriate to conduct additional soil investigation activities in the vicinity of sampling location HB-22 in support of supplemental excavation

[3] Fully and partially excavated soil boring locations were removed from the database, thus reducing the available dataset.

activities. The additional investigation and remedial action supported updated risk-based calculation and ultimately submittal of a permanent solution for the NBHS Campus.

Supplemental Delineation – Following notification to MassDEP, additional investigation activities were initiated on February 21, 2014 in the vicinity of the previous HB-22 excavation area. Land Planning, Incorporated of Hansen, Massachusetts (Land Planning) marked the previous HB-22 excavation limits (i.e., soil sampling locations HB-22A through HB-22D), allowing for pre-marking of supplemental soil boring ("step-out") locations. As depicted in Figure 3, step-out soil boring locations extended at 2.5 foot intervals east of location HB-22B (i.e., HB-22F, HB-22J, HB-22N and HB-22R) and south of location HB-22C (i.e., HB-22G, HB-22K, HB-22O and HB-22S). Step-out sampling was not necessary for the HB-22A and HB-22D sampling locations since total TEQ concentrations were below risk thresholds for non-cancer health effects. Following utility clearance activities (i.e., Dig-Safe® and municipal notification), a total of eight soil borings were advanced by New England Geotech of Jamestown, Rhode Island on February 21, 2014.

Soil borings were advanced using Geoprobe® direct push methods (6600DT truck-mounted drill rig). TRC conducted field screening of soil samples consisting of visual and olfactory observations, jar headspace readings using a calibrated photoionization detector (PID), and professional judgment, consistent with TRC Standard Operating Procedures (SOPs) and general industry practice. TRC employed the MassDEP jar headspace technique (MassDEP, 1996) to screen for the presence of volatile organic compounds (VOCs) in soil. TRC also evaluated and logged the geologic character of the soil samples consistent with the Burmeister (1958) method. Soil boring logs are included as Appendix A.

Soil samples were submitted to Cape Fear Analytical, LLC of Wilmington, North Carolina (Cape Fear) for PCB Congener (EPA Method 1668A - World Health Organization [WHO] list) and/or dioxin/furan (EPA Method 8290A) analysis (see Table 1). A total of 18 soil samples were collected for potential laboratory analysis. Soil samples were collected from only the 1 to 3 foot interval at soil sampling locations HB-22A and HB-22B for PCB Congener analysis. Sample volume was retained from the 0 to 1 foot and 1 to 3 foot intervals at each of the remaining eight soil boring locations; however only samples HB-22F (1-3') and HB-22G (1-3') were initially analyzed for PCB Congeners and dioxins/furans. The remaining sample volume was retained for contingency analysis, pending receipt and review of the initial HB-22F (1-3') and HB-22G (1-3') analytical results. Additional samples were authorized at the discretion of the Licensed Site Professional (LSP) of Record (see Table 1). Copies of the laboratory analytical data are included in Appendix B.

Based on the supplemental soil sampling results, an updated EPC, based on the 95% UCL on the arithmetic mean, was determined to be below the threshold for non-cancer health effects for the daycare child receptor. The updated risk-based calculations indicated a Condition of No Significant Risk in support of a permanent solution for the NBHS Campus could be achieved following additional soil removal as described below.

Supplemental Removal – As depicted in Figure 3, additional soil material in the vicinity of sampling location HB-22 was targeted for excavation and transportation off-site. The

supplemental sampling investigation and updated risk characterization targeted currently accessible soils (up to 3 feet below grade), with excavation limits determined by recalculating the site-wide total TEQ EPC. The risk characterization confirmed that, following removal of soil material to a depth of 3 feet to the lateral limits of sampling locations HB-22J and HB-22K, a condition of No Significant Risk would be achieved for the NBHS campus.

Following utility clearance, the supplemental remedial activities were completed on April 24, 2014 and generally included the following. A photographic log depicting general RAM-related activities associated with supplemental soil removal in the vicinity of sampling location HB-22 is included as Appendix C.

- Spot excavation of impacted soil material in the vicinity of sampling location HB-22 as a minor modification to the existing RAM Plan and associated RAM Plan Modification;
- Live-loading, off-site transportation and disposal of impacted soil at appropriately licensed disposal facilities; and
- Backfilling of the remedial excavations with appropriately documented compliant material screened in advance for the presence of regulated contaminants.

The excavation extents are depicted on Figure 3. Land Planning located and pre-marked the excavation limits on April 18, 2014. Following utility clearance activities, the City's DPI mobilized to the NBHS Campus to implement supplemental spot excavation activities in the vicinity of sampling location HB-22. As the Site generally exhibits a flat topography, and there are no catch basins located in the vicinity of the excavation, the use of sedimentation and erosion control measures were not implemented based on field observations.

The City's DPI performed all soil excavation activities. DPI-supplied equipment (e.g., Deere backhoe and Deere 544J loader) were used throughout implementation of the excavation and backfilling activities. Clean Harbors Environmental Services, Incorporated of Braintree, Massachusetts (CHES) was contracted by the City to facilitate off-site transportation and disposal of the soil material. The excavated soil material was directly loaded into a polyethylene-lined roll-off. As a protective measure, polyethylene sheeting was placed between the roll-off and the excavation to capture fugitive soil resulting from backhoe bucket transfer from the excavation to the roll-off container. The roll-off was subsequently loaded onto a CHES truck and transported off site for disposal under a BOL. A copy of the BOL is included as Appendix D.

Backfilling was also completed on April 24, 2014 with the placement of documented compliant imported borrow material. The backfill material source was previously sampled for laboratory analysis by the City on September 30, 2013 and a statement from the supplier attesting to the source was received prior to use at the NBHS Campus (see Appendix E). The backfill was placed in the excavation and brought up on approximately level twelve-inch lifts. Each lift of material was mechanically compacted so as to secure a dense, stable and thoroughly compacted mass. Backfilling with imported borrow continued until the excavation was brought to the surface grade, allowing adequate space for placement of sod.

TRC personnel provided field oversight and monitoring, including dust monitoring and VOC field screening with a calibrated PID, throughout the soil excavation, loading and backfilling

activities. Dust monitoring was performed routinely during the above referenced intrusive activities on April 24, 2013 in accordance with the procedures outlined in Section 6 of the RAM Plan and RAM Plan Modification.

Dust levels did not exceed the prescribed action limit of 150 micrograms per cubic meter ($\mu g/m^3$) during any of the RAM activities described herein sustained over 15 minutes. Dust monitoring data are included in Appendix F. A summary of the dust monitoring results associated with the field restoration activities is included in Table 2.

Stormwater Management

During the RAM-related remedial activities, various areas on the property have been disturbed to remove impacted soil and to complete grading. Given that the cumulative area of disturbed soil was greater than one acre, a Storm Water Pollution Prevention Plan (SWPPP) was prepared, and a Notice of Intent (NOI) was submitted to the United States Environmental Protection Agency (EPA) and the New Bedford Conservation Commission. The SWPPP and NOI were included in the RAM Plan Modification (TRC, 2011b).

Effective February 16, 2012, the EPA issued a five-year renewal of its General Permit for construction site stormwater. As a result, an amended SWPPP was prepared to comply with the provisions of the new National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) for storm water discharges from construction sites. Superseding the 2008 permit, projects proceeding under the previous permit were required to file a NOI with the EPA by May 16, 2012. An amended SWPPP was developed and a second NOI was submitted on May 15, 2012 (TRC, 2012c) to meet these new requirements.

Erosion and sediment control features, including a silt fence and straw bale filters around catch basins in the vicinity of the work, were installed prior to and maintained throughout construction activities as appropriate. In addition, construction of the final site grades provides for positive drainage of storm water runoff from new surfaces with pavement and grass covering to the existing subsurface drainage systems. Installation of the Cultec chambers serves to provide adequate runoff retention such that there is no significant increase in site-wide peak discharges to the receiving drainage systems due to the increase in impervious surfaces.

TRC regularly inspected the disturbed areas of the NBHS Campus Site that had not yet been permanently stabilized, areas used for storage of materials that were exposed to precipitation, erosion and sediment control measures, and locations where vehicles entered and/or exited the Site in accordance with the SWPPP. Following inspections, corrective actions were implemented as needed. Completed inspection forms and corrective action logs have been maintained in accordance with the SWPPP.

As of the submittal of this RAM Completion Report, site stabilization is nearing completion but SWPPP-related monitoring and inspection activities are ongoing. Following stabilization, the City will coordinate with EPA to terminate coverage under the CGP. This requires submittal of a Notice of Termination (NOT) to EPA, which certifies that the requirements of the permit have

been met. Submittal of the NOT is not required to fulfill the requirements of this RAM Completion Report.

(d) Findings and Conclusions

Areas were identified for targeted soil removal or installation/expansion of paving exposure barriers throughout the NBHS Campus. Following soil removal in areas targeted for remediation or prevention of direct contact exposure, including supplemental excavation activities described herein, a Method 1/Method 2 risk characterization approach was used to demonstrate that a Condition of No Significant Risk exists for soil at the NBHS Campus Site for the top 3 feet of soil in unpaved areas, which was then verified using a Method 3 risk characterization approach. A Condition of No Significant Risk has been achieved for the top 3 feet of soils in unpaved areas with the completion of RAM-related activities; however an AUL will need to be placed on the property to control certain site uses and activities and to mitigate/control potential exposure to impacted soils greater than three feet below ground surface in unpaved areas and below paved surfaces where impacted soils are present at shallower depths. The post-remediation risk characterization and associated AUL documentation will be documented in a separate permanent solution document for the NBHS Campus.

(e) Details of and/or Plans for the Management of Remediation Waste, Remedial Wastewater, and/or Remedial Additives

Please refer to the previous RAM Status Reports (TRC, 2012a, TRC, 2012b, TRC, 2013a, TRC, 2013b and TRC, 2014) for descriptions of previous stockpile management and off-site transportation activities, as well as previous shipping documentation.

Targeted soil removal in the vicinity of sampling location HB-22 included a total volume of approximately eight cubic yards. The excavated soil material was live-loaded and transported off-site for disposal by CHES on April 24, 2014. A copy of the BOL associated with the above referenced material is included as Appendix D.

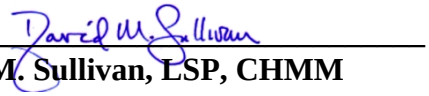
No additional remediation waste, remedial wastewater or remedial additives were managed under this RAM Plan and RAM Plan Modification during this reporting period.

(f) Ongoing Activities

Following the submittal of a permanent solution document and associated AUL for the NBHS Campus, conditions at the facility can be effectively and safely maintained by the City.

LSP Opinion

The objective of this RAM Completion report is to apprise MassDEP of the completion of the City's activities at the NBHS Campus. This RAM Completion Report has been prepared in accordance with 310 CMR 40.0446 as set forth in the MCP.



David M. Sullivan, LSP, CHMM **7/23/2014**
Date

TRC Environmental Corporation
Licensed Site Professional No. 1488

Stamp

3.0 REFERENCES

Burmeister, 1958. *Suggested Methods of Tests for Identification of Soils.* In: Procedures for Testing Soils. American Society for Testing and Materials, Philadelphia, PA, 1958.

MassGIS, 2008 Massachusetts Geographic Information System (MassGIS), On-line MassDEP Priority Resource Map. Accessed July 28, 2008. http://maps.massgis.state.ma.us/21e/viewer.htm

MassDEP, 1997 *Reuse and Disposal of Contaminated Soil at Massachusetts Landfills*, Massachusetts Department of Environmental Protection Policy #COMM-97-001. August 15, 1997

MassDEP, 2014 *Massachusetts Contingency Plan; 310 CMR 40.0000*. April 25, 2014.

TRC, 2011a *Release Abatement Measure Plan, Soil Excavation and Removal at New Bedford High School, Parker Street Waste Site, New Bedford, Massachusetts.* Prepared for the City of New Bedford. Prepared by TRC, Lowell, Massachusetts. April 2011

TRC, 2011b *Release Abatement Measure Plan Modification, Soil Excavation and Removal at New Bedford High School, Parker Street Waste Site, New Bedford, Massachusetts.* Prepared for the City of New Bedford. Prepared by TRC, Lowell, Massachusetts. July 2011

TRC, 2011c *Phase II Comprehensive Site Assessment, New Bedford High School Campus at the Parker Street Waste Site, New Bedford, Massachusetts.* Prepared for the City of New Bedford. Prepared by TRC, Lowell, Massachusetts. April 2011.

TRC, 2011d *Release Abatement Measure Status Report, Soil Excavation and Removal at New Bedford High School, Parker Street Waste Site, New Bedford, Massachusetts*. Prepared for the City of New Bedford. Prepared by TRC, Lowell, Massachusetts. August 2011.

TRC, 2012a *Release Abatement Measure Status Report, Soil Excavation and Removal at New Bedford High School, Parker Street Waste Site, New Bedford, Massachusetts*. Prepared for the City of New Bedford. Prepared by TRC, Lowell, Massachusetts. February 2012.

TRC, 2012b *Release Abatement Measure Status Report, Soil Excavation and Removal at New Bedford High School, Parker Street Waste Site, New Bedford, Massachusetts*. Prepared for the City of New Bedford. Prepared by TRC, Lowell, Massachusetts. August 2012.

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TRC, 2013b *Release Abatement Measure Status Report, Soil Excavation and Removal at New Bedford High School, Parker Street Waste Site, New Bedford, Massachusetts*. Prepared for the City of New Bedford. Prepared by TRC, Lowell, Massachusetts. February 2014.

Zen, 1983. Zen, E. (editor), Goldsmith, R., Ratcliffe, N.M., Robinson, P., Stanley, R. S., compilers, 1983, Bedrock Geologic Map of Massachusetts. U.S. Geological Survey.

TABLES

Table 1
Summary of HB-22 Analytical Results for Soil Samples - PCB Congeners and Dioxins/Furans
Parker Street Waste Site
New Bedford, Massachusetts

Analysis	Analyte	Sample Location:						HB-22		HB-22A		HB-22B		HB-22C
		Sample ID:						HB-22		HB-22A		HB-22B		HB-22C
		Sample Depth (ft.):						0-1	1-3	1-3	1-3	1-3	1-3	1-3
		Sample Date:						06/07/2011	06/07/2011	10/20/2011	02/21/2014	10/20/2011	10/20/2011 Field Dup	10/20/2011
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1*	TSCA							
Dioxins														
(mg/kg)	2,3,7,8-TCDD							1.9E-06 U	**2.3E-05 J**	**3.2E-07 JK**	NA	**5.7E-06 J**	**1.8E-05**	**3.5E-05**
	1,2,3,7,8-PeCDD							**4.4E-06 JK**	**3.3E-04 J**	**1.5E-06 JK**	NA	**3.3E-05 J**	**1.1E-04**	**1.8E-04**
	1,2,3,4,7,8-HxCDD							**3.9E-06 J**	**7.5E-04**	1.2E-06 U	NA	**4.1E-05 J**	**2.2E-04**	**3.2E-04**
	1,2,3,6,7,8-HxCDD							**8.8E-06 J**	**1.9E-03**	**3.9E-06 JK**	NA	**7.1E-05**	**3.2E-04**	**7.3E-04**
	1,2,3,7,8,9-HxCDD							**7.4E-06 J**	**1.3E-03**	**3.4E-06 J**	NA	**7.0E-05**	**3.2E-04**	**5.6E-04**
	1,2,3,4,6,7,8-HpCDD							**1.9E-04**	**4.7E-02**	**7.2E-05**	NA	**9.5E-04**	**4.5E-03**	**1.4E-02**
	1,2,3,4,6,7,8,9-OCDD							**1.7E-03**	**3.8E-01**	**7.2E-04**	NA	**3.1E-03**	**1.8E-02**	**9.2E-02 E**
	2,3,7,8-TCDF							**7.4E-06 JK**	**2.3E-04**	**2.7E-06**	NA	**1.2E-05**	**7.9E-05**	**5.9E-05**
	1,2,3,7,8-PeCDF							**1.1E-05 J**	**4.7E-05 J**	**1.2E-06 JK**	NA	**6.0E-06 J**	**3.8E-05 J**	**6.3E-05**
	2,3,4,7,8-PeCDF							**9.2E-06 J**	**1.1E-04 J**	**4.7E-06 J**	NA	**1.5E-05 J**	**1.1E-04**	**3.3E-04**
	1,2,3,4,7,8-HxCDF							**7.2E-06 J**	**3.0E-04 J**	**3.6E-06 J**	NA	**1.5E-05 J**	**8.9E-05**	**5.9E-04**
	1,2,3,6,7,8-HxCDF							**3.8E-06 J**	**1.6E-04 J**	**2.4E-06 J**	NA	**1.2E-05 J**	**7.0E-05**	**2.1E-04**
	2,3,4,6,7,8-HxCDF							**6.2E-06 J**	**1.7E-04 J**	**3.3E-06 J**	NA	**1.4E-05 J**	**9.0E-05**	**2.8E-04**
	1,2,3,7,8,9-HxCDF							**3.6E-06 J**	**4.1E-05 JQ**	**1.8E-06 J**	NA	**3.9E-06 JQ**	**1.3E-05 JQ**	**2.6E-04 Q**
	1,2,3,4,6,7,8-HpCDF							**6.6E-05**	**7.7E-03**	**2.3E-05**	NA	**2.0E-04**	**6.7E-04**	**2.2E-03**
	1,2,3,4,7,8,9-HpCDF							**4.4E-06 J**	**8.4E-04**	**1.7E-06 J**	NA	**9.8E-06 J**	**5.5E-05**	**3.0E-04**
	1,2,3,4,6,7,8,9-OCDF							**1.7E-04**	**4.3E-02**	**4.9E-05**	NA	**2.5E-04**	**1.9E-03**	**9.9E-03**
	Total Tetrachlorodibenzo-p-dioxin							1.9E-06 U	**4.9E-04**	**8.5E-06**	NA	**1.2E-04**	**3.3E-04**	**5.4E-04**
	Total Pentachlorodibenzo-p-dioxin							**2.6E-05 J**	**2.4E-03 Q**	**2.5E-05**	NA	**2.9E-04 Q**	**1.1E-03 Q**	**2.0E-03 Q**
	Total Hexachlorodibenzo-p-dioxin							**9.4E-05**	**1.5E-02**	**4.9E-05**	NA	**7.4E-04**	**1.7E-03**	**7.4E-03**
	Total Heptachlorodibenzo-p-dioxin							**3.6E-04**	**9.2E-02**	**1.5E-04**	NA	**1.8E-03**	**1.0E-02**	**2.9E-02 E**
	Total Tetrachlorodibenzofuran							**2.5E-04**	**9.4E-04**	**5.3E-05**	NA	**1.5E-04**	**1.3E-03**	**1.6E-03**
	Total Pentachlorodibenzofuran							**1.9E-04**	**1.4E-03 Q**	**6.1E-05**	NA	**1.9E-04 Q**	**1.2E-03 Q**	**2.8E-03 Q**
	Total Hexachlorodibenzofuran							**1.1E-04**	**8.6E-03**	**5.8E-05**	NA	**2.6E-04**	**1.3E-03**	**5.3E-03**
	Total Heptachlorodibenzofuran							**1.9E-04**	**4.0E-02**	**6.2E-05**	NA	**4.6E-04**	**2.2E-03**	**1.0E-02**
	TEQs (WHO2005, ND=0, EMPC=EMPC)	2.0E-05	2.0E-05	5.0E-05	5.0E-05	2.0E-05	N/A	**1.5E-05**	**1.5E-03**	**6.5E-06**	NA	**7.9E-05**	**3.3E-04**	**8.1E-04**
	TEQs (WHO2005, ND=DL/2, EMPC=EMPC)	2.0E-05	2.0E-05	5.0E-05	5.0E-05	2.0E-05	N/A	**1.6E-05**	**1.5E-03**	**6.6E-06**	NA	**7.9E-05**	**3.3E-04**	**8.1E-04**
PCB Congeners														
(mg/kg)	1-MoCB							4.4E-05 U	5.3E-05 U	NA	NA	NA	NA	NA
	2-MoCB							4.7E-05 U	5.3E-05 U	NA	NA	NA	NA	NA
	3-MoCB							3.2E-05 U	3.6E-05 U	NA	NA	NA	NA	NA
	4-DiCB							1.5E-04 U	1.4E-04 U	NA	NA	NA	NA	NA
	5-DiCB							7.4E-05 U	6.5E-05 U	NA	NA	NA	NA	NA
	6-DiCB							5.6E-05 U	5.2E-05 U	NA	NA	NA	NA	NA
	7-DiCB							5.8E-05 U	5.2E-05 U	NA	NA	NA	NA	NA
	8-DiCB							4.9E-05 U	4.7E-05 U	NA	NA	NA	NA	NA
	9-DiCB							6.9E-05 U	6.2E-05 U	NA	NA	NA	NA	NA
	10-DiCB							7.2E-05 U	6.7E-05 U	NA	NA	NA	NA	NA
	11-DiCB							6.6E-05 U	5.7E-05 U	NA	NA	NA	NA	NA
	12-DiCB							6.7E-05 CU	6.0E-05 CU	NA	NA	NA	NA	NA
	13-DiCB							C12	C12	NA	NA	NA	NA	NA
	14-DiCB							6.3E-05 U	5.6E-05 U	NA	NA	NA	NA	NA
	15-DiCB							4.8E-05 U	4.8E-05 U	NA	NA	NA	NA	NA
	16-TrCB							2.1E-05 U	3.3E-05 U	NA	NA	NA	NA	NA
	17-TrCB							2.3E-05 U	3.2E-05 U	NA	NA	NA	NA	NA
	18-TrCB							1.5E-05 CU	2.2E-05 CU	NA	NA	NA	NA	NA
	19-TrCB							2.2E-05 U	3.3E-05 U	NA	NA	NA	NA	NA
	20-TrCB							1.3E-05 CU	1.9E-05 CU	NA	NA	NA	NA	NA
	21-TrCB							1.3E-05 CU	1.7E-05 CU	NA	NA	NA	NA	NA
	22-TrCB							1.3E-05 U	1.8E-05 U	NA	NA	NA	NA	NA
	23-TrCB							1.3E-05 U	1.7E-05 U	NA	NA	NA	NA	NA
	24-TrCB							1.3E-05 U	1.8E-05 U	NA	NA	NA	NA	NA
	25-TrCB							1.1E-05 U	1.5E-05 U	NA	NA	NA	NA	NA
	26-TrCB							1.4E-05 CU	2.0E-05 CU	NA	NA	NA	NA	NA

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Analysis	Analyte	Sample Location:						HB-22		HB-22A		HB-22B		HB-22C
		Sample ID:						HB-22		HB-22A		HB-22B		HB-22C
		Sample Depth (ft.):						0-1	1-3	1-3	1-3	1-3	1-3	1-3
		Sample Date:						06/07/2011	06/07/2011	10/20/2011	02/21/2014	10/20/2011	10/20/2011 Field Dup	10/20/2011
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1*	TSCA							
	27-TrCB							1.4E-05 U	2.0E-05 U	NA	NA	NA	NA	NA
	28-TrCB							C20	C20	NA	NA	NA	NA	NA
	29-TrCB							C26	C26	NA	NA	NA	NA	NA
	30-TrCB							C18	C18	NA	NA	NA	NA	NA
	31-TrCB							1.2E-05 U	1.7E-05 U	NA	NA	NA	NA	NA
	32-TrCB							1.2E-05 U	1.8E-05 U	NA	NA	NA	NA	NA
	33-TrCB							C21	C21	NA	NA	NA	NA	NA
	34-TrCB							1.4E-05 U	1.9E-05 U	NA	NA	NA	NA	NA
	35-TrCB							1.4E-05 U	3.0E-05 U	NA	NA	NA	NA	NA
	36-TrCB							1.4E-05 U	2.9E-05 U	NA	NA	NA	NA	NA
	37-TrCB							1.2E-05 U	2.6E-05 U	NA	NA	NA	NA	NA
	38-TrCB							1.4E-05 U	3.0E-05 U	NA	NA	NA	NA	NA
	39-TrCB							1.2E-05 U	2.7E-05 U	NA	NA	NA	NA	NA
	40-TeCB							**5.4E-04 C**	**9.0E-04 C**	NA	NA	NA	NA	NA
	41-TeCB							4.6E-05 U	5.0E-05 U	NA	NA	NA	NA	NA
	42-TeCB							**4.0E-04**	**4.6E-04**	NA	NA	NA	NA	NA
	43-TeCB							4.2E-05 U	5.6E-05 U	NA	NA	NA	NA	NA
	44-TeCB							**4.9E-03 C**	**4.2E-03 C**	NA	NA	NA	NA	NA
	45-TeCB							1.1E-05 CU	1.8E-05 CU	NA	NA	NA	NA	NA
	46-TeCB							1.4E-05 U	2.3E-05 U	NA	NA	NA	NA	NA
	47-TeCB							C44	C44	NA	NA	NA	NA	NA
	48-TeCB							3.4E-05 U	4.1E-05 U	NA	NA	NA	NA	NA
	49-TeCB							**4.6E-03 C**	**2.3E-03 C**	NA	NA	NA	NA	NA
	50-TeCB							9.8E-06 CU	1.7E-05 CU	NA	NA	NA	NA	NA
	51-TeCB							C45	C45	NA	NA	NA	NA	NA
	52-TeCB							**1.5E-02**	**1.4E-02**	NA	NA	NA	NA	NA
	53-TeCB							C50	C50	NA	NA	NA	NA	NA
	54-TeCB							7.4E-06 U	1.5E-05 U	NA	NA	NA	NA	NA
	55-TeCB							2.1E-05 U	4.9E-05 U	NA	NA	NA	NA	NA
	56-TeCB							**1.6E-03**	**2.1E-03**	NA	NA	NA	NA	NA
	57-TeCB							2.2E-05 U	5.2E-05 U	NA	NA	NA	NA	NA
	58-TeCB							2.1E-05 U	5.1E-05 U	NA	NA	NA	NA	NA
	59-TeCB							2.9E-05 CU	3.3E-05 CU	NA	NA	NA	NA	NA
	60-TeCB							2.1E-05 U	4.9E-05 U	NA	NA	NA	NA	NA
	61-TeCB							**1.5E-02 C**	**1.5E-02 C**	NA	NA	NA	NA	NA
	62-TeCB							C59	C59	NA	NA	NA	NA	NA
	63-TeCB							2.1E-05 U	4.9E-05 U	NA	NA	NA	NA	NA
	64-TeCB							**1.4E-03**	**3.7E-03**	NA	NA	NA	NA	NA
	65-TeCB							C44	C44	NA	NA	NA	NA	NA
	66-TeCB							**4.2E-03**	**4.9E-03**	NA	NA	NA	NA	NA
	67-TeCB							2.3E-05 U	5.4E-05 U	NA	NA	NA	NA	NA
	68-TeCB							2.0E-05 U	4.6E-05 U	NA	NA	NA	NA	NA
	69-TeCB							C49	C49	NA	NA	NA	NA	NA
	70-TeCB							C61	C61	NA	NA	NA	NA	NA
	71-TeCB							C40	C40	NA	NA	NA	NA	NA
	72-TeCB							2.1E-05 U	5.0E-05 U	NA	NA	NA	NA	NA
	73-TeCB							2.8E-05 U	3.1E-05 U	NA	NA	NA	NA	NA
	74-TeCB							C61	C61	NA	NA	NA	NA	NA
	75-TeCB							C59	C59	NA	NA	NA	NA	NA
	76-TeCB							C61	C61	NA	NA	NA	NA	NA
	77-TeCB							**3.1E-04**	**1.1E-03**	NA	**2.0E-04**	NA	NA	NA
	78-TeCB							2.1E-05 U	4.8E-05 U	NA	NA	NA	NA	NA
	79-TeCB							**2.8E-04**	**4.6E-04**	NA	NA	NA	NA	NA
	80-TeCB							2.3E-05 U	5.5E-05 U	NA	NA	NA	NA	NA
	81-TeCB							1.8E-05 U	4.5E-05 U	NA	7.5E-06 U	NA	NA	NA
	82-PeCB							**4.5E-03**	**6.8E-03**	NA	NA	NA	NA	NA
	83-PeCB							**2.2E-03**	**3.3E-03**	NA	NA	NA	NA	NA

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		Sample ID:						0-1	1-3	1-3	1-3	1-3	1-3	1-3
		Sample Depth (ft.):						06/07/2011	06/07/2011	10/20/2011	02/21/2014	10/20/2011	10/20/2011 Field Dup	10/20/2011
		Sample Date:												
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1*	TSCA							
	84-PeCB							**8.0E-03**	**1.8E-02**	NA	NA	NA	NA	NA
	85-PeCB							**1.3E-02 C**	**1.3E-02 C**	NA	NA	NA	NA	NA
	86-PeCB							**3.7E-02 C**	**4.2E-02 C**	NA	NA	NA	NA	NA
	87-PeCB							C86	C86	NA	NA	NA	NA	NA
	88-PeCB							**6.8E-03 C**	**9.1E-03 C**	NA	NA	NA	NA	NA
	89-PeCB							3.0E-05 U	**2.5E-04**	NA	NA	NA	NA	NA
	90-PeCB							**6.0E-02 C**	**6.3E-02 C**	NA	NA	NA	NA	NA
	91-PeCB							C88	C88	NA	NA	NA	NA	NA
	92-PeCB							**1.2E-02**	**1.3E-02**	NA	NA	NA	NA	NA
	93-PeCB							3.0E-05 CU	5.4E-05 CU	NA	NA	NA	NA	NA
	94-PeCB							2.9E-05 U	5.2E-05 U	NA	NA	NA	NA	NA
	95-PeCB							**3.3E-02**	**5.1E-02**	NA	NA	NA	NA	NA
	96-PeCB							1.3E-05 U	1.9E-05 U	NA	NA	NA	NA	NA
	97-PeCB							C86	C86	NA	NA	NA	NA	NA
	98-PeCB							**5.8E-04 C**	**1.4E-03 C**	NA	NA	NA	NA	NA
	99-PeCB							**2.9E-02**	**2.8E-02**	NA	NA	NA	NA	NA
	100-PeCB							C93	C93	NA	NA	NA	NA	NA
	101-PeCB							C90	C90	NA	NA	NA	NA	NA
	102-PeCB							C98	C98	NA	NA	NA	NA	NA
	103-PeCB							**2.6E-04**	4.7E-05 U	NA	NA	NA	NA	NA
	104-PeCB							1.2E-05 U	1.9E-05 U	NA	NA	NA	NA	NA
	105-PeCB							**2.1E-02**	**2.7E-02**	NA	**1.0E-02**	NA	NA	NA
	106-PeCB							4.0E-05 U	4.4E-05 U	NA	NA	NA	NA	NA
	107-PeCB							**4.9E-03**	**5.3E-03**	NA	NA	NA	NA	NA
	108-PeCB							**3.1E-03 C**	**2.4E-03 C**	NA	NA	NA	NA	NA
	109-PeCB							C86	C86	NA	NA	NA	NA	NA
	110-PeCB							**8.7E-02 C**	**1.2E-01 C**	NA	NA	NA	NA	NA
	111-PeCB							1.9E-05 U	3.4E-05 U	NA	NA	NA	NA	NA
	112-PeCB							2.5E-05 U	4.2E-05 U	NA	NA	NA	NA	NA
	113-PeCB							C90	C90	NA	NA	NA	NA	NA
	114-PeCB							**4.9E-04**	**1.0E-03**	NA	**2.9E-04**	NA	NA	NA
	115-PeCB							C110	C110	NA	NA	NA	NA	NA
	116-PeCB							C85	C85	NA	NA	NA	NA	NA
	117-PeCB							C85	C85	NA	NA	NA	NA	NA
	118-PeCB							**5.6E-02**	**5.9E-02**	NA	**2.4E-02**	NA	NA	NA
	119-PeCB							C86	C86	NA	NA	NA	NA	NA
	120-PeCB							1.9E-05 U	3.4E-05 U	NA	NA	NA	NA	NA
	121-PeCB							2.0E-05 U	3.5E-05 U	NA	NA	NA	NA	NA
	122-PeCB							**7.1E-04**	**7.7E-04**	NA	NA	NA	NA	NA
	123-PeCB							**1.1E-03**	**1.0E-03**	NA	**6.0E-04**	NA	NA	NA
	124-PeCB							C108	C108	NA	NA	NA	NA	NA
	125-PeCB							C86	C86	NA	NA	NA	NA	NA
	126-PeCB							4.3E-05 U	**2.6E-04**	NA	**1.1E-04**	NA	NA	NA
	127-PeCB							3.9E-05 U	4.4E-05 U	NA	NA	NA	NA	NA
	128-HxCB							**1.7E-02 C**	**1.9E-02 C**	NA	NA	NA	NA	NA
	129-HxCB							**9.8E-02 C**	**1.3E-01 C**	NA	NA	NA	NA	NA
	130-HxCB							**6.0E-03**	**6.8E-03**	NA	NA	NA	NA	NA
	131-HxCB							**1.0E-03**	**1.4E-03**	NA	NA	NA	NA	NA
	132-HxCB							**2.5E-02**	**3.5E-02**	NA	NA	NA	NA	NA
	133-HxCB							**9.9E-04**	**1.2E-03**	NA	NA	NA	NA	NA
	134-HxCB							**2.6E-03**	**4.8E-03**	NA	NA	NA	NA	NA
	135-HxCB							**1.5E-02 C**	**3.1E-02 C**	NA	NA	NA	NA	NA
	136-HxCB							**5.5E-03**	**1.2E-02**	NA	NA	NA	NA	NA
	137-HxCB							**5.6E-03**	**6.3E-03**	NA	NA	NA	NA	NA
	138-HxCB							C129	C129	NA	NA	NA	NA	NA
	139-HxCB							**1.8E-03 C**	**2.1E-03 C**	NA	NA	NA	NA	NA
	140-HxCB							C139	C139	NA	NA	NA	NA	NA

Table 1
Summary of HB-22 Analytical Results for Soil Samples - PCB Congeners and Dioxins/Furans
Parker Street Waste Site
New Bedford, Massachusetts

Analysis	Analyte	Sample Location:						HB-22		HB-22A		HB-22B		HB-22C
		Sample ID:						HB-22		HB-22A		HB-22B		HB-22C
		Sample Depth (ft.):						0-1	1-3	1-3	1-3	1-3	1-3	1-3
		Sample Date:						06/07/2011	06/07/2011	10/20/2011	02/21/2014	10/20/2011	10/20/2011 Field Dup	10/20/2011
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1*	TSCA							
	141-HxCB							**1.4E-02**	**2.3E-02**	NA	NA	NA	NA	NA
	142-HxCB							4.1E-05 U	5.4E-05 U	NA	NA	NA	NA	NA
	143-HxCB							3.9E-05 U	5.1E-05 U	NA	NA	NA	NA	NA
	144-HxCB							**2.3E-03**	**4.8E-03**	NA	NA	NA	NA	NA
	145-HxCB							1.0E-05 U	1.7E-05 U	NA	NA	NA	NA	NA
	146-HxCB							**1.2E-02**	**1.5E-02**	NA	NA	NA	NA	NA
	147-HxCB							**5.0E-02 C**	**8.4E-02 C**	NA	NA	NA	NA	NA
	148-HxCB							1.3E-05 U	2.1E-05 U	NA	NA	NA	NA	NA
	149-HxCB							C147	C147	NA	NA	NA	NA	NA
	150-HxCB							9.9E-06 U	1.6E-05 U	NA	NA	NA	NA	NA
	151-HxCB							C135	C135	NA	NA	NA	NA	NA
	152-HxCB							1.0E-05 U	1.7E-05 U	NA	NA	NA	NA	NA
	153-HxCB							**6.0E-02 C**	**8.6E-02 C**	NA	NA	NA	NA	NA
	154-HxCB							**6.3E-04**	**6.8E-04**	NA	NA	NA	NA	NA
	155-HxCB							8.0E-06 U	1.4E-05 U	NA	NA	NA	NA	NA
	156-HxCB							**1.1E-02 C**	**1.5E-02 C**	NA	**5.6E-03 C**	NA	NA	NA
	157-HxCB							C156	C156	NA	C156	NA	NA	NA
	158-HxCB							**1.1E-02**	**1.4E-02**	NA	NA	NA	NA	NA
	159-HxCB							**2.6E-04**	**9.9E-04**	NA	NA	NA	NA	NA
	160-HxCB							2.9E-05 U	3.7E-05 U	NA	NA	NA	NA	NA
	161-HxCB							2.9E-05 U	3.7E-05 U	NA	NA	NA	NA	NA
	162-HxCB							**2.9E-04**	**4.5E-04**	NA	NA	NA	NA	NA
	163-HxCB							C129	C129	NA	NA	NA	NA	NA
	164-HxCB							**6.5E-03**	**8.6E-03**	NA	NA	NA	NA	NA
	165-HxCB							3.1E-05 U	4.0E-05 U	NA	NA	NA	NA	NA
	166-HxCB							C128	C128	NA	NA	NA	NA	NA
	167-HxCB							**4.0E-03**	**4.7E-03**	NA	**2.2E-03**	NA	NA	NA
	168-HxCB							C153	C153	NA	NA	NA	NA	NA
	169-HxCB							2.2E-05 U	2.7E-05 U	NA	1.0E-05 U	NA	NA	NA
	170-HpCB							**9.9E-03**	**2.5E-02**	NA	NA	NA	NA	NA
	171-HpCB							**3.1E-03 C**	**8.8E-03 C**	NA	NA	NA	NA	NA
	172-HpCB							**1.5E-03**	**4.6E-03**	NA	NA	NA	NA	NA
	173-HpCB							C171	C171	NA	NA	NA	NA	NA
	174-HpCB							**9.0E-03**	**3.7E-02**	NA	NA	NA	NA	NA
	175-HpCB							**2.9E-04**	**1.2E-03**	NA	NA	NA	NA	NA
	176-HpCB							**8.5E-04**	**3.8E-03**	NA	NA	NA	NA	NA
	177-HpCB							**4.7E-03**	**1.6E-02**	NA	NA	NA	NA	NA
	178-HpCB							**1.4E-03**	**5.5E-03**	NA	NA	NA	NA	NA
	179-HpCB							**2.6E-03**	**1.3E-02**	NA	NA	NA	NA	NA
	180-HpCB							**1.8E-02 C**	**7.5E-02 C**	NA	NA	NA	NA	NA
	181-HpCB							1.9E-05 U	3.1E-05 U	NA	NA	NA	NA	NA
	182-HpCB							1.9E-05 U	2.2E-05 U	NA	NA	NA	NA	NA
	183-HpCB							**4.9E-03 C**	**2.2E-02 C**	NA	NA	NA	NA	NA
	184-HpCB							1.2E-05 U	1.4E-05 U	NA	NA	NA	NA	NA
	185-HpCB							C183	C183	NA	NA	NA	NA	NA
	186-HpCB							1.3E-05 U	1.5E-05 U	NA	NA	NA	NA	NA
	187-HpCB							**8.1E-03**	**3.5E-02**	NA	NA	NA	NA	NA
	188-HpCB							1.2E-05 U	1.4E-05 U	NA	NA	NA	NA	NA
	189-HpCB							**4.1E-04**	**9.3E-04**	NA	**2.1E-04**	NA	NA	NA
	190-HpCB							**1.9E-03**	**5.7E-03**	NA	NA	NA	NA	NA
	191-HpCB							**3.3E-04**	**1.0E-03**	NA	NA	NA	NA	NA
	192-HpCB							1.6E-05 U	2.5E-05 U	NA	NA	NA	NA	NA
	193-HpCB							C180	C180	NA	NA	NA	NA	NA
	194-OcCB							**3.0E-03**	**1.6E-02**	NA	NA	NA	NA	NA
	195-OcCB							**1.2E-03**	**6.4E-03**	NA	NA	NA	NA	NA
	196-OcCB							**1.5E-03**	**9.1E-03**	NA	NA	NA	NA	NA
	197-OcCB							**4.7E-04 C**	**3.0E-03 C**	NA	NA	NA	NA	NA

Table 1
Summary of HB-22 Analytical Results for Soil Samples - PCB Congeners and Dioxins/Furans
Parker Street Waste Site
New Bedford, Massachusetts

Analysis	Analyte	Sample Location:						HB-22		HB-22A		HB-22B		HB-22C
		Sample ID:						HB-22		HB-22A		HB-22B		HB-22C
		Sample Depth (ft.):						0-1	1-3	1-3	1-3	1-3	1-3	1-3
		Sample Date:						06/07/2011	06/07/2011	10/20/2011	02/21/2014	10/20/2011	10/20/2011 Field Dup	10/20/2011
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1*	TSCA							
	198-OcCB							**3.8E-03 C**	**1.9E-02 C**	NA	NA	NA	NA	NA
	199-OcCB							C198	C198	NA	NA	NA	NA	NA
	200-OcCB							C197	C197	NA	NA	NA	NA	NA
	201-OcCB							**3.6E-04**	**2.4E-03**	NA	NA	NA	NA	NA
	202-OcCB							**6.5E-04**	**3.7E-03**	NA	NA	NA	NA	NA
	203-OcCB							**2.3E-03**	**1.2E-02**	NA	NA	NA	NA	NA
	204-OcCB							7.8E-06 U	1.3E-05 U	NA	NA	NA	NA	NA
	205-OcCB							1.2E-05 U	**8.0E-04**	NA	NA	NA	NA	NA
	206-NoCB							**3.6E-03**	**1.2E-02**	NA	NA	NA	NA	NA
	207-NoCB							**4.6E-04**	**1.5E-03**	NA	NA	NA	NA	NA
	208-NoCB							**1.5E-03**	**4.4E-03**	NA	NA	NA	NA	NA
	209-DeCB							**9.8E-03**	**1.9E-02**	NA	NA	NA	NA	NA
	Total PCB Congeners	2	2	3	3	2	1	**8.7E-01**	**1.4E+00**	NA	NA	NA	NA	NA
	Dioxin-like PCB TEQs (ND=0 EMPC=EMPC)	2.0E-05	2.0E-05	5.0E-05	5.0E-05	2.0E-05	N/A	**2.9E-06**	**2.9E-05**	NA	**1.2E-05**	NA	NA	NA
	Dioxin-like PCB TEQs (ND=DL/2; EMPC=E	2.0E-05	2.0E-05	5.0E-05	5.0E-05	2.0E-05	N/A	**5.3E-06**	**3.0E-05**	NA	**1.3E-05**	NA	NA	NA
TEQ Summation**														
(mg/kg)	***TEQs (ND=0; EMPC=EMPC)***	2.0E-05	2.0E-05	5.0E-05	5.0E-05	2.0E-05	N/A	**1.8E-05**	**1.6E-03**	**6.5E-06**	**1.2E-05**	**7.9E-05**	**3.3E-04**	**8.1E-04**
	TEQs (ND=DL/2; EMPC=EMPC)	2.0E-05	2.0E-05	5.0E-05	5.0E-05	2.0E-05	N/A	**2.2E-05**	**1.6E-03**	**6.6E-06**	**1.3E-05**	**7.9E-05**	**3.3E-04**	**8.1E-04**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

B - Compound detected in associated method blank

C - Congener has coeluters. When Cxxx, refer to congener number xxx for data.

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

J - Estimated value.

K - Estimated Maximum Possible Concentration.

ND - Not detected.

Q - Quantitative interference.

U - Compound was not detected at specified quantitation limit.

Values in **Bold** indicate the compound was detected.

PCBs - Polychlorinated Biphenyls.

EMPCs - Estimated Maximum Possible Concentrations.

TEQ - Toxicity Equivalent; calculated using 2005 WHO Toxicity Equivalent Factors.

RC - Reportable Concentration.

TSCA - Toxic Substances Control Act criteria.

* - For reference purposes only.

** - Sum of Dioxin-like PCB Congeners TEQ and Dioxins TEQ.

Table 1
Summary of HB-22 Analytical Results for Soil Samples - PCB Congeners and Dioxins/Furans
Parker Street Waste Site
New Bedford, Massachusetts

Analysis	Analyte	Sample Location:						HB-22D		HB-22F	HB-22G	HB-22J		HB-22K	
		Sample ID:						HB-22D		HB-22F	HB-22G	HB-22J		HB-22K	
		Sample Depth (ft.):						1-3	1-3	1-3	1-3	0-1	1-3	0-1	1-3
		Sample Date:						10/20/2011	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1*	TSCA								
Dioxins															
(mg/kg)	2,3,7,8-TCDD							**2.5E-06 JK**	NA	**4.1E-06**	**7.3E-06 J**	**9.3E-07 J**	**4.8E-06**	**1.0E-06 K**	**4.6E-06**
	1,2,3,7,8-PeCDD							**1.2E-05 J**	NA	**1.8E-05**	**6.4E-05 J**	**1.7E-06 JK**	**1.6E-05**	2.7E-06 U	**2.2E-05**
	1,2,3,4,7,8-HxCDD							**2.3E-05 J**	NA	**2.3E-05**	**3.4E-04**	**2.5E-06 J**	**1.9E-05**	**3.3E-06 J**	**3.1E-05**
	1,2,3,6,7,8-HxCDD							**3.4E-05 J**	NA	**5.3E-05**	**1.1E-03**	**4.1E-06 J**	**4.9E-05**	**8.9E-06**	**7.4E-05**
	1,2,3,7,8,9-HxCDD							**3.9E-05 J**	NA	**4.1E-05**	**8.5E-04**	**3.1E-06 J**	**3.8E-05**	**6.0E-06**	**5.6E-05**
	1,2,3,4,6,7,8-HpCDD							**5.0E-04**	NA	**9.3E-04**	**2.9E-02**	**9.5E-05**	**9.3E-04**	**2.2E-04**	**1.5E-03**
	1,2,3,4,6,7,8,9-OCDD							**2.6E-03**	NA	**6.2E-03 E**	**1.3E-01 E**	**1.1E-03**	**5.9E-03 E**	**1.8E-03**	**1.2E-02 E**
	2,3,7,8-TCDF							**2.1E-05**	NA	**5.9E-05**	**6.1E-05**	**7.9E-06**	**5.9E-05**	**1.9E-05**	**2.6E-05**
	1,2,3,7,8-PeCDF							**1.1E-05 J**	NA	**1.7E-05**	**1.5E-05 J**	3.4E-06 U	**1.5E-05**	**2.7E-06 JK**	**9.4E-06**
	2,3,4,7,8-PeCDF							**2.7E-05 J**	NA	**5.0E-05**	**5.8E-05 J**	**6.5E-06 K**	**6.4E-05**	**1.2E-05**	**3.7E-05**
	1,2,3,4,7,8-HxCDF							**2.9E-05 J**	NA	**3.6E-05**	**1.8E-04**	**1.5E-05**	**3.7E-05**	**1.8E-05**	**3.2E-05**
	1,2,3,6,7,8-HxCDF							**1.8E-05 J**	NA	**2.1E-05**	**1.2E-04 J**	**3.4E-06 J**	**2.6E-05**	**5.2E-06**	**2.0E-05**
	2,3,4,6,7,8-HxCDF							**2.6E-05 J**	NA	**3.2E-05**	**1.4E-04**	**4.8E-06 J**	**3.8E-05**	**5.7E-06**	**2.5E-05**
	1,2,3,7,8,9-HxCDF							**7.8E-06 J**	NA	**7.8E-06**	**6.1E-05 J**	**2.0E-06 J**	**1.4E-05 Q**	**3.2E-06 J**	**9.4E-06**
	1,2,3,4,6,7,8-HpCDF							**1.9E-04**	NA	**3.0E-04**	**2.3E-03**	**6.5E-05 P**	**5.2E-04 P**	**6.9E-05 P**	**3.5E-04 P**
	1,2,3,4,7,8,9-HpCDF							**1.5E-05 J**	NA	**1.7E-05**	**4.5E-04**	**1.8E-06 J**	**2.0E-05**	**3.8E-06 J**	**2.5E-05**
	1,2,3,4,6,7,8,9-OCDF							**2.8E-04**	NA	**7.4E-04**	**1.0E-02**	**7.9E-05**	**7.6E-04**	**1.4E-04**	**1.3E-03**
	Total Tetrachlorodibenzo-p-dioxin							**4.7E-05**	NA	**1.1E-04**	**1.0E-04**	**3.6E-06**	**9.1E-05**	**7.8E-06**	**1.0E-04**
	Total Pentachlorodibenzo-p-dioxin							**1.3E-04 Q**	NA	**1.5E-04 Q**	**5.8E-04**	**7.0E-06 Q**	**8.1E-05**	**1.6E-05 Q**	**2.1E-04**
	Total Hexachlorodibenzo-p-dioxin							**4.0E-04**	NA	**5.2E-04**	**8.2E-03**	**4.5E-05**	**4.2E-04**	**1.0E-04**	**6.9E-04**
	Total Heptachlorodibenzo-p-dioxin							**1.0E-03**	NA	**1.8E-03**	**5.2E-02 E**	**1.9E-04**	**1.8E-03**	**4.3E-04**	**3.0E-03 E**
	Total Tetrachlorodibenzofuran							**2.8E-04**	NA	**9.1E-04 EP**	**6.4E-04 P**	**2.8E-04 P**	**1.7E-03 E**	**4.9E-04 EP**	**5.7E-04 E**
	Total Pentachlorodibenzofuran							**3.2E-04 Q**	NA	**6.5E-04 PQ**	**8.2E-04 P**	**2.1E-04 Q**	**6.9E-04**	**2.6E-04 P**	**5.1E-04**
	Total Hexachlorodibenzofuran							**3.5E-04**	NA	**4.9E-04 P**	**2.5E-03 P**	**9.2E-05**	**7.6E-04**	**1.2E-04 P**	**5.1E-04**
	Total Heptachlorodibenzofuran							**4.3E-04**	NA	**8.6E-04**	**8.3E-03**	**1.4E-04**	**1.3E-03**	**1.8E-04**	**1.3E-03**
	TEQs (WHO2005, ND=0, EMPC=EMPC)	2.0E-05	2.0E-05	5.0E-05	5.0E-05	2.0E-05	N/A	**5.1E-05**	NA	***7.9E-05***	***7.3E-04***	***1.1E-05***	***8.4E-05***	***1.5E-05***	***8.8E-05***
	TEQs (WHO2005, ND=DL/2, EMPC=EMPC)	2.0E-05	2.0E-05	5.0E-05	5.0E-05	2.0E-05	N/A	**5.1E-05**	NA	***7.9E-05***	***7.3E-04***	***1.1E-05***	***8.4E-05***	***1.6E-05***	***8.8E-05***
PCB Congeners															
(mg/kg)	1-MoCB							NA	NA	NA	NA	NA	NA	NA	NA
	2-MoCB							NA	NA	NA	NA	NA	NA	NA	NA
	3-MoCB							NA	NA	NA	NA	NA	NA	NA	NA
	4-DiCB							NA	NA	NA	NA	NA	NA	NA	NA
	5-DiCB							NA	NA	NA	NA	NA	NA	NA	NA
	6-DiCB							NA	NA	NA	NA	NA	NA	NA	NA
	7-DiCB							NA	NA	NA	NA	NA	NA	NA	NA
	8-DiCB							NA	NA	NA	NA	NA	NA	NA	NA
	9-DiCB							NA	NA	NA	NA	NA	NA	NA	NA
	10-DiCB							NA	NA	NA	NA	NA	NA	NA	NA
	11-DiCB							NA	NA	NA	NA	NA	NA	NA	NA
	12-DiCB							NA	NA	NA	NA	NA	NA	NA	NA
	13-DiCB							NA	NA	NA	NA	NA	NA	NA	NA
	14-DiCB							NA	NA	NA	NA	NA	NA	NA	NA
	15-DiCB							NA	NA	NA	NA	NA	NA	NA	NA
	16-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	17-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	18-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	19-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	20-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	21-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	22-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	23-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	24-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	25-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	26-TrCB							NA	NA	NA	NA	NA	NA	NA	NA

Table 1
Summary of HB-22 Analytical Results for Soil Samples - PCB Congeners and Dioxins/Furans
Parker Street Waste Site
New Bedford, Massachusetts

Analysis	Analyte	Sample Location:													
		Sample ID:						HB-22D		HB-22F	HB-22G	HB-22J		HB-22K	
		Sample Depth (ft.):						1-3	1-3	1-3	1-3	0-1	1-3	0-1	1-3
		Sample Date:						10/20/2011	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1*	TSCA								
	27-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	28-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	29-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	30-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	31-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	32-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	33-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	34-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	35-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	36-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	37-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	38-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	39-TrCB							NA	NA	NA	NA	NA	NA	NA	NA
	40-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	41-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	42-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	43-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	44-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	45-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	46-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	47-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	48-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	49-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	50-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	51-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	52-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	53-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	54-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	55-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	56-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	57-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	58-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	59-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	60-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	61-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	62-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	63-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	64-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	65-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	66-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	67-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	68-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	69-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	70-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	71-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	72-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	73-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	74-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	75-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	76-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	77-TeCB							NA	**4.3E-05**	**5.2E-04**	**1.8E-03**	**1.8E-04**	**1.0E-03**	**2.9E-04**	**2.8E-03**
	78-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	79-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	80-TeCB							NA	NA	NA	NA	NA	NA	NA	NA
	81-TeCB							NA	3.4E-06 U	**3.0E-05**	1.7E-05 U	3.0E-06 U	8.4E-06 U	1.5E-05 U	1.8E-05 U
	82-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	83-PeCB							NA	NA	NA	NA	NA	NA	NA	NA

Table 1
Summary of HB-22 Analytical Results for Soil Samples - PCB Congeners and Dioxins/Furans
Parker Street Waste Site
New Bedford, Massachusetts

Analysis	Analyte	Sample Location:													
		Sample ID:						HB-22D		HB-22F	HB-22G	HB-22J		HB-22K	
		Sample Depth (ft.):						1-3	1-3	1-3	1-3	0-1	1-3	0-1	1-3
		Sample Date:						10/20/2011	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1*	TSCA								
	84-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	85-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	86-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	87-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	88-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	89-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	90-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	91-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	92-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	93-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	94-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	95-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	96-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	97-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	98-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	99-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	100-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	101-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	102-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	103-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	104-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB							NA	**2.3E-03**	**2.0E-02**	**5.1E-02**	**1.2E-02**	**4.2E-02**	**4.3E-02**	**8.8E-02**
	106-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	107-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	108-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	109-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	110-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	111-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	112-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	113-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB							NA	**6.7E-05**	**6.6E-04**	**3.6E-03**	**3.4E-04**	**2.3E-03**	**1.2E-03**	**1.1E-02**
	115-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	116-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	117-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB							NA	**5.3E-03**	**4.5E-02**	**1.4E-01**	**3.5E-02**	**9.7E-02**	**1.1E-01**	**2.2E-01**
	119-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	120-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	121-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	122-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB							NA	**9.3E-05**	**7.8E-04**	**5.3E-03**	**7.0E-04**	**2.4E-03**	**1.7E-03**	**9.6E-03**
	124-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	125-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	126-PeCB							NA	**1.8E-05**	**1.7E-04**	4.0E-05 U	**6.7E-05**	**2.4E-04**	4.0E-05 U	**5.4E-04**
	127-PeCB							NA	NA	NA	NA	NA	NA	NA	NA
	128-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	129-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	130-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	131-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	132-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	133-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	134-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	135-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	136-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	137-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	138-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	139-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	140-HxCB							NA	NA	NA	NA	NA	NA	NA	NA

Table 1
Summary of HB-22 Analytical Results for Soil Samples - PCB Congeners and Dioxins/Furans
Parker Street Waste Site
New Bedford, Massachusetts

Analysis	Analyte	Sample Location:															
		Sample ID:						HB-22D		HB-22F	HB-22G	HB-22J		HB-22K	
		Sample Depth (ft.):						1-3	1-3	1-3	1-3	0-1	1-3	0-1	1-3
		Sample Date:						10/20/2011	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1*	TSCA								
	141-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	142-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	143-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	144-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	145-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	146-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	147-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	148-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	149-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	150-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	151-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	152-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	153-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	154-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	155-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	156-HxCB							NA	**1.2E-03 C**	**9.8E-03 C**	**2.2E-02 C**	**7.1E-03 C**	**2.9E-02 C**	**1.9E-02 C**	**3.5E-02 C**
	157-HxCB							NA	C156	C156	C156	C156	C156	C156	C156
	158-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	159-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	160-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	161-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	162-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	163-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	164-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	165-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	166-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB							NA	**3.9E-04**	**3.2E-03**	**1.5E-02**	**2.6E-03**	**9.6E-03**	**6.4E-03**	**3.0E-02**
	168-HxCB							NA	NA	NA	NA	NA	NA	NA	NA
	169-HxCB							NA	5.0E-06 U	1.7E-05 U	2.9E-05 U	2.3E-05	1.1E-05 U	1.8E-05 U	2.2E-05 U
	170-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	171-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	172-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	173-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	174-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	175-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	176-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	177-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	178-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	179-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	180-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	181-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	182-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	183-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	184-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	185-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	186-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	187-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	188-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB							NA	**4.3E-05**	**3.2E-04**	**1.5E-03**	**2.7E-04**	**1.0E-03**	**5.2E-04**	**3.2E-03**
	190-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	191-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	192-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	193-HpCB							NA	NA	NA	NA	NA	NA	NA	NA
	194-OcCB							NA	NA	NA	NA	NA	NA	NA	NA
	195-OcCB							NA	NA	NA	NA	NA	NA	NA	NA
	196-OcCB							NA	NA	NA	NA	NA	NA	NA	NA
	197-OcCB							NA	NA	NA	NA	NA	NA	NA	NA

Table 1
Summary of HB-22 Analytical Results for Soil Samples - PCB Congeners and Dioxins/Furans
Parker Street Waste Site
New Bedford, Massachusetts

Analysis	Analyte	Sample Location:						HB-22D		HB-22F	HB-22G	HB-22J		HB-22K	
		Sample ID:						HB-22D		HB-22F	HB-22G	HB-22J		HB-22K	
		Sample Depth (ft.):						1-3	1-3	1-3	1-3	0-1	1-3	0-1	1-3
		Sample Date:						10/20/2011	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014	02/21/2014
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1*	TSCA								
	198-OcCB							NA	NA	NA	NA	NA	NA	NA	NA
	199-OcCB							NA	NA	NA	NA	NA	NA	NA	NA
	200-OcCB							NA	NA	NA	NA	NA	NA	NA	NA
	201-OcCB							NA	NA	NA	NA	NA	NA	NA	NA
	202-OcCB							NA	NA	NA	NA	NA	NA	NA	NA
	203-OcCB							NA	NA	NA	NA	NA	NA	NA	NA
	204-OcCB							NA	NA	NA	NA	NA	NA	NA	NA
	205-OcCB							NA	NA	NA	NA	NA	NA	NA	NA
	206-NoCB							NA	NA	NA	NA	NA	NA	NA	NA
	207-NoCB							NA	NA	NA	NA	NA	NA	NA	NA
	208-NoCB							NA	NA	NA	NA	NA	NA	NA	NA
	209-DeCB							NA	NA	NA	NA	NA	NA	NA	NA
	Total PCB Congeners	2	2	3	3	2	1	NA	NA	NA	NA	NA	NA	NA	NA
	Dioxin-like PCB TEQs (ND=0 EMPC=EMPC)	2.0E-05	2.0E-05	5.0E-05	5.0E-05	2.0E-05	N/A	NA	**2.1E-06**	**1.9E-05**	**7.4E-06**	***9.1E-06***	***3.0E-05***	***5.4E-06***	***6.6E-05***
	Dioxin-like PCB TEQs (ND=DL/2; EMPC=EI	2.0E-05	2.0E-05	5.0E-05	5.0E-05	2.0E-05	N/A	NA	**2.2E-06**	**2.0E-05**	**1.2E-05**	***9.1E-06***	***3.0E-05***	***7.7E-06***	***6.7E-05***
TEQ Summation**															
(mg/kg)	***TEQs (ND=0; EMPC=EMPC)***	2.0E-05	2.0E-05	5.0E-05	5.0E-05	2.0E-05	N/A	**5.1E-05**	**2.1E-06**	**9.8E-05**	**7.4E-04**	**2.0E-05**	**1.1E-04**	**2.0E-05**	**1.5E-04**
	TEQs (ND=DL/2; EMPC=EMPC)	2.0E-05	2.0E-05	5.0E-05	5.0E-05	2.0E-05	N/A	**5.1E-05**	**2.2E-06**	**9.9E-05**	**7.4E-04**	**2.0E-05**	**1.1E-04**	**2.4E-05**	**1.5E-04**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

B - Compound detected in associated method blank

C - Congener has coeluters. When Cxxx, refer to congener number xxx for data.

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

J - Estimated value.

K - Estimated Maximum Possible Concentration.

ND - Not detected.

Q - Quantitative interference.

U - Compound was not detected at specified quantitation limit.

Values in **Bold** indicate the compound was detected.

PCBs - Polychlorinated Biphenyls.

EMPCs - Estimated Maximum Possible Concentrations.

TEQ - Toxicity Equivalent; calculated using 2005 WHO Toxicity Equivalent Factors.

RC - Reportable Concentration.

TSCA - Toxic Substances Control Act criteria.

* - For reference purposes only.

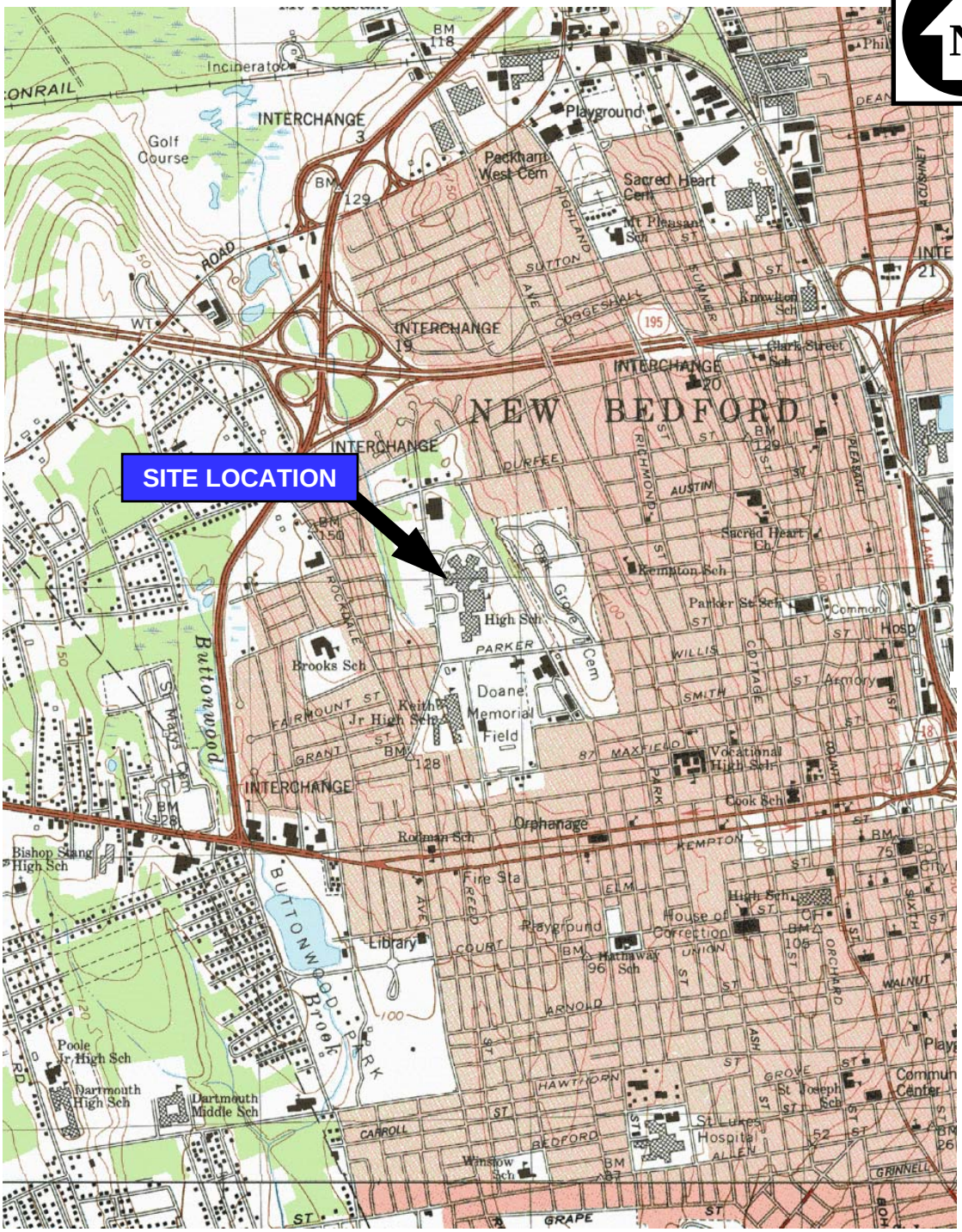
** - Sum of Dioxin-like PCB Congeners TEQ and Dioxins TEQ.

Table 2
Summary of DustTrak™ Data
April 24, 2014
New Bedford, Massachusetts

Date	Monitoring Location	DustTrak™ Serial Number	Test ID	DustTrak™ Location Notes	Average (mg/m^3)	Minimum (mg/m^3)	Maximum (2) (mg/m^3)
April 24, 2014	Nearest Receptor	8530113325	TDOWNWIND_001	Receptor - Positioned to the east of HB-22 between excacvation area and NBHS	0.004	0.001	0.055
	Downwind (1)	8530122002	DOWN_001, DOWN_002	Downwind - Positioned to the south of HB-22	0.000	0.000	0.070
	Upwind	8530104705	UPWIND_001	Upwind - Positioned to the northwest of HB-22	0.006	0.004	0.030

NOTES:
TSI DustTrak™ units equipped with size-selective inlet for particles of 10 micrometers in diameter or less (PM10).
mg/m^3 = milligrams per cubic meter.
(1) Downwind location logged as two individual tests. Aveage, maxiumim, and minimum values represent both tests.
(2) No exceedances of action level noted during remedial activities on April 24, 2014.
Site action level consists of sustained ambient dust levels that exceed the EPA National Ambient Air Quality Standard (NAAQS) of 150 µg/m3 at downwind sampling location.
A sustained reading would consist of readings lasting 15 minutes or longer.

FIGURES



BASE MAP IS A PORTION OF THE FOLLOWING 7.5' X 15' USGS TOPOGRAPHIC QUADRANGLES: NEW BEDFORD NORTH, MA, 1979; NEW BEDFORD SOUTH, MA 1977

0 1000 2000 3000

scale in feet

QUADRANGLE LOCATION

T:\E_CAD\115058\TOPO NBHS.ppt

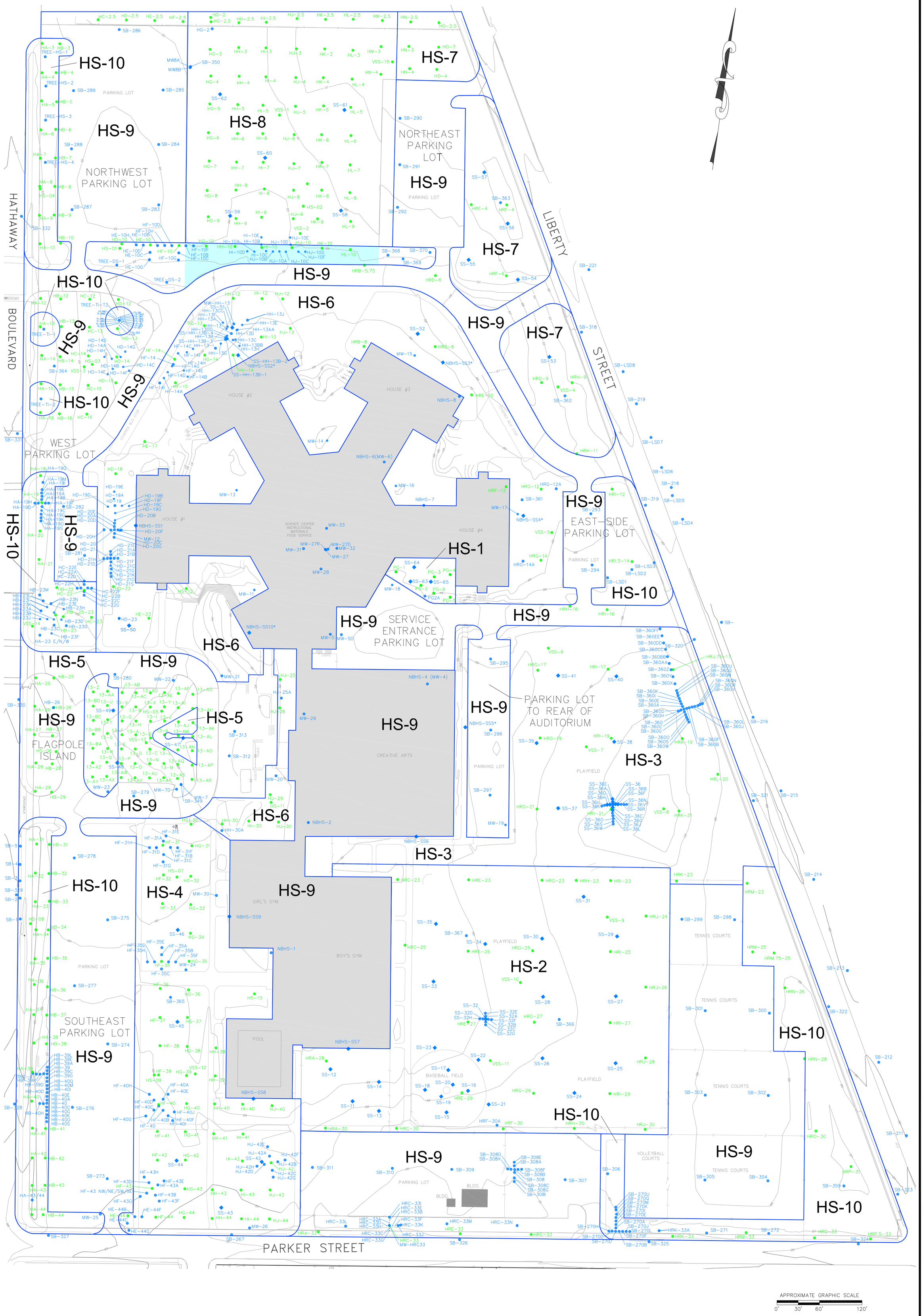
NEW BEDFORD HIGH SCHOOL
NEW BEDFORD, MASSACHUSETTS

SITE LOCATION MAP

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

Drawn: HWB	SCALE: AS SHOWN
Checked: DS	Date: OCT 2008

FIGURE 1



APPROXIMATE GRAPHIC SCALE

0' 30' 60' 120'

NOTES:

1. MAP PREPARED BASED ON DRAWINGS AND SURVEY DATA PROVIDED BY LAND PLANNING, INC. OF HANSON, MASSACHUSETTS.

2. ALL TRC SAMPLING LOCATIONS SURVEYED BY LAND PLANNING, INC. OF HANSON, MASSACHUSETTS.

3. BETA SAMPLE LOCATIONS ARE APPROXIMATE AND BASED ON THE FIGURE PROVIDED IN THE JUNE 9, 2006 "SUMMARY OF ANALYTICAL DATA, NEW BEDFORD HIGH SCHOOL, NEW BEDFORD, MASSACHUSETTS" BY BETA GROUP, INC. OF NORWOOD, MASSACHUSETTS.

LEGEND:

- TRC SAMPLE LOCATIONS
- VHB/BETA SAMPLE LOCATIONS
- HS-9 — EXPOSURE POINT AREA/DESIGNATION
- SOIL SAMPLES CORRESPONDING WITH SOIL BORINGS LOCATED WITHIN SHADED PORTION OF HS-10 EXPOSURE POINT AREA WERE EXCAVATED AND GRADED INTO THE HS-8 EXPOSURE POINT AREA.

NEW BEDFORD HIGH SCHOOL RAM PLAN

NEW BEDFORD, MASSACHUSETTS

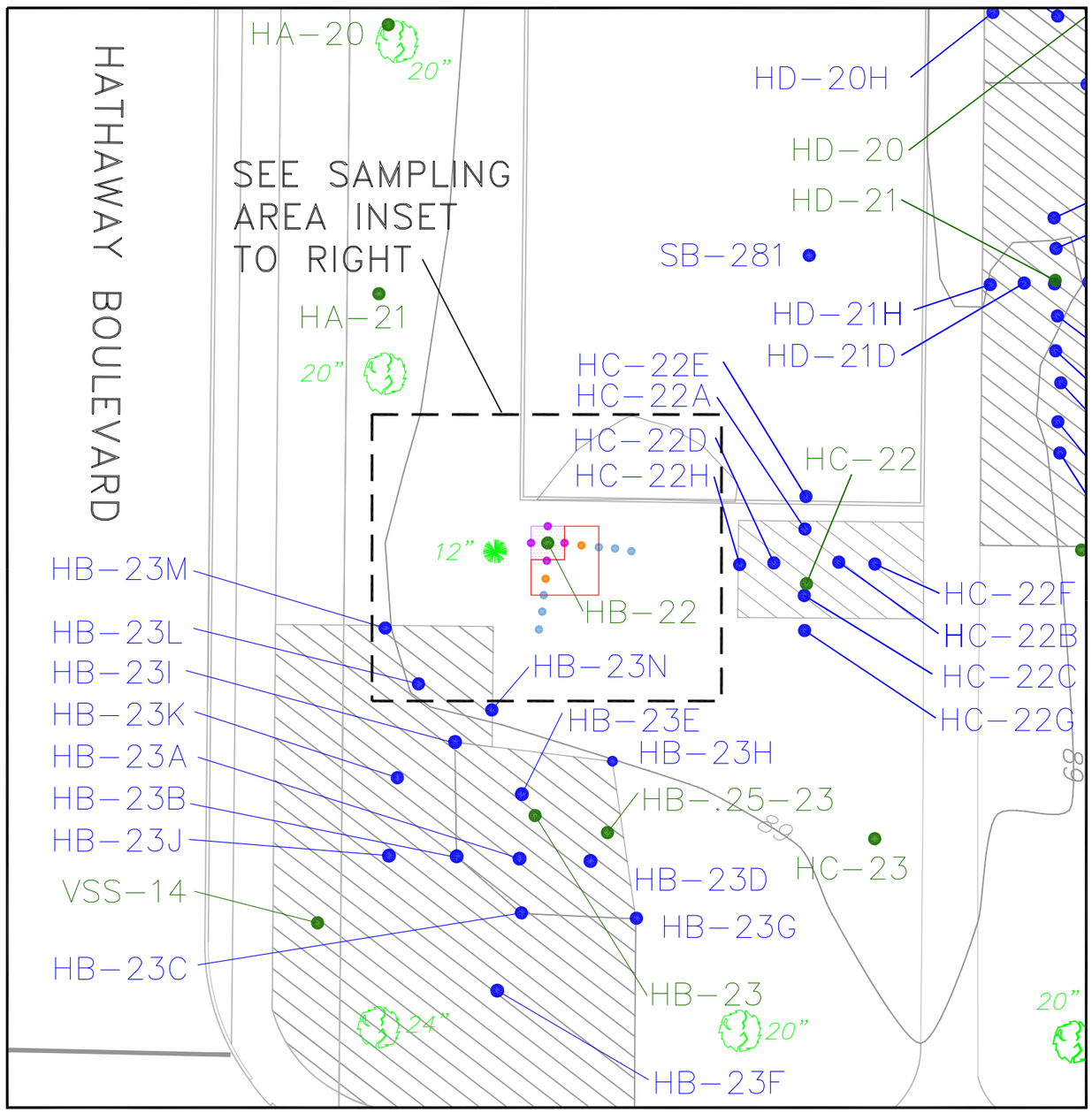
NEW BEDFORD HIGH SCHOOL
EXPOSURE POINT AREAS AND SAMPLE LOCATION MAP

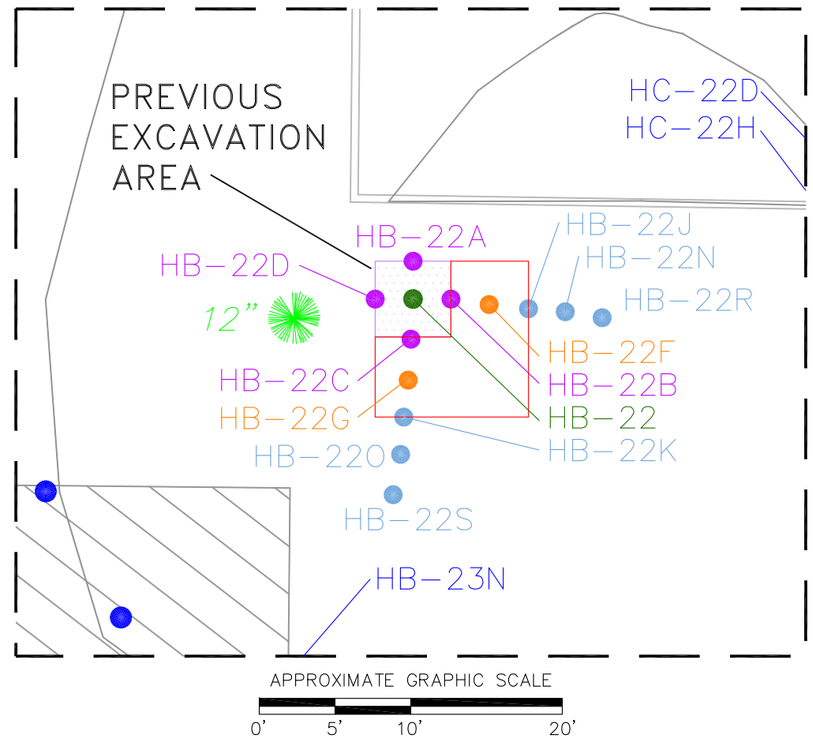
TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

FIGURE 2

DRAWN BY: HWB
CHECKED BY: JBS
DATE: JAN 10, 2014

FILE: T:\E_CAD\115058\NBHS RAM PLAN 1-10-14.dwg





LEGEND:

- PREVIOUS TRC DELINEATION LOCATIONS
- TRC SAMPLE LOCATIONS (FEBRUARY 2014)
- TRC CONTINGENCY SAMPLE LOCATIONS
- PREVIOUS TRC SAMPLE LOCATIONS
- VHB/BETA SAMPLE LOCATIONS
- PREVIOUSLY EXCAVATED AREA
- PREVIOUS HB-22 EXCAVATION AREA (COMPLETED DECEMBER 2011)
- APRIL 2014 EXCAVATION AREA

NOTE:

PREVIOUS TRC LOCATIONS HB-22A AND HB-22D SAMPLED FROM 1-3' FOR PCB CONGENERS ANALYSIS

NEW BEDFORD HIGH SCHOOL
NEW BEDFORD, MASSACHUSETTS

HB-22 EXCAVATION LOCATIONS

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: HWB
CHECKED BY: ECW
DATE: JUNE 2014

FIGURE 3

FILE: T:\E_CAD\115058\HB-22 SOIL SAMPS-EXCAV JUNE 2014.dwg

APPENDIX A

Soil Boring Logs

650 Suffolk Street
Lowell, MA
Telephone: 978-970-5600
Fax: 978-453-1995

BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER City of New Bedford (NBHS)/115058
BORING/WELL NUMBER HB-22A
TRC GEOLOGIST E. Wachtel
DRILLING CONTRACTOR/FOREMAN New England Geotech/Hayes Rembijas
DATE DRILLED 2/21/14
LOCATION 2.5' North of HB-22
SAMPLING METHOD 48" Macrocore
DRILLING METHOD Direct Push 6600 DT Truck Rig
NOTES Sample analyzed for PCB Congeners

SCREEN TYPE/SLOT NA
FILTER PACK TYPE NA
SEAL TYPE NA
DEPTH TO WATER (Approximate Feet) NA
TOTAL DEPTH (Feet) 3
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
	NA	36/12	S-1		4" Brown SILT and fine sand with roots			
1					8" Brown/tan medium to coarse SAND, some fine sand and rounded gravel	0.0	HB-22A (1-3) 1045	
2								
3					End of Boring - Terminated at 3 feet			

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Fax: 978-453-1995

BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER City of New Bedford (NBHS)/115058
BORING/WELL NUMBER HB-22D
TRC GEOLOGIST E. Wachtel
DRILLING CONTRACTOR/FOREMAN New England Geotech/Hayes Rembijas
DATE DRILLED 2/21/14
LOCATION 2.5' West of HB-22
SAMPLING METHOD 48" Macrocore
DRILLING METHOD Direct Push 6600 DT Truck Rig
NOTES Sample analyzed for PCB Congeners

SCREEN TYPE/SLOT NA
FILTER PACK TYPE NA
SEAL TYPE NA
DEPTH TO WATER (Approximate Feet) NA
TOTAL DEPTH (Feet) 3
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
	NA	36/18	S-1		3" Brown organic TOPSOIL (silt with some fine sand and roots)			
1					12" Brown/tan medium to coarse SAND with some fine sand	0.0	HB-22D (1-3) 1055	
2								
3					3" FILL (black coal fragments, white ash, and glass fragments)			
					End of Boring - Terminated at 3 feet			

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Fax: 978-453-1995

BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER City of New Bedford (NBHS)/115058
BORING/WELL NUMBER HB-22F
TRC GEOLOGIST E. Wachtel
DRILLING CONTRACTOR/FOREMAN New England Geotech/Hayes Rembijas
DATE DRILLED 2/21/14
LOCATION 5' East of HB-22
SAMPLING METHOD 48" Macrocore
DRILLING METHOD Direct Push 6600 DT Truck Rig
NOTES Sample analyzed for PCB Congeners and Dioxins/Furans

SCREEN TYPE/SLOT NA
FILTER PACK TYPE NA
SEAL TYPE NA
DEPTH TO WATER (Approximate Feet) NA
TOTAL DEPTH (Feet) 3
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
	NA	36/18	S-1		8" Brown SILT and fine sand, some roots in top 3"			
1					10" FILL (white ash, coal fragments, and glass fragments)	0.0	HB-22F (0-1) (HOLD) 1155 HB-22F (1-3) 1200	
2								
3					End of Boring - Terminated at 3 feet			

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Lowell, MA
Telephone: 978-970-5600
Fax: 978-453-1995

BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER City of New Bedford (NBHS)/115058
BORING/WELL NUMBER HB-22G
TRC GEOLOGIST E. Wachtel
DRILLING CONTRACTOR/FOREMAN New England Geotech/Hayes Rembijas
DATE DRILLED 2/21/14
LOCATION 5' South of HB-22
SAMPLING METHOD 48" Macrocore
DRILLING METHOD Direct Push 6600 DT Truck Rig
NOTES Sample analyzed for PCB Congeners and Dioxins/Furans

SCREEN TYPE/SLOT NA
FILTER PACK TYPE NA
SEAL TYPE NA
DEPTH TO WATER (Approximate Feet) NA
TOTAL DEPTH (Feet) 3
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
	NA	36/30	S-1		16" Brown SILT and fine sand with trace fill (glass and coal fragments) and roots in the top 2"			
1					14" FILL (coal fragments, white ash, rust staining)	0.0	HB-22G (0-1) (HOLD) 1105 HB-22G (1-3) 1110	
2								
3					End of Boring - Terminated at 3 feet			

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Fax: 978-453-1995

BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER City of New Bedford (NBHS)/115058
BORING/WELL NUMBER HB-22J
TRC GEOLOGIST E. Wachtel
DRILLING CONTRACTOR/FOREMAN New England Geotech/Hayes Rembijas
DATE DRILLED 2/21/14
LOCATION 7.5' East of HB-22
SAMPLING METHOD 48" Macrocore
DRILLING METHOD Direct Push 6600 DT Truck Rig
NOTES Sample analyzed for PCB Congeners and Dioxins/Furans

SCREEN TYPE/SLOT NA
FILTER PACK TYPE NA
SEAL TYPE NA
DEPTH TO WATER (Approximate Feet) NA
TOTAL DEPTH (Feet) 3
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
	NA	36/23	S-1		2" Brown organic TOPSOIL			
					16" Brown SILT, fine sand, trace fill			
1								
						0.0	HB-22J (0-1) (HOLD) 1205	
2							HB-22J (1-3) (HOLD) 1210	
					5" FILL (white ash, coal and glass fragments)			
3					End of Boring - Terminated at 3 feet			

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Fax: 978-453-1995

BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER City of New Bedford (NBHS)/115058
BORING/WELL NUMBER HB-22K
TRC GEOLOGIST E. Wachtel
DRILLING CONTRACTOR/FOREMAN New England Geotech/Hayes Rembijas
DATE DRILLED 2/21/14
LOCATION 7.5' South of HB-22
SAMPLING METHOD 48" Macrocore
DRILLING METHOD Direct Push 6600 DT Truck Rig
NOTES Sample analyzed for PCB Congeners and Dioxins/Furans

SCREEN TYPE/SLOT NA
FILTER PACK TYPE NA
SEAL TYPE NA
DEPTH TO WATER (Approximate Feet) NA
TOTAL DEPTH (Feet) 3
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
	NA	36/24	S-1		16" Brown SILT and fine sand with trace fill (glass and coal fragments) and roots in the top 2"			
1						0.0	HB-22K (0-1) (HOLD) 1120	
2					10" FILL (coal fragments, white ash, glass fragments)		HB-22K (1-3) (HOLD) 1125	
3					End of Boring - Terminated at 3 feet			

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BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER City of New Bedford (NBHS)/115058
BORING/WELL NUMBER HB-22N
TRC GEOLOGIST E. Wachtel
DRILLING CONTRACTOR/FOREMAN New England Geotech/Hayes Rembijas
DATE DRILLED 2/21/14
LOCATION 10' East of HB-22
SAMPLING METHOD 48" Macrocore
DRILLING METHOD Direct Push 6600 DT Truck Rig
NOTES Sample analyzed for PCB Congeners and Dioxins/Furans

SCREEN TYPE/SLOT NA
FILTER PACK TYPE NA
SEAL TYPE NA
DEPTH TO WATER (Approximate Feet) NA
TOTAL DEPTH (Feet) 3
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
	NA	36/24	S-1		6" Brown SILT, fine sand, trace medium sand, and roots in top 2"			
1					18" FILL (coal fragments, brick and glass fragments, and white ash)	0.0	HB-22N (0-1) (HOLD) 1220	
2							HB-22N (1-3) (HOLD) 1225	
3					End of Boring - Terminated at 3 feet			

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Lowell, MA
Telephone: 978-970-5600
Fax: 978-453-1995

BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER City of New Bedford (NBHS)/115058
BORING/WELL NUMBER HB-22O
TRC GEOLOGIST E. Wachtel
DRILLING CONTRACTOR/FOREMAN New England Geotech/Hayes Rembijas
DATE DRILLED 2/21/14
LOCATION 10' South of HB-22
SAMPLING METHOD 48" Macrocore
DRILLING METHOD Direct Push 6600 DT Truck Rig
NOTES Sample analyzed for PCB Congeners and Dioxins/Furans

SCREEN TYPE/SLOT NA
FILTER PACK TYPE NA
SEAL TYPE NA
DEPTH TO WATER (Approximate Feet) NA
TOTAL DEPTH (Feet) 3
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
	NA	36/28	S-1		10" Brown SILT and fine sand, some roots			
1					6" Brown fine SAND and trace fill	0.0	HB-22O (0-1) (HOLD) 1135	
2							HB-22O (1-3) (HOLD) 1140	
3					12" FILL (white ash, rust staining, and glass fragments)			
					End of Boring - Terminated at 3 feet			

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Telephone: 978-970-5600
Fax: 978-453-1995

BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER City of New Bedford (NBHS)/115058
BORING/WELL NUMBER HB-22R
TRC GEOLOGIST E. Wachtel
DRILLING CONTRACTOR/FOREMAN New England Geotech/Hayes Rembijas
DATE DRILLED 2/21/14
LOCATION 12.5' East of HB-22
SAMPLING METHOD 48" Macrocore
DRILLING METHOD Direct Push 6600 DT Truck Rig
NOTES Sample analyzed for PCB Congeners and Dioxins/Furans

SCREEN TYPE/SLOT NA
FILTER PACK TYPE NA
SEAL TYPE NA
DEPTH TO WATER (Approximate Feet) NA
TOTAL DEPTH (Feet) 3
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
	NA	36/18	S-1		4" Brown SILT and fine sand			
1					4" Tree root fragments			
					10" FILL (coal fragments and white ash)	0.0	HB-22R (0-1) (HOLD) 1230	
2							HB-22R (1-3) (HOLD) 1235	
3					End of Boring - Terminated at 3 feet			

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Lowell, MA
Telephone: 978-970-5600
Fax: 978-453-1995

BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER City of New Bedford (NBHS)/115058
BORING/WELL NUMBER HB-22S
TRC GEOLOGIST E. Wachtel
DRILLING CONTRACTOR/FOREMAN New England Geotech/Hayes Rembijas
DATE DRILLED 2/21/14
LOCATION 12.5' South of HB-22
SAMPLING METHOD 48" Macrocore
DRILLING METHOD Direct Push 6600 DT Truck Rig
NOTES Sample analyzed for PCB Congeners and Dioxins/Furans

SCREEN TYPE/SLOT NA
FILTER PACK TYPE NA
SEAL TYPE NA
DEPTH TO WATER (Approximate Feet) NA
TOTAL DEPTH (Feet) 3
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
	NA	36/32	S-1		12" Brown SILT and fine sand			
1					20" FILL (coal fragments, rust staining, and white ash)	0.0	HB-22S (0-1) (HOLD) 1145	
2							HB-22S (1-3) (HOLD) 1150	
3					End of Boring - Terminated at 3 feet			

APPENDIX B

Laboratory Analytical Data

CFA | Cape Fear Analytical LLC
an affiliate of The GEL Group INC

3306 Kitty Hawk Road, Suite 120 Wilmington, NC 28405
P 910.795.0421
www.capefearanalytical.com

March 14, 2014

Mr. David Sullivan
TRC Environmental Corporation
Wannalancit Mills
650 Suffolk Street Suite 200
Lowell, Massachusetts 01854

Re: New Bedford PSWS
Work Order: 5852
SDG: 115058

Dear Mr. Sullivan:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 22, 2014 . This original data report has been prepared and reviewed in accordance with CFAôs 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 Ext. 1.

Sincerely,

Cynthia Larkins
Project Manager

Purchase Order: 33944
Enclosures

Page: 1 of 2
Project #: 115058
CFA Quote #:
COC Number (1):
PO Number:

Cape Fear Analytical, LLC
Chain of Custody and Analytical Request

CFA Work Order Number: 5852

Cape Fear Analytical, LLC
3306 Kitty Hawk Rd. Suite 120
Wilmington, NC 28405
Phone: (910) 795-0421

Client Name: TRC Environmental Phone #: 978-970-5600
Project/Site Name: NBHS, Hathaway Blvd. Fax #: 978-453-1995
Address: Hathaway Blvd, New Bedford, MA
Collected by: E. Wachtel Send Results To: D. Sullivan

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Total number of containers	PCB congeners SW 8290A	Dioxins/Furans SW 8290A	<-- Preservative Type (6)	Comments
HB-22A (1-3')	2/21/14	1045	N		SO		X			Note: extra sample is required for sample specific QC
HB-22D (1-3')		1055					X			
HB-22F (0-1') HOLD*		1155					X	X		
HB-22G (0-1') HOLD*		1165					X	X		
HB-22F (1-3')		1200					X	X		
HB-22G (1-3')		1110					X	X		
HB-22J (0-1') HOLD*		1205					X	X		
HB-22J (1-3') HOLD*		1210					X	X		
HB-22N (0-1') HOLD*	↓	1220	↓		↓		X	X		
HB-22N (1-3') HOLD*	2/21/14	1225	N		SO		X	X		

TAT Requested: Normal: ____ Rush: ____ Specify: ____ (Subject to Surcharge) Fax Results: Yes / No
Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

Sample Collection Time Zone: Eastern Pacific Central Other ____ Mountain

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	Emily Wachtel	2/21/14	1430	[signature]	2/22/14	9:40am
2						
3						

Sample Shipping and Delivery Details

CFA PM: Chris Cornwell
Method of Shipment: Fedex Date Shipped: 2/21/14
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a- Y - for yes the sample was field filtered or- N - for sample was not field filtered.
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e 8290B, 1668B) and number of containers provided for each (i.e. 8290B - 3, 1668B - 1).
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: 3.7 °C

Page 2 of 54

Page: 2 of 2
Project #: 115058
CFA Quote #:
COC Number [1]:
PO Number:

Cape Fear Analytical, LLC
Chain of Custody and Analytical Request

CFA Work Order Number: 5852

Cape Fear Analytical, LLC
3306 Kitty Hawk Rd. Suite 120
Wilmington, NC 28405
Phone: (910) 795-0421

Client Name: TRC Environmental Phone #: 978-970-5600
Project/Site Name: NBHS Fax #: 978-453-1995
Address: Hathaway Blvd, New Bedford, MA
Collected by: E. Wachtel Send Results To: Dave Sullivan

Sample Analysis Requested [5] (Fill in the number of containers for each test)

<-- Preservative Type (6)

Sample ID * For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Total number of containers	PCB Congeners SW 8290A	Dioxins/Furans SW 8290A
HB-22R (0-1') HOLD*	2/21/14	1230	N		SO	2	X	X
HB-22R (1-3') HOLD*		1235				2	X	X
HB-22K (0-1') HOLD*		1120				2	X	X
HB-22K (1-3') HOLD*		1125				2	X	X
HB-22O (0-1') HOLD*		1135				2	X	X
HB-22O (1-3') HOLD*		1140				2	X	X
HB-22S (0-1') HOLD*		1145				2	X	X
HB-22S (1-3') HOLD*	2/21/14	1150	N		SO	2	X	X
Temp B								

Comments
Note: extra sample is required for sample specific QC

15 Business days
TAT Requested: Normal: ✓ Rush: Specify: (Subject to Surcharge) Fax Results: Yes / No

Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

Sample Collection Time Zone
Eastern Pacific
Central Other ______
Mountain

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	Emily Wachtel	2/21/14	1430	[signature]	2/22/14	9:46am
2						
3						

Sample Shipping and Delivery Details

CFA PM: Chris Cornwell
Method of Shipment: Fedex Date Shipped: 2/21/14
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: **N** = Normal Sample, **TB** = Trip Blank, **FD** = Field Duplicate, **EB** = Equipment Blank, **MS** = Matrix Spike Sample, **MSD** = Matrix Spike Duplicate Sample, **G** = Grab, **C** = Composite
3.) Field Filtered: For liquid matrices, indicate with a- **Y** - for yes the sample was field filtered or- **N** - for sample was not field filtered.
4.) Matrix Codes: **DW**=Drinking Water, **GW**=Groundwater, **SW**=Surface Water, **WW**=Waste Water, **W**=Water, **ML**=Misc Liquid, **SO**=Soil, **SD**=Sediment, **SL**=Sludge, **SS**=Solid Waste, **O**=Oil, **F**=Filter, **P**=Wipe, **U**=Urine, **F**=Fecal, **N**=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e.**8290B, 1668B**) and number of containers provided for each (i.e. ***8290B*** - 3, ***1668B*** - 1).
6.) Preservative Type: **HA** = Hydrochloric Acid, **NI** = Nitric Acid, **SH** = Sodium Hydroxide, **SA** = Sulfuric Acid, **AA** = Ascorbic Acid, **HX** = Hexane, **ST** = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: 3.7° C

WHITE = LABORATORY **YELLOW = FILE** **PINK = CLIENT**

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

Client: TRC Environmental	Work Order: 5852
Received By: Jason Frink	Date/Time Received: 2/22/14 0946

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?			✓
Samples identified as Foreign Soil?			✓

DOE Site Sample Packages	Yes	NA	No*
Screened <0.5 mR/hr?		✓	
Samples < 2x background?		✓	

* Notify RSO of any responses in this column immediately.

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other(describe)
2	Chain of Custody documents included with shipment?	✓			
3	Samples requiring cold preservation within 0-6°C?	✓			Preservation Method: (ice bags) blue ice dry ice none other (describe) 3.7°
4	Samples requiring chemical preservation at proper pH?		✓		Sample IDs, containers affected and pH observed: If preservative added, Lot#:
5	Samples requiring preservation have no residual chlorine?		✓		Sample IDs, containers affected: If preservative added, Lot#:
6	Samples received within holding time?	✓			Sample IDs, tests affected:
7	Sample IDs on COC match IDs on containers?	✓			Sample IDs, containers affected:
8	Date & time of COC match date & time on containers?			✓	Sample IDs, containers affected: HB-22G 0-1' time on COC is 1155 and on sample is 1105
9	Number of containers received match number indicated on COC?	✓			Sample IDs, containers affected:
10	COC form is properly signed in relinquished/received sections?	✓			

Comments:

Checklist performed by: Initials: _____ Date: 24 Feb 14

Subject: RE: FW: CFA's Price Quotation for Analytical Services - TRC
From: "Wachtel, Emilie" <EWachtel@trcsolutions.com>
Date: 2/24/2014 11:46 AM
To: Cynde Larkins <cynde.larkins@cfanalytical.com>, "Saunders, Jeffry" <JSaunders@trcsolutions.com>
CC: "Silverman, Diane" <DSilverman@trcsolutions.com>

11:05 is the correct time to use. Thank you!

WO # 5852

Emilie Wachtel
Project Scientist

Wannalancit Mills, 650 Suffolk Street, Lowell, MA 01854
T: 978.656.3679 | F: 978.453.1995 | C: 401.529.7947

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From: Cynde Larkins [mailto:cynde.larkins@cfanalytical.com]
Sent: Monday, February 24, 2014 11:45 AM
To: Saunders, Jeffry
Cc: Wachtel, Emilie; Silverman, Diane
Subject: Re: FW: CFA's Price Quotation for Analytical Services - TRC

Jeff,

I forgot to check on a time discrepancy for one of the samples:

HB-22G (0-1') collection time on label is 11:05 but the COC has a time of 11:55.

Which is the correct time to use for the sample?

Thank you,
Cynde

On 2/24/2014 11:39 AM, Cynde Larkins wrote:

> Jeff,
>
> Yes, the samples I was asking about are the same two you listed below.
>
> Thank you!
> Cynde
>
> On 2/24/2014 11:32 AM, Saunders, Jeffry wrote:
>
> > The WHO list is fine for the other two samples as well...assuming those are HB-22A(1-3) and HB-22D(1-3), correct?

Thanks for correction on the quote.

-Jeff

Jeffry B. Saunders, PG
Project Geologist
(978) 656-3610

WO#5852

From: Cynde Larkins [mailto:cynde.larkins@cfanalytical.com]
Sent: Monday, February 24, 2014 11:21 AM
To: Saunders, Jeffry; Chris Cornwell
Cc: Wachtel, Emilie
Subject: Re: FW: CFA's Price Quotation for Analytical Services - TRC

Mr. Saunders,

CFA received your samples on Saturday, February 22, 2014 for the New Bedford project and all were in good condition and within temperature. According to your email below, there are two samples that need both dioxins and PCB congeners (WHO list). Do the other two samples for PCB congeners need the WHO list as well, or full list?

Also, I noticed a typo on the quote (CFAP13-0199) on the line for the PCB Congeners (WHO list). The quote has SW 8290A as the method, but 8290 is a dioxin analysis. The method should be EPA 1668A for all of the PCB Congeners listed.

Thank you,
Cynde Larkins

On 2/17/2014 11:00 AM, Saunders, Jeffry wrote:

> We'll ship Fedex. Just wanted to make sure someone would be available to receive them. Thanks.
>
> **Jeffry B. Saunders, PG**
> **Project Geologist**
> **(978) 656-3610**
>
> **From:** Chris Cornwell [mailto:chris.cornwell@cfanalytical.com]
> **Sent:** Monday, February 17, 2014 10:59 AM
> **To:** Saunders, Jeffry
> **Cc:** Cynde Larkins (cynde.larkins@cfanalytical.com); Wachtel, Emilie
> **Subject:** Re: FW: CFA's Price Quotation for Analytical Services - TRC
>
> Jeff,
> read this a little more closely and realized you asked about Sat delivery. You can ship for Sat. delivery, we prefer Fedex over UPS.

High Resolution Dioxins and Furans Analysis

Case Narrative

HDOX Case Narrative
TRC Environmental Corporation (TRCC)
SDG 115058_3
Work Order 5852

Method/Analysis Information

Product:	**Dioxins/Furans by SW846 Method 8290A in Solids**
Analytical Method:	SW846 8290A
Extraction Method:	SW846 3540C
Analytical Batch Number:	25410
Clean Up Batch Number:	25408
Extraction Batch Number:	25407

Sample Analysis

The following samples were analyzed using the analytical protocol as established in :

Sample ID	Client ID
5852005	HB-22F (1-3')
5852006	HB-22G (1-3')
12009929	Method Blank (MB)
12009930	Laboratory Control Sample (LCS)
12009931	Laboratory Control Sample Duplicate (LCSD)

Several samples that were received at the laboratory were placed on hold per client request.

The samples in this SDG were analyzed on a "dry weight" basis.

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# 13.

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.

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 sample of similar matrix, not associated with this SDG, was selected for analysis as the matrix spike and matrix spike duplicate. Batch 25410.

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.

Analytical Comments
A diphenyl ether (DPE) interference was detected and co-eluted with a furan totals peak, the concentration was removed from the total homolog sum. If a DPE interference co-elutes with a 2378-substituted furan peak and the contribution cannot be completely contributed to the interference by professional judgment the peak may be left in the report. In both cases, concentration is flagged with a P and should be considered an estimate. 5852005 (HB-22F (1-3')) and 5852006 (HB-22G (1-3'))- Batch 25410.

Sample Dilutions
Sample 5852006 (HB-22G (1-3'))- Batch 25410 was diluted due to the presence of over-range target analytes.

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.

Sample preparation
No difficulties were encountered during sample preparation.

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

Qualifier Definition Report
for

TRCC001 TRC Environmental Corporation

Client SDG: 115058_3 CFA Work Order: 5852

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
P Diphenyl ether interference is present; value is estimated
Q Quantitative Interference
U Analyte was analyzed for, but not detected above the specified detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

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: Erin Suhrie**

Date: 14 MAR 2014 **Title: Data Validator**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5852005**	**Date Collected:**	**02/21/2014 12:00**	**Matrix:**	**SOLID**
Client Sample:	**1668A/8290 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**24.5**
Client ID:	**HB-22F (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25410**	**Method:**	**SW846 8290A**		
Run Date:	**03/04/2014 20:45**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b04mar14a_2-6**			**Dilution:**	**1**
Prep Batch:	**25407**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**24-FEB-14**	**Aliquot:**	**10.13 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		4.10		pg/g	0.398	1.31
40321-76-4	1,2,3,7,8-PeCDD		17.8		pg/g	0.944	6.54
39227-28-6	1,2,3,4,7,8-HxCDD		23.1		pg/g	1.41	6.54
57653-85-7	1,2,3,6,7,8-HxCDD		52.6		pg/g	1.36	6.54
19408-74-3	1,2,3,7,8,9-HxCDD		40.9		pg/g	1.43	6.54
35822-46-9	1,2,3,4,6,7,8-HpCDD		925		pg/g	0.0599	6.54
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	6180		pg/g	3.87	13.1
51207-31-9	2,3,7,8-TCDF		47.2		pg/g	1.36	1.31
57117-41-6	1,2,3,7,8-PeCDF		16.8		pg/g	1.08	6.54
57117-31-4	2,3,4,7,8-PeCDF		50.2		pg/g	1.09	6.54
70648-26-9	1,2,3,4,7,8-HxCDF		35.5		pg/g	1.12	6.54
57117-44-9	1,2,3,6,7,8-HxCDF		21.2		pg/g	1.02	6.54
60851-34-5	2,3,4,6,7,8-HxCDF		32.4		pg/g	1.10	6.54
72918-21-9	1,2,3,7,8,9-HxCDF		7.81		pg/g	1.28	6.54
67562-39-4	1,2,3,4,6,7,8-HpCDF		296		pg/g	0.769	6.54
55673-89-7	1,2,3,4,7,8,9-HpCDF		17.4		pg/g	0.999	6.54
39001-02-0	1,2,3,4,6,7,8,9-OCDF		741		pg/g	1.05	13.1
41903-57-5	Total Tetrachlorodibenzo-p-dioxin		105	106	pg/g	0.398	1.31
36088-22-9	Total Pentachlorodibenzo-p-dioxin	Q	145	166	pg/g	0.944	6.54
34465-46-8	Total Hexachlorodibenzo-p-dioxin		521	524	pg/g	1.36	6.54
37871-00-4	Total Heptachlorodibenzo-p-dioxin		1820		pg/g	0.0599	6.54
30402-14-3	Total Tetrachlorodibenzofuran	EP	911		pg/g	1.36	1.31
30402-15-4	Total Pentachlorodibenzofuran	PQ	653		pg/g	0.358	6.54
55684-94-1	Total Hexachlorodibenzofuran	P	489		pg/g	1.02	6.54
38998-75-3	Total Heptachlorodibenzofuran		858		pg/g	0.769	6.54
3333-30-0	TEQ WHO2005 ND=0		78.0	78.0	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		78.0	78.0	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		193	262	pg/g	73.6	(40%-135%)
13C-1,2,3,7,8-PeCDD		190	262	pg/g	72.5	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		175	262	pg/g	66.9	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		218	262	pg/g	83.3	(40%-135%)
13C-OCDD		395	523	pg/g	75.5	(40%-135%)
13C-2,3,7,8-TCDF		236	262	pg/g	90.1	(40%-135%)
13C-1,2,3,7,8-PeCDF		191	262	pg/g	73.0	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		165	262	pg/g	63.2	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		197	262	pg/g	75.2	(40%-135%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
K Estimated Maximum Possible Concentration
P Diphenyl ether interference is present; 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

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5852005**	**Date Collected:**	**02/21/2014 12:00**	**Matrix:**	**SOLID**
Client Sample:	**1668A/8290 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**24.5**
Client ID:	**HB-22F (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25410**	**Method:**	**SW846 8290A**		
Run Date:	**03/05/2014 11:09**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b05mar14a-8**			**Dilution:**	**1**
Prep Batch:	**25407**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**24-FEB-14**	**Aliquot:**	**10.13 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		59.1		pg/g	0.992	1.31

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

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
K Estimated Maximum Possible Concentration
P Diphenyl ether interference is present; 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

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5852006**	**Date Collected:**	**02/21/2014 11:10**	**Matrix:**	**SOLID**
Client Sample:	**1668A/8290 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**19.1**
Client ID:	**HB-22G (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25410**	**Method:**	**SW846 8290A**		
Run Date:	**03/10/2014 18:24**	**Analyst:**	**JTF**	**Instrument:**	**HRP750**
Data File:	**A10MAR14A-11**			**Dilution:**	**20**
Prep Batch:	**25407**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**24-FEB-14**	**Aliquot:**	**10.06 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		46.8		pg/g	2.05	24.6

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

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
J Value is estimated
K Estimated Maximum Possible Concentration
P Diphenyl ether interference is present; 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

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5852006**	**Date Collected:**	**02/21/2014 11:10**	**Matrix:**	**SOLID**
Client Sample:	**1668A/8290 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**19.1**
Client ID:	**HB-22G (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25410**	**Method:**	**SW846 8290A**		
Run Date:	**03/07/2014 00:57**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b06mar14a_2-12**			**Dilution:**	**20**
Prep Batch:	**25407**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**24-FEB-14**	**Aliquot:**	**10.06 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	7.33		pg/g	4.87	24.6
40321-76-4	1,2,3,7,8-PeCDD	J	63.6		pg/g	6.39	123
39227-28-6	1,2,3,4,7,8-HxCDD		342		pg/g	52.1	123
57653-85-7	1,2,3,6,7,8-HxCDD		1060		pg/g	50.1	123
19408-74-3	1,2,3,7,8,9-HxCDD		846		pg/g	52.6	123
35822-46-9	1,2,3,4,6,7,8-HpCDD		29200		pg/g	9.88	123
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	131000		pg/g	150	246
51207-31-9	2,3,7,8-TCDF		60.7		pg/g	7.35	24.6
57117-41-6	1,2,3,7,8-PeCDF	J	14.7		pg/g	8.45	123
57117-31-4	2,3,4,7,8-PeCDF	J	57.5		pg/g	8.50	123
70648-26-9	1,2,3,4,7,8-HxCDF		176		pg/g	10.1	123
57117-44-9	1,2,3,6,7,8-HxCDF	J	116		pg/g	9.24	123
60851-34-5	2,3,4,6,7,8-HxCDF		140		pg/g	9.98	123
72918-21-9	1,2,3,7,8,9-HxCDF	J	60.6		pg/g	11.6	123
67562-39-4	1,2,3,4,6,7,8-HpCDF		2250		pg/g	18.4	123
55673-89-7	1,2,3,4,7,8,9-HpCDF		452		pg/g	23.9	123
39001-02-0	1,2,3,4,6,7,8,9-OCDF		10400		pg/g	33.4	246
41903-57-5	Total Tetrachlorodibenzo-p-dioxin		104	164	pg/g	4.87	24.6
36088-22-9	Total Pentachlorodibenzo-p-dioxin		581	839	pg/g	6.39	123
34465-46-8	Total Hexachlorodibenzo-p-dioxin		8170		pg/g	50.1	123
37871-00-4	Total Heptachlorodibenzo-p-dioxin	E	51900		pg/g	9.88	123
30402-14-3	Total Tetrachlorodibenzofuran	P	636	683	pg/g	7.35	24.6
30402-15-4	Total Pentachlorodibenzofuran	P	823		pg/g	2.92	123
55684-94-1	Total Hexachlorodibenzofuran	P	2470		pg/g	9.24	123
38998-75-3	Total Heptachlorodibenzofuran		8300		pg/g	18.4	123
3333-30-0	TEQ WHO2005 ND=0		724	724	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		724	724	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		209	246	pg/g	84.9	(40%-135%)
13C-1,2,3,7,8-PeCDD		188	246	pg/g	76.5	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		177	246	pg/g	71.9	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		214	246	pg/g	87.2	(40%-135%)
13C-OCDD		407	491	pg/g	82.9	(40%-135%)
13C-2,3,7,8-TCDF		193	246	pg/g	78.5	(40%-135%)
13C-1,2,3,7,8-PeCDF		189	246	pg/g	76.9	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		177	246	pg/g	72.0	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		187	246	pg/g	76.2	(40%-135%)

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
J Value is estimated
K Estimated Maximum Possible Concentration
P Diphenyl ether interference is present; 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: 115058_3

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12009930	LCS for batch 25407	13C-2,3,7,8-TCDD		84.2	(40%-135%)
		13C-1,2,3,7,8-PeCDD		86.1	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		74.3	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		90.2	(40%-135%)
		13C-OCDD		80.4	(40%-135%)
		13C-2,3,7,8-TCDF		89.9	(40%-135%)
		13C-1,2,3,7,8-PeCDF		90.6	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		69.6	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		81.8	(40%-135%)
12009931	LCSD for batch 25407	13C-2,3,7,8-TCDD		84.8	(40%-135%)
		13C-1,2,3,7,8-PeCDD		86.8	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		72.9	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		94.0	(40%-135%)
		13C-OCDD		80.5	(40%-135%)
		13C-2,3,7,8-TCDF		91.3	(40%-135%)
		13C-1,2,3,7,8-PeCDF		88.3	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		69.8	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		82.8	(40%-135%)
12009929	MB for batch 25407	13C-2,3,7,8-TCDD		87.0	(40%-135%)
		13C-1,2,3,7,8-PeCDD		86.2	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		75.6	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		94.2	(40%-135%)
		13C-OCDD		80.3	(40%-135%)
		13C-2,3,7,8-TCDF		93.0	(40%-135%)
		13C-1,2,3,7,8-PeCDF		88.5	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		71.3	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		84.8	(40%-135%)
5852005	HB-22F (1-3')	13C-2,3,7,8-TCDD		73.6	(40%-135%)
		13C-1,2,3,7,8-PeCDD		72.5	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		66.9	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		83.3	(40%-135%)
		13C-OCDD		75.5	(40%-135%)
		13C-2,3,7,8-TCDF		90.1	(40%-135%)
		13C-1,2,3,7,8-PeCDF		73.0	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		63.2	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		75.2	(40%-135%)
5852006	HB-22G (1-3')	13C-2,3,7,8-TCDD	D	84.9	(40%-135%)
		13C-1,2,3,7,8-PeCDD	D	76.5	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD	D	71.9	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD	D	87.2	(40%-135%)
		13C-OCDD	D	82.9	(40%-135%)
		13C-2,3,7,8-TCDF	D	78.5	(40%-135%)
		13C-1,2,3,7,8-PeCDF	D	76.9	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF	D	72.0	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF	D	76.2	(40%-135%)

* Recovery outside Acceptance Limits

Hi-Res Dioxins/Furans

Surrogate Recovery Report

SDG Number: 115058_3

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits

* 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

SDG Number: 115058_3 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 25407 **Matrix:** SOLID

Lab Sample ID: 12009930

Instrument: HRP763 **Analysis Date:** 03/04/2014 11:45 **Dilution:** 1

Analyst: JTF **Prep Batch ID:** 25407

Batch ID: 25410

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	22.6	113	70-130
40321-76-4	LCS	1,2,3,7,8-PeCDD	100	107	107	70-130
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	100	105	105	70-130
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	100	109	109	70-130
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	100	113	113	70-130
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	100	98.0	98	70-130
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	200	207	103	70-130
51207-31-9	LCS	2,3,7,8-TCDF	20.0	18.8	94.2	70-130
57117-41-6	LCS	1,2,3,7,8-PeCDF	100	103	103	70-130
57117-31-4	LCS	2,3,4,7,8-PeCDF	100	98.6	98.6	70-130
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	100	107	107	70-130
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	100	111	111	70-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	100	115	115	70-130
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	100	124	124	70-130
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	100	103	103	70-130
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	100	103	103	70-130
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	200	223	112	70-130

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 115058_3 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 25407 **Matrix:** SOLID

Lab Sample ID: 12009931

Instrument: HRP763 **Analysis Date:** 03/04/2014 12:32 **Dilution:** 1

Analyst: JTF **Prep Batch ID:** 25407

Batch ID: 25410

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	21.3	106	70-130	6.16	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	100	102	102	70-130	4.53	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	100	105	105	70-130	0.0342	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	100	109	109	70-130	0.210	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	100	113	113	70-130	0.412	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	100	94.9	94.9	70-130	3.30	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	200	197	98.4	70-130	4.89	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	20.0	18.0	89.8	70-130	4.86	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	100	101	101	70-130	1.96	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	100	97.8	97.8	70-130	0.843	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	100	106	106	70-130	0.871	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	100	107	107	70-130	3.77	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	100	114	114	70-130	0.652	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	100	121	121	70-130	2.35	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	100	100	100	70-130	2.70	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	100	102	102	70-130	1.18	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	200	215	107	70-130	3.95	0-20

Method Blank Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Matrix:**	**SOLID**
Client ID:	**MB for batch 25407**	**Instrument ID:**	**HRP763**	**Data File:**	**b04mar14a-5**
Lab Sample ID:	**12009929**	**Prep Date:**	**24-FEB-14**	**Analyzed:**	**03/04/14 14:10**
Column:					

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 25407	12009930	b04mar14a-2	03/04/14	1145
02	LCSD for batch 25407	12009931	b04mar14a-3	03/04/14	1232
03	HB-22F (1-3')	5852005	b04mar14a_2-6	03/04/14	2045
04	HB-22F (1-3')	5852005	b05mar14a-8	03/05/14	1109
05	HB-22G (1-3')	5852006	b06mar14a_2-12	03/07/14	0057
06	HB-22G (1-3')	5852006	A10MAR14A-11	03/10/14	1824

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12009929**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25407**				
Client ID:	**MB for batch 25407**			**Prep Basis:**	**As Received**
Batch ID:	**25410**	**Method:**	**SW846 8290A**		
Run Date:	**03/04/2014 14:10**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b04mar14a-5**			**Dilution:**	**1**
Prep Batch:	**25407**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**24-FEB-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	.0644		pg/g	0.0644	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	.0718		pg/g	0.0718	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	.108		pg/g	0.108	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	.104		pg/g	0.104	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	.11		pg/g	0.110	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	.168		pg/g	0.168	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	J	0.454		pg/g	0.232	10.0
51207-31-9	2,3,7,8-TCDF	U	.0572		pg/g	0.0572	1.00
57117-41-6	1,2,3,7,8-PeCDF	U	.0616		pg/g	0.0616	5.00
57117-31-4	2,3,4,7,8-PeCDF	U	.0622		pg/g	0.0622	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	U	.0744		pg/g	0.0744	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	U	.068		pg/g	0.068	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	.0736		pg/g	0.0736	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	.0852		pg/g	0.0852	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	JK		0.094	pg/g	0.0896	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.117		pg/g	0.117	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	.208		pg/g	0.208	10.0
41903-57-5	Total Tetrachlorodibenzo-p-dioxin	U	.0644		pg/g	0.0644	1.00
36088-22-9	Total Pentachlorodibenzo-p-dioxin	U	.0718		pg/g	0.0718	5.00
34465-46-8	Total Hexachlorodibenzo-p-dioxin	U	.104		pg/g	0.104	5.00
37871-00-4	Total Heptachlorodibenzo-p-dioxin	U	.168		pg/g	0.168	5.00
30402-14-3	Total Tetrachlorodibenzofuran	U	.0572		pg/g	0.0572	1.00
30402-15-4	Total Pentachlorodibenzofuran	J	0.120		pg/g	0.0616	5.00
55684-94-1	Total Hexachlorodibenzofuran	U	.068		pg/g	0.068	5.00
38998-75-3	Total Heptachlorodibenzofuran	U	.0896	0.094	pg/g	0.0896	5.00
3333-30-0	TEQ WHO2005 ND=0		0.000136	0.00108	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		0.114	0.115	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		174	200	pg/g	87.0	(40%-135%)
13C-1,2,3,7,8-PeCDD		172	200	pg/g	86.2	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		151	200	pg/g	75.6	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		188	200	pg/g	94.2	(40%-135%)
13C-OCDD		321	400	pg/g	80.3	(40%-135%)
13C-2,3,7,8-TCDF		186	200	pg/g	93.0	(40%-135%)
13C-1,2,3,7,8-PeCDF		177	200	pg/g	88.5	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		143	200	pg/g	71.3	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		170	200	pg/g	84.8	(40%-135%)

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:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12009930**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25407**				
Client ID:	**LCS for batch 25407**			**Prep Basis:**	**As Received**
Batch ID:	**25410**	**Method:**	**SW846 8290A**		
Run Date:	**03/04/2014 11:45**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b04mar14a-2**			**Dilution:**	**1**
Prep Batch:	**25407**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**24-FEB-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		22.6		pg/g	0.0906	1.00
40321-76-4	1,2,3,7,8-PeCDD		107		pg/g	0.178	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		105		pg/g	0.278	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		109		pg/g	0.268	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		113		pg/g	0.280	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		98.0		pg/g	0.040	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		207		pg/g	0.700	10.0
51207-31-9	2,3,7,8-TCDF		18.8		pg/g	0.0694	1.00
57117-41-6	1,2,3,7,8-PeCDF		103		pg/g	0.142	5.00
57117-31-4	2,3,4,7,8-PeCDF		98.6		pg/g	0.143	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		107		pg/g	0.292	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		111		pg/g	0.266	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		115		pg/g	0.288	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		124		pg/g	0.334	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		103		pg/g	0.232	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		103		pg/g	0.302	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		223		pg/g	0.486	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		168	200	pg/g	84.2	(40%-135%)
13C-1,2,3,7,8-PeCDD		172	200	pg/g	86.1	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		149	200	pg/g	74.3	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		180	200	pg/g	90.2	(40%-135%)
13C-OCDD		322	400	pg/g	80.4	(40%-135%)
13C-2,3,7,8-TCDF		180	200	pg/g	89.9	(40%-135%)
13C-1,2,3,7,8-PeCDF		181	200	pg/g	90.6	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		139	200	pg/g	69.6	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		164	200	pg/g	81.8	(40%-135%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12009931**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25407**				
Client ID:	**LCSD for batch 25407**			**Prep Basis:**	**As Received**
Batch ID:	**25410**	**Method:**	**SW846 8290A**		
Run Date:	**03/04/2014 12:32**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b04mar14a-3**			**Dilution:**	**1**
Prep Batch:	**25407**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**24-FEB-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		21.3		pg/g	0.0924	1.00
40321-76-4	1,2,3,7,8-PeCDD		102		pg/g	0.185	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		105		pg/g	0.338	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		109		pg/g	0.326	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		113		pg/g	0.342	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		94.9		pg/g	0.0288	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		197		pg/g	1.33	10.0
51207-31-9	2,3,7,8-TCDF		18.0		pg/g	0.0822	1.00
57117-41-6	1,2,3,7,8-PeCDF		101		pg/g	0.196	5.00
57117-31-4	2,3,4,7,8-PeCDF		97.8		pg/g	0.197	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		106		pg/g	0.456	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		107		pg/g	0.418	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		114		pg/g	0.452	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		121		pg/g	0.524	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		100		pg/g	0.296	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		102		pg/g	0.386	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		215		pg/g	0.672	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		170	200	pg/g	84.8	(40%-135%)
13C-1,2,3,7,8-PeCDD		174	200	pg/g	86.8	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		146	200	pg/g	72.9	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		188	200	pg/g	94.0	(40%-135%)
13C-OCDD		322	400	pg/g	80.5	(40%-135%)
13C-2,3,7,8-TCDF		183	200	pg/g	91.3	(40%-135%)
13C-1,2,3,7,8-PeCDF		177	200	pg/g	88.3	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		140	200	pg/g	69.8	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		166	200	pg/g	82.8	(40%-135%)

Comments:

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

PCB Congeners Analysis

Case Narrative

PCBC Case Narrative
TRC Environmental Corporation (TRCC)
SDG 115058_3
Work Order 5852

Method/Analysis Information

Product:	**PCB Congeners (WHO) EPA Method 1668A in Solids**
Analytical Method:	EPA Method 1668A
Extraction Method:	SW846 3540C
Analytical Batch Number:	25423, 25440
Clean Up Batch Number:	25422, 25439
Extraction Batch Number:	25421, 25438

Sample Analysis

The following samples were analyzed using the analytical protocol as established in Method 1668A:

Sample ID	Client ID
5852001	HB-22A (1-3')
5852002	HB-22D (1-3')
5852005	HB-22F (1-3')
5852006	HB-22G (1-3')
12009946	Method Blank (MB)
12009947	Laboratory Control Sample (LCS)
12009948	Laboratory Control Sample Duplicate (LCSD)
12009967	Method Blank (MB)
12009968	Laboratory Control Sample (LCS)
12009969	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on a "dry weight" basis.

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-003 REV# 6.

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) (ICV or 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. Any known exceptions are discussed in the narrative.

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 5852001 (HB-22A (1-3')), 5852002 (HB-22D (1-3')) and 5852006 (HB-22G (1-3'))-Batch 25423 were diluted due to the presence of overrange target analytes. Sample 5852006 was first diluted 10x, but some target analytes required further dilution. A 100x dilution was performed using additional extraction standards. Surrogate recoveries and in-range target

analytes are reported from the 10x run. Analytes reported from the 100x run are not recovery-corrected.

Sample Re-extraction/Re-analysis
The sample was re-extracted using a 1g aliquot due to matrix interferences which caused poor chromatography and retention time shifting. 5852005 (HB-22F (1-3'))- Batch 25440.

Miscellaneous Information

Nonconformance (NCR) Documentation
A NCR was not required for this SDG.

Manual Integrations
Manual integrations were required for data files in this SDG. 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.

System Configuration

This analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
HRP791_1	High-Resolution GC/MS System	PCB Analysis	SPB-Octyl	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

Qualifier Definition Report
for

TRCC001 TRC Environmental Corporation

Client SDG: 115058_3 CFA Work Order: 5852

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

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

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

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

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

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: 14 MAR 2014 **Title: Analyst III**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5852001**	**Date Collected:**	**02/21/2014 10:45**	**Matrix:**	**SOLID**
Client Sample:	**1668A Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**7.3**
Client ID:	**HB-22A (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25423**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/03/2014 11:46**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c03mar14a-3**			**Dilution:**	**10**
Prep Batch:	**25421**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**26-FEB-14**	**Aliquot:**	**10.81 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		199	pg/g	20.0
70362-50-4	81-TeCB	U	20	pg/g	20.0
32598-14-4	105-PeCB		10200	pg/g	20.0
74472-37-0	114-PeCB		289	pg/g	20.0
31508-00-6	118-PeCB		24300	pg/g	39.9
65510-44-3	123-PeCB		603	pg/g	20.0
57465-28-8	126-PeCB		109	pg/g	20.0
38380-08-4	156-HxCB	C	5580	pg/g	39.9
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		2150	pg/g	20.0
32774-16-6	169-HxCB	U	20	pg/g	20.0
39635-31-9	189-HpCB		207	pg/g	20.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		151	200	pg/g	75.8	(25%-150%)
13C-81-TeCB		158	200	pg/g	79.3	(25%-150%)
13C-105-PeCB		135	200	pg/g	67.8	(25%-150%)
13C-114-PeCB		134	200	pg/g	66.9	(25%-150%)
13C-118-PeCB		142	200	pg/g	71.2	(25%-150%)
13C-123-PeCB		145	200	pg/g	72.7	(25%-150%)
13C-126-PeCB		149	200	pg/g	74.6	(25%-150%)
13C-156-HxCB	C	269	399	pg/g	67.3	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		126	200	pg/g	63.2	(25%-150%)
13C-169-HxCB		153	200	pg/g	76.8	(25%-150%)
13C-189-HpCB		119	200	pg/g	59.5	(25%-150%)
13C-111-PeCB		147	200	pg/g	73.6	(30%-135%)
13C-178-HpCB		143	200	pg/g	71.7	(30%-135%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

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

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5852002**	**Date Collected:**	**02/21/2014 10:55**	**Matrix:**	**SOLID**
Client Sample:	**1668A Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**10.7**
Client ID:	**HB-22D (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25423**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/03/2014 14:54**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c03mar14a-6**			**Dilution:**	**5**
Prep Batch:	**25421**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**26-FEB-14**	**Aliquot:**	**11.51 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		42.8	pg/g	9.73
70362-50-4	81-TeCB	U	9.73	pg/g	9.73
32598-14-4	105-PeCB		2310	pg/g	9.73
74472-37-0	114-PeCB		67.3	pg/g	9.73
31508-00-6	118-PeCB		5260	pg/g	19.5
65510-44-3	123-PeCB		92.6	pg/g	9.73
57465-28-8	126-PeCB		18.0	pg/g	9.73
38380-08-4	156-HxCB	C	1190	pg/g	19.5
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		392	pg/g	9.73
32774-16-6	169-HxCB	U	9.73	pg/g	9.73
39635-31-9	189-HpCB		43.4	pg/g	9.73

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		203	195	pg/g	104	(25%-150%)
13C-81-TeCB		207	195	pg/g	106	(25%-150%)
13C-105-PeCB		177	195	pg/g	91.0	(25%-150%)
13C-114-PeCB		167	195	pg/g	86.0	(25%-150%)
13C-118-PeCB		178	195	pg/g	91.4	(25%-150%)
13C-123-PeCB		183	195	pg/g	93.9	(25%-150%)
13C-126-PeCB		192	195	pg/g	98.5	(25%-150%)
13C-156-HxCB	C	348	389	pg/g	89.5	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		163	195	pg/g	83.9	(25%-150%)
13C-169-HxCB		191	195	pg/g	98.3	(25%-150%)
13C-189-HpCB		150	195	pg/g	76.9	(25%-150%)
13C-111-PeCB		175	195	pg/g	90.0	(30%-135%)
13C-178-HpCB		174	195	pg/g	89.2	(30%-135%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

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

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5852005**	**Date Collected:**	**02/21/2014 12:00**	**Matrix:**	**SOLID**
Client Sample:	**1668A/8290 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**24.5**
Client ID:	**HB-22F (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25440**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/05/2014 18:41**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c05mar14a-3**			**Dilution:**	**1**
Prep Batch:	**25438**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-FEB-14**	**Aliquot:**	**1.13 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		519	pg/g	23.5
70362-50-4	81-TeCB		30.0	pg/g	23.5
32598-14-4	105-PeCB		19500	pg/g	23.5
74472-37-0	114-PeCB		658	pg/g	23.5
31508-00-6	118-PeCB		44700	pg/g	46.9
65510-44-3	123-PeCB		778	pg/g	23.5
57465-28-8	126-PeCB		167	pg/g	23.5
38380-08-4	156-HxCB	C	9770	pg/g	46.9
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		3240	pg/g	23.5
32774-16-6	169-HxCB	U	23.5	pg/g	23.5
39635-31-9	189-HpCB		324	pg/g	23.5

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		1630	2350	pg/g	69.3	(25%-150%)
13C-81-TeCB		1620	2350	pg/g	69.3	(25%-150%)
13C-105-PeCB		1330	2350	pg/g	56.6	(25%-150%)
13C-114-PeCB		1240	2350	pg/g	53.0	(25%-150%)
13C-118-PeCB		1300	2350	pg/g	55.6	(25%-150%)
13C-123-PeCB		1350	2350	pg/g	57.8	(25%-150%)
13C-126-PeCB		1440	2350	pg/g	61.5	(25%-150%)
13C-156-HxCB	C	2510	4690	pg/g	53.5	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		1190	2350	pg/g	50.7	(25%-150%)
13C-169-HxCB		1380	2350	pg/g	59.0	(25%-150%)
13C-189-HpCB		1130	2350	pg/g	48.1	(25%-150%)
13C-111-PeCB		1890	2350	pg/g	80.8	(30%-135%)
13C-178-HpCB		1890	2350	pg/g	80.6	(30%-135%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

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

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5852006**	**Date Collected:**	**02/21/2014 11:10**	**Matrix:**	**SOLID**
Client Sample:	**1668A/8290 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**19.1**
Client ID:	**HB-22G (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25423**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/03/2014 15:56**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c03mar14a-7**			**Dilution:**	**10**
Prep Batch:	**25421**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**26-FEB-14**	**Aliquot:**	**12.41 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		1790	pg/g	19.9
70362-50-4	81-TeCB	U	19.9	pg/g	19.9
74472-37-0	114-PeCB		3600	pg/g	19.9
65510-44-3	123-PeCB		5340	pg/g	19.9
57465-28-8	126-PeCB	U	19.9	pg/g	19.9
52663-72-6	167-HxCB		15200	pg/g	19.9
32774-16-6	169-HxCB	U	19.9	pg/g	19.9
39635-31-9	189-HpCB		1530	pg/g	19.9

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		198	378	pg/g	52.4	(25%-150%)
13C-81-TeCB		202	378	pg/g	53.4	(25%-150%)
13C-105-PeCB		162	378	pg/g	42.9	(25%-150%)
13C-114-PeCB		156	378	pg/g	41.1	(25%-150%)
13C-118-PeCB		163	378	pg/g	43.1	(25%-150%)
13C-123-PeCB		166	378	pg/g	43.9	(25%-150%)
13C-126-PeCB		169	378	pg/g	44.6	(25%-150%)
13C-156-HxCB	C	295	936	pg/g	31.5	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		140	378	pg/g	37.1	(25%-150%)
13C-169-HxCB		153	378	pg/g	40.3	(25%-150%)
13C-189-HpCB		155	378	pg/g	40.8	(25%-150%)
13C-111-PeCB		156	378	pg/g	41.3	(30%-135%)
13C-178-HpCB		153	378	pg/g	40.4	(30%-135%)

Comments:

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

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

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

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5852006**	**Date Collected:**	**02/21/2014 11:10**	**Matrix:**	**SOLID**
Client Sample:	**1668A/8290 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**19.1**
Client ID:	**HB-22G (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25423**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/05/2014 00:15**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c04mar14a_2-8**			**Dilution:**	**100**
Prep Batch:	**25421**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**26-FEB-14**	**Aliquot:**	**12.41 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-14-4	105-PeCB		51400	pg/g	199
31508-00-6	118-PeCB		143000	pg/g	398
38380-08-4	156-HxCB	C	21900	pg/g	398
69782-90-7	157-HxCB	C156			

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

Comments:

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

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

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

Quality Control Summary

PCB Congeners

Surrogate Recovery Report

SDG Number: 115058_3

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12009947	LCS for batch 25421	13C-77-TeCB		71.1	(30%-140%)
		13C-81-TeCB		72.8	(30%-140%)
		13C-105-PeCB		64.4	(30%-140%)
		13C-114-PeCB		62.7	(30%-140%)
		13C-118-PeCB		66.7	(30%-140%)
		13C-123-PeCB		70.4	(30%-140%)
		13C-126-PeCB		61.4	(30%-140%)
		13C-156-HxCB	C	71.9	(30%-140%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		67.8	(30%-140%)
		13C-169-HxCB		76.5	(30%-140%)
		13C-189-HpCB		64.6	(30%-140%)
		13C-111-PeCB		79.6	(40%-125%)
		13C-178-HpCB		88.1	(40%-125%)
12009948	LCSD for batch 25421	13C-77-TeCB		67.0	(30%-140%)
		13C-81-TeCB		68.0	(30%-140%)
		13C-105-PeCB		59.3	(30%-140%)
		13C-114-PeCB		58.7	(30%-140%)
		13C-118-PeCB		62.6	(30%-140%)
		13C-123-PeCB		65.7	(30%-140%)
		13C-126-PeCB		56.8	(30%-140%)
		13C-156-HxCB	C	65.9	(30%-140%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		62.4	(30%-140%)
		13C-169-HxCB		69.8	(30%-140%)
		13C-189-HpCB		60.5	(30%-140%)
		13C-111-PeCB		75.9	(40%-125%)
		13C-178-HpCB		82.2	(40%-125%)
12009946	MB for batch 25421	13C-77-TeCB		66.7	(25%-150%)
		13C-81-TeCB		68.5	(25%-150%)
		13C-105-PeCB		60.1	(25%-150%)
		13C-114-PeCB		58.6	(25%-150%)
		13C-118-PeCB		62.2	(25%-150%)
		13C-123-PeCB		65.8	(25%-150%)
		13C-126-PeCB		56.4	(25%-150%)
		13C-156-HxCB	C	64.8	(25%-150%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		60.8	(25%-150%)
		13C-169-HxCB		69.7	(25%-150%)
		13C-189-HpCB		62.1	(25%-150%)
		13C-111-PeCB		74.3	(30%-135%)
		13C-178-HpCB		79.5	(30%-135%)
5852001	HB-22A (1-3')	13C-77-TeCB		75.8 D	(25%-150%)
		13C-81-TeCB		79.3 D	(25%-150%)
		13C-105-PeCB		67.8 D	(25%-150%)
		13C-114-PeCB		66.9 D	(25%-150%)
		13C-118-PeCB		71.2 D	(25%-150%)
		13C-123-PeCB		72.7 D	(25%-150%)
		13C-126-PeCB		74.6 D	(25%-150%)

PCB Congeners

Surrogate Recovery Report

SDG Number: 115058_3

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)		Acceptance Limits
5852001	HB-22A (1-3')	13C-156-HxCB	C	67.3	D	(25%-150%)
		13C-157-HxCB	C156L			
		13C-167-HxCB		63.2	D	(25%-150%)
		13C-169-HxCB		76.8	D	(25%-150%)
		13C-189-HpCB		59.5	D	(25%-150%)
		13C-111-PeCB		73.6	D	(30%-135%)
		13C-178-HpCB		71.7	D	(30%-135%)
5852002	HB-22D (1-3')	13C-77-TeCB		104	D	(25%-150%)
		13C-81-TeCB		106	D	(25%-150%)
		13C-105-PeCB		91.0	D	(25%-150%)
		13C-114-PeCB		86.0	D	(25%-150%)
		13C-118-PeCB		91.4	D	(25%-150%)
		13C-123-PeCB		93.9	D	(25%-150%)
		13C-126-PeCB		98.5	D	(25%-150%)
		13C-156-HxCB	C	89.5	D	(25%-150%)
		13C-157-HxCB	C156L			
		13C-167-HxCB		83.9	D	(25%-150%)
		13C-169-HxCB		98.3	D	(25%-150%)
		13C-189-HpCB		76.9	D	(25%-150%)
		13C-111-PeCB		90.0	D	(30%-135%)
		13C-178-HpCB		89.2	D	(30%-135%)
5852006	HB-22G (1-3')	13C-77-TeCB		52.4	D	(25%-150%)
		13C-81-TeCB		53.4	D	(25%-150%)
		13C-105-PeCB		42.9	D	(25%-150%)
		13C-114-PeCB		41.1	D	(25%-150%)
		13C-118-PeCB		43.1	D	(25%-150%)
		13C-123-PeCB		43.9	D	(25%-150%)
		13C-126-PeCB		44.6	D	(25%-150%)
		13C-156-HxCB	C	31.5	D	(25%-150%)
		13C-157-HxCB	C156L			
		13C-167-HxCB		37.1	D	(25%-150%)
		13C-169-HxCB		40.3	D	(25%-150%)
		13C-189-HpCB		40.8	D	(25%-150%)
		13C-111-PeCB		41.3	D	(30%-135%)
		13C-178-HpCB		40.4	D	(30%-135%)
12009968	LCS for batch 25438	13C-77-TeCB		91.7		(30%-140%)
		13C-81-TeCB		91.9		(30%-140%)
		13C-105-PeCB		84.3		(30%-140%)
		13C-114-PeCB		80.3		(30%-140%)
		13C-118-PeCB		83.7		(30%-140%)
		13C-123-PeCB		86.5		(30%-140%)
		13C-126-PeCB		89.2		(30%-140%)
		13C-156-HxCB	C	81.0		(30%-140%)
		13C-157-HxCB	C156L			
		13C-167-HxCB		74.7		(30%-140%)
		13C-169-HxCB		89.8		(30%-140%)
		13C-189-HpCB		73.9		(30%-140%)
		13C-111-PeCB		85.6		(40%-125%)
		13C-178-HpCB		86.4		(40%-125%)

PCB Congeners

Surrogate Recovery Report

SDG Number: 115058_3

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12009969	LCSD for batch 25438	13C-77-TeCB		80.4	(30%-140%)
		13C-81-TeCB		81.7	(30%-140%)
		13C-105-PeCB		71.2	(30%-140%)
		13C-114-PeCB		68.4	(30%-140%)
		13C-118-PeCB		72.0	(30%-140%)
		13C-123-PeCB		75.2	(30%-140%)
		13C-126-PeCB		73.8	(30%-140%)
		13C-156-HxCB	C	69.6	(30%-140%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		64.8	(30%-140%)
		13C-169-HxCB		79.0	(30%-140%)
		13C-189-HpCB		63.8	(30%-140%)
		13C-111-PeCB		73.0	(40%-125%)
		13C-178-HpCB		74.5	(40%-125%)
12009967	MB for batch 25438	13C-77-TeCB		78.7	(25%-150%)
		13C-81-TeCB		78.9	(25%-150%)
		13C-105-PeCB		68.7	(25%-150%)
		13C-114-PeCB		65.2	(25%-150%)
		13C-118-PeCB		68.4	(25%-150%)
		13C-123-PeCB		71.0	(25%-150%)
		13C-126-PeCB		73.0	(25%-150%)
		13C-156-HxCB	C	68.3	(25%-150%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		65.0	(25%-150%)
		13C-169-HxCB		76.7	(25%-150%)
		13C-189-HpCB		60.8	(25%-150%)
		13C-111-PeCB		71.7	(30%-135%)
		13C-178-HpCB		73.3	(30%-135%)
5852005	HB-22F (1-3')	13C-77-TeCB		69.3	(25%-150%)
		13C-81-TeCB		69.3	(25%-150%)
		13C-105-PeCB		56.6	(25%-150%)
		13C-114-PeCB		53.0	(25%-150%)
		13C-118-PeCB		55.6	(25%-150%)
		13C-123-PeCB		57.8	(25%-150%)
		13C-126-PeCB		61.5	(25%-150%)
		13C-156-HxCB	C	53.5	(25%-150%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		50.7	(25%-150%)
		13C-169-HxCB		59.0	(25%-150%)
		13C-189-HpCB		48.1	(25%-150%)
		13C-111-PeCB		80.8	(30%-135%)
		13C-178-HpCB		80.6	(30%-135%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

PCB Congeners

Quality Control Summary
Spike Recovery Report

SDG Number: 115058_3 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 25421 **Matrix:** SOLID

Lab Sample ID: 12009947

Instrument: HRP791 **Analysis Date:** 02/27/2014 18:47 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 25421

Batch ID: 25423

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits
32598-13-3	LCS	77-TeCB	100		83.9	83.9	50-150
70362-50-4	LCS	81-TeCB	100		98.6	98.6	50-150
32598-14-4	LCS	105-PeCB	100		104	104	50-150
74472-37-0	LCS	114-PeCB	100		104	104	50-150
31508-00-6	LCS	118-PeCB	100		90.3	90.3	50-150
65510-44-3	LCS	123-PeCB	100		84.2	84.2	50-150
57465-28-8	LCS	126-PeCB	100		101	101	50-150
38380-08-4	LCS	156-HxCB	200	C	218	109	50-150
69782-90-7	LCS	157-HxCB		C156			
52663-72-6	LCS	167-HxCB	100		117	117	50-150
32774-16-6	LCS	169-HxCB	100		103	103	50-150
39635-31-9	LCS	189-HpCB	100		102	102	50-150

PCB Congeners

Quality Control Summary
Spike Recovery Report

SDG Number: 115058_3 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 25421 **Matrix:** SOLID

Lab Sample ID: 12009948

Instrument: HRP791 **Analysis Date:** 02/27/2014 19:50 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 25421

Batch ID: 25423

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
32598-13-3	LCSD	77-TeCB	100		85.7	85.7	50-150	2.13	0-20
70362-50-4	LCSD	81-TeCB	100		98.2	98.2	50-150	0.376	0-20
32598-14-4	LCSD	105-PeCB	100		108	108	50-150	3.47	0-20
74472-37-0	LCSD	114-PeCB	100		104	104	50-150	0.648	0-20
31508-00-6	LCSD	118-PeCB	100		92.0	92	50-150	1.88	0-20
65510-44-3	LCSD	123-PeCB	100		85.8	85.8	50-150	1.92	0-20
57465-28-8	LCSD	126-PeCB	100		104	104	50-150	2.66	0-20
38380-08-4	LCSD	156-HxCB	200	C	222	111	50-150	1.68	0-20
69782-90-7	LCSD	157-HxCB		C156					
52663-72-6	LCSD	167-HxCB	100		126	126	50-150	7.37	0-20
32774-16-6	LCSD	169-HxCB	100		103	103	50-150	0.228	0-20
39635-31-9	LCSD	189-HpCB	100		105	105	50-150	3.52	0-20

PCB Congeners

Quality Control Summary
Spike Recovery Report

SDG Number: 115058_3 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 25438 **Matrix:** SOLID

Lab Sample ID: 12009968

Instrument: HRP791 **Analysis Date:** 03/04/2014 12:34 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 25438

Batch ID: 25440

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits
32598-13-3	LCS	77-TeCB	100		81.5	81.5	50-150
70362-50-4	LCS	81-TeCB	100		94.5	94.5	50-150
32598-14-4	LCS	105-PeCB	100		102	102	50-150
74472-37-0	LCS	114-PeCB	100		100	100	50-150
31508-00-6	LCS	118-PeCB	100		87.7	87.7	50-150
65510-44-3	LCS	123-PeCB	100		81.7	81.7	50-150
57465-28-8	LCS	126-PeCB	100		96.8	96.8	50-150
38380-08-4	LCS	156-HxCB	200	C	214	107	50-150
69782-90-7	LCS	157-HxCB		C156			
52663-72-6	LCS	167-HxCB	100		117	117	50-150
32774-16-6	LCS	169-HxCB	100		97.7	97.7	50-150
39635-31-9	LCS	189-HpCB	100		101	101	50-150

PCB Congeners

Quality Control Summary
Spike Recovery Report

SDG Number: 115058_3 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 25438 **Matrix:** SOLID

Lab Sample ID: 12009969

Instrument: HRP791 **Analysis Date:** 03/04/2014 13:36 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 25438

Batch ID: 25440

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
32598-13-3	LCSD	77-TeCB	100		83.4	83.4	50-150	2.20	0-20
70362-50-4	LCSD	81-TeCB	100		95.2	95.2	50-150	0.738	0-20
32598-14-4	LCSD	105-PeCB	100		102	102	50-150	0.0648	0-20
74472-37-0	LCSD	114-PeCB	100		103	103	50-150	2.59	0-20
31508-00-6	LCSD	118-PeCB	100		89.2	89.2	50-150	1.67	0-20
65510-44-3	LCSD	123-PeCB	100		84.0	84	50-150	2.73	0-20
57465-28-8	LCSD	126-PeCB	100		100	100	50-150	3.60	0-20
38380-08-4	LCSD	156-HxCB	200	C	218	109	50-150	1.87	0-20
69782-90-7	LCSD	157-HxCB		C156					
52663-72-6	LCSD	167-HxCB	100		119	119	50-150	2.04	0-20
32774-16-6	LCSD	169-HxCB	100		99.6	99.6	50-150	1.99	0-20
39635-31-9	LCSD	189-HpCB	100		103	103	50-150	1.94	0-20

Method Blank Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Matrix:**	**SOLID**
Client ID:	**MB for batch 25421**	**Instrument ID:**	**HRP791**	**Data File:**	**c27feb14b_2-4**
Lab Sample ID:	**12009946**	**Prep Date:**	**26-FEB-14**	**Analyzed:**	**02/27/14 20:52**
Column:					

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 25421	12009947	c27feb14b_2-2	02/27/14	1847
02	LCSD for batch 25421	12009948	c27feb14b_2-3	02/27/14	1950
03	HB-22A (1-3')	5852001	c03mar14a-3	03/03/14	1146
04	HB-22D (1-3')	5852002	c03mar14a-6	03/03/14	1454
05	HB-22G (1-3')	5852006	c03mar14a-7	03/03/14	1556
06	HB-22G (1-3')	5852006	c04mar14a_2-8	03/05/14	0015

Method Blank Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Matrix:**	**SOLID**
Client ID:	**MB for batch 25438**	**Instrument ID:**	**HRP791**	**Data File:**	**c04mar14a-4**
Lab Sample ID:	**12009967**	**Prep Date:**	**28-FEB-14**	**Analyzed:**	**03/04/14 14:39**
Column:					

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 25438	12009968	c04mar14a-2	03/04/14	1234
02	LCSD for batch 25438	12009969	c04mar14a-3	03/04/14	1336
03	HB-22F (1-3')	5852005	c05mar14a-3	03/05/14	1841

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12009946**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25421**				
Client ID:	**MB for batch 25421**			**Prep Basis:**	**As Received**
Batch ID:	**25423**	**Method:**	**EPA Method 1668A**		
Run Date:	**02/27/2014 20:52**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c27feb14b_2-4**			**Dilution:**	**1**
Prep Batch:	**25421**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**26-FEB-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB	U	2	pg/g	2.00
70362-50-4	81-TeCB	U	2	pg/g	2.00
32598-14-4	105-PeCB	U	2	pg/g	2.00
74472-37-0	114-PeCB	U	2	pg/g	2.00
31508-00-6	118-PeCB	U	4	pg/g	4.00
65510-44-3	123-PeCB	U	2	pg/g	2.00
57465-28-8	126-PeCB	U	2	pg/g	2.00
38380-08-4	156-HxCB	CU	4	pg/g	4.00
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB	U	2	pg/g	2.00
32774-16-6	169-HxCB	U	2	pg/g	2.00
39635-31-9	189-HpCB	U	2	pg/g	2.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		133	200	pg/g	66.7	(25%-150%)
13C-81-TeCB		137	200	pg/g	68.5	(25%-150%)
13C-105-PeCB		120	200	pg/g	60.1	(25%-150%)
13C-114-PeCB		117	200	pg/g	58.6	(25%-150%)
13C-118-PeCB		124	200	pg/g	62.2	(25%-150%)
13C-123-PeCB		132	200	pg/g	65.8	(25%-150%)
13C-126-PeCB		113	200	pg/g	56.4	(25%-150%)
13C-156-HxCB	C	259	400	pg/g	64.8	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		122	200	pg/g	60.8	(25%-150%)
13C-169-HxCB		139	200	pg/g	69.7	(25%-150%)
13C-189-HpCB		124	200	pg/g	62.1	(25%-150%)
13C-111-PeCB		149	200	pg/g	74.3	(30%-135%)
13C-178-HpCB		159	200	pg/g	79.5	(30%-135%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

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

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12009947**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25421**				
Client ID:	**LCS for batch 25421**			**Prep Basis:**	**As Received**
Batch ID:	**25423**	**Method:**	**EPA Method 1668A**		
Run Date:	**02/27/2014 18:47**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c27feb14b_2-2**			**Dilution:**	**1**
Prep Batch:	**25421**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**26-FEB-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		83.9	pg/g	2.00
70362-50-4	81-TeCB		98.6	pg/g	2.00
32598-14-4	105-PeCB		104	pg/g	2.00
74472-37-0	114-PeCB		104	pg/g	2.00
31508-00-6	118-PeCB		90.3	pg/g	4.00
65510-44-3	123-PeCB		84.2	pg/g	2.00
57465-28-8	126-PeCB		101	pg/g	2.00
38380-08-4	156-HxCB	C	218	pg/g	4.00
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		117	pg/g	2.00
32774-16-6	169-HxCB		103	pg/g	2.00
39635-31-9	189-HpCB		102	pg/g	2.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		142	200	pg/g	71.1	(30%-140%)
13C-81-TeCB		146	200	pg/g	72.8	(30%-140%)
13C-105-PeCB		129	200	pg/g	64.4	(30%-140%)
13C-114-PeCB		125	200	pg/g	62.7	(30%-140%)
13C-118-PeCB		133	200	pg/g	66.7	(30%-140%)
13C-123-PeCB		141	200	pg/g	70.4	(30%-140%)
13C-126-PeCB		123	200	pg/g	61.4	(30%-140%)
13C-156-HxCB	C	288	400	pg/g	71.9	(30%-140%)
13C-157-HxCB	C156L					
13C-167-HxCB		136	200	pg/g	67.8	(30%-140%)
13C-169-HxCB		153	200	pg/g	76.5	(30%-140%)
13C-189-HpCB		129	200	pg/g	64.6	(30%-140%)
13C-111-PeCB		159	200	pg/g	79.6	(40%-125%)
13C-178-HpCB		176	200	pg/g	88.1	(40%-125%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12009948**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25421**				
Client ID:	**LCSD for batch 25421**			**Prep Basis:**	**As Received**
Batch ID:	**25423**	**Method:**	**EPA Method 1668A**		
Run Date:	**02/27/2014 19:50**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c27feb14b_2-3**			**Dilution:**	**1**
Prep Batch:	**25421**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**26-FEB-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		85.7	pg/g	2.00
70362-50-4	81-TeCB		98.2	pg/g	2.00
32598-14-4	105-PeCB		108	pg/g	2.00
74472-37-0	114-PeCB		104	pg/g	2.00
31508-00-6	118-PeCB		92.0	pg/g	4.00
65510-44-3	123-PeCB		85.8	pg/g	2.00
57465-28-8	126-PeCB		104	pg/g	2.00
38380-08-4	156-HxCB	C	222	pg/g	4.00
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		126	pg/g	2.00
32774-16-6	169-HxCB		103	pg/g	2.00
39635-31-9	189-HpCB		105	pg/g	2.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		134	200	pg/g	67.0	(30%-140%)
13C-81-TeCB		136	200	pg/g	68.0	(30%-140%)
13C-105-PeCB		119	200	pg/g	59.3	(30%-140%)
13C-114-PeCB		117	200	pg/g	58.7	(30%-140%)
13C-118-PeCB		125	200	pg/g	62.6	(30%-140%)
13C-123-PeCB		131	200	pg/g	65.7	(30%-140%)
13C-126-PeCB		114	200	pg/g	56.8	(30%-140%)
13C-156-HxCB	C	264	400	pg/g	65.9	(30%-140%)
13C-157-HxCB	C156L					
13C-167-HxCB		125	200	pg/g	62.4	(30%-140%)
13C-169-HxCB		140	200	pg/g	69.8	(30%-140%)
13C-189-HpCB		121	200	pg/g	60.5	(30%-140%)
13C-111-PeCB		152	200	pg/g	75.9	(40%-125%)
13C-178-HpCB		164	200	pg/g	82.2	(40%-125%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12009967**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25438**				
Client ID:	**MB for batch 25438**			**Prep Basis:**	**As Received**
Batch ID:	**25440**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/04/2014 14:39**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c04mar14a-4**			**Dilution:**	**1**
Prep Batch:	**25438**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-FEB-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB	U	2	pg/g	2.00
70362-50-4	81-TeCB	U	2	pg/g	2.00
32598-14-4	105-PeCB	U	2	pg/g	2.00
74472-37-0	114-PeCB	U	2	pg/g	2.00
31508-00-6	118-PeCB	U	4	pg/g	4.00
65510-44-3	123-PeCB	U	2	pg/g	2.00
57465-28-8	126-PeCB	U	2	pg/g	2.00
38380-08-4	156-HxCB	CU	4	pg/g	4.00
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB	U	2	pg/g	2.00
32774-16-6	169-HxCB	U	2	pg/g	2.00
39635-31-9	189-HpCB	U	2	pg/g	2.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		157	200	pg/g	78.7	(25%-150%)
13C-81-TeCB		158	200	pg/g	78.9	(25%-150%)
13C-105-PeCB		137	200	pg/g	68.7	(25%-150%)
13C-114-PeCB		130	200	pg/g	65.2	(25%-150%)
13C-118-PeCB		137	200	pg/g	68.4	(25%-150%)
13C-123-PeCB		142	200	pg/g	71.0	(25%-150%)
13C-126-PeCB		146	200	pg/g	73.0	(25%-150%)
13C-156-HxCB	C	273	400	pg/g	68.3	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		130	200	pg/g	65.0	(25%-150%)
13C-169-HxCB		153	200	pg/g	76.7	(25%-150%)
13C-189-HpCB		122	200	pg/g	60.8	(25%-150%)
13C-111-PeCB		143	200	pg/g	71.7	(30%-135%)
13C-178-HpCB		147	200	pg/g	73.3	(30%-135%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

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

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12009968**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25438**				
Client ID:	**LCS for batch 25438**			**Prep Basis:**	**As Received**
Batch ID:	**25440**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/04/2014 12:34**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c04mar14a-2**			**Dilution:**	**1**
Prep Batch:	**25438**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-FEB-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		81.5	pg/g	2.00
70362-50-4	81-TeCB		94.5	pg/g	2.00
32598-14-4	105-PeCB		102	pg/g	2.00
74472-37-0	114-PeCB		100	pg/g	2.00
31508-00-6	118-PeCB		87.7	pg/g	4.00
65510-44-3	123-PeCB		81.7	pg/g	2.00
57465-28-8	126-PeCB		96.8	pg/g	2.00
38380-08-4	156-HxCB	C	214	pg/g	4.00
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		117	pg/g	2.00
32774-16-6	169-HxCB		97.7	pg/g	2.00
39635-31-9	189-HpCB		101	pg/g	2.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		183	200	pg/g	91.7	(30%-140%)
13C-81-TeCB		184	200	pg/g	91.9	(30%-140%)
13C-105-PeCB		169	200	pg/g	84.3	(30%-140%)
13C-114-PeCB		161	200	pg/g	80.3	(30%-140%)
13C-118-PeCB		167	200	pg/g	83.7	(30%-140%)
13C-123-PeCB		173	200	pg/g	86.5	(30%-140%)
13C-126-PeCB		178	200	pg/g	89.2	(30%-140%)
13C-156-HxCB	C	324	400	pg/g	81.0	(30%-140%)
13C-157-HxCB	C156L					
13C-167-HxCB		149	200	pg/g	74.7	(30%-140%)
13C-169-HxCB		180	200	pg/g	89.8	(30%-140%)
13C-189-HpCB		148	200	pg/g	73.9	(30%-140%)
13C-111-PeCB		171	200	pg/g	85.6	(40%-125%)
13C-178-HpCB		173	200	pg/g	86.4	(40%-125%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**115058_3**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12009969**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25438**				
Client ID:	**LCSD for batch 25438**			**Prep Basis:**	**As Received**
Batch ID:	**25440**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/04/2014 13:36**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c04mar14a-3**			**Dilution:**	**1**
Prep Batch:	**25438**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-FEB-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		83.4	pg/g	2.00
70362-50-4	81-TeCB		95.2	pg/g	2.00
32598-14-4	105-PeCB		102	pg/g	2.00
74472-37-0	114-PeCB		103	pg/g	2.00
31508-00-6	118-PeCB		89.2	pg/g	4.00
65510-44-3	123-PeCB		84.0	pg/g	2.00
57465-28-8	126-PeCB		100	pg/g	2.00
38380-08-4	156-HxCB	C	218	pg/g	4.00
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		119	pg/g	2.00
32774-16-6	169-HxCB		99.6	pg/g	2.00
39635-31-9	189-HpCB		103	pg/g	2.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		161	200	pg/g	80.4	(30%-140%)
13C-81-TeCB		163	200	pg/g	81.7	(30%-140%)
13C-105-PeCB		142	200	pg/g	71.2	(30%-140%)
13C-114-PeCB		137	200	pg/g	68.4	(30%-140%)
13C-118-PeCB		144	200	pg/g	72.0	(30%-140%)
13C-123-PeCB		150	200	pg/g	75.2	(30%-140%)
13C-126-PeCB		148	200	pg/g	73.8	(30%-140%)
13C-156-HxCB	C	278	400	pg/g	69.6	(30%-140%)
13C-157-HxCB	C156L					
13C-167-HxCB		130	200	pg/g	64.8	(30%-140%)
13C-169-HxCB		158	200	pg/g	79.0	(30%-140%)
13C-189-HpCB		128	200	pg/g	63.8	(30%-140%)
13C-111-PeCB		146	200	pg/g	73.0	(40%-125%)
13C-178-HpCB		149	200	pg/g	74.5	(40%-125%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

CFA | Cape Fear Analytical LLC
an affiliate of The GEL Group INC

3306 Kitty Hawk Road, Suite 120 Wilmington, NC 28405
P 910.795.0421

www.capefearanalytical.com

April 08, 2014

Mr. Jeffry Saunders
TRC Companies, Incorporated
Wannalancit Mills
650 Suffolk Street Suite 200
Lowell, Massachusetts 01854

Re: New Bedford PCB/DXN
Work Order: 5905

Dear Mr. Saunders:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 22, 2014. This original data report has been prepared and reviewed in accordance with CFAõs 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

Enclosures

Page: 1 of 2
Project #: 115058
CFA Quote #:
COC Number (1):
PO Number:

Cape Fear Analytical, LLC
Chain of Custody and Analytical Request

CFA Work Order Number: ~~5852~~ Cd 19MAR14 5905

Cape Fear Analytical, LLC
3306 Kitty Hawk Rd. Suite 120
Wilmington, NC 28405
Phone: (910) 795-0421

Client Name: TRC Environmental Phone #: 978-970-5600
Project/Site Name: NBHS, Hathaway Blvd. Fax #: 978-453-1995
Address: Hathaway Blvd, New Bedford, MA
Collected by: E. Wachtel Send Results To: D. Sullivan

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Total number of containers	PLB dioxins SW8290A	Dioxins / Furans SW-8290A Cd 19MAR14 1613B	<-- Preservative Type (6)	Comments
HB-22A (1-3')	2/21/14	1045	N		SO		X	X		Note: extra sample is required for sample specific QC
HB-22D (1-3')		1055					X			
HB-22F (0-1') HOLD*		1155					X	X		
HB-22G (0-1') HOLD*		1155					X	X		
HB-22F (1-3') Cd 19MAR14		1200					X	X		
HB-22G (1-3')		1110					X	X		
HB-22J (0-1') HOLD*		1205					X	X		
HB-22J (1-3') HOLD*		1210					X	X		TAKEN OFF HOLD REJOGGED TO WO#5905
HB-22N (0-1') HOLD* Cd 19MAR14		1220					X	X		
HB-22N (1-3') HOLD*	2/21/14	1225	N		SO		X	X		

TAT Requested: Normal: ____ Rush: ____ Specify: ____ (Subject to Surcharge) Fax Results: Yes / No Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

Sample Collection Time Zone: Eastern Pacific Central Other ____ Mountain

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	Emily Wachtel	2/21/14	1430	[illegible]	2/22/14	9:46am
2						
3						

Sample Shipping and Delivery Details

CFA PM: Chris Cornwell
Method of Shipment: FedEx Date Shipped: 2/21/14
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a- Y - for yes the sample was field filtered or- N - for sample was not field filtered.
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e.8290B, 1668B) and number of containers provided for each (i.e. 8290B - 3, 1668B - 1).
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

For Lab Receiving Use Only
Custody Seal Intact? ✓ YES NO
Cooler Temp: 3.7 °C

Page 2 of 2

Page: 2 of 2
Project #: 115058
CFA Quote #:
COC Number (1):
PO Number:

Cape Fear Analytical, LLC
Chain of Custody and Analytical Request

CFA Work Order Number: ~~5852~~ 5905

Cape Fear Analytical, LLC
3306 Kitty Hawk Rd. Suite 120
Wilmington, NC 28405
Phone: (910) 795-0421

Client Name: TRC Environmental | Phone #: 978-970-5600
Project/Site Name: NBHS | Fax #: 978-453-1995
Address: Hathaway Blvd, New Bedford, MA
Collected by: E. Wachtel | Send Results To: Dave Sullivan

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID * For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Total number of containers	PCB Congeners SW 8082A	Dioxins/Furans SW 8290A or 1613B	Comments Note: extra sample is required for sample specific QC
~~HB-22R (0-1') HOLD*~~	2/21/14	1230	N		SD	2	X	X	
~~HB-22R (1-3') HOLD*~~		1235				2	X	X	
~~HB-22K (0-1') HOLD*~~		1120				2	X	X	
* HB-22K (1-3') HOLD*		1125				2	X	X	TAKEN OFF HOLD RELOGGED TO WO# 5905
~~HB-22O (0-1') HOLD*~~		1135				2	X	X	
~~HB-22O (1-3') HOLD*~~		1140				2	X	X	
~~HB-22S (0-1') HOLD*~~		1145				2	X	X	
~~HB-22S (1-3') HOLD*~~	2/21/14	1150	N		SD	2	X	X	
~~Temp B~~									

Preservative Type (6)

TAT Requested: Normal: ✓ 15 Business days Rush: Specify: (Subject to Surcharge) | Fax Results: Yes / No | Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards

Sample Collection Time Zone: Eastern, Central, Mountain, Pacific, Other ____

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	Emily Wachtel	2/21/14	1430	[signature]	2/22/14	9:46am
2						
3						

Sample Shipping and Delivery Details

CFA PM: Chris Cornwell
Method of Shipment: Fedex | Date Shipped: 2/21/14
Airbill #:
Airbill #:

For Lab Receiving Use Only
Custody Seal Intact? YES (circled) NO
Cooler Temp: 3.7 C

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. 8290B, 1668B) and number of containers provided for each (i.e. 8290B - 3, 1668B - 1).
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

CoC 19MAR14

Client: TRC Environmental	Work Order: ~~5852~~ 5905
Received By: Jason Frank	Date/Time Received: 2/22/14 0946

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?			✓
Samples identified as Foreign Soil?			✓

DOE Site Sample Packages	Yes	NA	No*
Screened <0.5 mR/hr?		✓	
Samples < 2x background?		✓	

* Notify RSO of any responses in this column immediately.

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other(describe)
2	Chain of Custody documents included with shipment?	✓			
3	Samples requiring cold preservation within 0-6°C?	✓			Preservation Method: ice bags blue ice dry ice none other (describe) 3.7°
4	Samples requiring chemical preservation at proper pH?		✓		Sample IDs, containers affected and pH observed: If preservative added, Lot#:
5	Samples requiring preservation have no residual chlorine?		✓		Sample IDs, containers affected: If preservative added, Lot#:
6	Samples received within holding time?	✓			Sample IDs, tests affected:
7	Sample IDs on COC match IDs on containers?	✓			Sample IDs, containers affected:
8	Date & time of COC match date & time on containers?			✓	Sample IDs, containers affected: HB-22G 0-1' time on COC is 1155 and on sample is 1105
9	Number of containers received match number indicated on COC?	✓			Sample IDs, containers affected:
10	COC form is properly signed in relinquished/received sections?	✓			

Comments:

Relogged HB-22J (1-3') and HB-22K (1-3') to ~~Att~~ new workorder after taking them off hold at client request. Also requested method change for dioxin. CL 19MAR14

Checklist performed by: Initials: _____ Date: 24FEB14

Subject: Re: CFA TRCC 5852 Results
From: Chris Cornwell <chris.cornwell@cfanalytical.com>
Date: 3/17/2014 6:10 PM
To: "Saunders, Jeffry" <JSaunders@trcsolutions.com>
CC: Valerie Davis <Valerie.Davis@cfanalytical.com>, "Cynde Larkins (cynde.larkins@cfanalytical.com)" <cynde.larkins@cfanalytical.com>, "Sullivan, Dave" <DSullivan@trcsolutions.com>, "Silverman, Diane" <DSilverman@trcsolutions.com>

Jeff,
Thanks for the update. We can talk about options for the hold samples. Extract and hold is usually 1/3 of the sample price.

CKC

Sent from my iPhone

> On Mar 17, 2014, at 4:22 PM, "Saunders, Jeffry" <JSaunders@trcsolutions.com> wrote:
>
> Valerie,
>
> Please proceed with the dioxins/furans and PCB congeners analyses for samples HB-22J (1-3') and HB-22K (1-3') as indicated in the attached chain-of-custody. As with the previous samples, standard 15 business day turnaround is fine.
>
> Also please let me know what our options are in terms of meeting holding time requirements as indicated below. It seems that ideally the samples are or can be frozen. If not, we will explore our options for extract and hold.
>
> Let me know if you have any questions. Thanks!
>
> -Jeff
>
> Jeffry B. Saunders, PG
> Project Geologist
> (978) 656-3610
>
> -----Original Message-----
> From: Saunders, Jeffry
> Sent: Monday, March 17, 2014 1:23 PM
> To: 'Valerie Davis'
> Subject: RE: CFA TRCC 5852 Results
>
> Thanks! The CD came today.
>
> We are currently looking at the data to see if we need to authorize additional analyses. As a result, we have also been discussing hold times since the samples were collected on 2/21/13. We know the "recommended" hold times for Method 8290 are 30 days to extract and 45 day to analyze, but EPA method 1613 allows for 1 year as long as the samples are frozen. Can you let me know if the samples are being stored in a freezer (<10-degrees C)?
>
> Another option may be to extract and hold additional samples...is there cost associated with that route?
>
> -Jeff

Jeffry B. Saunders, PG
Project Geologist
(978) 656-3610

-----Original Message-----
From: Valerie Davis [mailto:Valerie.Davis@cfanalytical.com]
Sent: Friday, March 14, 2014 4:35 PM
To: Saunders, Jeffry; DDullivan@trcsolutions.com; Zhou, Ping; Peterson, David N.; Denly, Elizabeth; Cynde Larkins
Subject: CFA TRCC 5852 Results

Good afternoon,

I have attached the mini package results for your project 115058. The CD with raw data and EDD should arrive Monday via Fed Ex. Please let me know if there is anything else needed.

Thanks,

Valerie

--
Valerie Davis
Project Manager
Cape Fear Analytical, LLC
3306 Kitty Hawk Rd.
Suite 120
Wilmington, NC 28405
Phone: 910-795-0421
E-mail: valerie.davis@cfanalytical.com

How was your customer experience? Customer service is a high priority for us, so we listen to what our customers have to say!
Thank you for taking time to email us your thoughts and opinions at feedback@cfanalytical.com

<CoC Pages from WO5852 Level 2 - TRCC 115058_3.pdf>

High Resolution Dioxins and Furans Analysis

Case Narrative

HDOX Case Narrative
TRC Environmental Corporation (TRCC)
SDG 5905

Method/Analysis Information

Product:	**Dioxins/Furans by EPA Method 1613B in Solids**
Analytical Method:	EPA Method 1613B
Extraction Method:	SW846 3540C
Analytical Batch Number:	25547
Clean Up Batch Number:	25546
Extraction Batch Number:	25545

Sample Analysis

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

Sample ID	Client ID
5905001	HB-22J (1-3')
5905002	HB-22K (1-3')
12010083	Method Blank (MB)
12010084	Laboratory Control Sample (LCS)
12010085	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on a "dry weight" basis.

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# 13.

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.

Analytical Comments
Diphenyl ether (DPE) interferences were detected in the samples. Where a totals peak could be completely attributed to the DPE, the concentration was removed from the total homolog sum. If the concentration could not be completely attributed to the DPE, or where the DPE co-eluted with a 2378-substituted furan peak, by professional judgment the peak may be left in the report. In both cases, the concentration is flagged with a P and should be considered an estimate. 5905001 (HB-22J (1-3')) and 5905002 (HB-22K (1-3'))- Batch 25547.

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.

Sample preparation
No difficulties were encountered during sample preparation.

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

Qualifier Definition Report
for

TRCC001 TRC Environmental Corporation

Client SDG: 5905 CFA Work Order: 5905

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
K Estimated Maximum Possible Concentration
P Diphenyl ether interference is present; value is estimated
Q Quantitative Interference
U Analyte was analyzed for, but not detected above the specified detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

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 APR 2014 **Title: Analyst III**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5905001**	**Date Collected:**	**02/21/2014 12:10**	**Matrix:**	**SOLID**
Client Sample:	**1613/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**12.7**
Client ID:	**HB-22J (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25547**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/01/2014 13:59**	**Analyst:**	**JTF**	**Instrument:**	**HRP750**
Data File:	**A01APR14B-8**			**Dilution:**	**1**
Prep Batch:	**25545**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**26-MAR-14**	**Aliquot:**	**11.54 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		59.1		pg/g	28.6	0.993

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

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
K **Estimated Maximum Possible Concentration**
P **Diphenyl ether interference is present; 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

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5905001**	**Date Collected:**	**02/21/2014 12:10**	**Matrix:**	**SOLID**
Client Sample:	**1613/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**12.7**
Client ID:	**HB-22J (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25547**	**Method:**	**EPA Method 1613B**		
Run Date:	**03/29/2014 11:07**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b26mar14a_8-10**			**Dilution:**	**1**
Prep Batch:	**25545**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**26-MAR-14**	**Aliquot:**	**11.54 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		4.76		pg/g	2.34	0.993
40321-76-4	1,2,3,7,8-PeCDD		15.6		pg/g	2.07	4.96
39227-28-6	1,2,3,4,7,8-HxCDD		18.7		pg/g	0.880	4.96
57653-85-7	1,2,3,6,7,8-HxCDD		48.5		pg/g	0.927	4.96
19408-74-3	1,2,3,7,8,9-HxCDD		37.6		pg/g	0.931	4.96
35822-46-9	1,2,3,4,6,7,8-HpCDD		928		pg/g	2.66	4.96
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	5850		pg/g	4.95	9.93
51207-31-9	2,3,7,8-TCDF		48.0		pg/g	3.99	0.993
57117-41-6	1,2,3,7,8-PeCDF		15.1		pg/g	0.546	4.96
57117-31-4	2,3,4,7,8-PeCDF		63.5		pg/g	0.552	4.96
70648-26-9	1,2,3,4,7,8-HxCDF		36.6		pg/g	0.775	4.96
57117-44-9	1,2,3,6,7,8-HxCDF		25.7		pg/g	0.832	4.96
60851-34-5	2,3,4,6,7,8-HxCDF		37.5		pg/g	0.814	4.96
72918-21-9	1,2,3,7,8,9-HxCDF	Q	14.1		pg/g	1.83	4.96
67562-39-4	1,2,3,4,6,7,8-HpCDF	P	520		pg/g	0.796	4.96
55673-89-7	1,2,3,4,7,8,9-HpCDF		20.2		pg/g	1.35	4.96
39001-02-0	1,2,3,4,6,7,8,9-OCDF		758		pg/g	1.44	9.93
41903-57-5	Total Tetrachlorodibenzo-p-dioxin		90.8	117	pg/g	2.34	0.993
36088-22-9	Total Pentachlorodibenzo-p-dioxin		81.2	165	pg/g	2.07	4.96
34465-46-8	Total Hexachlorodibenzo-p-dioxin		416		pg/g	0.880	4.96
37871-00-4	Total Heptachlorodibenzo-p-dioxin		1780		pg/g	2.66	4.96
30402-14-3	Total Tetrachlorodibenzofuran	E	1660	1670	pg/g	3.99	0.993
30402-15-4	Total Pentachlorodibenzofuran		689	692	pg/g	0.214	4.96
55684-94-1	Total Hexachlorodibenzofuran		759	767	pg/g	0.775	4.96
38998-75-3	Total Heptachlorodibenzofuran		1280		pg/g	0.796	4.96
3333-30-0	TEQ WHO2005 ND=0		83.2	83.2	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		83.2	83.2	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%		Acceptable Limits
13C-2,3,7,8-TCDD		123	199	pg/g	61.7		(25%-164%)
13C-1,2,3,7,8-PeCDD		180	199	pg/g	90.6		(25%-181%)
13C-1,2,3,4,7,8-HxCDD		162	199	pg/g	81.5		(32%-141%)
13C-1,2,3,6,7,8-HxCDD		164	199	pg/g	82.4		(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		176	199	pg/g	88.8		(23%-140%)
13C-OCDD		345	397	pg/g	86.8		(17%-157%)
13C-2,3,7,8-TCDF		113	199	pg/g	57.0		(24%-169%)
13C-1,2,3,7,8-PeCDF		160	199	pg/g	80.7		(24%-185%)
13C-2,3,4,7,8-PeCDF		184	199	pg/g	92.7		(21%-178%)
13C-1,2,3,4,7,8-HxCDF		147	199	pg/g	74.0		(26%-152%)
13C-1,2,3,6,7,8-HxCDF		149	199	pg/g	74.9		(26%-123%)
13C-2,3,4,6,7,8-HxCDF		153	199	pg/g	77.3		(28%-136%)
13C-1,2,3,7,8,9-HxCDF	Q	55.3	199	pg/g	27.8	*	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5905001**	**Date Collected:**	**02/21/2014 12:10**	**Matrix:**	**SOLID**
Client Sample:	**1613/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**12.7**
Client ID:	**HB-22J (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25547**	**Method:**	**EPA Method 1613B**		
Run Date:	**03/29/2014 11:07**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b26mar14a_8-10**			**Dilution:**	**1**
Prep Batch:	**25545**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**26-MAR-14**	**Aliquot:**	**11.54 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		151	199	pg/g	76.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		177	199	pg/g	89.2	(26%-138%)
37Cl-2,3,7,8-TCDD		11.0	19.9	pg/g	55.2	(35%-197%)

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
K **Estimated Maximum Possible Concentration**
P **Diphenyl ether interference is present; 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

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5905002**	**Date Collected:**	**02/21/2014 11:20**	**Matrix:**	**SOLID**
Client Sample:	**1613/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**17.7**
Client ID:	**HB-22K (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25547**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/01/2014 14:19**	**Analyst:**	**JTF**	**Instrument:**	**HRP750**
Data File:	**A01APR14B-9**			**Dilution:**	**1**
Prep Batch:	**25545**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**26-MAR-14**	**Aliquot:**	**12.17 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		26.4		pg/g	0.455	0.998

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

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
K **Estimated Maximum Possible Concentration**
P **Diphenyl ether interference is present; 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

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5905002**	**Date Collected:**	**02/21/2014 11:20**	**Matrix:**	**SOLID**
Client Sample:	**1613/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**17.7**
Client ID:	**HB-22K (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25547**	**Method:**	**EPA Method 1613B**		
Run Date:	**03/29/2014 11:55**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b26mar14a_8-11**			**Dilution:**	**1**
Prep Batch:	**25545**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**26-MAR-14**	**Aliquot:**	**12.17 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		4.64		pg/g	0.307	0.998
40321-76-4	1,2,3,7,8-PeCDD		21.8		pg/g	0.655	4.99
39227-28-6	1,2,3,4,7,8-HxCDD		30.9		pg/g	1.21	4.99
57653-85-7	1,2,3,6,7,8-HxCDD		73.6		pg/g	1.27	4.99
19408-74-3	1,2,3,7,8,9-HxCDD		55.7		pg/g	1.28	4.99
35822-46-9	1,2,3,4,6,7,8-HpCDD		1520		pg/g	2.54	4.99
3268-87-9	1,2,3,4,6,7,8,9-OCDD	E	12400		pg/g	12.1	9.98
51207-31-9	2,3,7,8-TCDF		22.6		pg/g	1.81	0.998
57117-41-6	1,2,3,7,8-PeCDF		9.36		pg/g	0.461	4.99
57117-31-4	2,3,4,7,8-PeCDF		37.0		pg/g	0.503	4.99
70648-26-9	1,2,3,4,7,8-HxCDF		31.6		pg/g	0.463	4.99
57117-44-9	1,2,3,6,7,8-HxCDF		20.0		pg/g	0.467	4.99
60851-34-5	2,3,4,6,7,8-HxCDF		24.6		pg/g	0.525	4.99
72918-21-9	1,2,3,7,8,9-HxCDF		9.37		pg/g	0.553	4.99
67562-39-4	1,2,3,4,6,7,8-HpCDF	P	349		pg/g	0.980	4.99
55673-89-7	1,2,3,4,7,8,9-HpCDF		24.8		pg/g	1.51	4.99
39001-02-0	1,2,3,4,6,7,8,9-OCDF		1340		pg/g	2.52	9.98
41903-57-5	Total Tetrachlorodibenzo-p-dioxin		102	103	pg/g	0.307	0.998
36088-22-9	Total Pentachlorodibenzo-p-dioxin		211	222	pg/g	0.655	4.99
34465-46-8	Total Hexachlorodibenzo-p-dioxin		689		pg/g	1.21	4.99
37871-00-4	Total Heptachlorodibenzo-p-dioxin	E	3010		pg/g	2.54	4.99
30402-14-3	Total Tetrachlorodibenzofuran	E	574	591	pg/g	1.81	0.998
30402-15-4	Total Pentachlorodibenzofuran		505	510	pg/g	0.234	4.99
55684-94-1	Total Hexachlorodibenzofuran		507	508	pg/g	0.463	4.99
38998-75-3	Total Heptachlorodibenzofuran		1310		pg/g	0.980	4.99
3333-30-0	TEQ WHO2005 ND=0		87.7	87.7	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		87.7	87.7	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		172	200	pg/g	86.1	(25%-164%)
13C-1,2,3,7,8-PeCDD		181	200	pg/g	90.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		161	200	pg/g	80.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		164	200	pg/g	82.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		177	200	pg/g	88.9	(23%-140%)
13C-OCDD		312	399	pg/g	78.2	(17%-157%)
13C-2,3,7,8-TCDF		172	200	pg/g	86.2	(24%-169%)
13C-1,2,3,7,8-PeCDF		178	200	pg/g	89.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		179	200	pg/g	89.8	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		156	200	pg/g	78.3	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		146	200	pg/g	73.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		147	200	pg/g	73.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		131	200	pg/g	65.4	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5905002**	**Date Collected:**	**02/21/2014 11:20**	**Matrix:**	**SOLID**
Client Sample:	**1613/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**17.7**
Client ID:	**HB-22K (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25547**	**Method:**	**EPA Method 1613B**		
Run Date:	**03/29/2014 11:55**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b26mar14a_8-11**			**Dilution:**	**1**
Prep Batch:	**25545**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**26-MAR-14**	**Aliquot:**	**12.17 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		158	200	pg/g	79.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		165	200	pg/g	82.7	(26%-138%)
37Cl-2,3,7,8-TCDD		17.6	20.0	pg/g	88.0	(35%-197%)

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
K **Estimated Maximum Possible Concentration**
P **Diphenyl ether interference is present; value is estimated**
Q **Quantitative Interference**
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: 5905

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12010084	LCS for batch 25545	13C-2,3,7,8-TCDD		87.6	(20%-175%)
		13C-1,2,3,7,8-PeCDD		95.0	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		80.7	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		83.6	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		87.4	(22%-166%)
		13C-OCDD		79.8	(13%-199%)
		13C-2,3,7,8-TCDF		90.9	(22%-152%)
		13C-1,2,3,7,8-PeCDF		92.0	(21%-192%)
		13C-2,3,4,7,8-PeCDF		93.1	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		78.3	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		81.0	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		83.5	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		82.8	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		84.0	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		81.7	(20%-186%)
		37Cl-2,3,7,8-TCDD		96.9	(31%-191%)
12010083	MB for batch 25545	13C-2,3,7,8-TCDD		84.1	(25%-164%)
		13C-1,2,3,7,8-PeCDD		91.4	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		77.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		79.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		82.6	(23%-140%)
		13C-OCDD		73.6	(17%-157%)
		13C-2,3,7,8-TCDF		87.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		90.7	(24%-185%)
		13C-2,3,4,7,8-PeCDF		89.3	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		73.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		73.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		77.6	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		71.1	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		80.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		76.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		90.2	(35%-197%)
5905001	HB-22J (1-3')	13C-2,3,7,8-TCDD		61.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		90.6	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		81.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		82.4	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		88.8	(23%-140%)
		13C-OCDD		86.8	(17%-157%)
		13C-2,3,7,8-TCDF		57.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		80.7	(24%-185%)
		13C-2,3,4,7,8-PeCDF		92.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		74.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		74.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		77.3	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF	Q	27.8 *	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		76.0	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		89.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		55.2	(35%-197%)
5905002	HB-22K (1-3')	13C-2,3,7,8-TCDD		86.1	(25%-164%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 5905

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
5905002	HB-22K (1-3')	13C-1,2,3,7,8-PeCDD		90.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		80.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		82.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		88.9	(23%-140%)
		13C-OCDD		78.2	(17%-157%)
		13C-2,3,7,8-TCDF		86.2	(24%-169%)
		13C-1,2,3,7,8-PeCDF		89.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		89.8	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		78.3	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		73.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		73.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		65.4	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		79.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		82.7	(26%-138%)
		37Cl-2,3,7,8-TCDD		88.0	(35%-197%)
12010085	LCSD for batch 25545	13C-2,3,7,8-TCDD		89.8	(20%-175%)
		13C-1,2,3,7,8-PeCDD		89.1	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		86.6	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		81.7	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		88.3	(22%-166%)
		13C-OCDD		69.9	(13%-199%)
		13C-2,3,7,8-TCDF		97.7	(22%-152%)
		13C-1,2,3,7,8-PeCDF		90.3	(21%-192%)
		13C-2,3,4,7,8-PeCDF		93.1	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		84.0	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		80.3	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		87.0	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		82.5	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		88.1	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		82.0	(20%-186%)
		37Cl-2,3,7,8-TCDD		96.8	(31%-191%)

* 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

SDG Number: **5905** **Sample Type:** **Laboratory Control Sample**

Client ID: **LCS for batch 25545** **Matrix:** **SOLID**

Lab Sample ID: **12010084**

Instrument: **HRP763** **Analysis Date:** **03/28/2014 06:01** **Dilution:** **1**

Analyst: **JTF** **Prep Batch ID:** **25545**

Batch ID: **25547**

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	22.0	110	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	100	98.9	98.9	70-142
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	100	100	100	70-164
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	100	106	106	76-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	100	107	107	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	199	99.6	78-144
51207-31-9	LCS	2,3,7,8-TCDF	20.0	18.9	94.5	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	100	95.8	95.8	80-134
57117-31-4	LCS	2,3,4,7,8-PeCDF	100	94.7	94.7	68-160
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	100	103	103	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	103	103	70-156
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	100	110	110	78-130
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	100	97.9	97.9	82-122
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	100	98.4	98.4	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	200	200	100	63-170

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 5905 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 25545 **Matrix:** SOLID

Lab Sample ID: 12010085

Instrument: HRP763 **Analysis Date:** 04/01/2014 16:20 **Dilution:** 1

Analyst: JTF **Prep Batch ID:** 25545

Batch ID: 25547

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	21.9	109	67-158	0.411	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	100	108	108	70-142	8.76	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	100	97.1	97.1	70-164	3.29	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	100	103	103	76-134	2.89	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	100	105	105	64-162	2.15	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	100	98.2	98.2	70-140	2.42	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	200	208	104	78-144	4.48	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	20.0	18.5	92.5	75-158	2.16	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	100	97.4	97.4	80-134	1.72	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	100	99.1	99.1	68-160	4.57	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	100	101	101	72-134	2.53	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	100	103	103	84-130	1.30	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	100	102	102	70-156	0.816	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	100	105	105	78-130	4.21	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	100	96.8	96.8	82-122	1.12	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	100	97.3	97.3	78-138	1.17	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	200	203	101	63-170	1.39	0-20

Method Blank Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Matrix:**	**SOLID**
Client ID:	**MB for batch 25545**	**Instrument ID:**	**HRP763**	**Data File:**	**b26mar14a_7-10**
Lab Sample ID:	**12010083**	**Prep Date:**	**26-MAR-14**	**Analyzed:**	**03/29/14 00:39**
Column:					

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 25545	12010084	b26mar14a_6-1	03/28/14	0601
02	HB-22J (1-3')	5905001	b26mar14a_8-10	03/29/14	1107
03	HB-22K (1-3')	5905002	b26mar14a_8-11	03/29/14	1155
04	HB-22J (1-3')	5905001	A01APR14B-8	04/01/14	1359
05	HB-22K (1-3')	5905002	A01APR14B-9	04/01/14	1419
06	LCSD for batch 25545	12010085	b01apr14a-11	04/01/14	1620

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010083**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25545**				
Client ID:	**MB for batch 25545**			**Prep Basis:**	**As Received**
Batch ID:	**25547**	**Method:**	**EPA Method 1613B**		
Run Date:	**03/29/2014 00:39**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b26mar14a_7-10**			**Dilution:**	**1**
Prep Batch:	**25545**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**26-MAR-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	.101		pg/g	0.101	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	.0894		pg/g	0.0894	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	.104		pg/g	0.104	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	.11		pg/g	0.110	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	.11		pg/g	0.110	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	.144		pg/g	0.144	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	.292		pg/g	0.292	10.0
51207-31-9	2,3,7,8-TCDF	U	.0928		pg/g	0.0928	1.00
57117-41-6	1,2,3,7,8-PeCDF	U	.0644		pg/g	0.0644	5.00
57117-31-4	2,3,4,7,8-PeCDF	U	.063		pg/g	0.063	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	U	.06		pg/g	0.060	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	U	.0594		pg/g	0.0594	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	.0598		pg/g	0.0598	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	.0918		pg/g	0.0918	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	.059		pg/g	0.059	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.101		pg/g	0.101	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	.274		pg/g	0.274	10.0
41903-57-5	Total Tetrachlorodibenzo-p-dioxin	U	.101		pg/g	0.101	1.00
36088-22-9	Total Pentachlorodibenzo-p-dioxin	U	.0894		pg/g	0.0894	5.00
34465-46-8	Total Hexachlorodibenzo-p-dioxin	U	.104		pg/g	0.104	5.00
37871-00-4	Total Heptachlorodibenzo-p-dioxin	U	.144		pg/g	0.144	5.00
30402-14-3	Total Tetrachlorodibenzofuran	U	.0928		pg/g	0.0928	1.00
30402-15-4	Total Pentachlorodibenzofuran	U	.063		pg/g	0.063	5.00
55684-94-1	Total Hexachlorodibenzofuran	U	.0594		pg/g	0.0594	5.00
38998-75-3	Total Heptachlorodibenzofuran	U	.059		pg/g	0.059	5.00
3333-30-0	TEQ WHO2005 ND=0		0.00	0.00	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		0.141	0.141	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		168	200	pg/g	84.1	(25%-164%)
13C-1,2,3,7,8-PeCDD		183	200	pg/g	91.4	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		156	200	pg/g	77.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		159	200	pg/g	79.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		165	200	pg/g	82.6	(23%-140%)
13C-OCDD		294	400	pg/g	73.6	(17%-157%)
13C-2,3,7,8-TCDF		176	200	pg/g	87.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		181	200	pg/g	90.7	(24%-185%)
13C-2,3,4,7,8-PeCDF		179	200	pg/g	89.3	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		146	200	pg/g	73.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		147	200	pg/g	73.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		155	200	pg/g	77.6	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		142	200	pg/g	71.1	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010083**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25545**				
Client ID:	**MB for batch 25545**			**Prep Basis:**	**As Received**
Batch ID:	**25547**	**Method:**	**EPA Method 1613B**		
Run Date:	**03/29/2014 00:39**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b26mar14a_7-10**			**Dilution:**	**1**
Prep Batch:	**25545**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**26-MAR-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		160	200	pg/g	80.0	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		154	200	pg/g	76.8	(26%-138%)
37Cl-2,3,7,8-TCDD		18.0	20.0	pg/g	90.2	(35%-197%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010084**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25545**				
Client ID:	**LCS for batch 25545**			**Prep Basis:**	**As Received**
Batch ID:	**25547**	**Method:**	**EPA Method 1613B**		
Run Date:	**03/28/2014 06:01**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b26mar14a_6-1**			**Dilution:**	**1**
Prep Batch:	**25545**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**26-MAR-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		22.0		pg/g	0.140	1.00
40321-76-4	1,2,3,7,8-PeCDD		98.9		pg/g	0.216	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		100		pg/g	0.488	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		106		pg/g	0.528	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		107		pg/g	0.524	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		101		pg/g	0.480	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		199		pg/g	1.61	10.0
51207-31-9	2,3,7,8-TCDF		18.9		pg/g	0.146	1.00
57117-41-6	1,2,3,7,8-PeCDF		95.8		pg/g	0.584	5.00
57117-31-4	2,3,4,7,8-PeCDF		94.7		pg/g	0.578	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		103		pg/g	0.446	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		104		pg/g	0.430	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		103		pg/g	0.444	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		110		pg/g	0.618	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		97.9		pg/g	0.394	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		98.4		pg/g	0.624	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		200		pg/g	2.22	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		175	200	pg/g	87.6	(20%-175%)
13C-1,2,3,7,8-PeCDD		190	200	pg/g	95.0	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		161	200	pg/g	80.7	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		167	200	pg/g	83.6	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		175	200	pg/g	87.4	(22%-166%)
13C-OCDD		319	400	pg/g	79.8	(13%-199%)
13C-2,3,7,8-TCDF		182	200	pg/g	90.9	(22%-152%)
13C-1,2,3,7,8-PeCDF		184	200	pg/g	92.0	(21%-192%)
13C-2,3,4,7,8-PeCDF		186	200	pg/g	93.1	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		157	200	pg/g	78.3	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		162	200	pg/g	81.0	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		167	200	pg/g	83.5	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		166	200	pg/g	82.8	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		168	200	pg/g	84.0	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		163	200	pg/g	81.7	(20%-186%)
37Cl-2,3,7,8-TCDD		19.4	20.0	pg/g	96.9	(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

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010085**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25545**				
Client ID:	**LCSD for batch 25545**			**Prep Basis:**	**As Received**
Batch ID:	**25547**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/01/2014 16:20**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b01apr14a-11**			**Dilution:**	**1**
Prep Batch:	**25545**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**26-MAR-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		21.9		pg/g	0.340	1.00
40321-76-4	1,2,3,7,8-PeCDD		108		pg/g	0.328	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		97.1		pg/g	0.612	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		103		pg/g	0.632	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		105		pg/g	0.642	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		98.2		pg/g	0.856	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		208		pg/g	2.20	10.0
51207-31-9	2,3,7,8-TCDF		18.5		pg/g	0.256	1.00
57117-41-6	1,2,3,7,8-PeCDF		97.4		pg/g	0.478	5.00
57117-31-4	2,3,4,7,8-PeCDF		99.1		pg/g	0.436	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		101		pg/g	0.748	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		103		pg/g	0.732	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		102		pg/g	0.736	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		105		pg/g	1.13	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		96.8		pg/g	0.572	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		97.3		pg/g	1.06	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		203		pg/g	2.78	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		180	200	pg/g	89.8	(20%-175%)
13C-1,2,3,7,8-PeCDD		178	200	pg/g	89.1	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		173	200	pg/g	86.6	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		163	200	pg/g	81.7	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		177	200	pg/g	88.3	(22%-166%)
13C-OCDD		280	400	pg/g	69.9	(13%-199%)
13C-2,3,7,8-TCDF		195	200	pg/g	97.7	(22%-152%)
13C-1,2,3,7,8-PeCDF		181	200	pg/g	90.3	(21%-192%)
13C-2,3,4,7,8-PeCDF		186	200	pg/g	93.1	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		168	200	pg/g	84.0	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		161	200	pg/g	80.3	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		174	200	pg/g	87.0	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		165	200	pg/g	82.5	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		176	200	pg/g	88.1	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		164	200	pg/g	82.0	(20%-186%)
37Cl-2,3,7,8-TCDD		19.4	20.0	pg/g	96.8	(31%-191%)

Comments:

K Estimated Maximum Possible Concentration

PCB Congeners Analysis

Case Narrative

PCBC Case Narrative
TRC Environmental Corporation (TRCC)
SDG 5905

Method/Analysis Information

Product:	**PCB Congeners (WHO) EPA Method 1668A in Solids**
Analytical Method:	EPA Method 1668A
Extraction Method:	SW846 3540C
Analytical Batch Number:	25528
Clean Up Batch Number:	25526
Extraction Batch Number:	25525

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA Method 1668A:

Sample ID	Client ID
5905001	HB-22J (1-3')
5905002	HB-22K (1-3')
12010061	Method Blank (MB)
12010062	Laboratory Control Sample (LCS)
12010063	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on a "dry weight" basis.

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-003 REV# 6.

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) (ICV or 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. Any known exceptions are discussed in the narrative.

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
The samples required external dilutions due to high levels of target analytes. Dilutions were made with additional extraction standards. Surrogate recoveries are reported from the original 10x (internal) runs, and results from the external dilutions are not recovery corrected. 5905001 (HB-22J (1-3')) and 5905002 (HB-22K (1-3')).

Sample Dilutions
The sample extracts were diluted 10x prior to analysis based on their appearance (cloudy and yellow). 5905001 (HB-22J (1-3')) and 5905002 (HB-22K (1-3')).

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
Manual integrations were required for data files in this SDG. 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.

System Configuration
This analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
HRP791_1	High-Resolution GC/MS System	PCB Analysis	SPB-Octyl	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

Qualifier Definition Report
for

TRCC001 TRC Environmental Corporation

Client SDG: 5905 CFA Work Order: 5905

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

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

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

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

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

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: 08 APR 2014 **Title: Analyst III**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5905001**	**Date Collected:**	**02/21/2014 12:10**	**Matrix:**	**SOLID**
Client Sample:	**1613/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**12.7**
Client ID:	**HB-22J (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25528**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/26/2014 21:17**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c25mar14b_3-6**			**Dilution:**	**10**
Prep Batch:	**25525**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**24-MAR-14**	**Aliquot:**	**11.75 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		1000	pg/g	19.5
70362-50-4	81-TeCB	U	19.5	pg/g	19.5
74472-37-0	114-PeCB		2250	pg/g	19.5
65510-44-3	123-PeCB		2360	pg/g	19.5
57465-28-8	126-PeCB		244	pg/g	19.5
38380-08-4	156-HxCB	C	29200	pg/g	39.0
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		9560	pg/g	19.5
32774-16-6	169-HxCB	U	19.5	pg/g	19.5
39635-31-9	189-HpCB		1040	pg/g	19.5

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		178	351	pg/g	50.8	(25%-150%)
13C-81-TeCB		178	351	pg/g	50.7	(25%-150%)
13C-105-PeCB		141	351	pg/g	40.1	(25%-150%)
13C-114-PeCB		133	351	pg/g	38.0	(25%-150%)
13C-118-PeCB		140	351	pg/g	39.7	(25%-150%)
13C-123-PeCB		142	351	pg/g	40.5	(25%-150%)
13C-126-PeCB		152	351	pg/g	43.3	(25%-150%)
13C-156-HxCB	C	252	858	pg/g	29.4	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		120	351	pg/g	34.1	(25%-150%)
13C-169-HxCB		149	351	pg/g	42.4	(25%-150%)
13C-189-HpCB		114	351	pg/g	32.4	(25%-150%)
13C-111-PeCB		130	351	pg/g	37.2	(30%-135%)
13C-178-HpCB		121	351	pg/g	34.4	(30%-135%)

Comments:

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

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

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

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5905001**	**Date Collected:**	**02/21/2014 12:10**	**Matrix:**	**SOLID**
Client Sample:	**1613/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**12.7**
Client ID:	**HB-22J (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25528**	**Method:**	**EPA Method 1668A**		
Run Date:	**04/07/2014 15:03**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c07apr14a-3**			**Dilution:**	**50**
Prep Batch:	**25525**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**24-MAR-14**	**Aliquot:**	**11.75 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-14-4	105-PeCB		42000	pg/g	97.5
31508-00-6	118-PeCB		97200	pg/g	195

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

Comments:

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

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

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

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5905002**	**Date Collected:**	**02/21/2014 11:20**	**Matrix:**	**SOLID**
Client Sample:	**1613/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**17.7**
Client ID:	**HB-22K (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25528**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/26/2014 22:24**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c25mar14b_3-7**			**Dilution:**	**10**
Prep Batch:	**25525**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**24-MAR-14**	**Aliquot:**	**12.3 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		2820	pg/g	19.8
70362-50-4	81-TeCB	U	19.8	pg/g	19.8
74472-37-0	114-PeCB		10900	pg/g	19.8
65510-44-3	123-PeCB		9560	pg/g	19.8
57465-28-8	126-PeCB		542	pg/g	19.8
52663-72-6	167-HxCB		30400	pg/g	19.8
32774-16-6	169-HxCB	U	19.8	pg/g	19.8
39635-31-9	189-HpCB		3170	pg/g	19.8

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		204	385	pg/g	52.8	(25%-150%)
13C-81-TeCB		211	385	pg/g	54.9	(25%-150%)
13C-105-PeCB		165	385	pg/g	42.9	(25%-150%)
13C-114-PeCB		153	385	pg/g	39.7	(25%-150%)
13C-118-PeCB		167	385	pg/g	43.4	(25%-150%)
13C-123-PeCB		166	385	pg/g	43.1	(25%-150%)
13C-126-PeCB		171	385	pg/g	44.5	(25%-150%)
13C-156-HxCB	C	288	958	pg/g	30.1	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		139	385	pg/g	36.2	(25%-150%)
13C-169-HxCB		166	385	pg/g	43.1	(25%-150%)
13C-189-HpCB		147	385	pg/g	38.2	(25%-150%)
13C-111-PeCB		159	385	pg/g	41.4	(30%-135%)
13C-178-HpCB		139	385	pg/g	36.0	(30%-135%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data
E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5905002**	**Date Collected:**	**02/21/2014 11:20**	**Matrix:**	**SOLID**
Client Sample:	**1613/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**17.7**
Client ID:	**HB-22K (1-3')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25528**	**Method:**	**EPA Method 1668A**		
Run Date:	**04/07/2014 16:11**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c07apr14a-4**			**Dilution:**	**200**
Prep Batch:	**25525**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**24-MAR-14**	**Aliquot:**	**12.3 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-14-4	105-PeCB		87900	pg/g	395
31508-00-6	118-PeCB		222000	pg/g	790
38380-08-4	156-HxCB	C	34500	pg/g	790
69782-90-7	157-HxCB	C156			

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

Comments:

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

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

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

Quality Control Summary

PCB Congeners

Surrogate Recovery Report

SDG Number: 5905

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12010062	LCS for batch 25525	13C-77-TeCB		71.3	(30%-140%)
		13C-81-TeCB		71.9	(30%-140%)
		13C-105-PeCB		64.4	(30%-140%)
		13C-114-PeCB		61.8	(30%-140%)
		13C-118-PeCB		66.0	(30%-140%)
		13C-123-PeCB		68.4	(30%-140%)
		13C-126-PeCB		66.2	(30%-140%)
		13C-156-HxCB	C	61.7	(30%-140%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		58.8	(30%-140%)
		13C-169-HxCB		71.0	(30%-140%)
		13C-189-HpCB		57.2	(30%-140%)
		13C-111-PeCB		72.9	(40%-125%)
		13C-178-HpCB		74.5	(40%-125%)
12010063	LCSD for batch 25525	13C-77-TeCB		81.4	(30%-140%)
		13C-81-TeCB		81.9	(30%-140%)
		13C-105-PeCB		76.2	(30%-140%)
		13C-114-PeCB		73.4	(30%-140%)
		13C-118-PeCB		78.5	(30%-140%)
		13C-123-PeCB		81.6	(30%-140%)
		13C-126-PeCB		80.0	(30%-140%)
		13C-156-HxCB	C	77.2	(30%-140%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		73.9	(30%-140%)
		13C-169-HxCB		90.0	(30%-140%)
		13C-189-HpCB		71.5	(30%-140%)
		13C-111-PeCB		87.1	(40%-125%)
		13C-178-HpCB		92.3	(40%-125%)
12010061	MB for batch 25525	13C-77-TeCB		79.1	(25%-150%)
		13C-81-TeCB		79.8	(25%-150%)
		13C-105-PeCB		70.4	(25%-150%)
		13C-114-PeCB		68.4	(25%-150%)
		13C-118-PeCB		73.3	(25%-150%)
		13C-123-PeCB		75.0	(25%-150%)
		13C-126-PeCB		74.0	(25%-150%)
		13C-156-HxCB	C	72.7	(25%-150%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		68.9	(25%-150%)
		13C-169-HxCB		84.7	(25%-150%)
		13C-189-HpCB		63.4	(25%-150%)
		13C-111-PeCB		82.9	(30%-135%)
		13C-178-HpCB		86.7	(30%-135%)
5905001	HB-22J (1-3')	13C-77-TeCB		50.8 D	(25%-150%)
		13C-81-TeCB		50.7 D	(25%-150%)
		13C-105-PeCB		40.1 D	(25%-150%)
		13C-114-PeCB		38.0 D	(25%-150%)
		13C-118-PeCB		39.7 D	(25%-150%)
		13C-123-PeCB		40.5 D	(25%-150%)
		13C-126-PeCB		43.3 D	(25%-150%)

PCB Congeners

Surrogate Recovery Report

SDG Number: 5905

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)		Acceptance Limits
5905001	HB-22J (1-3')	13C-156-HxCB	C	29.4	D	(25%-150%)
		13C-157-HxCB	C156L			
		13C-167-HxCB		34.1	D	(25%-150%)
		13C-169-HxCB		42.4	D	(25%-150%)
		13C-189-HpCB		32.4	D	(25%-150%)
		13C-111-PeCB		37.2	D	(30%-135%)
		13C-178-HpCB		34.4	D	(30%-135%)
5905002	HB-22K (1-3')	13C-77-TeCB		52.8	D	(25%-150%)
		13C-81-TeCB		54.9	D	(25%-150%)
		13C-105-PeCB		42.9	D	(25%-150%)
		13C-114-PeCB		39.7	D	(25%-150%)
		13C-118-PeCB		43.4	D	(25%-150%)
		13C-123-PeCB		43.1	D	(25%-150%)
		13C-126-PeCB		44.5	D	(25%-150%)
		13C-156-HxCB	C	30.1	D	(25%-150%)
		13C-157-HxCB	C156L			
		13C-167-HxCB		36.2	D	(25%-150%)
		13C-169-HxCB		43.1	D	(25%-150%)
		13C-189-HpCB		38.2	D	(25%-150%)
		13C-111-PeCB		41.4	D	(30%-135%)
		13C-178-HpCB		36.0	D	(30%-135%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

PCB Congeners

Quality Control Summary
Spike Recovery Report

SDG Number: **5905** **Sample Type:** **Laboratory Control Sample**

Client ID: **LCS for batch 25525** **Matrix:** **SOLID**

Lab Sample ID: **12010062**

Instrument: **HRP791** **Analysis Date:** **03/25/2014 17:45** **Dilution:** **1**

Analyst: **MJC** **Prep Batch ID:** **25525**

Batch ID: **25528**

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits
32598-13-3	LCS	77-TeCB	100		79.8	79.8	50-150
70362-50-4	LCS	81-TeCB	100		90.3	90.3	50-150
32598-14-4	LCS	105-PeCB	100		100	100	50-150
74472-37-0	LCS	114-PeCB	100		98.3	98.3	50-150
31508-00-6	LCS	118-PeCB	100		85.4	85.4	50-150
65510-44-3	LCS	123-PeCB	100		80.0	80	50-150
57465-28-8	LCS	126-PeCB	100		94.9	94.9	50-150
38380-08-4	LCS	156-HxCB	200	C	209	104	50-150
69782-90-7	LCS	157-HxCB		C156			
52663-72-6	LCS	167-HxCB	100		111	111	50-150
32774-16-6	LCS	169-HxCB	100		94.5	94.5	50-150
39635-31-9	LCS	189-HpCB	100		97.1	97.1	50-150

PCB Congeners

Quality Control Summary
Spike Recovery Report

SDG Number: **5905** **Sample Type:** **Laboratory Control Sample Duplicate**

Client ID: **LCSD for batch 25525** **Matrix:** **SOLID**

Lab Sample ID: **12010063**

Instrument: **HRP791** **Analysis Date:** **03/25/2014 18:53** **Dilution:** **1**

Analyst: **MJC** **Prep Batch ID:** **25525**

Batch ID: **25528**

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
32598-13-3	LCSD	77-TeCB	100		81.1	81.1	50-150	1.55	0-20
70362-50-4	LCSD	81-TeCB	100		90.0	90	50-150	0.384	0-20
32598-14-4	LCSD	105-PeCB	100		100	100	50-150	0.345	0-20
74472-37-0	LCSD	114-PeCB	100		98.5	98.5	50-150	0.187	0-20
31508-00-6	LCSD	118-PeCB	100		85.1	85.1	50-150	0.357	0-20
65510-44-3	LCSD	123-PeCB	100		80.0	80	50-150	0.0475	0-20
57465-28-8	LCSD	126-PeCB	100		93.8	93.8	50-150	1.18	0-20
38380-08-4	LCSD	156-HxCB	200	C	210	105	50-150	0.495	0-20
69782-90-7	LCSD	157-HxCB		C156					
52663-72-6	LCSD	167-HxCB	100		113	113	50-150	1.88	0-20
32774-16-6	LCSD	169-HxCB	100		95.6	95.6	50-150	1.14	0-20
39635-31-9	LCSD	189-HpCB	100		97.4	97.4	50-150	0.278	0-20

Method Blank Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Matrix:**	**SOLID**
Client ID:	**MB for batch 25525**	**Instrument ID:**	**HRP791**	**Data File:**	**c25mar14b-4**
Lab Sample ID:	**12010061**	**Prep Date:**	**24-MAR-14**	**Analyzed:**	**03/25/14 20:01**
Column:					

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 25525	12010062	c25mar14b-2	03/25/14	1745
02	LCSD for batch 25525	12010063	c25mar14b-3	03/25/14	1853
03	HB-22J (1-3')	5905001	c25mar14b_3-6	03/26/14	2117
04	HB-22K (1-3')	5905002	c25mar14b_3-7	03/26/14	2224
05	HB-22J (1-3')	5905001	c07apr14a-3	04/07/14	1503
06	HB-22K (1-3')	5905002	c07apr14a-4	04/07/14	1611

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010061**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25525**				
Client ID:	**MB for batch 25525**			**Prep Basis:**	**As Received**
Batch ID:	**25528**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/25/2014 20:01**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c25mar14b-4**			**Dilution:**	**1**
Prep Batch:	**25525**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**24-MAR-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB	U	2	pg/g	2.00
70362-50-4	81-TeCB	U	2	pg/g	2.00
32598-14-4	105-PeCB	U	2	pg/g	2.00
74472-37-0	114-PeCB	U	2	pg/g	2.00
31508-00-6	118-PeCB	U	4	pg/g	4.00
65510-44-3	123-PeCB	U	2	pg/g	2.00
57465-28-8	126-PeCB	U	2	pg/g	2.00
38380-08-4	156-HxCB	CU	4	pg/g	4.00
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB	U	2	pg/g	2.00
32774-16-6	169-HxCB	U	2	pg/g	2.00
39635-31-9	189-HpCB	U	2	pg/g	2.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		158	200	pg/g	79.1	(25%-150%)
13C-81-TeCB		160	200	pg/g	79.8	(25%-150%)
13C-105-PeCB		141	200	pg/g	70.4	(25%-150%)
13C-114-PeCB		137	200	pg/g	68.4	(25%-150%)
13C-118-PeCB		147	200	pg/g	73.3	(25%-150%)
13C-123-PeCB		150	200	pg/g	75.0	(25%-150%)
13C-126-PeCB		148	200	pg/g	74.0	(25%-150%)
13C-156-HxCB	C	291	400	pg/g	72.7	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		138	200	pg/g	68.9	(25%-150%)
13C-169-HxCB		169	200	pg/g	84.7	(25%-150%)
13C-189-HpCB		127	200	pg/g	63.4	(25%-150%)
13C-111-PeCB		166	200	pg/g	82.9	(30%-135%)
13C-178-HpCB		173	200	pg/g	86.7	(30%-135%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

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

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010062**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25525**				
Client ID:	**LCS for batch 25525**			**Prep Basis:**	**As Received**
Batch ID:	**25528**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/25/2014 17:45**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c25mar14b-2**			**Dilution:**	**1**
Prep Batch:	**25525**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**24-MAR-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		79.8	pg/g	2.00
70362-50-4	81-TeCB		90.3	pg/g	2.00
32598-14-4	105-PeCB		100	pg/g	2.00
74472-37-0	114-PeCB		98.3	pg/g	2.00
31508-00-6	118-PeCB		85.4	pg/g	4.00
65510-44-3	123-PeCB		80.0	pg/g	2.00
57465-28-8	126-PeCB		94.9	pg/g	2.00
38380-08-4	156-HxCB	C	209	pg/g	4.00
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		111	pg/g	2.00
32774-16-6	169-HxCB		94.5	pg/g	2.00
39635-31-9	189-HpCB		97.1	pg/g	2.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		143	200	pg/g	71.3	(30%-140%)
13C-81-TeCB		144	200	pg/g	71.9	(30%-140%)
13C-105-PeCB		129	200	pg/g	64.4	(30%-140%)
13C-114-PeCB		124	200	pg/g	61.8	(30%-140%)
13C-118-PeCB		132	200	pg/g	66.0	(30%-140%)
13C-123-PeCB		137	200	pg/g	68.4	(30%-140%)
13C-126-PeCB		132	200	pg/g	66.2	(30%-140%)
13C-156-HxCB	C	247	400	pg/g	61.7	(30%-140%)
13C-157-HxCB	C156L					
13C-167-HxCB		118	200	pg/g	58.8	(30%-140%)
13C-169-HxCB		142	200	pg/g	71.0	(30%-140%)
13C-189-HpCB		114	200	pg/g	57.2	(30%-140%)
13C-111-PeCB		146	200	pg/g	72.9	(40%-125%)
13C-178-HpCB		149	200	pg/g	74.5	(40%-125%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**5905**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010063**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25525**				
Client ID:	**LCSD for batch 25525**			**Prep Basis:**	**As Received**
Batch ID:	**25528**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/25/2014 18:53**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c25mar14b-3**			**Dilution:**	**1**
Prep Batch:	**25525**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**24-MAR-14**	**Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		81.1	pg/g	2.00
70362-50-4	81-TeCB		90.0	pg/g	2.00
32598-14-4	105-PeCB		100	pg/g	2.00
74472-37-0	114-PeCB		98.5	pg/g	2.00
31508-00-6	118-PeCB		85.1	pg/g	4.00
65510-44-3	123-PeCB		80.0	pg/g	2.00
57465-28-8	126-PeCB		93.8	pg/g	2.00
38380-08-4	156-HxCB	C	210	pg/g	4.00
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		113	pg/g	2.00
32774-16-6	169-HxCB		95.6	pg/g	2.00
39635-31-9	189-HpCB		97.4	pg/g	2.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		163	200	pg/g	81.4	(30%-140%)
13C-81-TeCB		164	200	pg/g	81.9	(30%-140%)
13C-105-PeCB		152	200	pg/g	76.2	(30%-140%)
13C-114-PeCB		147	200	pg/g	73.4	(30%-140%)
13C-118-PeCB		157	200	pg/g	78.5	(30%-140%)
13C-123-PeCB		163	200	pg/g	81.6	(30%-140%)
13C-126-PeCB		160	200	pg/g	80.0	(30%-140%)
13C-156-HxCB	C	309	400	pg/g	77.2	(30%-140%)
13C-157-HxCB	C156L					
13C-167-HxCB		148	200	pg/g	73.9	(30%-140%)
13C-169-HxCB		180	200	pg/g	90.0	(30%-140%)
13C-189-HpCB		143	200	pg/g	71.5	(30%-140%)
13C-111-PeCB		174	200	pg/g	87.1	(40%-125%)
13C-178-HpCB		185	200	pg/g	92.3	(40%-125%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

CFA | Cape Fear Analytical LLC
an affiliate of The GEL Group INC

3306 Kitty Hawk Road, Suite 120 Wilmington, NC 28405
P 910.795.0421

www.capefearanalytical.com

April 24, 2014

Mr. Jeffry Saunders
TRC Companies, Incorporated
Wannalancit Mills
650 Suffolk Street Suite 200
Lowell, Massachusetts 01854

Re: New Bedford PCB/DXN
Work Order: 5972

Dear Mr. Saunders:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 22, 2014. This original data report has been prepared and reviewed in accordance with CFAõs 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: 33944
Enclosures

Page: 1 of 2
Project #: 115058
CFA Quote #:
COC Number (1):
PO Number:

Cape Fear Analytical, LLC
Chain of Custody and Analytical Request

CFA Work Order Number: ~~5852~~ CR 09APR14 5972

Cape Fear Analytical, LLC
3306 Kitty Hawk Rd. Suite 120
Wilmington, NC 28405
Phone: (910) 795-0421

Client Name: TRC Environmental Phone #: 978-970-5600
Project/Site Name: NBHS, Hathaway Blvd Fax #: 978-453-1995
Address: Hathaway Blvd, New Bedford, MA
Collected by: E. Wachtel Send Results To: D. Sullivan

Page 2 of 56

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Total number of containers	PCB congeners SW 8270A	Dioxins/Furans SW 8270A	<-- Preservative Type (6)	Comments
HB-22A (1-3')	2/21/14	1045	N		SO		X			Note: extra sample is required for sample specific QC
HB-22D (1-3')		1055					X			
HB-22F (0-1') HOLD*		1155					X	X		
HB-22G (0-1') HOLD*		~~1155~~					X	X		
HB-22F (1-3')		1200					X	X		
~~HB-22G (1-3')~~		1110					X	X		
★ HB-22J (0-1') HOLD*		1205					X	X		TAKEN OFF HOLD 09APR14 Relogged into WO# 5972
HB-22J (1-3') HOLD*		1210					X	X		
~~HB-22N (0-1')~~ HOLD*		~~1220~~					X	X		
~~HB-22N (1-3')~~ HOLD*	2/21/14	1225	N		SO		X	X		

CR 09APR14

TAT Requested: Normal: ____ Rush: ____ Specify: ____ (Subject to Surcharge) Fax Results: Yes / No Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

Sample Collection Time Zone: Eastern Pacific Central Other ____ Mountain

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	Emily Wachtel	2/21/14	1430	[signature]	2/22/14	9:40am
2						
3						

Sample Shipping and Delivery Details

CFA PM: Chris Cornwell
Method of Shipment: Fedex Date Shipped: 2/21/14
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: **N** = Normal Sample, **TB** = Trip Blank, **FD** = Field Duplicate, **EB** = Equipment Blank, **MS** = Matrix Spike Sample, **MSD** = Matrix Spike Duplicate Sample, **G** = Grab, **C** = Composite
3.) Field Filtered: For liquid matrices, indicate with a- **Y** - for yes the sample was field filtered or- **N** - for sample was not field filtered.
4.) Matrix Codes: **DW**=Drinking Water, **GW**=Groundwater, **SW**=Surface Water, **WW**=Waste Water, **W**=Water, **ML**=Misc Liquid, **SO**=Soil, **SD**=Sediment, **SL**=Sludge, **SS**=Solid Waste, **O**=Oil, **F**=Filter, **P**=Wipe, **U**=Urine, **F**=Fecal, **N**=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. ***8290B, 1668B***) and number of containers provided for each (i.e. ***8290B*** - **3**, **1668B** - **1**).
6.) Preservative Type: **HA** = Hydrochloric Acid, **NI** = Nitric Acid, **SH** = Sodium Hydroxide, **SA** = Sulfuric Acid, **AA** = Ascorbic Acid, **HX** = Hexane, **ST** = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? ✓ YES NO
Cooler Temp: 3.2 °C

WHITE = LABORATORY **YELLOW = FILE** **PINK = CLIENT**

Page: 2 of 2
Project #: 115058
CFA Quote #:
COC Number (1):
PO Number:

Cape Fear Analytical, LLC
Chain of Custody and Analytical Request

CFA Work Order Number: ~~5852~~ CR 09APR14 5972

Cape Fear Analytical, LLC
3306 Kitty Hawk Rd. Suite 120
Wilmington, NC 28405
Phone: (910) 795-0421

Client Name: TRC Environmental Phone #: 978-970-5600
Project/Site Name: NBHS Fax #: 978-453-1995
Address: Hathaway Blvd, New Bedford, MA
Collected by: E. Wachtel Send Results To: Dave Sullivan

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Total number of containers	PUB Metals SW 6020A	Dioxins/Furans SW 8290A	<-- Preservative Type (6)	Comments
HB-22R (0-1') HOLD *	2/21/14	1230	N		SO	2	X	X	CR 09APR14	Note: extra sample is required for sample specific QC
~~HB-22R (1-3') HOLD *~~		1235				2	X	X		
HB-22K (0-1') HOLD *		1120				2	X	X		TAKEN OFF HOLD 09APR14 Relogged to WO#5972
HB-22K (1-3') HOLD *		1125				2	X	X		
HB-22O (0-1') HOLD *		1135				2	X	X		
HB-22O (1-3') HOLD *		1140				2	X	X	CR 09APR14	
HB-22S (0-1') HOLD *		1145				2	X	X		
HB-22S (1-3') HOLD *	2/21/14	1150	N		SO	2	X	X		
Temp B										

TAT Requested: Normal: ✓ (15 Business days) Rush: Specify: (Subject to Surcharge) Fax Results: Yes / No Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

Sample Collection Time Zone: Eastern / Central / Mountain / Pacific / Other

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	Emily Wachtel	2/21/14	1430		2/22/14	9:46am
2						
3						

Sample Shipping and Delivery Details

CFA PM: Chris Cornwell
Method of Shipment: Fedex Date Shipped: 2/21/14
Airbill #:
Airbill #:

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: 3.7° C

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or- N - for sample was not field filtered.
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. *8290B*, **1668B**) and number of containers provided for each (i.e. *8290B* - 3, 1668B - 1).
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

CF 09APR14

Client: TRC Environmental	Work Order: ~~5852~~ 5972
Received By: Jason Frink	Date/Time Received: 2/22/14 0946

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?			✓
Samples identified as Foreign Soil?			✓

DOE Site Sample Packages	Yes	NA	No*
Screened <0.5 mR/hr?		✓	
Samples < 2x background?		✓	

* Notify RSO of any responses in this column immediately.

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other(describe)
2	Chain of Custody documents included with shipment?	✓			
3	Samples requiring cold preservation within 0-6°C?	✓			Preservation Method: (ice bags) blue ice dry ice none other (describe) 3.7°
4	Samples requiring chemical preservation at proper pH?		✓		Sample IDs, containers affected and pH observed: If preservative added, Lot#:
5	Samples requiring preservation have no residual chlorine?		✓		Sample IDs, containers affected: If preservative added, Lot#:
6	Samples received within holding time?	✓			Sample IDs, tests affected:
7	Sample IDs on COC match IDs on containers?	✓			Sample IDs, containers affected:
8	Date & time of COC match date & time on containers?			✓	Sample IDs, containers affected: HB-22G 0-1' time on COC is 1155 and on sample is 1105
9	Number of containers received match number indicated on COC?	✓			Sample IDs, containers affected:
10	COC form is properly signed in relinquished/received sections?	✓			

Comments:

Samples HB-22J (0-1') and HB-22K (0-1') taken off hold at client request and re-logged into WO# 5972

Checklist performed by: Initials: _____ Date: 24FEB14

Subject: RE: CFA TRCC 5905 Results
From: "Saunders, Jeffry" <JSaunders@trcsolutions.com>
Date: 4/9/2014 9:41 AM
To: "valerie.davis@cfanalytical.com" <valerie.davis@cfanalytical.com>, "Christopher K. Cornwell (Chris.Cornwell@CFAnalytical.com)" <Chris.Cornwell@CFAnalytical.com>
CC: Cynthia Larkins <cynde.larkins@cfanalytical.com>, "Sullivan, Dave" <DSullivan@trcsolutions.com>, "Silverman, Diane" <DSilverman@trcsolutions.com>, "Peterson, David N." <DNPeterson@trcsolutions.com>, "Zhou, Ping" <PZhou@trcsolutions.com>, "Denly, Elizabeth" <edenly@trcsolutions.com>

Chris/Valerie,

These data get us where we need to go, so we just need a couple more authorizations to close out this scope of work.

Please proceed with the analysis of samples HB-22J (0-1') and HB-22K (0-1') on a standard turnaround time. Let me know if there are any questions.

Thanks!

-Jeff

WO #5972

Jeffry B. Saunders, PG
Project Geologist
(978) 656-3610

-----Original Message-----
From: Cynthia Larkins [mailto:cynde.larkins@cfanalytical.com]
Sent: Tuesday, April 08, 2014 1:18 PM
To: Sullivan, Dave; Zhou, Ping; Saunders, Jeffry; Peterson, David N.; Denly, Elizabeth
Cc: valerie.davis@cfanalytical.com
Subject: CFA TRCC 5905 Results

Please find the mini package and EDD results for 5905 attached. Let me know if there are any questions or if there is anything else needed.

Thank you,
Cynthia Larkins

Subject: RE: CFA TRCC 5905 Results
From: "Saunders, Jeffry" <JSaunders@trcsolutions.com>
Date: 4/9/2014 9:41 AM
To: "valerie.davis@cfanalytical.com" <valerie.davis@cfanalytical.com>, "Christopher K. Cornwell (Chris.Cornwell@CFAnalytical.com)" <Chris.Cornwell@CFAnalytical.com>
CC: Cynthia Larkins <cynde.larkins@cfanalytical.com>, "Sullivan, Dave" <DSullivan@trcsolutions.com>, "Silverman, Diane" <DSilverman@trcsolutions.com>, "Peterson, David N." <DNPeterson@trcsolutions.com>, "Zhou, Ping" <PZhou@trcsolutions.com>, "Denly, Elizabeth" <edenly@trcsolutions.com>

Chris/Valerie,

These data get us where we need to go, so we just need a couple more authorizations to close out this scope of work.

Please proceed with the analysis of samples HB-22J (0-1') and HB-22K (0-1') on a standard turnaround time. Let me know if there are any questions.

Thanks!

-Jeff

Jeffry B. Saunders, PG
Project Geologist
(978) 656-3610

-----Original Message-----
From: Cynthia Larkins [mailto:cynde.larkins@cfanalytical.com]
Sent: Tuesday, April 08, 2014 1:18 PM
To: Sullivan, Dave; Zhou, Ping; Saunders, Jeffry; Peterson, David N.; Denly, Elizabeth
Cc: valerie.davis@cfanalytical.com
Subject: CFA TRCC 5905 Results

Please find the mini package and EDD results for 5905 attached. Let me know if there are any questions or if there is anything else needed.

Thank you,
Cynthia Larkins

High Resolution Dioxins and Furans Analysis

Case Narrative

HDOX Case Narrative
TRC Environmental Corporation (TRCC)
SDG 5972

Method/Analysis Information

Product:	**Dioxins/Furans by EPA Method 1613B in Solids**
Analytical Method:	EPA Method 1613B
Extraction Method:	SW846 3540C
Analytical Batch Number:	25619
Clean Up Batch Number:	25618
Extraction Batch Number:	25617

Sample Analysis

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

Sample ID	Client ID
5972001	HB-22J (0-1')
5972002	HB-22K (0-1')
12010152	Method Blank (MB)
12010153	Laboratory Control Sample (LCS)
12010154	Laboratory Control Sample Duplicate (LCSD)
12010155	5972001(HB-22J (0-1')) Matrix Spike (MS)
12010156	5972001(HB-22J (0-1')) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

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# 13.

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
Ion ratio acceptance criteria was not met for 13C-12378-PeCDF due to a co-eluting matrix interference. A duplicate analysis and a diluted analysis yielded similar results. Recovery criteria were still met for this compound. 12010155 (HB-22J (0-1')), 12010156 (HB-22J (0-1')), 5972001 (HB-22J (0-1')) and 5972002 (HB-22K (0-1'))- Batch 25619.

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
Sample 5972001 (HB-22J (0-1'))- Batch 25619 was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD(s) between the MS and MSD met the acceptance limits.

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.

Analytical Comments
Diphenyl ether (DPE) interferences were detected in the samples. Where a totals peak could be completely attributed to the DPE, the concentration was removed from the total homolog sum. If the concentration could not be completely attributed to the DPE, or where the DPE co-eluted with a 2378-substituted furan peak, by professional judgment the peak may be left in the report. In both cases, the concentration is flagged with a P and should be considered an estimate. 12010155 (HB-22J (0-1')), 12010156 (HB-22J (0-1')), 5972001 (HB-22J (0-1')) and 5972002 (HB-22K (0-1'))- Batch 25619.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

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.

Sample preparation
No difficulties were encountered during sample preparation.

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

Qualifier Definition Report
for

TRCC001 TRC Environmental Corporation

Client SDG: 5972 CFA Work Order: 5972

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
P Diphenyl ether interference is present; value is estimated
Q Quantitative Interference
U Analyte was analyzed for, but not detected above the specified detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

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: 24 APR 2014 **Title: Data Validator**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5972001**	**Date Collected:**	**02/21/2014 12:05**	**Matrix:**	**SOLID**
Client Sample:	**1613B/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**20.3**
Client ID:	**HB-22J (0-1')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/17/2014 14:03**	**Analyst:**	**JTF**	**Instrument:**	**HRP750**
Data File:	**A17APR14A-9**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**12.75 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		7.85		pg/g	0.380	0.984

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

Comments:

J Value is estimated
K Estimated Maximum Possible Concentration
P Diphenyl ether interference is present; 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

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5972001**	**Date Collected:**	**02/21/2014 12:05**	**Matrix:**	**SOLID**
Client Sample:	**1613B/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**20.3**
Client ID:	**HB-22J (0-1')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/11/2014 21:57**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b11apr14a-11**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**12.75 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	0.927		pg/g	0.632	0.984
40321-76-4	1,2,3,7,8-PeCDD	JK		1.66	pg/g	1.08	4.92
39227-28-6	1,2,3,4,7,8-HxCDD	J	2.52		pg/g	0.896	4.92
57653-85-7	1,2,3,6,7,8-HxCDD	J	4.13		pg/g	0.943	4.92
19408-74-3	1,2,3,7,8,9-HxCDD	J	3.10		pg/g	0.947	4.92
35822-46-9	1,2,3,4,6,7,8-HpCDD		95.0		pg/g	2.46	4.92
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1110		pg/g	8.52	9.84
51207-31-9	2,3,7,8-TCDF		16.3		pg/g	1.33	0.984
57117-41-6	1,2,3,7,8-PeCDF	U	3.41		pg/g	3.41	4.92
57117-31-4	2,3,4,7,8-PeCDF	K		6.53	pg/g	4.04	4.92
70648-26-9	1,2,3,4,7,8-HxCDF		15.1		pg/g	0.846	4.92
57117-44-9	1,2,3,6,7,8-HxCDF	J	3.42		pg/g	0.902	4.92
60851-34-5	2,3,4,6,7,8-HxCDF	J	4.79		pg/g	0.917	4.92
72918-21-9	1,2,3,7,8,9-HxCDF	J	2.01		pg/g	1.30	4.92
67562-39-4	1,2,3,4,6,7,8-HpCDF	P	64.8		pg/g	0.782	4.92
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	1.79		pg/g	1.53	4.92
39001-02-0	1,2,3,4,6,7,8,9-OCDF		78.9		pg/g	2.26	9.84
41903-57-5	Total Tetrachlorodibenzo-p-dioxin		3.56	6.23	pg/g	0.632	0.984
36088-22-9	Total Pentachlorodibenzo-p-dioxin	Q	7.04	20.7	pg/g	1.08	4.92
34465-46-8	Total Hexachlorodibenzo-p-dioxin		45.2		pg/g	0.896	4.92
37871-00-4	Total Heptachlorodibenzo-p-dioxin		193		pg/g	2.46	4.92
30402-14-3	Total Tetrachlorodibenzofuran	P	279	281	pg/g	1.33	0.984
30402-15-4	Total Pentachlorodibenzofuran	Q	212	221	pg/g	0.268	4.92
55684-94-1	Total Hexachlorodibenzofuran		92.4	95.1	pg/g	0.846	4.92
38998-75-3	Total Heptachlorodibenzofuran		141		pg/g	0.782	4.92
3333-30-0	TEQ WHO2005 ND=0		8.04	11.7	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		9.24	11.7	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		169	197	pg/g	86.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		179	197	pg/g	90.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		136	197	pg/g	69.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		160	197	pg/g	81.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		156	197	pg/g	79.1	(23%-140%)
13C-OCDD		297	394	pg/g	75.4	(17%-157%)
13C-2,3,7,8-TCDF		168	197	pg/g	85.6	(24%-169%)
13C-1,2,3,7,8-PeCDF		222	197	pg/g	113	(24%-185%)
13C-2,3,4,7,8-PeCDF		185	197	pg/g	93.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		146	197	pg/g	74.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		158	197	pg/g	80.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		151	197	pg/g	76.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		140	197	pg/g	71.2	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5972001**	**Date Collected:**	**02/21/2014 12:05**	**Matrix:**	**SOLID**
Client Sample:	**1613B/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**20.3**
Client ID:	**HB-22J (0-1')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/11/2014 21:57**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b11apr14a-11**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**12.75 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		169	197	pg/g	85.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		145	197	pg/g	73.8	(26%-138%)
37Cl-2,3,7,8-TCDD		20.6	19.7	pg/g	105	(35%-197%)

Comments:

J **Value is estimated**
K **Estimated Maximum Possible Concentration**
P **Diphenyl ether interference is present; 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

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5972002**	**Date Collected:**	**02/21/2014 11:20**	**Matrix:**	**SOLID**
Client Sample:	**1613B/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**16.5**
Client ID:	**HB-22K (0-1')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/17/2014 15:01**	**Analyst:**	**JTF**	**Instrument:**	**HRP750**
Data File:	**A17APR14A-12**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**12.8 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		19.1		pg/g	1.14	0.936

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

Comments:

E Value is estimated - Concentration of the target analyte exceeds the instrument calibration range
J Value is estimated
K Estimated Maximum Possible Concentration
P Diphenyl ether interference is present; 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

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5972002**	**Date Collected:**	**02/21/2014 11:20**	**Matrix:**	**SOLID**
Client Sample:	**1613B/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**16.5**
Client ID:	**HB-22K (0-1')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/12/2014 00:20**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b11apr14a-14**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**12.8 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	K		0.998	pg/g	0.768	0.936
40321-76-4	1,2,3,7,8-PeCDD	U	2.73		pg/g	2.73	4.68
39227-28-6	1,2,3,4,7,8-HxCDD	J	3.28		pg/g	1.25	4.68
57653-85-7	1,2,3,6,7,8-HxCDD		8.86		pg/g	1.27	4.68
19408-74-3	1,2,3,7,8,9-HxCDD		6.00		pg/g	1.30	4.68
35822-46-9	1,2,3,4,6,7,8-HpCDD		215		pg/g	2.56	4.68
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1780		pg/g	9.57	9.36
51207-31-9	2,3,7,8-TCDF		31.0		pg/g	1.93	0.936
57117-41-6	1,2,3,7,8-PeCDF	JK		2.73	pg/g	1.57	4.68
57117-31-4	2,3,4,7,8-PeCDF		11.6		pg/g	2.45	4.68
70648-26-9	1,2,3,4,7,8-HxCDF		18.0		pg/g	0.586	4.68
57117-44-9	1,2,3,6,7,8-HxCDF		5.19		pg/g	0.582	4.68
60851-34-5	2,3,4,6,7,8-HxCDF		5.65		pg/g	0.666	4.68
72918-21-9	1,2,3,7,8,9-HxCDF	J	3.16		pg/g	0.929	4.68
67562-39-4	1,2,3,4,6,7,8-HpCDF	P	69.0		pg/g	0.786	4.68
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	3.79		pg/g	1.51	4.68
39001-02-0	1,2,3,4,6,7,8,9-OCDF		135		pg/g	3.18	9.36
41903-57-5	Total Tetrachlorodibenzo-p-dioxin		7.75	13.1	pg/g	0.768	0.936
36088-22-9	Total Pentachlorodibenzo-p-dioxin	Q	15.5	110	pg/g	2.73	4.68
34465-46-8	Total Hexachlorodibenzo-p-dioxin		102		pg/g	1.25	4.68
37871-00-4	Total Heptachlorodibenzo-p-dioxin		431		pg/g	2.56	4.68
30402-14-3	Total Tetrachlorodibenzofuran	EP	493	498	pg/g	1.93	0.936
30402-15-4	Total Pentachlorodibenzofuran	P	262	264	pg/g	0.322	4.68
55684-94-1	Total Hexachlorodibenzofuran	P	119	125	pg/g	0.582	4.68
38998-75-3	Total Heptachlorodibenzofuran		181		pg/g	0.786	4.68
3333-30-0	TEQ WHO2005 ND=0		15.1	16.1	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		16.8	17.5	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		166	187	pg/g	88.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		176	187	pg/g	94.0	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		146	187	pg/g	78.2	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		147	187	pg/g	78.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		152	187	pg/g	81.1	(23%-140%)
13C-OCDD		295	374	pg/g	78.7	(17%-157%)
13C-2,3,7,8-TCDF		164	187	pg/g	87.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		284	187	pg/g	152	(24%-185%)
13C-2,3,4,7,8-PeCDF		187	187	pg/g	100	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		147	187	pg/g	78.5	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		151	187	pg/g	80.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		150	187	pg/g	79.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		136	187	pg/g	72.7	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5972002**	**Date Collected:**	**02/21/2014 11:20**	**Matrix:**	**SOLID**
Client Sample:	**1613B/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**16.5**
Client ID:	**HB-22K (0-1')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/12/2014 00:20**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b11apr14a-14**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**12.8 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		164	187	pg/g	87.3	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		147	187	pg/g	78.5	(26%-138%)
37Cl-2,3,7,8-TCDD		19.5	18.7	pg/g	104	(35%-197%)

Comments:

E **Value is estimated - Concentration of the target analyte exceeds the instrument calibration range**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**
P **Diphenyl ether interference is present; value is estimated**
Q **Quantitative Interference**
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: 5972

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12010153	LCS for batch 25617	13C-2,3,7,8-TCDD		76.3	(20%-175%)
		13C-1,2,3,7,8-PeCDD		78.6	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		69.3	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		83.3	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		76.1	(22%-166%)
		13C-OCDD		66.3	(13%-199%)
		13C-2,3,7,8-TCDF		78.5	(22%-152%)
		13C-1,2,3,7,8-PeCDF		81.7	(21%-192%)
		13C-2,3,4,7,8-PeCDF		83.4	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		70.1	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		82.3	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		79.1	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		70.9	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		79.1	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		72.8	(20%-186%)
		37Cl-2,3,7,8-TCDD		95.4	(31%-191%)
12010154	LCSD for batch 25617	13C-2,3,7,8-TCDD		78.0	(20%-175%)
		13C-1,2,3,7,8-PeCDD		83.0	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		67.7	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		85.3	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		79.9	(22%-166%)
		13C-OCDD		66.6	(13%-199%)
		13C-2,3,7,8-TCDF		79.2	(22%-152%)
		13C-1,2,3,7,8-PeCDF		89.2	(21%-192%)
		13C-2,3,4,7,8-PeCDF		86.5	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		68.9	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		84.7	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		80.7	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		70.0	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		78.8	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		74.6	(20%-186%)
		37Cl-2,3,7,8-TCDD		102	(31%-191%)
12010152	MB for batch 25617	13C-2,3,7,8-TCDD		75.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		81.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		69.0	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		79.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		76.5	(23%-140%)
		13C-OCDD		58.2	(17%-157%)
		13C-2,3,7,8-TCDF		78.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		84.6	(24%-185%)
		13C-2,3,4,7,8-PeCDF		82.9	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		68.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		83.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		79.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		66.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		78.6	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		66.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		94.2	(35%-197%)
5972001	HB-22J (0-1')	13C-2,3,7,8-TCDD		86.0	(25%-164%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 5972

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
5972001	HB-22J (0-1')	13C-1,2,3,7,8-PeCDD		90.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		69.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		81.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		79.1	(23%-140%)
		13C-OCDD		75.4	(17%-157%)
		13C-2,3,7,8-TCDF		85.6	(24%-169%)
		13C-1,2,3,7,8-PeCDF		113	(24%-185%)
		13C-2,3,4,7,8-PeCDF		93.9	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		74.1	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		80.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		76.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		71.2	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		85.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		73.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		105	(35%-197%)
12010155	HB-22J (0-1')(5972001MS)	13C-2,3,7,8-TCDD		89.0	(25%-164%)
		13C-1,2,3,7,8-PeCDD		95.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		76.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		83.5	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		83.7	(23%-140%)
		13C-OCDD		74.8	(17%-157%)
		13C-2,3,7,8-TCDF		85.0	(24%-169%)
		13C-1,2,3,7,8-PeCDF		124	(24%-185%)
		13C-2,3,4,7,8-PeCDF		99.6	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		79.9	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		82.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		79.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		75.8	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		88.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		76.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		106	(35%-197%)
12010156	HB-22J (0-1')(5972001MSD)	13C-2,3,7,8-TCDD		89.1	(25%-164%)
		13C-1,2,3,7,8-PeCDD		91.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		77.4	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.9	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		81.3	(23%-140%)
		13C-OCDD		78.1	(17%-157%)
		13C-2,3,7,8-TCDF		84.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		130	(24%-185%)
		13C-2,3,4,7,8-PeCDF		95.0	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		75.6	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		81.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		78.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		75.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		88.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		76.7	(26%-138%)
		37Cl-2,3,7,8-TCDD		114	(35%-197%)
5972002	HB-22K (0-1')	13C-2,3,7,8-TCDD		88.8	(25%-164%)
		13C-1,2,3,7,8-PeCDD		94.0	(25%-181%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 5972

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
5972002	HB-22K (0-1')	13C-1,2,3,4,7,8-HxCDD		78.2	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		78.7	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		81.1	(23%-140%)
		13C-OCDD		78.7	(17%-157%)
		13C-2,3,7,8-TCDF		87.7	(24%-169%)
		13C-1,2,3,7,8-PeCDF		152	(24%-185%)
		13C-2,3,4,7,8-PeCDF		100	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		78.5	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		80.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		79.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		72.7	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		87.3	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		78.5	(26%-138%)
		37Cl-2,3,7,8-TCDD		104	(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

SDG Number: 5972 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 25617 **Matrix:** SOLID

Lab Sample ID: 12010153

Instrument: HRP763 **Analysis Date:** 04/11/2014 16:16 **Dilution:** 1

Analyst: JTF **Prep Batch ID:** 25617

Batch ID: 25619

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	21.8	109	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	100	109	109	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	108	108	76-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	100	111	111	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	203	101	78-144
51207-31-9	LCS	2,3,7,8-TCDF	20.0	19.2	96.2	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	100	104	104	80-134
57117-31-4	LCS	2,3,4,7,8-PeCDF	100	106	106	68-160
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	100	111	111	72-134
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	100	114	114	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	107	107	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	99.6	99.6	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	200	226	113	63-170

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 5972 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 25617 **Matrix:** SOLID

Lab Sample ID: 12010154

Instrument: HRP763 **Analysis Date:** 04/11/2014 17:03 **Dilution:** 1

Analyst: JTF **Prep Batch ID:** 25617

Batch ID: 25619

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	21.7	109	67-158	0.303	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	100	107	107	70-142	1.52	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	100	104	104	70-164	1.36	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	100	107	107	76-134	0.974	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	100	115	115	64-162	3.46	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	100	99.2	99.2	70-140	5.70	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	200	211	106	78-144	4.07	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	20.0	20.1	101	75-158	4.38	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	100	105	105	80-134	0.877	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	100	108	108	68-160	2.67	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	100	116	116	72-134	4.45	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	100	106	106	84-130	7.50	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	100	108	108	70-156	2.30	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	100	111	111	78-130	3.03	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	100	103	103	82-122	0.623	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	100	102	102	78-138	2.00	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	200	239	120	63-170	5.65	0-20

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number:	**5972**	**Sample Type:**	**Matrix Spike**		
Client ID:	**HB-22J (0-1')(5972001MS)**	**Matrix:**	**SOLID**		
Lab Sample ID:	**12010155**	**%Moisture:**	**20.3**		
Instrument:	**HRP750**	**Analysis Date:**	**04/17/2014 14:22**	**Dilution:**	**1**
Analyst:	**JTF**	**Prep Batch ID:**	**25617**		
		Batch ID:	**25619**		

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
51207-31-9	MS	2,3,7,8-TCDF	19.8	25.9	91.2	70-130

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number:	**5972**	**Sample Type:**	**Matrix Spike Duplicate**
Client ID:	**HB-22J (0-1')(5972001MSD)**	**Matrix:**	**SOLID**
Lab Sample ID:	**12010156**	**%Moisture:**	**20.3**
Instrument:	**HRP750**	**Analysis Date:**	**04/17/2014 14:42**
Analyst:	**JTF**	**Prep Batch ID:**	**25617**
		Batch ID:	**25619**

Dilution: 1

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
51207-31-9	MSD	2,3,7,8-TCDF	19.9	28.7	105	70-130	10.3	0-20

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 5972
Client ID: HB-22J (0-1')(5972001MS)
Lab Sample ID: 12010155
Instrument: HRP763
Analyst: JTF

Sample Type: Matrix Spike
Matrix: SOLID
%Moisture: 20.3
Analysis Date: 04/11/2014 22:45
Prep Batch ID: 25617
Batch ID: 25619
Dilution: 1

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	MS	2,3,7,8-TCDD	19.8	J	21.2	103	70-130
40321-76-4	MS	1,2,3,7,8-PeCDD	99.0	JK	108	107	70-130
39227-28-6	MS	1,2,3,4,7,8-HxCDD	99.0	J	101	99.6	70-130
57653-85-7	MS	1,2,3,6,7,8-HxCDD	99.0	J	107	104	70-130
19408-74-3	MS	1,2,3,7,8,9-HxCDD	99.0	J	103	101	70-130
35822-46-9	MS	1,2,3,4,6,7,8-HpCDD	99.0		194	100	70-130
3268-87-9	MS	1,2,3,4,6,7,8,9-OCDD	198		1310	98.6	70-130
51207-31-9	MS	2,3,7,8-TCDF	19.8		38.4	112	70-130
57117-41-6	MS	1,2,3,7,8-PeCDF	99.0	U	90.9	91.9	70-130
57117-31-4	MS	2,3,4,7,8-PeCDF	99.0	K	117	112	70-130
70648-26-9	MS	1,2,3,4,7,8-HxCDF	99.0		119	105	70-130
57117-44-9	MS	1,2,3,6,7,8-HxCDF	99.0	J	111	109	70-130
60851-34-5	MS	2,3,4,6,7,8-HxCDF	99.0	J	111	107	70-130
72918-21-9	MS	1,2,3,7,8,9-HxCDF	99.0	J	115	114	70-130
67562-39-4	MS	1,2,3,4,6,7,8-HpCDF	99.0	P	168	104	70-130
55673-89-7	MS	1,2,3,4,7,8,9-HpCDF	99.0	J	103	102	70-130
39001-02-0	MS	1,2,3,4,6,7,8,9-OCDF	198		294	109	70-130

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 5972
Client ID: HB-22J (0-1')(5972001MSD)
Lab Sample ID: 12010156
Instrument: HRP763
Analyst: JTF

Sample Type: Matrix Spike Duplicate
Matrix: SOLID
%Moisture: 20.3
Analysis Date: 04/11/2014 23:33
Dilution: 1
Prep Batch ID: 25617
Batch ID: 25619

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	MSD	2,3,7,8-TCDD	19.9	J	21.3	102	70-130	0.157	0-20
40321-76-4	MSD	1,2,3,7,8-PeCDD	99.3	JK	111	110	70-130	2.96	0-20
39227-28-6	MSD	1,2,3,4,7,8-HxCDD	99.3	J	101	99.4	70-130	0.0827	0-20
57653-85-7	MSD	1,2,3,6,7,8-HxCDD	99.3	J	110	106	70-130	2.85	0-20
19408-74-3	MSD	1,2,3,7,8,9-HxCDD	99.3	J	101	98.6	70-130	2.11	0-20
35822-46-9	MSD	1,2,3,4,6,7,8-HpCDD	99.3		194	99.8	70-130	0.114	0-20
3268-87-9	MSD	1,2,3,4,6,7,8,9-OCDD	199		1270	82	70-130	2.50	0-20
51207-31-9	MSD	2,3,7,8-TCDF	19.9		40.9	124	70-130	6.20	0-20
57117-41-6	MSD	1,2,3,7,8-PeCDF	99.3	U	85.0	85.6	70-130	6.79	0-20
57117-31-4	MSD	2,3,4,7,8-PeCDF	99.3	K	112	106	70-130	4.31	0-20
70648-26-9	MSD	1,2,3,4,7,8-HxCDF	99.3		128	113	70-130	7.00	0-20
57117-44-9	MSD	1,2,3,6,7,8-HxCDF	99.3	J	113	111	70-130	1.96	0-20
60851-34-5	MSD	2,3,4,6,7,8-HxCDF	99.3	J	113	109	70-130	2.12	0-20
72918-21-9	MSD	1,2,3,7,8,9-HxCDF	99.3	J	114	113	70-130	1.19	0-20
67562-39-4	MSD	1,2,3,4,6,7,8-HpCDF	99.3	P	171	107	70-130	1.96	0-20
55673-89-7	MSD	1,2,3,4,7,8,9-HpCDF	99.3	J	105	104	70-130	1.82	0-20
39001-02-0	MSD	1,2,3,4,6,7,8,9-OCDF	199		293	108	70-130	0.298	0-20

Method Blank Summary

SDG Number:	**5972**	**Client:**	**TRCC001**	**Matrix:**	**SOLID**
Client ID:	**MB for batch 25617**	**Instrument ID:**	**HRP763**	**Data File:**	**b11apr14a-6**
Lab Sample ID:	**12010152**	**Prep Date:**	**10-APR-14**	**Analyzed:**	**04/11/14 17:51**
Column:					

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 25617	12010153	b11apr14a-4	04/11/14	1616
02	LCSD for batch 25617	12010154	b11apr14a-5	04/11/14	1703
03	HB-22J (0-1')	5972001	b11apr14a-11	04/11/14	2157
04	HB-22J (0-1')(5972001MS)	12010155	b11apr14a-12	04/11/14	2245
05	HB-22J (0-1')(5972001MSD)	12010156	b11apr14a-13	04/11/14	2333
06	HB-22K (0-1')	5972002	b11apr14a-14	04/12/14	0020
07	HB-22J (0-1')	5972001	A17APR14A-9	04/17/14	1403
08	HB-22J (0-1')(5972001MS)	12010155	A17APR14A-10	04/17/14	1422
09	HB-22J (0-1')(5972001MSD)	12010156	A17APR14A-11	04/17/14	1442
10	HB-22K (0-1')	5972002	A17APR14A-12	04/17/14	1501

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010152**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25617**				
Client ID:	**MB for batch 25617**			**Prep Basis:**	**As Received**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/11/2014 17:51**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b11apr14a-6**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	.342		pg/g	0.342	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	.4		pg/g	0.400	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	.462		pg/g	0.462	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	.432		pg/g	0.432	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	.458		pg/g	0.458	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	.856		pg/g	0.856	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	1.16		pg/g	1.16	10.0
51207-31-9	2,3,7,8-TCDF	U	.34		pg/g	0.340	1.00
57117-41-6	1,2,3,7,8-PeCDF	J	0.216		pg/g	0.212	5.00
57117-31-4	2,3,4,7,8-PeCDF	U	.21		pg/g	0.210	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	U	.276		pg/g	0.276	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	U	.268		pg/g	0.268	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	.288		pg/g	0.288	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	.514		pg/g	0.514	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	.27		pg/g	0.270	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	.5		pg/g	0.500	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	1.66		pg/g	1.66	10.0
41903-57-5	Total Tetrachlorodibenzo-p-dioxin	U	.342		pg/g	0.342	1.00
36088-22-9	Total Pentachlorodibenzo-p-dioxin	U	.4		pg/g	0.400	5.00
34465-46-8	Total Hexachlorodibenzo-p-dioxin	U	.432		pg/g	0.432	5.00
37871-00-4	Total Heptachlorodibenzo-p-dioxin	U	.856		pg/g	0.856	5.00
30402-14-3	Total Tetrachlorodibenzofuran	U	.34		pg/g	0.340	1.00
30402-15-4	Total Pentachlorodibenzofuran	J	0.216		pg/g	0.210	5.00
55684-94-1	Total Hexachlorodibenzofuran	U	.268		pg/g	0.268	5.00
38998-75-3	Total Heptachlorodibenzofuran	U	.27		pg/g	0.270	5.00
3333-30-0	TEQ WHO2005 ND=0		0.00648	0.00648	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		0.569	0.569	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		151	200	pg/g	75.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		163	200	pg/g	81.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		138	200	pg/g	69.0	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		159	200	pg/g	79.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		153	200	pg/g	76.5	(23%-140%)
13C-OCDD		233	400	pg/g	58.2	(17%-157%)
13C-2,3,7,8-TCDF		157	200	pg/g	78.7	(24%-169%)
13C-1,2,3,7,8-PeCDF		169	200	pg/g	84.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		166	200	pg/g	82.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		136	200	pg/g	68.1	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		167	200	pg/g	83.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		160	200	pg/g	79.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		133	200	pg/g	66.3	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010152**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25617**				
Client ID:	**MB for batch 25617**			**Prep Basis:**	**As Received**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/11/2014 17:51**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b11apr14a-6**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		157	200	pg/g	78.6	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		133	200	pg/g	66.6	(26%-138%)
37Cl-2,3,7,8-TCDD		18.8	20.0	pg/g	94.2	(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

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010153**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25617**				
Client ID:	**LCS for batch 25617**			**Prep Basis:**	**As Received**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/11/2014 16:16**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b11apr14a-4**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		21.8		pg/g	0.456	1.00
40321-76-4	1,2,3,7,8-PeCDD		109		pg/g	0.762	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		105		pg/g	1.59	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		108		pg/g	1.54	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		111		pg/g	1.60	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		105		pg/g	2.96	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		203		pg/g	7.66	10.0
51207-31-9	2,3,7,8-TCDF		19.2		pg/g	0.468	1.00
57117-41-6	1,2,3,7,8-PeCDF		104		pg/g	1.16	5.00
57117-31-4	2,3,4,7,8-PeCDF		106		pg/g	1.13	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		111		pg/g	1.44	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		114		pg/g	1.35	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		111		pg/g	1.43	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		107		pg/g	2.38	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		102		pg/g	1.61	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		99.6		pg/g	2.98	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		226		pg/g	5.54	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		153	200	pg/g	76.3	(20%-175%)
13C-1,2,3,7,8-PeCDD		157	200	pg/g	78.6	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		139	200	pg/g	69.3	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		167	200	pg/g	83.3	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		152	200	pg/g	76.1	(22%-166%)
13C-OCDD		265	400	pg/g	66.3	(13%-199%)
13C-2,3,7,8-TCDF		157	200	pg/g	78.5	(22%-152%)
13C-1,2,3,7,8-PeCDF		163	200	pg/g	81.7	(21%-192%)
13C-2,3,4,7,8-PeCDF		167	200	pg/g	83.4	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		140	200	pg/g	70.1	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		165	200	pg/g	82.3	(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		142	200	pg/g	70.9	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		158	200	pg/g	79.1	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		146	200	pg/g	72.8	(20%-186%)
37Cl-2,3,7,8-TCDD		19.1	20.0	pg/g	95.4	(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

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010154**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25617**				
Client ID:	**LCSD for batch 25617**			**Prep Basis:**	**As Received**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/11/2014 17:03**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b11apr14a-5**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		21.7		pg/g	0.388	1.00
40321-76-4	1,2,3,7,8-PeCDD		107		pg/g	0.860	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		104		pg/g	1.26	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		107		pg/g	1.22	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		115		pg/g	1.27	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		99.2		pg/g	1.99	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		211		pg/g	6.10	10.0
51207-31-9	2,3,7,8-TCDF		20.1		pg/g	0.450	1.00
57117-41-6	1,2,3,7,8-PeCDF		105		pg/g	0.798	5.00
57117-31-4	2,3,4,7,8-PeCDF		108		pg/g	0.778	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		116		pg/g	1.40	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		106		pg/g	1.34	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		108		pg/g	1.32	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		111		pg/g	2.40	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		103		pg/g	1.73	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		102		pg/g	2.74	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		239		pg/g	8.78	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		156	200	pg/g	78.0	(20%-175%)
13C-1,2,3,7,8-PeCDD		166	200	pg/g	83.0	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		135	200	pg/g	67.7	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		171	200	pg/g	85.3	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		160	200	pg/g	79.9	(22%-166%)
13C-OCDD		266	400	pg/g	66.6	(13%-199%)
13C-2,3,7,8-TCDF		158	200	pg/g	79.2	(22%-152%)
13C-1,2,3,7,8-PeCDF		178	200	pg/g	89.2	(21%-192%)
13C-2,3,4,7,8-PeCDF		173	200	pg/g	86.5	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		138	200	pg/g	68.9	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		169	200	pg/g	84.7	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		161	200	pg/g	80.7	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		140	200	pg/g	70.0	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		158	200	pg/g	78.8	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		149	200	pg/g	74.6	(20%-186%)
37Cl-2,3,7,8-TCDD		20.4	20.0	pg/g	102	(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

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010155**	**Date Collected:**	**02/21/2014 12:05**	**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25617**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**20.3**
Client ID:	**HB-22J (0-1')(5972001MS)**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/17/2014 14:22**	**Analyst:**	**JTF**	**Instrument:**	**HRP750**
Data File:	**A17APR14A-10**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**12.68 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		25.9		pg/g	0.873	0.990

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

Comments:

J Value is estimated

P Diphenyl ether interference is present; 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

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010155**	**Date Collected:**	**02/21/2014 12:05**	**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25617**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**20.3**
Client ID:	**HB-22J (0-1')(5972001MS)**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/11/2014 22:45**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b11apr14a-12**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**12.68 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		21.2		pg/g	0.770	0.990
40321-76-4	1,2,3,7,8-PeCDD		108		pg/g	1.90	4.95
39227-28-6	1,2,3,4,7,8-HxCDD		101		pg/g	1.50	4.95
57653-85-7	1,2,3,6,7,8-HxCDD		107		pg/g	1.54	4.95
19408-74-3	1,2,3,7,8,9-HxCDD		103		pg/g	1.56	4.95
35822-46-9	1,2,3,4,6,7,8-HpCDD		194		pg/g	2.73	4.95
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1310		pg/g	9.84	9.90
51207-31-9	2,3,7,8-TCDF		38.4		pg/g	2.00	0.990
57117-41-6	1,2,3,7,8-PeCDF		90.9		pg/g	2.61	4.95
57117-31-4	2,3,4,7,8-PeCDF		117		pg/g	3.27	4.95
70648-26-9	1,2,3,4,7,8-HxCDF		119		pg/g	1.40	4.95
57117-44-9	1,2,3,6,7,8-HxCDF		111		pg/g	1.48	4.95
60851-34-5	2,3,4,6,7,8-HxCDF		111		pg/g	1.59	4.95
72918-21-9	1,2,3,7,8,9-HxCDF		115		pg/g	2.26	4.95
67562-39-4	1,2,3,4,6,7,8-HpCDF	P	168		pg/g	1.36	4.95
55673-89-7	1,2,3,4,7,8,9-HpCDF		103		pg/g	2.55	4.95
39001-02-0	1,2,3,4,6,7,8,9-OCDF		294		pg/g	5.07	9.90

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		176	198	pg/g	89.0	(25%-164%)
13C-1,2,3,7,8-PeCDD		189	198	pg/g	95.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		152	198	pg/g	76.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		165	198	pg/g	83.5	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		166	198	pg/g	83.7	(23%-140%)
13C-OCDD		296	396	pg/g	74.8	(17%-157%)
13C-2,3,7,8-TCDF		168	198	pg/g	85.0	(24%-169%)
13C-1,2,3,7,8-PeCDF		245	198	pg/g	124	(24%-185%)
13C-2,3,4,7,8-PeCDF		197	198	pg/g	99.6	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		158	198	pg/g	79.9	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		164	198	pg/g	82.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		157	198	pg/g	79.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		150	198	pg/g	75.8	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		174	198	pg/g	88.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		152	198	pg/g	76.6	(26%-138%)
37Cl-2,3,7,8-TCDD		21.1	19.8	pg/g	106	(35%-197%)

Comments:

J Value is estimated

P Diphenyl ether interference is present; 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

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010156**	**Date Collected:**	**02/21/2014 12:05**	**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25617**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**20.3**
Client ID:	**HB-22J (0-1')(5972001MSD)**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/17/2014 14:42**	**Analyst:**	**JTF**	**Instrument:**	**HRP750**
Data File:	**A17APR14A-11**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**12.64 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		28.7		pg/g	0.542	0.993

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

Comments:

J Value is estimated

P Diphenyl ether interference is present; 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

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010156**	**Date Collected:**	**02/21/2014 12:05**	**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25617**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**20.3**
Client ID:	**HB-22J (0-1')(5972001MSD)**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25619**	**Method:**	**EPA Method 1613B**		
Run Date:	**04/11/2014 23:33**	**Analyst:**	**JTF**	**Instrument:**	**HRP763**
Data File:	**b11apr14a-13**			**Dilution:**	**1**
Prep Batch:	**25617**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**10-APR-14**	**Prep Aliquot:**	**12.64 g**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		21.3		pg/g	0.693	0.993
40321-76-4	1,2,3,7,8-PeCDD		111		pg/g	1.31	4.96
39227-28-6	1,2,3,4,7,8-HxCDD		101		pg/g	1.83	4.96
57653-85-7	1,2,3,6,7,8-HxCDD		110		pg/g	1.96	4.96
19408-74-3	1,2,3,7,8,9-HxCDD		101		pg/g	1.96	4.96
35822-46-9	1,2,3,4,6,7,8-HpCDD		194		pg/g	2.54	4.96
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1270		pg/g	5.90	9.93
51207-31-9	2,3,7,8-TCDF		40.9		pg/g	1.60	0.993
57117-41-6	1,2,3,7,8-PeCDF		85.0		pg/g	3.59	4.96
57117-31-4	2,3,4,7,8-PeCDF		112		pg/g	5.06	4.96
70648-26-9	1,2,3,4,7,8-HxCDF		128		pg/g	1.47	4.96
57117-44-9	1,2,3,6,7,8-HxCDF		113		pg/g	1.50	4.96
60851-34-5	2,3,4,6,7,8-HxCDF		113		pg/g	1.65	4.96
72918-21-9	1,2,3,7,8,9-HxCDF		114		pg/g	2.03	4.96
67562-39-4	1,2,3,4,6,7,8-HpCDF	P	171		pg/g	1.08	4.96
55673-89-7	1,2,3,4,7,8,9-HpCDF		105		pg/g	2.38	4.96
39001-02-0	1,2,3,4,6,7,8,9-OCDF		293		pg/g	4.47	9.93

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		177	199	pg/g	89.1	(25%-164%)
13C-1,2,3,7,8-PeCDD		182	199	pg/g	91.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		154	199	pg/g	77.4	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		155	199	pg/g	77.9	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		161	199	pg/g	81.3	(23%-140%)
13C-OCDD		310	397	pg/g	78.1	(17%-157%)
13C-2,3,7,8-TCDF		168	199	pg/g	84.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		258	199	pg/g	130	(24%-185%)
13C-2,3,4,7,8-PeCDF		189	199	pg/g	95.0	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		150	199	pg/g	75.6	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		161	199	pg/g	81.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		155	199	pg/g	78.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		149	199	pg/g	75.3	(29%-147%)
13C-1,2,3,4,6,7,8-HpCDF		176	199	pg/g	88.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		152	199	pg/g	76.7	(26%-138%)
37Cl-2,3,7,8-TCDD		22.5	19.9	pg/g	114	(35%-197%)

Comments:

J Value is estimated

P Diphenyl ether interference is present; value is estimated

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

PCB Congeners Analysis

Case Narrative

PCBC Case Narrative
TRC Environmental Corporation (TRCC)
SDG 5972

Method/Analysis Information

Product:	**PCB Congeners (WHO) EPA Method 1668A in Solids**
Analytical Method:	EPA Method 1668A
Extraction Method:	SW846 3540C
Analytical Batch Number:	25627
Clean Up Batch Number:	25624
Extraction Batch Number:	25623

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA Method 1668A:

Sample ID	Client ID
5972001	HB-22J (0-1')
5972002	HB-22K (0-1')
12010161	Method Blank (MB)
12010162	Laboratory Control Sample (LCS)
12010163	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on a "dry weight" basis.

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-003 REV# 6.

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) (ICV or 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. Any known exceptions are discussed in the narrative.

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 5972001 (HB-22J (0-1')) and 5972002 (HB-22K (0-1')) were diluted due to the presence of over-range target analytes.

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
Manual integrations were required for data files in this SDG. 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.

System Configuration
This analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
HRP791_1	High-Resolution GC/MS System	PCB Analysis	SPB-Octyl	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

Qualifier Definition Report
for

TRCC001 TRC Environmental Corporation

Client SDG: 5972 CFA Work Order: 5972

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

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

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

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

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: 24 APR 2014 **Title: Data Validator**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5972001**	**Date Collected:**	**02/21/2014 12:05**	**Matrix:**	**SOLID**
Client Sample:	**1613B/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**20.3**
Client ID:	**HB-22J (0-1')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25627**	**Method:**	**EPA Method 1668A**		
Run Date:	**04/18/2014 16:41**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c18apr14a-3**			**Dilution:**	**10**
Prep Batch:	**25623**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**14-APR-14**	**Prep Aliquot:**	**12.68 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		177	pg/g	19.8
70362-50-4	81-TeCB	U	19.8	pg/g	19.8
32598-14-4	105-PeCB		12200	pg/g	19.8
74472-37-0	114-PeCB		340	pg/g	19.8
31508-00-6	118-PeCB		34900	pg/g	39.6
65510-44-3	123-PeCB		696	pg/g	19.8
57465-28-8	126-PeCB		66.8	pg/g	19.8
38380-08-4	156-HxCB	C	7110	pg/g	39.6
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		2550	pg/g	19.8
32774-16-6	169-HxCB		22.8	pg/g	19.8
39635-31-9	189-HpCB		266	pg/g	19.8

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		220	198	pg/g	111	(25%-150%)
13C-81-TeCB		222	198	pg/g	112	(25%-150%)
13C-105-PeCB		192	198	pg/g	96.8	(25%-150%)
13C-114-PeCB		180	198	pg/g	90.9	(25%-150%)
13C-118-PeCB		197	198	pg/g	99.7	(25%-150%)
13C-123-PeCB		199	198	pg/g	100	(25%-150%)
13C-126-PeCB		205	198	pg/g	103	(25%-150%)
13C-156-HxCB	C	354	396	pg/g	89.5	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		166	198	pg/g	83.7	(25%-150%)
13C-169-HxCB		207	198	pg/g	105	(25%-150%)
13C-189-HpCB		143	198	pg/g	72.3	(25%-150%)
13C-111-PeCB		174	198	pg/g	88.0	(30%-135%)
13C-178-HpCB		151	198	pg/g	76.2	(30%-135%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

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

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**5972002**	**Date Collected:**	**02/21/2014 11:20**	**Matrix:**	**SOLID**
Client Sample:	**1613B/1668 Soil**	**Date Received:**	**02/22/2014 09:46**	**%Moisture:**	**16.5**
Client ID:	**HB-22K (0-1')**			**Prep Basis:**	**Dry Weight**
Batch ID:	**25627**	**Method:**	**EPA Method 1668A**		
Run Date:	**04/18/2014 17:49**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c18apr14a-4**			**Dilution:**	**50**
Prep Batch:	**25623**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**14-APR-14**	**Prep Aliquot:**	**12.21 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		286	pg/g	98.1
70362-50-4	81-TeCB	U	98.1	pg/g	98.1
32598-14-4	105-PeCB		43100	pg/g	98.1
74472-37-0	114-PeCB		1160	pg/g	98.1
31508-00-6	118-PeCB		108000	pg/g	196
65510-44-3	123-PeCB		1700	pg/g	98.1
57465-28-8	126-PeCB	U	98.1	pg/g	98.1
38380-08-4	156-HxCB	C	19300	pg/g	196
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		6400	pg/g	98.1
32774-16-6	169-HxCB	U	98.1	pg/g	98.1
39635-31-9	189-HpCB		519	pg/g	98.1

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		213	196	pg/g	109	(25%-150%)
13C-81-TeCB		205	196	pg/g	104	(25%-150%)
13C-105-PeCB		176	196	pg/g	89.5	(25%-150%)
13C-114-PeCB		174	196	pg/g	88.7	(25%-150%)
13C-118-PeCB		187	196	pg/g	95.0	(25%-150%)
13C-123-PeCB		186	196	pg/g	94.8	(25%-150%)
13C-126-PeCB		193	196	pg/g	98.4	(25%-150%)
13C-156-HxCB	C	320	393	pg/g	81.5	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		147	196	pg/g	75.0	(25%-150%)
13C-169-HxCB		189	196	pg/g	96.2	(25%-150%)
13C-189-HpCB		131	196	pg/g	66.6	(25%-150%)
13C-111-PeCB		166	196	pg/g	84.4	(30%-135%)
13C-178-HpCB		134	196	pg/g	68.4	(30%-135%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

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

Quality Control Summary

PCB Congeners

Surrogate Recovery Report

SDG Number: 5972

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12010162	LCS for batch 25623	13C-77-TeCB		86.3	(30%-140%)
		13C-81-TeCB		87.3	(30%-140%)
		13C-105-PeCB		76.2	(30%-140%)
		13C-114-PeCB		71.6	(30%-140%)
		13C-118-PeCB		77.5	(30%-140%)
		13C-123-PeCB		80.8	(30%-140%)
		13C-126-PeCB		79.6	(30%-140%)
		13C-156-HxCB	C	80.3	(30%-140%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		76.4	(30%-140%)
		13C-169-HxCB		88.7	(30%-140%)
		13C-189-HpCB		74.2	(30%-140%)
		13C-111-PeCB		73.8	(40%-125%)
		13C-178-HpCB		75.3	(40%-125%)
12010163	LCSD for batch 25623	13C-77-TeCB		80.8	(30%-140%)
		13C-81-TeCB		81.5	(30%-140%)
		13C-105-PeCB		69.6	(30%-140%)
		13C-114-PeCB		66.0	(30%-140%)
		13C-118-PeCB		71.7	(30%-140%)
		13C-123-PeCB		76.0	(30%-140%)
		13C-126-PeCB		74.6	(30%-140%)
		13C-156-HxCB	C	72.5	(30%-140%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		68.8	(30%-140%)
		13C-169-HxCB		78.4	(30%-140%)
		13C-189-HpCB		64.3	(30%-140%)
		13C-111-PeCB		71.1	(40%-125%)
		13C-178-HpCB		69.2	(40%-125%)
12010161	MB for batch 25623	13C-77-TeCB		95.7	(25%-150%)
		13C-81-TeCB		99.0	(25%-150%)
		13C-105-PeCB		94.9	(25%-150%)
		13C-114-PeCB		91.8	(25%-150%)
		13C-118-PeCB		96.8	(25%-150%)
		13C-123-PeCB		98.8	(25%-150%)
		13C-126-PeCB		97.3	(25%-150%)
		13C-156-HxCB	C	94.4	(25%-150%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		89.7	(25%-150%)
		13C-169-HxCB		105	(25%-150%)
		13C-189-HpCB		92.0	(25%-150%)
		13C-111-PeCB		83.4	(30%-135%)
		13C-178-HpCB		86.6	(30%-135%)
5972001	HB-22J (0-1')	13C-77-TeCB		111 D	(25%-150%)
		13C-81-TeCB		112 D	(25%-150%)
		13C-105-PeCB		96.8 D	(25%-150%)
		13C-114-PeCB		90.9 D	(25%-150%)
		13C-118-PeCB		99.7 D	(25%-150%)
		13C-123-PeCB		100 D	(25%-150%)
		13C-126-PeCB		103 D	(25%-150%)

PCB Congeners

Surrogate Recovery Report

SDG Number: 5972

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)		Acceptance Limits
5972001	HB-22J (0-1')	13C-156-HxCB	C	89.5	D	(25%-150%)
		13C-157-HxCB	C156L			
		13C-167-HxCB		83.7	D	(25%-150%)
		13C-169-HxCB		105	D	(25%-150%)
		13C-189-HpCB		72.3	D	(25%-150%)
		13C-111-PeCB		88.0	D	(30%-135%)
		13C-178-HpCB		76.2	D	(30%-135%)
5972002	HB-22K (0-1')	13C-77-TeCB		109	D	(25%-150%)
		13C-81-TeCB		104	D	(25%-150%)
		13C-105-PeCB		89.5	D	(25%-150%)
		13C-114-PeCB		88.7	D	(25%-150%)
		13C-118-PeCB		95.0	D	(25%-150%)
		13C-123-PeCB		94.8	D	(25%-150%)
		13C-126-PeCB		98.4	D	(25%-150%)
		13C-156-HxCB	C	81.5	D	(25%-150%)
		13C-157-HxCB	C156L			
		13C-167-HxCB		75.0	D	(25%-150%)
		13C-169-HxCB		96.2	D	(25%-150%)
		13C-189-HpCB		66.6	D	(25%-150%)
		13C-111-PeCB		84.4	D	(30%-135%)
		13C-178-HpCB		68.4	D	(30%-135%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

PCB Congeners

Quality Control Summary
Spike Recovery Report

SDG Number: 5972 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 25623 **Matrix:** SOLID

Lab Sample ID: 12010162

Instrument: HRP791 **Analysis Date:** 04/16/2014 11:44 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 25623

Batch ID: 25627

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits
32598-13-3	LCS	77-TeCB	100		87.0	87	50-150
70362-50-4	LCS	81-TeCB	100		95.7	95.7	50-150
32598-14-4	LCS	105-PeCB	100		106	106	50-150
74472-37-0	LCS	114-PeCB	100		103	103	50-150
31508-00-6	LCS	118-PeCB	100		89.8	89.8	50-150
65510-44-3	LCS	123-PeCB	100		91.9	91.9	50-150
57465-28-8	LCS	126-PeCB	100		101	101	50-150
38380-08-4	LCS	156-HxCB	200	C	222	111	50-150
69782-90-7	LCS	157-HxCB		C156			
52663-72-6	LCS	167-HxCB	100		120	120	50-150
32774-16-6	LCS	169-HxCB	100		102	102	50-150
39635-31-9	LCS	189-HpCB	100		105	105	50-150

PCB Congeners

Quality Control Summary
Spike Recovery Report

SDG Number: 5972 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 25623 **Matrix:** SOLID

Lab Sample ID: 12010163

Instrument: HRP791 **Analysis Date:** 04/16/2014 12:52 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 25623

Batch ID: 25627

CAS No.		Parmname	Amount Added pg/g		Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
32598-13-3	LCSD	77-TeCB	100		87.3	87.3	50-150	0.429	0-20
70362-50-4	LCSD	81-TeCB	100		96.5	96.5	50-150	0.840	0-20
32598-14-4	LCSD	105-PeCB	100		109	109	50-150	2.45	0-20
74472-37-0	LCSD	114-PeCB	100		103	103	50-150	0.523	0-20
31508-00-6	LCSD	118-PeCB	100		92.1	92.1	50-150	2.43	0-20
65510-44-3	LCSD	123-PeCB	100		87.0	87	50-150	5.45	0-20
57465-28-8	LCSD	126-PeCB	100		100	100	50-150	1.06	0-20
38380-08-4	LCSD	156-HxCB	200	C	225	113	50-150	1.56	0-20
69782-90-7	LCSD	157-HxCB		C156					
52663-72-6	LCSD	167-HxCB	100		122	122	50-150	1.48	0-20
32774-16-6	LCSD	169-HxCB	100		104	104	50-150	2.00	0-20
39635-31-9	LCSD	189-HpCB	100		106	106	50-150	0.738	0-20

Method Blank Summary

SDG Number:	**5972**	**Client:**	**TRCC001**	**Matrix:**	**SOLID**
Client ID:	**MB for batch 25623**	**Instrument ID:**	**HRP791**	**Data File:**	**c15apr14a_3-4**
Lab Sample ID:	**12010161**	**Prep Date:**	**14-APR-14**	**Analyzed:**	**04/16/14 13:59**
Column:					

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 25623	12010162	c15apr14a_3-2	04/16/14	1144
02	LCSD for batch 25623	12010163	c15apr14a_3-3	04/16/14	1252
03	HB-22J (0-1')	5972001	c18apr14a-3	04/18/14	1641
04	HB-22K (0-1')	5972002	c18apr14a-4	04/18/14	1749

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010161**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25623**				
Client ID:	**MB for batch 25623**			**Prep Basis:**	**As Received**
Batch ID:	**25627**	**Method:**	**EPA Method 1668A**		
Run Date:	**04/16/2014 13:59**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c15apr14a_3-4**			**Dilution:**	**1**
Prep Batch:	**25623**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**14-APR-14**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB	U	2	pg/g	2.00
70362-50-4	81-TeCB	U	2	pg/g	2.00
32598-14-4	105-PeCB	U	2	pg/g	2.00
74472-37-0	114-PeCB	U	2	pg/g	2.00
31508-00-6	118-PeCB	U	4	pg/g	4.00
65510-44-3	123-PeCB	U	2	pg/g	2.00
57465-28-8	126-PeCB	U	2	pg/g	2.00
38380-08-4	156-HxCB	CU	4	pg/g	4.00
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB	U	2	pg/g	2.00
32774-16-6	169-HxCB	U	2	pg/g	2.00
39635-31-9	189-HpCB	U	2	pg/g	2.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		191	200	pg/g	95.7	(25%-150%)
13C-81-TeCB		198	200	pg/g	99.0	(25%-150%)
13C-105-PeCB		190	200	pg/g	94.9	(25%-150%)
13C-114-PeCB		184	200	pg/g	91.8	(25%-150%)
13C-118-PeCB		194	200	pg/g	96.8	(25%-150%)
13C-123-PeCB		198	200	pg/g	98.8	(25%-150%)
13C-126-PeCB		195	200	pg/g	97.3	(25%-150%)
13C-156-HxCB	C	377	400	pg/g	94.4	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		179	200	pg/g	89.7	(25%-150%)
13C-169-HxCB		211	200	pg/g	105	(25%-150%)
13C-189-HpCB		184	200	pg/g	92.0	(25%-150%)
13C-111-PeCB		167	200	pg/g	83.4	(30%-135%)
13C-178-HpCB		173	200	pg/g	86.6	(30%-135%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

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

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010162**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25623**				
Client ID:	**LCS for batch 25623**			**Prep Basis:**	**As Received**
Batch ID:	**25627**	**Method:**	**EPA Method 1668A**		
Run Date:	**04/16/2014 11:44**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c15apr14a_3-2**			**Dilution:**	**1**
Prep Batch:	**25623**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**14-APR-14**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		87.0	pg/g	2.00
70362-50-4	81-TeCB		95.7	pg/g	2.00
32598-14-4	105-PeCB		106	pg/g	2.00
74472-37-0	114-PeCB		103	pg/g	2.00
31508-00-6	118-PeCB		89.8	pg/g	4.00
65510-44-3	123-PeCB		91.9	pg/g	2.00
57465-28-8	126-PeCB		101	pg/g	2.00
38380-08-4	156-HxCB	C	222	pg/g	4.00
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		120	pg/g	2.00
32774-16-6	169-HxCB		102	pg/g	2.00
39635-31-9	189-HpCB		105	pg/g	2.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		173	200	pg/g	86.3	(30%-140%)
13C-81-TeCB		175	200	pg/g	87.3	(30%-140%)
13C-105-PeCB		152	200	pg/g	76.2	(30%-140%)
13C-114-PeCB		143	200	pg/g	71.6	(30%-140%)
13C-118-PeCB		155	200	pg/g	77.5	(30%-140%)
13C-123-PeCB		162	200	pg/g	80.8	(30%-140%)
13C-126-PeCB		159	200	pg/g	79.6	(30%-140%)
13C-156-HxCB	C	321	400	pg/g	80.3	(30%-140%)
13C-157-HxCB	C156L					
13C-167-HxCB		153	200	pg/g	76.4	(30%-140%)
13C-169-HxCB		177	200	pg/g	88.7	(30%-140%)
13C-189-HpCB		148	200	pg/g	74.2	(30%-140%)
13C-111-PeCB		148	200	pg/g	73.8	(40%-125%)
13C-178-HpCB		151	200	pg/g	75.3	(40%-125%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**5972**	**Client:**	**TRCC001**	**Project:**	**TRCC00114**
Lab Sample ID:	**12010163**			**Matrix:**	**SOLID**
Client Sample:	**QC for batch 25623**				
Client ID:	**LCSD for batch 25623**			**Prep Basis:**	**As Received**
Batch ID:	**25627**	**Method:**	**EPA Method 1668A**		
Run Date:	**04/16/2014 12:52**	**Analyst:**	**MJC**	**Instrument:**	**HRP791**
Data File:	**c15apr14a_3-3**			**Dilution:**	**1**
Prep Batch:	**25623**	**Prep Method:**	**SW846 3540C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**14-APR-14**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	PQL
32598-13-3	77-TeCB		87.3	pg/g	2.00
70362-50-4	81-TeCB		96.5	pg/g	2.00
32598-14-4	105-PeCB		109	pg/g	2.00
74472-37-0	114-PeCB		103	pg/g	2.00
31508-00-6	118-PeCB		92.1	pg/g	4.00
65510-44-3	123-PeCB		87.0	pg/g	2.00
57465-28-8	126-PeCB		100	pg/g	2.00
38380-08-4	156-HxCB	C	225	pg/g	4.00
69782-90-7	157-HxCB	C156			
52663-72-6	167-HxCB		122	pg/g	2.00
32774-16-6	169-HxCB		104	pg/g	2.00
39635-31-9	189-HpCB		106	pg/g	2.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-77-TeCB		162	200	pg/g	80.8	(30%-140%)
13C-81-TeCB		163	200	pg/g	81.5	(30%-140%)
13C-105-PeCB		139	200	pg/g	69.6	(30%-140%)
13C-114-PeCB		132	200	pg/g	66.0	(30%-140%)
13C-118-PeCB		143	200	pg/g	71.7	(30%-140%)
13C-123-PeCB		152	200	pg/g	76.0	(30%-140%)
13C-126-PeCB		149	200	pg/g	74.6	(30%-140%)
13C-156-HxCB	C	290	400	pg/g	72.5	(30%-140%)
13C-157-HxCB	C156L					
13C-167-HxCB		138	200	pg/g	68.8	(30%-140%)
13C-169-HxCB		157	200	pg/g	78.4	(30%-140%)
13C-189-HpCB		129	200	pg/g	64.3	(30%-140%)
13C-111-PeCB		142	200	pg/g	71.1	(40%-125%)
13C-178-HpCB		138	200	pg/g	69.2	(40%-125%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

APPENDIX C

Photographic Log

Appendix C
Photographic Log
New Bedford High School RAM Activities – April 2014
New Bedford, Massachusetts

2) View of HB-22 excavation mark-out prior to start of excavation activities (4/24/14).

1) Initiation of excavation activities at HB-22 facing north (4/24/14).

4) View of live-loading of HB-22 soils for offsite disposal facing east (4/24/14).

3) View of completed HB-22 excavation (4/24/14).

Appendix C
Photographic Log
New Bedford High School RAM Activities – April 2014
New Bedford, Massachusetts

6) Initiation of backfilling of HB-22 excavation (4/24/14).

5) View of compaction during backfilling activities (4/24/14).

8) View of HB-22 excavation area backfilled to grade facing north(4/24/14).

7) View of sod placement at HB-22 (4/24/14).

APPENDIX D

Copy of Bill-of-Lading

Site Address: SAME

SC PPW 12/11/2013 RI
WORK ORDER NO. ~~1400065909-002~~

DOCUMENT NO. 415277 **STRAIGHT BILL OF LADING**

TRANSPORTER 1 ~~Clean Harbors Environmental Services Inc~~ VEHICLE ID # 4238

EPA ID # ~~MAD039322250~~ TRANS. 1 PHONE ~~(781) 792-5000~~

TRANSPORTER 2 _____ VEHICLE ID # _____

EPA ID # _____ TRANS. 2 PHONE _____

DESIGNATED FACILITY			SHIPPER		
Clean Harbors of Braintree Inc			New Bedford Environmnetal Stewardship		
FACILITY EPA ID # MAD053452637			SHIPPER EPA ID # MY5089974511		
ADDRESS 1 Hill Avenue			ADDRESS 230 Hathaway Boulevard		
CITY Braintree	STATE MA	ZIP 02184	CITY New Bedford	STATE MA	ZIP 02740

CONTAINERS NO. & SIZE	TYPE	HM	DESCRIPTION OF MATERIALS	TOTAL QUANTITY	UNIT WT/VOL
01	CM		A. NON DOT REGULATED MATERIAL, (SOIL)	8	Y
			B.		
			C.		
			D.		
			E.		
			F.		
			G.		
			H.		

SPECIAL HANDLING INSTRUCTIONS **EMERGENCY PHONE #: (800) 483-8718** **GENERATOR: New Bedford Environmnetal Stewardship**
A.CH796426BB
CAN# CHRT258417

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

SHIPPER	PRINT Ray Holbert City of New Bedford	SIGN [signature] City of New Bedford	DATE 4/24/14
TRANSPORTER 1	PRINT FRANCISCO BRITO	SIGN [signature] BRITO	DATE 4/24/14
TRANSPORTER 2	PRINT	SIGN	DATE
RECEIVED BY	PRINT Huyen Hoang	SIGN [signature]	DATE 4-24-14

1

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APPENDIX E

Copy of Backfill Material Statement

MEDEIROS & SONS CONSTRUCTION, INC.

April 23, 2014

Dave Sullivan
TRC Senior Project Manager
650 Suffolk Street
Lowell MA 01854

RE: Sandy Fill Material available from Medeiros & Sons' Construction, Inc.

The Sandy Fill available at Medeiros & Sons' Construction, Inc. is from the same sources as the Sandy Fill sampled by the City of New Bedford on September 30, 2013.

Sincerely,

Robert Medeiros, President

Digitally signed by Robert Medeiros, President
DN: cn=Robert Medeiros, President, o=Medeiros & Sons' Construction, Inc., ou, email=dawn@medeirosandsons.com, c=US
Date: 2014.04.23 11:13:41 -04'00'

Robert Medeiros, President
Medeiros & Sons' Construction, Inc.

620 Chase Road ~ Dartmouth MA 02747
Tel: (508) 997-4921 ~ Fax: (508) 997-4928

APPENDIX F

Dust Monitoring Data

Dust Monitoring Data
Upwind Location
Test #1
April 24, 2014

Instrument Name	**DustTrak II**
Model Number	**8530**
Serial Number	**8530104705**
Firmware Version	**3**
Calibration Date	**3/13/2014**
Test Name	**UPWIIND_001**
Test Start Time	**8:54:15 AM**
Test Start Date	**4/24/2014**
Test Length [D:H:M]	**0:01:17**
Test Interval [M:S]	**1:00**
Mass Average [mg/m3]	**0.006**
Mass Minimum [mg/m3]	**0.004**
Mass Maximum [mg/m3]	**0.03**
Mass TWA [mg/m3]	**0.001**
Photometric User Cal	**1**
Flow User Cal	**0**
Errors	
Number of Samples	**77**

Elapsed Time [s]	Mass [mg/m3]
60	0.008
120	0.008
180	0.005
240	0.005
300	0.005
360	0.006
420	0.005
480	0.005
540	0.005
600	0.005
660	0.005
720	0.004
780	0.005
840	0.004
900	0.005
960	0.004
1020	0.005
1080	0.005
1140	0.005
1200	0.005
1260	0.005
1320	0.005
1380	0.005

Dust Monitoring Data
Upwind Location
Test #1
April 24, 2014

Elapsed Time [s]	Mass [mg/m3]
1440	0.005
1500	0.005
1560	0.005
1620	0.006
1680	0.015
1740	0.006
1800	0.005
1860	0.005
1920	0.005
1980	0.005
2040	0.006
2100	0.006
2160	0.007
2220	0.005
2280	0.005
2340	0.005
2400	0.005
2460	0.005
2520	0.004
2580	0.005
2640	0.03
2700	0.005
2760	0.005
2820	0.005
2880	0.004
2940	0.005
3000	0.005
3060	0.008
3120	0.005
3180	0.005
3240	0.005
3300	0.006
3360	0.005
3420	0.01
3480	0.008
3540	0.005
3600	0.005
3660	0.005
3720	0.009
3780	0.007
3840	0.006
3900	0.005

Dust Monitoring Data
Upwind Location
Test #1
April 24, 2014

Elapsed Time [s]	Mass [mg/m3]
3960	0.005
4020	0.007
4080	0.005
4140	0.005
4200	0.005
4260	0.006
4320	0.005
4380	0.006
4440	0.005
4500	0.005
4560	0.009
4620	0.007

Dust Monitoring Data
Nearest Receptor Location
Test #1
April 24, 2014

Instrument Name	**DustTrak II**
Model Number	**8530**
Serial Number	**8530113325**
Firmware Version	**3**
Calibration Date	**7/23/2013**
Test Name	**TDOWNWIND_001**
Test Start Time	**8:44:00 AM**
Test Start Date	**4/24/2014**
Test Length [D:H:M]	**0:01:24**
Test Interval [M:S]	**0:30**
Mass Average [mg/m3]	**0.004**
Mass Minimum [mg/m3]	**0.001**
Mass Maximum [mg/m3]	**0.055**
Mass TWA [mg/m3]	**0.001**
Photometric User Cal	**1**
Flow User Cal	**0**
Errors	
Number of Samples	**169**

Elapsed Time [s]	Mass [mg/m3]
30	0.055
60	0.006
90	0.003
120	0.003
150	0.007
180	0.005
210	0.003
240	0.003
270	0.003
300	0.003
330	0.005
360	0.003
390	0.004
420	0.003
450	0.003
480	0.003
510	0.003
540	0.003
570	0.003
600	0.002
630	0.003
660	0.002
690	0.002

Dust Monitoring Data
Nearest Receptor Location
Test #1
April 24, 2014

Elapsed Time [s]	Mass [mg/m3]
720	0.003
750	0.002
780	0.002
810	0.002
840	0.002
870	0.003
900	0.002
930	0.002
960	0.003
990	0.002
1020	0.002
1050	0.002
1080	0.002
1110	0.004
1140	0.002
1170	0.002
1200	0.002
1230	0.002
1260	0.002
1290	0.002
1320	0.002
1350	0.003
1380	0.002
1410	0.002
1440	0.009
1470	0.007
1500	0.006
1530	0.007
1560	0.002
1590	0.003
1620	0.003
1650	0.003
1680	0.004
1710	0.002
1740	0.001
1770	0.002
1800	0.004
1830	0.005
1860	0.004
1890	0.002
1920	0.004
1950	0.002

Dust Monitoring Data
Nearest Receptor Location
Test #1
April 24, 2014

Elapsed Time [s]	Mass [mg/m3]
1980	0.002
2010	0.002
2040	0.003
2070	0.002
2100	0.009
2130	0.006
2160	0.009
2190	0.005
2220	0.002
2250	0.002
2280	0.005
2310	0.002
2340	0.003
2370	0.003
2400	0.003
2430	0.002
2460	0.002
2490	0.003
2520	0.007
2550	0.005
2580	0.003
2610	0.004
2640	0.001
2670	0.002
2700	0.002
2730	0.002
2760	0.003
2790	0.002
2820	0.012
2850	0.008
2880	0.002
2910	0.002
2940	0.002
2970	0.002
3000	0.002
3030	0.002
3060	0.002
3090	0.003
3120	0.002
3150	0.003
3180	0.002
3210	0.002

Dust Monitoring Data
Nearest Receptor Location
Test #1
April 24, 2014

Elapsed Time [s]	Mass [mg/m3]
3240	0.002
3270	0.011
3300	0.003
3330	0.005
3360	0.002
3390	0.003
3420	0.003
3450	0.003
3480	0.006
3510	0.003
3540	0.003
3570	0.003
3600	0.004
3630	0.012
3660	0.004
3690	0.003
3720	0.003
3750	0.003
3780	0.003
3810	0.002
3840	0.002
3870	0.002
3900	0.002
3930	0.006
3960	0.003
3990	0.003
4020	0.003
4050	0.002
4080	0.003
4110	0.002
4140	0.002
4170	0.002
4200	0.003
4230	0.003
4260	0.002
4290	0.002
4320	0.002
4350	0.002
4380	0.002
4410	0.003
4440	0.003
4470	0.003

Dust Monitoring Data
Nearest Receptor Location
Test #1
April 24, 2014

Elapsed Time [s]	Mass [mg/m3]
4500	0.002
4530	0.003
4560	0.002
4590	0.003
4620	0.003
4650	0.002
4680	0.003
4710	0.002
4740	0.002
4770	0.007
4800	0.005
4830	0.003
4860	0.003
4890	0.002
4920	0.002
4950	0.003
4980	0.002
5010	0.005
5040	0.002
5070	0.002

Dust Monitoring Data
Downwind Location
Test #1
April 24, 2014

Instrument Name	**DustTrak II**
Model Number	**8530**
Serial Number	**8530122002**
Firmware Version	**3**
Calibration Date	**8/16/2013**
Test Name	**DOWN_001**
Test Start Time	**8:46:44**
Test Start Date	**4/24/2014**
Test Length [D:H:M]	**0:00:44**
Test Interval [M:S]	**1:00**
Mass Average [mg/m3]	**-0.001**
Mass Minimum [mg/m3]	**-0.003**
Mass Maximum [mg/m3]	**0.002**
Mass TWA [mg/m3]	**0**
Photometric User Cal	**0.38**
Flow User Cal	**0**
Errors	
Number of Samples	**44**

Elapsed Time [s]	Mass [mg/m3]
60	-0.001
120	-0.003
180	-0.003
240	-0.003
300	-0.001
360	-0.002
420	-0.001
480	-0.001
540	-0.002
600	0.000
660	-0.001
720	0.001
780	-0.001
840	-0.003
900	-0.003
960	0.001
1020	-0.003
1080	-0.001
1140	-0.003
1200	-0.003
1260	-0.003
1320	-0.003
1380	-0.003

Dust Monitoring Data
Downwind Location
Test #1
April 24, 2014

Elapsed Time [s]	Mass [mg/m3]
1440	-0.003
1500	-0.003
1560	-0.003
1620	-0.003
1680	-0.002
1740	-0.001
1800	0.000
1860	0.001
1920	0.000
1980	0.002
2040	0.001
2100	0.000
2160	0.002
2220	0.000
2280	-0.002
2340	-0.001
2400	-0.002
2460	-0.002
2520	0.001
2580	0.000
2640	0.001

Dust Monitoring Data
Downwind Location
Test #2
April 24, 2014

Instrument Name	**DustTrak II**
Model Number	**8530**
Serial Number	**8530122002**
Firmware Version	**3**
Calibration Date	**8/16/2013**
Test Name	**DOWN_002**
Test Start Time	**9:32:42**
Test Start Date	**4/24/2014**
Test Length [D:H:M]	**0:00:42**
Test Interval [M:S]	**1:00**
Mass Average [mg/m3]	**0.001**
Mass Minimum [mg/m3]	**-0.004**
Mass Maximum [mg/m3]	**0.07**
Mass TWA [mg/m3]	**0**
Photometric User Cal	**0.38**
Flow User Cal	**0**
Errors	
Number of Samples	**42**

Elapsed Time [s]	Mass [mg/m3]
60	0.070
120	0.000
180	0.000
240	0.001
300	0.002
360	0.001
420	0.000
480	-0.001
540	0.000
600	0.002
660	0.001
720	0.001
780	0.002
840	-0.003
900	-0.001
960	0.001
1020	0.000
1080	0.001
1140	0.000
1200	0.002
1260	-0.001
1320	0.000
1380	-0.001

Dust Monitoring Data
Downwind Location
Test #2
April 24, 2014

Elapsed Time [s]	Mass [mg/m3]
1440	0.000
1500	-0.001
1560	-0.002
1620	-0.001
1680	0.000
1740	0.000
1800	0.000
1860	0.000
1920	0.004
1980	-0.003
2040	-0.003
2100	-0.003
2160	-0.003
2220	-0.004
2280	-0.003
2340	-0.003
2400	-0.002
2460	-0.003
2520	-0.003