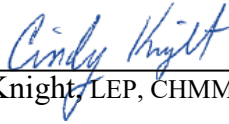


# REMEDIAL ACTION REPORT PCB-Contaminated Fill Pile

**Town Reclamation Yard  
183 Richard White Way  
Fairfield, Connecticut**

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December 5, 2017

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## **1.0 INTRODUCTION**

On behalf of the Town of Fairfield, Logical Environmental Solutions, LLC (LES) has completed the oversight and post-remediation sampling activities in association with the removal and disposal of the polychlorinated biphenyl (PCB) impacted fill material located in the northeast portion of the Reclamation Yard situated on the Town of Fairfield's parcel 183 Richard White Way in Fairfield, Connecticut. Figure 1 depicts the Site Location. The parcel is situated in a GB-classified groundwater area and all of the surrounding properties are connected to the public water distribution service.

The Reclamation Yard is situated in the southern/southwestern portion of the Town-owned property that comprises a total of approximately 124 acres. A pond is situated to the west, the Town Department of Public Works (DPW) Yard is located to the north/northwest, the school bus yard is situated to the north/northeast, a composting facility is located to the east/northeast, and salt marshes are located to the south. The Reclamation Yard portion of the property comprises approximately 5.54 acres and was operated as a soil and material processing yard for the purpose of recycling materials primarily generated through road and building construction and demolition activities. Public access to the site is prevented by a locked gate in the northeast corner of the yard. According to information provided by the Town, the parcel was used as a processing yard operated by private contractors for over 20 years and was going to be shut down as of December 15, 2016 due to visual, noise, and traffic concerns expressed by Town residents. From May 2013 to December 2016, the site was operated and managed by Julian Enterprises.

A Site Plan depicting the Reclamation Yard is included as Figure 2. The PCB remediation activities were completed in accordance with the approved June 12, 2017 Sampling Plan submitted to the Connecticut Department of Energy and Environmental Protection (CTDEEP) PCB Division. A copy of the approved plan is included in Appendix A.

### **1.1 Background**

In September 2016, LES was contracted by the Town of Fairfield DPW to make weekly inspections of the Reclamation Yard for the purpose of noting site conditions and changes, collecting random grab samples of newly deposited soil for analyses of potential contaminants of concern, and reporting the results of weekly inspections to the Town. From September 29, 2016 to December 8, 2016, LES completed eleven (11) weekly inspections and collected ten (10) soil

samples (S-1 to S-10) for analyses at a State-certified laboratory. Soil samples were analyzed for petroleum hydrocarbons using the Connecticut Extractable Petroleum Hydrocarbon (ETPH) Method, volatile organic compounds (VOCs) using EPA Method 8260, semi-volatile organic compounds (SVOCs) using EPA Method 8270, PCBs using EPA Method 8082, and leachable DEEP 15 Metals using the Toxicity Characteristic Leaching Procedure (TCLP). Selected random samples were also analyzed for Pesticides using EPA Method 8081A and Herbicides using EPA Method 8151. Tables 1 to 5 summarizing the results of the ten samples (S-1 to S-10) collected during the weekly inspections from September 29 to November 29, 2016 and a Figure depicting their approximate locations are included in Appendix A. In general, the weekly visual inspections did not note any obvious signs of onsite contamination such as strong odors, staining, or elevated VOC field screening results with the photoionization detector (PID). The fill material observed being processed at the yard consisted of a variety of construction and demolition debris mixed with varying amounts of soil, gravel, concrete, asphalt, and brick.

The results of the soil sample analyses collected prior to November 29, 2016 indicated the presence of low to moderate concentrations of petroleum hydrocarbons and polycyclic aromatic hydrocarbons (PAHs), which are typically detected in soil containing crushed asphalt. Leachable metals, VOCs, PCBs, non-PAH SVOCs, Pesticides, and Herbicides were not detected at elevated concentrations exceeding the CTDEEP Remediation Standard Regulation criteria in the soil samples collected prior to November 29, 2016.

During the November 29, 2016 inspection, LES collected two soil grab samples of newly observed soil from the top (S-9) and eastern side (S-10) of the pile area. The results of the S-9 soil sample analyses were generally consistent with the previous sample results, but the S-10 sample contained PCBs (6.8 milligrams per kilogram [mg/kg]) and leachable lead (10.6 milligrams per liter [mg/L]) at elevated concentrations. Upon learning of the S-10 sample results, on December 13, 2016, LES notified the Town and the Reclamation Yard was closed pending further investigation of the source and extent of the detected contamination. The CTDEEP Emergency Response Unit (Oil and Chemical Spills Division) and Solid Waste Division were also contacted by Town personnel to report the detected contamination. The Emergency Response Unit assigned the incident case no. 2016-06764 but referred the issue to the CTDEEP PCB Division. During the time period after November 29 to December 13, 2016, a significant amount of additional material had been placed in the area making it difficult to pinpoint the exact location of the S-10 sample.

## **2.0 PRE-REMEDATION INVESTIGATIONS**

In response to the November 29, 2016 Reclamation Yard sample results, the Town of Fairfield covered the eastern portion of the pile with polyethylene sheeting to prevent potential stormwater and wind impacts. The Town also directed their stormwater consultant, Osprey Environmental Engineering, LLC, (Osprey) to collect additional samples from the pile area, the stormwater sedimentation basins including the inlet and outlet, and the stormwater channel at Pine Creek. The purpose of the additional soil and sediment samples was to determine if additional areas of PCB-contaminated soil were present in surficial material in the eastern portion of the pile that may be subject to stormwater runoff, and to determine if contaminants were potentially migrating offsite and impacting the adjacent properties and sensitive salt marsh/surface water body receptors. Osprey also collected an air sample to determine if airborne dust from the pile contained elevated concentrations of lead that could adversely impact adjacent property occupants.

In summary, the results of Osprey's investigation indicated that PCBs were detected in three samples collected from the eastern portion of the pile at concentrations that included 0.38 mg/kg, 0.69 mg/kg, and 13.4 mg/kg. Leachable lead was detected at slightly elevated concentrations ranging from 0.023 mg/L to 2.2 mg/L, but were not detected at a concentration exceeding the RCRA hazardous waste concentration of 5.0 mg/L. Total lead (450 mg/kg) and arsenic (11 mg/kg) were detected in one soil and one sediment sample at slightly elevated concentrations. The soil and sediment samples also contained elevated concentrations of PAHs and petroleum hydrocarbons which were attributed to the presence of asphalt. Appendix A contains Tables 6 to 9 that summarize the results of the sample analyses, as well as a figure depicting Osprey's sample locations (F-1 to F-14).

On December 30, 2016, personnel representing LES, the Town of Fairfield, Julian Enterprises, and their environmental consultant, GO Environmental, met to discuss the investigation and remediation of the detected PCB and lead contaminated soil. Julian Enterprises and their consultant were to take the lead to investigate the extent of the contamination, under the oversight of LES and the Town. After some negotiations, Julian's Enterprises' consultant developed an acceptable work plan that generally conformed with 40 CFR Part 761, Subpart R, Sampling Non-Liquid, Non-Metal PCB Bulk Product Waste for Purposes of Characterization for PCB Disposal in Accordance with 761.62, and Sampling PCB Remediation Waste Destined for Off-Site Disposal

in Accordance with 761.61. The investigation involved the advancement of ten (10) test pits in the eastern portion of the Reclamation Yard to take multi-level samples from the pile for analyses of PCBs using the Soxhlet extraction method EPA 3540C/8082A, leachable (TCLP) lead, and asbestos. Two additional shallow samples were collected from areas anticipated to be beyond the extent of the PCB-contaminated fill for analyses of the same parameters. The investigation was completed by Complete Environmental Services under the direction of LES, GO Environmental, and the Town of Fairfield in February 2017. In summary, the investigation indicated that asbestos-containing materials and RCRA hazardous lead concentrations were not detected in the thirty-two samples collected during this investigation phase. Concentrations of PCBs were detected greater than 1 mg/kg in seventeen (17) of the thirty-two samples collected from the pile, with the highest PCB concentration being 15 mg/kg. A plan depicting the sample locations, and table 10 that summarizes the results of the sample analyses are included in Appendix A.

Based upon the results of the sampling investigations conducted, LES discussed the project with the CTDEEP PCB Division to determine the applicability of the Toxic Substances and Control Act (TSCA) regulations for further Town-lead investigation and disposal of the PCB-contaminated soil. The CTDEEP indicated that the investigation and disposal of the PCB material could be handled through the State CTDEEP PCB Program, and would not require notification of the EPA and management of the material as TSCA-regulated waste.

In March 2017, LES prepared Bid Specifications so the Town could procure the services of a remediation contractor to segregate the large bulky debris (concrete and boulders) from the pile for additional sampling, and load the PCB-contaminated soil into trucks for subsequent transportation and disposal at an approved facility. The initial estimate of the PCB-contaminated soil disposal was approximately 2,200 tons of material. Based upon the public Bid Results, the Town selected Connecticut Tank Removal (CTR) in late April 2017 to complete the remediation at the property. CTR's proposed disposal facility was Hazelton Creek Properties, LLC (HCP) in Moosic (operated by their affiliate Mark Construction) and Hazelton, Pennsylvania under Pennsylvania Beneficial Use Permit #WMGR096NE001 for permitted onsite use as fill on HCP's mine reclamation projects. However, additional waste characterization sampling of the soil was required prior to formal acceptance of the soil.

LES submitted a Sampling Plan to the CTDEEP PCB Division for their review and approval on June 12, 2017 that outlined the proposed sequence of events for the pile bulky debris segregation, bulky debris sampling, and post remediation sampling protocols. In accordance with the CTDEEP Remediation Standard Regulation Criteria, the CTDEEP PCB Division requested that the Residential Direct Exposure Criteria of 1 mg/kg for PCBs be utilized as the basis for determining if the soil and bulky debris would require offsite disposal.

LES also prepared a site-specific Health and Safety Plan that covered all LES and Town personnel working and visiting the secured site. As part of the overall project health and safety concern for occupants and workers on adjacent properties, LES proposed the completion of air quality monitoring and analytical testing of air samples to ensure that dusts and particulates were not migrating offsite and potentially impacting residents and workers downwind from the project.

In addition, LES collected waste characterization samples in accordance with the requirements set forth by HCP. Based upon the estimated and actual amount of soil transported offsite for disposal, LES collected a total of three (3) complete waste characterization sample profiles (WC-1 to WC-3) from the pile, and one additional waste characterization sample (WC-4) analyzed for PCBs. The full waste characterization samples were analyzed for VOCs (8260), SVOCs (8270), PCBs (8082), Total Priority Pollutant Metals, and Leachable (TCLP) Priority Pollutant Metals. In summary, the waste characterization sample PCB concentrations ranged from 0.51 mg/kg to 3.1 mg/kg and leachable lead concentrations ranged from less than 0.1 to 0.26 mg/L. The samples did not contain detectable concentrations of VOCs, and only contained low concentrations of SVOCs, total and leachable metals. Based upon the waste characterization sample results, the soil was deemed non-hazardous waste and was accepted by HCP for use as fill in their Moosic and Hazelton Creek, Pennsylvania facilities. Table 11 in Appendix A summarizes the results of the waste characterization sample analyses.

### 3.0 PCB REMEDIATION ACTIVITIES

Photographs in chronological order documenting the remediation activities that occurred at the Reclamation Yard are included in Appendix B. On June 16, 2017, CTR mobilized to the Reclamation Yard to commence the bulky debris segregation for subsequent sampling for PCBs. In general concrete and boulders in excess of approximately 3-feet in size were segregated from the pile, manually brushed clean of any adhering soil, and ultimately placed on, and covered by polyethylene sheeting. In accordance with the recommendations from the CTDEEP PCB Division, asphalt slabs were not considered bulky debris and were broken up and transported for offsite disposal at HCP.

On June 23, 2017, CTR completed the bulky debris segregation and LES collected three samples from the material to determine if they contained PCBs. Two concrete samples (Concrete-1 and Concrete-2) and one brick sample (Brick-1) were collected by LES in accordance with the EPA's protocols for sampling porous material in the field, and the samples were analyzed for PCBs using the Method 3540C Soxhlet Extraction/Method 8082. Table REM-1 in the Tables section of this report summarizes the results of the analyses and a copy of the bulky debris analytical report is included in Appendix C. The bulky debris samples did not contain detectable concentrations of PCBs that exceed the minimum laboratory detection limits, which were less than 1 mg/kg. Based upon the results, the bulky debris was placed in a pile on the southwestern area of the Reclamation Yard property.

CTR completed the PCB-contaminated soil removal activities from the eastern portion of the Reclamation Yard from June 20 to October 11, 2017. The extent of the PCB-contaminated soil was greater than originally expected and resulted in multiple removal events and hot-spot clean-ups spanning the approximate four month period due to confirmation sample results that exceeded the CTDEEP's PCB Division requested cleanup criteria of 1 mg/kg. A total of 134 triaxle truckloads containing 3,627.1 tons of contaminated soil was transported offsite to the HCP Pennsylvania facilities for disposal. Copies of the 134 non-hazardous disposal manifests are included in Appendix D.

### **3.1 Verification Soil Sampling**

In accordance with the approved Sampling Plan, LES collected a series of four rounds of confirmation samples to ensure that the PCB-contaminated soil was removed from the pile area. LES collected confirmation soil samples in a 1.5-meter grid across the entire area to document the removal of PCB impacted material exceeding 1 mg/kg. The confirmation soil samples were collected in three-inch (approximate 7.5 cm) depth intervals as discrete, in-place samples using dedicated, disposable sampling cores. The soil was not mixed, composited, or diluted with other material. All samples were analyzed for PCBs using EPA Method 3540C Soxhlet extraction/EPA Method 8082.

The initial confirmation sampling rounds completed on June 26, and 27, 2017 indicated that a significantly greater amount of PCB-contaminated soil necessitated removal for offsite disposal. The only area where PCBs were consistently detected at concentrations less than 1 mg/kg was the southwestern sidewall of the pile that extended into the larger main pile area. Additional verification soil samples were collected after subsequent soil excavations in identified PCB hot-spots in July, August, September, and October. The final verification samples collected from the pile area did not contain PCBs at concentrations that exceed the CTDEEP target remediation criteria of 1 mg/kg. Additional random sampling beyond the extent of the known PCB-contaminated soil in the eastern pile area were also collected to supplement the final verification samples to document that PCBs are not present at concentrations exceeding 1 mg/kg.

A plan depicting the final verification sample locations and supplemental sample locations is included as Figure 3. The laboratory reports from the four rounds of verification sampling that include samples not initially meeting the target cleanup criteria of 1 mg/kg are included in Appendix C.

### **3.2 Decontamination Activities & Wipe Sampling**

Between each round of soil excavation, CTR personnel manually removed all loose soil from their loader and excavator using the dry wipe method so that decontamination fluids requiring disposal were not unnecessarily generated. Double-wash/rinse wet decontamination methods would be implemented if the dry decontamination of the equipment was not successful. After each round of soil excavation, LES collected multiple wipe samples from the CTR equipment for analysis of PCBs using the Soxhlet extraction method to document that PCBs were not present. PCBs were never detected in any of the wipe samples collected at a concentration exceeding the minimum laboratory detection limit of 1 microgram per cubic centimeter ( $\mu\text{g}/\text{cm}^3$ ). A copy of the laboratory report from the final wipe samples on October 11, 2017 is included in Appendix E of the report.

### **3.3 Air Sampling & Monitoring Activities**

During every day of onsite activities, LES completed air monitoring sampling to document that contaminants were not being dispersed into the air and potentially impacting occupants of the adjacent properties. LES utilized calibrated field equipment including a dataRAM for total dust particulate monitoring and a photoionization detector (PID) for monitoring of total VOCs. The lowest air monitoring limits outlined in the site-specific HASP were greater than 150 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) particulates in dust, and greater than 5 parts per million (ppm) total VOCs for a sustained period of one minute. Neither monitoring exposure limit were ever reached during any day of the onsite work.

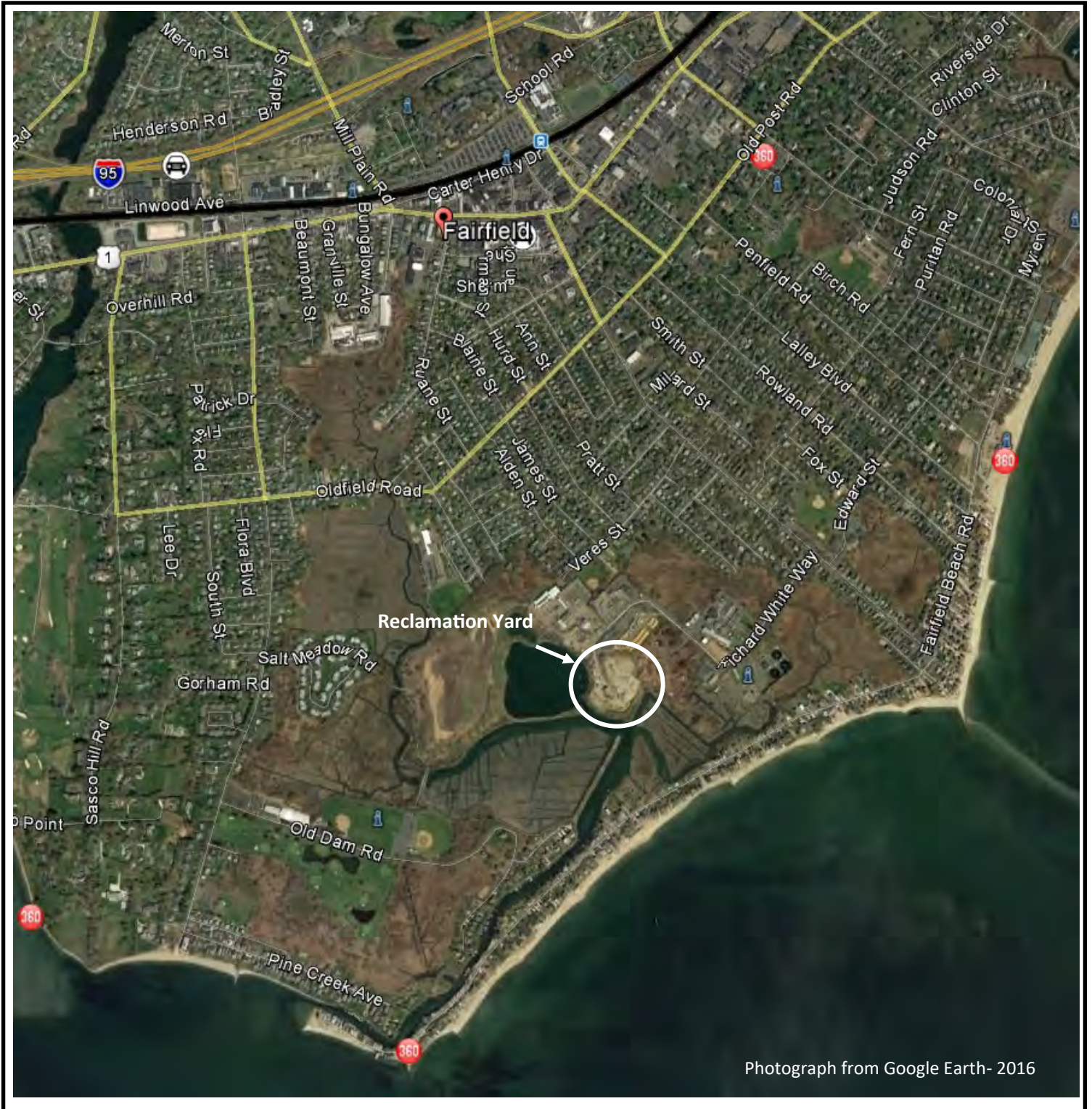
In addition, during each day of the initial soil excavation and segregation activities commencing on June 16, 2017, LES collected both background (upwind) and downwind air samples for analysis of airborne PCBs using EPA Method TO-10A. The samples were collected over the course of the workday using the low-flow polyurethane foam (PUF) sample collection methodology. A total of five background (BG-1 to BG-5) and downwind (DW-1 to DW-5) samples were collected and submitted for laboratory analyses from onsite activities potentially generating dust that were completed June 16 to 26, 2017. Due to a laboratory extraction error, the samples collected on June 22 and 23, 2017 could not be analyzed.

None of the air samples that were analyzed contained detectable concentrations of PCBs greater than 0.33 micrograms ug/m<sup>3</sup>, which is significantly less than the HASP target concentration of 500 ug/m<sup>3</sup> (0.5 milligrams [mg]/m<sup>3</sup>). Copies of the laboratory reports from the air sample analyses are included in Appendix E.

#### **4.0 CONCLUSIONS & RECOMMENDATIONS**

Based upon the results of the confirmation bulky debris and soil samples collected from the Reclamation Yard from June 16 to October 11, 2017, no additional remediation would be required. However, LES recommends that if additional soil and debris from Reclamation Yard be disturbed, additional sampling of the fill material should be conducted to ensure that PCBs are not present at concentrations exceeding 1 mg/kg.

# FIGURES



**FIGURE 1 - SITE LOCATION**

**Town of Fairfield - Reclamation Yard**

**183 Richard White Way**

**Fairfield, Connecticut**



**FIGURE 2 - SITE PLAN**  
**Town of Fairfield - Reclamation Yard**  
**183 Richard White Way**  
**Fairfield, Connecticut**

**APPENDIX A**  
**Pre-Remediation Investigation &**  
**Sampling Documents**

**Table 1**  
**Soil Samples Collected September 29, 2016**  
**Reclamation Yard – Fairfield, Connecticut**

Sample I.D.:	S-1	S-2	S-3	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/Commercial & Industrial
CT ETPH - (mg/kg)	< 290	<b>610</b>	440	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	--	--
SVOCs - Method 8270 (mg/kg)					
Acenaphthylene	< 0.27	0.3	0.45	84 mg/kg	1,000/2,500 mg/kg
Anthracene	< 0.27	0.49	0.37	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	0.95	<b>1.7</b>	<b>1.3</b>	1 mg/kg	1/7.8 mg/kg
Benzo(a)pyrene	1.0	<b>1.9</b>	<b>1.7</b>	1 mg/kg	1/1 mg/kg
Benzo(b)fluoranthene	<b>1.1</b>	<b>2.2</b>	<b>2.0</b>	1 mg/kg	1/7.8 mg/kg
Benzo(g,h,i)perylene	0.72	<b>1.2</b>	<b>1.1</b>	1 mg/kg (APS)	8.4/78 mg/kg (APS)
Benzo(k)fluoranthene	0.91	<b>1.3</b>	0.98	1 mg/kg	8.4/78 mg/kg
Bis(2-ethylhexyl)phthalate	5.1	< 0.26	< 0.25	11 mg/kg	44/410 mg/kg
Chrysene	<b>1.3</b>	<b>2.0</b>	<b>1.6</b>	1 mg/kg (APS)	84/780 mg/kg (APS)
Fluoranthene	2.1	3.3	2.2	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	0.76	<b>1.3</b>	<b>1.2</b>	1 mg/kg (APS)	1/7.8 mg/kg (APS)
Phenanthrene	1.1	1.8	1.0	40 mg/kg	1,000/2,500 mg/kg
Pyrene	1.9	2.9	2.1	40 mg/kg	1,000/2,500 mg/kg
All other SVOCs Tested	ND	ND	ND	--	--
PCBs – Method 8082 (mg/kg)	< 0.39	< 0.37	< 0.35	Not Applicable	1/10 mg/kg
Pesticides - Method 8081 (mg/kg)	ND	NA	NA	--	--
Herbicides – Method 8151 (mg/kg)	ND	NA	NA	--	--
TCLP DEEP 15 Metals (mg/L)				Not Applicable	
Barium	0.31	0.36	0.29		10 mg/L
Nickel	< 0.1	< 0.1	0.1		1.0 mg/L
Zinc	0.55	0.22	< 0.1		50 mg/L
Lead	< 0.1	< 0.1	< 0.1		0.15 mg/L
All other Metals Tested	ND	ND	ND		--

ND – Not Detected above laboratory detection limits.

NA – Not Analyzed for this procedure.

PMC – Pollutant Mobility Criteria

DEC – Direct Exposure Criteria

APS – Additional Polluting Substance

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits. Concentrations displayed in bold red font exceed the CTDEEP Remediation Standard Regulation criteria.

**Table 2**  
**Soil Samples Collected October 21, 2016**  
**Reclamation Yard – Fairfield, Connecticut**

Sample I.D.:	S-4	S-5	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/Commercial & Industrial
CT ETPH - (mg/kg)	490	< 56	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	--	--
SVOCs - Method 8270 (mg/kg)				
Anthracene	0.27	< 0.26	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	0.96	< 0.26	1 mg/kg	1/7.8 mg/kg
Benzo(a)pyrene	0.97	< 0.26	1 mg/kg	1/1 mg/kg
Benzo(b)fluoranthene	0.95	< 0.26	1 mg/kg	1/7.8 mg/kg
Benzo(g,h,i)perylene	0.61	< 0.26	1 mg/kg (APS)	8.4/78 mg/kg (APS)
Benzo(k)fluoranthene	0.93	< 0.26	1 mg/kg	8.4/78 mg/kg
Chrysene	<b>1.1</b>	< 0.26	1 mg/kg (APS)	84/780 mg/kg (APS)
Fluoranthene	1.9	< 0.26	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	0.67	< 0.26	1 mg/kg (APS)	1/7.8 mg/kg (APS)
Phenanthrene	0.98	< 0.26	40 mg/kg	1,000/2,500 mg/kg
Pyrene	1.7	< 0.26	40 mg/kg	1,000/2,500 mg/kg
All other SVOCs Tested	ND	ND	--	--
PCBs – Method 8082 (mg/kg)	< 0.36	< 0.37	Not Applicable	1/10 mg/kg
TCLP DEEP 15 Metals (mg/L)			Not Applicable	
Barium	0.52	0.57		10 mg/L
Zinc	0.22	0.15		50 mg/L
Lead	< 0.1	< 0.1		0.15 mg/L
All Other Metals Tested	ND	ND		--

ND – Not Detected above laboratory detection limits.

PMC – Pollutant Mobility Criteria

DEC – Direct Exposure Criteria

APS – Additional Polluting Substance

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits. Concentrations displayed in bold red font exceed the CTDEEP Remediation Standard Regulation criteria.

**Table 3**  
**Soil Sample Collected November 3, 2016**  
**Reclamation Yard – Fairfield, Connecticut**

Sample I.D.:	S-6	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/Commercial & Industrial
CT ETPH - (mg/kg)	< 300	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	--	--
SVOCs - Method 8270 (mg/kg)			
Anthracene	0.34	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	<b>1.3</b>	1 mg/kg	1/7.8 mg/kg
Benzo(a)pyrene	<b>1.5</b>	1 mg/kg	1/1 mg/kg
Benzo(b)fluoranthene	<b>1.7</b>	1 mg/kg	1/7.8 mg/kg
Benzo(g,h,i)perylene	0.85	1 mg/kg (APS)	8.4/78 mg/kg (APS)
Benzo(k)fluoranthene	<b>1.4</b>	1 mg/kg	8.4/78 mg/kg
Chrysene	<b>1.9</b>	1 mg/kg (APS)	84/780 mg/kg (APS)
Fluoranthene	3.3	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	0.96	1 mg/kg (APS)	1/7.8 mg/kg (APS)
Phenanthrene	2.0	40 mg/kg	1,000/2,500 mg/kg
Pyrene	2.7	40 mg/kg	1,000/2,500 mg/kg
All other SVOCs Tested	ND	--	--
PCBs – Method 8082 (mg/kg)	< 0.39	Not Applicable	1/10 mg/kg
TCLP DEEP 15 Metals (mg/L)			Not Applicable
Barium	0.21	10 mg/L	
Zinc	0.49	50 mg/L	
Lead	< 0.1	0.15 mg/L	
All other Metals Tested	ND	--	

ND – Not Detected above laboratory detection limits.

NA – Not Analyzed for this procedure.

PMC – Pollutant Mobility Criteria

DEC – Direct Exposure Criteria

APS – Additional Polluting Substance

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits. Concentrations displayed in bold red font exceed the CTDEEP Remediation Standard Regulation criteria.

**Table 4**  
**Soil Samples Collected November 10, 2016**  
**Reclamation Yard – Fairfield, Connecticut**

Sample I.D.:	S-7	S-8	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/Commercial & Industrial
CT ETPH - (mg/kg)	< 57	< 56	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	--	--
SVOCs - Method 8270 (mg/kg)				
Chrysene	0.27	< 0.26	1 mg/kg (APS)	1,000/2,500 mg/kg
Fluoranthene	0.43	< 0.26	56 mg/kg	/kg
Pyrene	0.4	< 0.26	40 mg/kg	1,000/2,500 mg/kg
All other SVOCs Tested	ND	D	--	--
PCBs – Method 8082 (mg/kg)	< 0.37	< 0.37	Not Applicable	1/10 mg/kg
TCLP DEEP 15 Metals (mg/L)				Not Applicable
Barium	0.019	0.039	10 mg/L	
Vanadium	< 0.01	0.011	0.5 mg/L	
Lead	< 0.1	< 0.1	0.15 mg/L	
All other Metals Tested	ND	ND	--	

ND – Not Detected above laboratory detection limits.

NA – Not Analyzed for this procedure.

PMC – Pollutant Mobility Criteria

DEC – Direct Exposure Criteria

APS – Additional Polluting Substance

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.



**INSEPTION SAMPLE LOCATIONS (Approximate)**

**September 29 to November 29, 2016**

**Town of Fairfield - Reclamation Yard**

**183 Richard White Way**

**Fairfield, Connecticut**

**Table 5**  
**Soil Samples Collected November 29, 2016**  
**Reclamation Yard – Fairfield, Connecticut**

Sample I.D.:	S-9	S-10	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/Commercial & Industrial	RCRA Hazardous Waste Concentration
CT ETPH - (mg/kg)	<b>760</b>	ND (< 280)	2,500 mg/kg	500/2,500 mg/kg	--
VOCs - Method 8260 (mg/kg)					
1,2,4-Trimethylbenzene	ND (< 0.55)	0.085	28 mg/kg (APS)	500/1,000 mg/kg (APS)	--
1,3,5-Trimethylbenzene	ND (< 0.55)	0.034	28 mg/kg (APS)	500/1,000 mg/kg (APS)	--
Ethylbenzene	ND (< 0.0074)	0.025	10.1 mg/kg	500/1,000 mg/kg	--
Naphthalene	ND (< 0.55)	0.44	56 mg/kg	1,000/2,500 mg/kg	--
n-Propylbenzene	ND (< 0.55)	0.0063	10 mg/kg (APS)	500/1,000 mg/kg (APS)	--
p-Isopropyltoluene	ND (< 0.55)	0.0065	5 mg/kg (APS)	500/1,000 mg/kg (APS)	--
Xylenes (total)	ND (< 0.0074)	0.115	19.5 mg/kg	500/1,000 mg/kg	--
All Other VOCs Tested	ND	ND	--	--	--
SVOCs - Method 8270 (mg/kg)					
Acenaphthylene	ND (< 0.3)	0.35	84 mg/kg	1,000/2,500 mg/kg	--
Anthracene	0.58	0.49	400 mg/kg	1,000/2,500 mg/kg	--
Benzo(a)anthracene	<b>2.3</b>	<b>1.2</b>	1 mg/kg	1/7.8 mg/kg	--
Benzo(a)pyrene	<b>2.5</b>	<b>1.4</b>	1 mg/kg	1/1 mg/kg	--
Benzo(b)fluoranthene	<b>3.3</b>	<b>1.3</b>	1 mg/kg	1/7.8 mg/kg	--
Benzo(g,h,i)perylene	<b>1.6</b>	0.96	1 mg/kg (APS)	8.4/78 mg/kg (APS)	--
Benzo(k)fluoranthene	<b>2.1</b>	<b>1.1</b>	1 mg/kg	8.4/78 mg/kg	--
Benzyl Butyl Phthalate	ND (< 0.3)	0.41	200 mg/kg	1,000/2,000 mg/kg	--
Bis(2-ethylhexylphthalate)	0.33	1.3	200 mg/kg	1,000/2,000 mg/kg	--
Chrysene	<b>3.3</b>	<b>1.4</b>	1 mg/kg (APS)	84/780 mg/kg (APS)	--
Dibenz(a,h)anthracene	0.45	ND (< 0.26)	1 mg/kg (APS)	1/1 mg/kg (APS)	--
Fluoranthene	6.0	2.9	56 mg/kg	1,000/2,500 mg/kg	--
Fluorene	0.38	0.26	56 mg/kg	1,000/2,500 mg/kg	--
Indeno(1,2,3-cd)pyrene	<b>1.8</b>	0.98	1 mg/kg (APS)	1/7.8 mg/kg (APS)	--
Phenanthrene	3.8	1.9	40 mg/kg	1,000/2,500 mg/kg	--
Pyrene	5.0	2.8	40 mg/kg	1,000/2,500 mg/kg	--
All other SVOCs Tested	ND	ND	--	--	--
Total PCBs – Method 8082 (mg/kg)	ND (< 0.42)	<b>6.8</b>	Not Applicable	1/10 mg/kg	--
Pesticides – Method 8081A (mg/kg)	ND	<b>ND*</b>	--	--	--
TCLP DEEP 15 Metals (mg/L)				Not Applicable	
Barium	0.3	1.63	10 mg/L		100 mg/L
Cadmium	ND (< 0.05)	<b>0.051</b>	0.05 mg/L		1.0 mg/L
Copper	ND (< 0.1)	1.26	13 mg/L		--
Nickel	ND (< 0.1)	0.18	1.0 mg/L		--
Lead	<b>0.2</b>	<b>10.6</b>	0.15 mg/L		5.0 mg/L
Zinc	1.57	20.5	50 mg/L		--
All other Metals Tested	ND	ND	--		--

ND – Not Detected above laboratory detection limits.

PMC – Pollutant Mobility Criteria

DEC – Direct Exposure Criteria

APS – Additional Polluting Substance

\* The laboratory detection limits for several pesticides exceeded their respective CTDEEP criteria.

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits. Concentrations displayed in bold red font exceed the CTDEEP Remediation Standard Regulation criteria.

**Table 6**  
**Soil Sample Collected December 14, 2016**  
**Reclamation Yard – Fairfield, Connecticut**

Sample I.D.:	F-1	F-2	F-3	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/Commercial & Industrial
CT ETPH - (mg/kg)	<b>730</b>	<b>2,000</b>	<b>1,500</b>	2,500 mg/kg	500/2,500 mg/kg
SVOCs - Method 8270 (mg/kg)					
Acenaphthylene	< 0.35	1.2	1.0	84 mg/kg	1,000/2,500 mg/kg
Acenaphthene	< 0.35	0.61	< 0.42	84 mg/kg (APS)	1,000/2,500 mg/kg (APS)
Anthracene	< 0.35	1.5	1.2	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	0.55	<b>3.9</b>	<b>3.8</b>	1 mg/kg	1/7.8 mg/kg
Benzo(a)pyrene	0.57	<b>2.6</b>	<b>2.7</b>	1 mg/kg	1/1 mg/kg
Benzo(b)fluoranthene	0.84	<b>3.4</b>	<b>3.8</b>	1 mg/kg	1/7.8 mg/kg
Benzo(g,h,i)perylene	< 0.35	<b>1.6</b>	<b>1.2</b>	1 mg/kg (APS)	8.4/78 mg/kg (APS)
Benzo(k)fluoranthene	< 0.35	<b>1.6</b>	<b>1.4</b>	1 mg/kg	8.4/78 mg/kg
Carbazole	< 0.35	0.86	0.77	1 mg/kg (APS)	31/290 mg/kg (APS)
Chrysene	0.61	<b>3.8</b>	<b>4.3</b>	1 mg/kg (APS)	84/780 mg/kg (APS)
Dibenz(a,h)anthracene	< 0.35	<b>1.1</b>	1.0	1 mg/kg (APS)	1/1 mg/kg (APS)
Dibenzofuran	< 0.35	0.47	< 0.42	1.4 mg/kg (APS)	68/1,000 mg/kg (APS)
Fluoranthene	0.7	4.4	3.9	56 mg/kg	1,000/2,500 mg/kg
Fluorene	< 0.35	0.99	0.84	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	< 0.35	<b>1.6</b>	<b>1.6</b>	1 mg/kg (APS)	1/7.8 mg/kg (APS)
Naphthalene	< 0.35	0.58	< 0.42	56 mg/kg	1,000/2,500 mg/kg
Phenanthrene	0.51	5.5	5.1	40 mg/kg	1,000/2,500 mg/kg
Pyrene	0.58	3.9	3.4	40 mg/kg	1,000/2,500 mg/kg
All other SVOCs Tested	ND	ND	ND	--	--
PCBs – Method 8082 (mg/kg)	NA	NA	NA	Not Applicable	1/10 mg/kg
Total RCRA 8 Metals (mg/kg)				Not Applicable	
Arsenic	3.7	9.2	7.4		10/10 mg/kg
Barium	75	130	120		4,700/140,000 mg/kg
Cadmium	< 0.62	0.76	0.79		34/1,000 mg/kg
Chromium	19	33	34		None Established
Lead	33	130	140		400/1,000 mg/kg
Mercury	< 0.25	0.32	< 0.28		20/610 mg/kg
All other Metals Tested	ND	ND	ND		--
TCLP RCRA 8 Metals (mg/L)					Not Applicable
Barium	0.44	0.58	0.51	10 mg/L	
Lead	< 0.1	< 0.1	< 0.1	0.15 mg/L	
All other Metals Tested	ND	ND	ND	--	

ND – Not Detected above laboratory detection limits.

NA – Not Analyzed for this procedure.

APS – Additional Polluting Substance

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits. Concentrations displayed in bold red font exceed the CTDEEP Remediation Standard Regulation criteria.

**Table 7**  
**Soil Sample Collected December 14, 2016**  
**Reclamation Yard – Fairfield, Connecticut**

Sample I.D.:	F-4	F-5	F-6	F-8	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/Commercial & Industrial
CT ETPH - (mg/kg)	290	< 76	430	<b>1,200</b>	2,500 mg/kg	500/2,500 mg/kg
SVOCs - Method 8270 (mg/kg)						
Anthracene	< 0.4	< 0.46	< 0.47	0.38	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	< 0.4	0.74	< 0.47	<b>2.0</b>	1 mg/kg	1/7.8 mg/kg
Benzo(a)pyrene	< 0.4	0.92	0.61	<b>2.0</b>	1 mg/kg	1/1 mg/kg
Benzo(b)fluoranthene	0.45	<b>1.3</b>	1.0	<b>3.5</b>	1 mg/kg	1/7.8 mg/kg
Benzo(g,h,i)perylene	< 0.4	< 0.46	< 0.46	<b>1.2</b>	1 mg/kg (APS)	8.4/78 mg/kg (APS)
Benzo(k)fluoranthene	< 0.4	0.5	< 0.47	<b>1.6</b>	1 mg/kg	8.4/78 mg/kg
Carbazole	< 0.4	< 0.46	< 0.47	0.79	1 mg/kg (APS)	31/290 mg/kg (APS)
Chrysene	< 0.4	0.93	0.55	<b>2.4</b>	1 mg/kg (APS)	84/780 mg/kg (APS)
Dibenz(a,h)anthracene	< 0.4	< 0.46	< 0.47	0.86	1 mg/kg (APS)	1/1 mg/kg (APS)
Fluoranthene	0.42	1.0	0.55	2.8	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	< 0.4	< 0.46	< 0.47	<b>1.4</b>	1 mg/kg (APS)	1/7.8 mg/kg (APS)
Phenanthrene	< 0.4	0.7	< 0.47	2.2	40 mg/kg	1,000/2,500 mg/kg
Pyrene	< 0.4	0.86	< 0.47	2.0	40 mg/kg	1,000/2,500 mg/kg
All other SVOCs Tested	ND	ND	ND	ND	--	--
PCBs – Method 8082 (mg/kg)	NA	< 0.35	< 0.36	0.69	Not Applicable	1/10 mg/kg
Total RCRA 8 Metals (mg/kg)					Not Applicable	
Arsenic	3.8	<b>11</b>	5.2	1.9		10/10 mg/kg
Barium	24	150	85	36		4,700/140,000 mg/kg
Cadmium	< 0.67	0.92	< 0.78	< 0.54		34/1,000 mg/kg
Chromium	17	45	33	11		None Established
Lead	10	110	52	30		400/1,000 mg/kg
All other Metals Tested	ND	ND	ND	ND		--
TCLP RCRA 8 Metals (mg/L)						Not Applicable
Barium	0.13	0.71	0.31	0.36	10 mg/L	
Lead	< 0.1	< 0.1	< 0.1	< 0.1	0.15 mg/L	
All other Metals Tested	ND	ND	ND	ND	--	

ND – Not Detected above laboratory detection limits.

NA – Not Analyzed for this procedure.

APS – Additional Polluting Substance

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits. Concentrations displayed in bold red font exceed the CTDEEP Remediation Standard Regulation criteria.

**Table 8**  
**Soil Sample Collected December 14, 2016**  
**Reclamation Yard – Fairfield, Connecticut**

Sample I.D.:	F-9	F-10	F-11	F-12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/Commercial & Industrial
CT ETPH - (mg/kg)	<b>1,100</b>	<b>820</b>	<b>520</b>	270	2,500 mg/kg	500/2,500 mg/kg
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	0.43	< 0.37	< 0.35	< 0.37	84 mg/kg	1,000/2,500 mg/kg
Anthracene	0.6	< 0.37	< 0.35	< 0.37	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	<b>1.6</b>	< 0.37	< 0.35	< 0.37	1 mg/kg	1/7.8 mg/kg
Benzo(a)pyrene	<b>2.2</b>	< 0.37	< 0.35	< 0.37	1 mg/kg	1/1 mg/kg
Benzo(b)fluoranthene	<b>2.8</b>	< 0.37	< 0.35	< 0.37	1 mg/kg	1/7.8 mg/kg
Benzo(g,h,i)perylene	<b>1.1</b>	< 0.37	< 0.35	< 0.37	1 mg/kg (APS)	8.4/78 mg/kg (APS)
Benzo(k)fluoranthene	0.87	< 0.37	< 0.35	< 0.37	1 mg/kg	8.4/78 mg/kg
Bis(2-ethylhexyl)phthalate	1.9	<b>35</b>	<b>80</b>	0.42	11 mg/kg	44/410 mg/kg
Butylbenzylphthalate	1.4	<b>290</b>	95	0.45	200 mg/kg	1,000/2,500 mg/kg
Chrysene	<b>1.6</b>	< 0.37	< 0.35	< 0.37	1 mg/kg (APS)	84/780 mg/kg (APS)
Dibenz(a,h)anthracene	0.8	< 0.37	< 0.35	< 0.37	1 mg/kg (APS)	1/1 mg/kg (APS)
Fluoranthene	2.1	< 0.37	< 0.35	0.44	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	1.4	< 0.37	< 0.35	< 0.37	1 mg/kg (APS)	1/7.8 mg/kg (APS)
Phenanthrene	2.0	< 0.37	< 0.35	< 0.37	40 mg/kg	1,000/2,500 mg/kg
Pyrene	2.3	< 0.37	< 0.35	0.49	40 mg/kg	1,000/2,500 mg/kg
All other SVOCs Tested	ND	ND	ND	ND	--	--
PCBs – Method 8082 (mg/kg)	<b>13.4</b>	0.33	< 0.23	< 0.24	Not Applicable	1/10 mg/kg
Total RCRA 8 Metals (mg/kg)					Not Applicable	
Arsenic	<b>11</b>	4.6	4.3	8.3		10/10 mg/kg
Barium	140	59	59	64		4,700/140,000 mg/kg
Cadmium	4.0	1.2	< 0.57	< 0.62		34/1,000 mg/kg
Chromium	69	60	17	21		None Established
Lead	<b>450</b>	54	20	39		400/1,000 mg/kg
Mercury	0.55	< 0.25	< 0.23	< 0.25		20/610 mg/kg
All other Metals Tested	ND	ND	ND	ND		--
TCLP RCRA 8 Metals (mg/L)						Not Applicable
Barium	0.95	0.22	< 0.23	0.3	10 mg/L	
Cadmium	<b>0.049</b>	< 0.005	< 0.005	< 0.005	0.04 mg/L	
Lead	<b>2.2</b>	< 0.1	< 0.1	< 0.1	0.15 mg/L	
All other Metals Tested	ND	ND	ND	ND	--	

ND – Not Detected above laboratory detection limits.

APS – Additional Polluting Substance

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits. Concentrations displayed in bold red font exceed the CTDEEP Remediation Standard Regulation criteria.

**Table 9**  
**Soil Sample Collected December 14, 2016**  
**Reclamation Yard – Fairfield, Connecticut**

Sample I.D.:	F-13	F-14	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/Commercial & Industrial
CT ETPH - (mg/kg)	330	<b>980</b>	2,500 mg/kg	500/2,500 mg/kg
SVOCs - Method 8270 (mg/kg)				
Benzo(a)anthracene	< 0.38	0.87	1 mg/kg	1/7.8 mg/kg
Benzo(a)pyrene	0.43	<b>1.3</b>	1 mg/kg	1/1 mg/kg
Benzo(b)fluoranthene	0.49	<b>1.7</b>	1 mg/kg	1/7.8 mg/kg
Benzo(g,h,i)perylene	< 0.38	0.48	1 mg/kg (APS)	8.4/78 mg/kg (APS)
Benzo(k)fluoranthene	< 0.38	0.62	1 mg/kg	8.4/78 mg/kg
Chrysene	< 0.38	0.94	1 mg/kg (APS)	84/780 mg/kg (APS)
Fluoranthene	<0.38	1.7	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	< 0.38	0.48	1 mg/kg (APS)	1/7.8 mg/kg (APS)
Phenanthrene	< 0.38	0.68	40 mg/kg	1,000/2,500 mg/kg
Pyrene	0.39	1.5	40 mg/kg	1,000/2,500 mg/kg
All other SVOCs Tested	ND	ND	--	--
PCBs – Method 8082 (mg/kg)	< 0.25	< 0.23	Not Applicable	1/10 mg/kg
Total RCRA 8 Metals (mg/kg)			Not Applicable	10/10 mg/kg
Arsenic	6.7	4.2		4,700/140,000 mg/kg
Barium	58	58		34/1,000 mg/kg
Chromium	23	18		None Established
Lead	25	23		400/1,000 mg/kg
All other Metals Tested	ND	ND		--
TCLP RCRA 8 Metals (mg/L)				Not Applicable
Barium	0.29	0.39	10 mg/L	
Lead	< 0.1	< 0.1	0.15 mg/L	
All other Metals Tested	ND	ND	--	

ND – Not Detected above laboratory detection limits.

APS – Additional Polluting Substance

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits. Concentrations displayed in bold red font exceed the CTDEEP Remediation Standard Regulation criteria.



*Osprey Environmental Engineering, LLC*  
*146 East Main Street, Clinton, Connecticut*  
**Soil Sampling Locations – Sheet 1**  
**Fairfield Aggregate Recycling Yard**  
**183 Richard White Way, Fairfield, CT**  
*Date: December 2016*      *Scale: NTS*

**Table 10**  
**Soil Sample Collected February 14 to 16, 2017**  
**Reclamation Yard – Fairfield, Connecticut**

Sample I.D. & Depth in Pile:	PCBs Soxhlet Extraction	TCLP Lead	Asbestos - PLM
A-1 0'-5'	< 0.36 mg/kg	NA	NA
A-1 5'-7'	< 0.38 mg/kg	< 0.1 mg/L	0% (Brick & Grout)
A-1 7'-10	<b>1.7 mg/kg</b>	NA	0% (Brick – 3 types & Brick Topping)
A-3 0'-5'	<b>4.6/4.3 mg/kg</b>	NA	NA
A-3 5'-7'	<b>5.5 mg/kg</b>	<b>0.83 mg/L</b>	0% (Cementitious Panel)
A-3 7'-10	<b>8.3 mg/kg</b>	NA	0% (Brick, Grout, Ceramic – 2 types, Granite & Mudset)
A-5 0'-5'	< 0.39 mg/kg	NA	0% (Concrete & Brick)
A-5 5'-7'	< 0.36 mg/kg	< 0.1 mg/L	NA
A-5 7'-10	< 0.35 mg/kg	NA	0% (Brick)
E-1 0'-4'	<b>4.0 mg/kg</b>	NA	NA
E-1 4'-7'	0.81 mg/kg	<b>0.32 mg/L</b>	0% (Brick)
E-1 7'-10	<b>2.6 mg/kg</b>	NA	0% (Brick)
E-3 0'-5'	<b>2.1 mg/kg</b>	NA	0% (Concrete, Brick, & Grout)
E-3 5'-7'	<b>4.6 mg/kg</b>	<b>0.38 mg/L</b>	0% (Brick)
E-3 7'-10	0.92 mg/kg	NA	0% (Concrete, Wall/Flooring, & Mudset)
E-5 0'-5'	<b>3.4 mg/kg</b>	NA	0% (Brick)
E-5 5'-7'	<b>4.3 mg/kg</b>	0.13 mg/L	NA
E-5 7'-10	0.42 mg/kg/< 0.35 mg/kg	NA	0% (Concrete & Brick)
I-3 0'-5'	< 0.38 mg/kg	NA	0% (Brick)
I-3 5'-7'	<b>1.6 mg/kg</b>	<b>0.86 mg/L</b>	NA
I-3 7'-10	<b>2.7 mg/kg</b>	NA	0% (Brick)
I-5 0'-5'	0.69 mg/kg	NA	0% (Brick)
I-5 5'-7'	0.43 mg/kg	<b>0.59 mg/L</b>	0% (Brick)
I-5 7'-10	0.73 mg/kg	NA	NA
J-1 0'-4'	<b>2.5 mg/kg</b>	NA	0% (Brick & Grout)
J-1 4'-7'	<b>7.4 mg/kg</b>	<b>0.16 mg/L</b>	0% (Brick & Grout)
J-1 7'-10	< 0.36 mg/kg	NA	0% (Brick);
K-1	< 0.38 mg/kg	< 0.1 mg/L	NA
K-2	< 0.37 mg/kg	< 0.1 mg/L	NA
K-2	< 0.4 mg/kg	< 0.1 mg/L	NA
West-Pile	< 0.37 mg/kg	< 0.1 mg/L	NA
North Pile	<b>15 mg/kg</b>	<b>0.99 mg/L</b>	NA

NA – Not Analyzed for this procedure.

Concentrations displayed in bold red font exceed the CTDEEP Remediation Standard Regulation criteria.



ID	DEPTH	PCBs	TCLP Pb	SACM
A-5	H3	ND	NS	ND
A-5	H2	ND	<0.10	NS
A-5	H1	ND	NS	NS

ID	DEPTH	PCBs	TCLP Pb	SACM
E-5	H3	3.4	NS	ND
E-5	H2	4.3	0.13	ND
E-5	H1	0.42	NS	ND

ID	DEPTH	PCBs	TCLP Pb	SACM
I-5	H3	0.69	NS	ND
I-5	H2	0.43	0.59	ND
I-5	H1	0.73	NS	NS

**MULTI-LEVEL SAMPLING LEGEND**

SAMPLE POINT	DEPTHS SAMPLED
A1, A3, A5 E3, E5 I3, I5	0-5', 5-7' AND 7-10'
E1, J1	0-4', 4-7' AND 7-10'
K1, K2, K3	SINGLE LEVEL SAMPLING
H3	TOP LAYER OF SOIL HORIZON
H2	MIDDLE LAYER OF SOIL HORIZON
H1	BOTTOM LAYER OF SOIL HORIZON

**LEGEND**

- TOPOGRAPHICAL CONTOUR (FEET)
- TEST EXCAVATION
- SOIL SAMPLE LOCATION
- SOIL SAMPLE LOCATION COLLECTED BY OTHERS LOCATIONS ARE ESTIMATES ONLY
- ND NOT DETECTED ABOVE LAB DETECTION LIMITS
- NS NOT SAMPLED
- SACM SUSPECTED ASBESTOS CONTAINING MATERIALS
- UNITS PCBs IN MG/KG  
TCLP Pb IN MG/L

PCBs	TCLP Pb	SACM
ND	0.99	NS

ID	DEPTH	PCBs	TCLP Pb	SACM
A-3	H3	4.3	NS	NS
A-3	H2	4.6	0.83	NS
A-3	H1	8.3	NS	ND

PCBs	TCLP Pb	SACM
ND	0.03	

ID	DEPTH	PCBs	TCLP Pb	SACM
A-1	H3	ND	NS	NS
A-1	H2	ND	<0.10	ND
A-1	H1	1.7	NS	ND

ID	DEPTH	PCBs	TCLP Pb
K-1	H3	ND	<0.10
K-2	H3	ND	<0.10
K-3	H3	ND	<0.10

PCBs	TCLP Pb
0.38	ND

PCBs	TCLP Pb
6.8	10.6

PCBs	TCLP Pb
ND	ND

ID	DEPTH	PCBs	TCLP Pb	SACM
E-3	H3	2.1	NS	ND
E-3	H2	4.6	0.38	ND
E-3	H1	0.92	NS	ND

ID	DEPTH	PCBs	TCLP Pb	SACM
I-3	H3	ND	NS	ND
I-3	H2	1.6	0.86	ND
I-3	H1	2.7	NS	NS

PCBs	TCLP Pb
0.69	0.037

ID	DEPTH	PCBs	TCLP Pb	SACM
E-1	H3	4.0	NS	ND
E-1	H2	0.81	0.32	ND
E-1	H1	2.6	NS	NS

ID	DEPTH	PCBs	TCLP Pb	SACM
J-1	H3	2.5	NS	ND
J-1	H2	7.4	0.16	ND
J-1	H1	ND	NS	ND

PCBs	TCLP Pb
ND	



**Figure 1: Preliminary Materials Sampling Plan**  
 Construction Materials Processing Facility  
 Richard White Way  
 Fairfield, Connecticut

**TABLE 11**  
**Waste Characterization Sample Analyses**  
**Hazleton Creek Properties, LLC Disposal Facility – Moosic & Hazleton, PA**  
**Reclamation Yard – Fairfield, Connecticut**

Sample I.D.:	WC-1	WC-2	WC-3	WC-4	RCRA Hazardous Waste Concentration
Sample Date:	5-24-17	5-24-17	5-24-17	5-24-17	
VOCs - Method 8260 (mg/kg) All VOCs Tested	ND	ND	ND	NA	--
SVOCs - Method 8270 (mg/kg)				NA	
Anthracene	< 0.26	0.33	0.33		--
Benzo(a)anthracene	0.64	1.1	1.3		--
Benzo(a)pyrene	0.64	1.1	1.6		--
Benzo(b)fluoranthene	0.61	1.2	1.8		--
Benzo(g,h,i)perylene	0.52	0.95	1.0		--
Benzo(k)fluoranthene	0.62	1.0	1.9		--
Benzyl Butyl Phthalate	< 0.26	1.0	0.49		--
Bis(2-ethylhexylphthalate)	< 0.26	0.49	< 0.26		--
Chrysene	0.78	1.4	2.0		--
Fluoranthene	1.3	2.6	3.1		--
Indeno(1,2,3-cd)pyrene	0.45	0.8	1.2		--
Phenanthrene	0.83	1.4	1.7		--
Pyrene	1.2	2.4	2.6		--
All other SVOCs Tested	ND	ND	ND		--
Total PCBs – Method 8082 (mg/kg)	2.1	3.9	0.51	3.1	--
Total Priority Pollutant Metals (mg/kg)				NA	
Arsenic	4.08	5.17	2.15		--
Beryllium	0.61	0.45	0.35		--
Cadmium	1.08	1.74	0.38		--
Chromium	23.9	21.0	20.8		--
Copper	61.6	87.6	28.4		--
Mercury	0.13	0.26	< 0.03		--
Nickel	20.9	26.9	14.5		--
Lead	185	160	23.8		--
Zinc	255	430	72.3		--
TCLP Priority Pollutant Metals (mg/L)				NA	
Lead	0.26	0.13	< 0.1		5.0 mg/L
Zinc	1.24	2.6	0.15		--
All other Metals	ND	ND	ND		--

ND – Not Detected above laboratory detection limits.

NA – Not Analyzed for this procedure.

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.



# Logical Environmental Solutions LLC

354 South River Road Tolland, CT 06084 Tel: (860) 870-1780 Fax: (860) 870-1778

June 12, 2017

Janet Kwiatkowski  
CTDEEP PCB Program  
79 Elm Street  
Hartford, Connecticut 06106

**Re:** Sampling Plan - Revised  
Town Reclamation Yard  
Richard White Way  
Fairfield, Connecticut

Janet:

The following summarizes the proposed soil sampling plan following the removal of the PCB impacted soil and debris pile that was improperly placed on the Town Reclamation Yard property in Fairfield, Connecticut. The vacant property is situated in a GB classified groundwater area. Since the discovery of the contaminated material, the Town has collected forty-three soil and debris samples from the pile for the analysis of PCBs, leachable (via TCLP) lead, and asbestos. Of those samples, asbestos was not detected in any of the debris or soil samples, and the soil samples contained PCBs at concentrations ranging from < 0.23 mg/kg to 15 mg/kg. Leachable lead was detected at concentrations ranging from < 0.1 mg/L to 2.2 mg/L. Based upon our previous telephone discussions, you indicated that the disposal of the material can be handled through the Connecticut Department of Energy and Environmental Protection's PCB Program and would not constitute involvement through the EPA as TSCA-regulated waste.

The Town has contracted with Connecticut Tank Removal (CTR) to segregate the bulky debris including concrete and boulders from the approximate 1,600 cubic yard pile, and direct load the smaller sized debris and soil for transport and reuse at Hazelton Creek Properties, LLC in Hazelton, Pennsylvania. All work will be completed under the direction of Logical Environmental Solutions, LLC (LES). The attached table summarizes the results of the waste characterization samples collected for the facility based upon their sampling requirements. PCBs were detected at total concentrations ranging from 0.51 mg/kg to 3.9 mg/kg and leachable lead concentrations ranged from < 0.1 mg/L to 0.26 mg/L. Any soil adhering to the bulky debris will be physically removed by CTR personnel for transport to Hazelton Creek and the debris will be placed on and covered by polyethylene sheeting. The bulky debris will be sampled by LES in accordance with the EPA's protocols for sampling porous material in the field and analyzed for PCBs using the Method 3540C Soxhlet Extraction/Method 8082. The debris will be disposed of/recycled at Hazelton Creek Properties, LLC if PCB concentrations range from 1 mg/kg to 25 mg/kg, or at J.J. Brennan of Shelton, Connecticut if less than 1 mg/kg.

All soil and debris sampling equipment will be decontaminated between and after use with a double wash/rinse method using Simple Green® (or other approved solvent) and disposable scrubbers and absorbent pads. CTR's heavy equipment will also be decontaminated prior to leaving the site. CTR will construct a lined decontamination pad to collect any fluids generated for proposer disposal. All decontamination solids and liquids will be drummed and disposed of by CTR at a Town-approved facility. Following decontamination, LES will collect confirmatory wipe samples from any equipment that comes in contact with potentially PCB-contaminated waste.

During the pile segregation and removal activities, LES will also conduct air monitoring for fugitive dusts using a real-time direct-reading particulate meter. Readings will be collected both within the work zone breathing areas and fence-line to document potential airborne contaminants in dusts are not creating health risks for onsite workers and adjacent property occupants. If dust levels exceed 150 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) for a period exceeding 5 minutes, LES will require work to be halted until the dust can be controlled by CTR using water, cover, or some other approved method. LES will also collect daily air samples from the upwind and downwind fence-line areas for analysis of PCBs (Method TO-10) using the low-flow polyurethane foam (PUF) sample collection methodology.

Following CTR's removal of the PCB-contaminated fill pile, along with an approximate one-foot vertical and horizontal buffer, LES will collect confirmation soil samples of the underlying soil and adjacent soil pile sidewalls to ensure the extent of the contaminated material has been removed from the site. Confirmation soil sampling will be conducted in a 1.5 meter grid across the entire area to document the removal of PCB impacted material exceeding 1 mg/kg. The confirmation soil samples will be collected as discrete, in-place samples, and the soil will not be mixed or diluted with other material. All samples will be analyzed for PCBs using EPA Method 3540C soxhlet extraction/EPA Method 8082. LES will prepare a report that documents the investigation, remediation, disposal, and verification activities conducted at the site.

If there are any questions or concerns regarding the remediation activities, or post-remediation sampling proposed for the site, please do not hesitate to contact me at 860-402-7069 (mobile) or 860-870-1780 (office), or via email at [ck@logicalenvironmental.com](mailto:ck@logicalenvironmental.com).

Very Truly Yours,  
**Logical Environmental Solutions**



Cindy Knight, LEP, CHMM, CPESC, CPG  
President

cc: Brian Carey, Town of Fairfield

**APPENDIX B**  
**Photographs of Remediation Activities**  
**June 16, 2017 to October 11, 2017**



Photograph 1 - June 16, 2017: PCB-contaminated fill pile area covered by polyethylene sheeting.



Photograph 2 - June 20, 2017: Segregating the bulky debris from the soil. Debris was placed on polyethylene sheeting (lower right) prior to sampling by LES.



Photograph 3 - June 22, 2017: Dust control measures undertaken by Town using water truck.



Photograph 4 - June 22, 2017: Type of fill material present in PCB-contaminated area.



Photograph 5 - June 23, 2017: Fill material present in PCB-contaminated area.



Photograph 6 - June 22, 2017: Additional bulky debris segregated from pile area.



Photograph 7 - June 23, 2017: Final pile of bulky debris to be placed on polyethylene prior to sampling.



Photograph 8 - June 23, 2017: Triaxle truck being loaded for transport of soil to Hazelton Creek disposal facility.



Photograph 9 - June 23, 2017: Excavating soil from the north sidewall (to left) and bottom of the PCB-contaminated area.



Photograph 10 – June 26, 2017: Excavating soil from the eastern sidewall and bottom of the PCB-contaminated area.



Photograph 11 - June 26, 2017: Initial 1.5-meter sampling grid being set up for western (left), northern (center), and eastern (right) sidewalls and bottom.



Photograph 12 - June 27, 2017: Sampling grid set up for western sidewall and bottom.



Photograph 13 – July 18, 2017: Start of the excavation of the entire eastern sidewall of the pile area for subsequent offsite disposal.



Photograph 14 – July 18, 2017: Soil from the eastern sidewall covered by poly and ready to be loaded for offsite disposal.



Photograph 15 – July 18, 2017: Pile of the bulky debris that tested ND for PCBs and was moved to the southwest region of the Reclamation Yard.



Photograph 16 – August 16, 2017: Laying out the grid for the additional confirmation soil sampling of the pile bottom.



Photograph 17 – September 19, 2017: “Hot-spot” remediation of bottom sample areas that contained PCBs greater than 1 mg/kg.



Photograph 18 – September 19, 2017: “Hot-spot” remediation of bottom sample areas that contained PCBs greater than 1 mg/kg.



Photograph 19 – October 11, 2017: Final “hot-spot” remediation of bottom sample areas that contained PCBs greater than 1 mg/kg.



Photograph 20 – October 11, 2017: Final truck being loaded with PCB contaminated soil for offsite disposal.