Phase II/Limited III Environmental Site Assessment

Former Scovil Hoe Mill

11 Candlewood Hill Road
Higganum, CT

Town of Haddam

Haddam, Connecticut

March 2018

FUSS & O'NEILL

146 Hartford Road
Manchester, Connecticut 06040

Project No. 20160476.A20

FUSS & O'NEILL

March 19, 2018

Ms. Liz Glidden
Town Planner
Town of Haddam
30 Field Park Drive
Haddam, CT 06438

RE: Phase II/Limited Phase III Environmental Site Assessment
Former Scovil Hoe Mill
11 Candlewood Hill Road, Higganum, CT

Dear Ms. Glidden:

We are pleased to submit the enclosed report of the Phase II/Limited Phase III Environmental Site Assessment for the above-referenced site. The assessment was performed using the guidance provided in the Connecticut Department of Energy and Environmental Protection's *Site Characterization Guidance Document* (CTDEP, 2010).

The results of our assessment are summarized in the attached report. Thank you for the opportunity to conduct this work. Please contact the undersigned if we can be of further assistance.

Sincerely,

Stefanie K. Wierszchalek
Senior Hydrogeologist

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Table of Contents

Phase II/Limited Phase III Environmental Site Assessment
Town of Haddam

Table of Contents

Phase II/Limited Phase III Environmental Site Assessment
Town of Haddam

Tables — End of Text

Figures — End of Text

Appendices — End of Report

List of Common Abbreviations

Units of Measurement	
ug	micrograms
mg	milligrams
kg	kilograms
L	liter
ppb	parts per billion
ppm	parts per million
Analytical Parameters and Chemical Compounds	
ETPH	extractable total petroleum hydrocarbons
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PCE	tetrachloroethylene
SPLP	synthetic precipitate leaching procedure
SVOCs	semivolatile organic compounds
TCLP	toxicity characteristic leaching procedure
TCE	trichloroethylene
TPH	total petroleum hydrocarbons
VOCs	volatile organic compounds
Regulatory Abbreviations	
CFR	Code of Federal Regulations
DEC	direct exposure criteria
DEEP[1]	Department of Energy and Environmental Protection
ECAF	Environmental Condition Assessment Form
GWPC	groundwater protection criteria
I/C	industrial/commercial
PMC	pollutant mobility criteria
RCRA	Resource Conservation and Recovery Act
RCSA	Regulations of Connecticut State Agencies
Res	residential
RSRs	Remediation Standard Regulations
TSCA	Toxic Substances Control Act
SWPC	surface water protection criteria
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VC	volatilization criteria
Other	
AOC	area of concern
AST	aboveground storage tank
COC	constituent of concern
QA/QC	quality assurance/quality control
UST	underground storage tank

[1] In portions of this report we refer to the Connecticut Department of Energy and Environmental Protection (DEEP). The Connecticut Department of Environmental Protection (CTDEP) was re-named the Department of Energy and Environmental Protection (DEEP) in July 2011. For convenience and consistency, we refer to the agency as the DEEP throughout this report, including the timeframe prior to July 2011.

1 Introduction

Fuss & O'Neill, Inc. was retained by the Town of Haddam through a State of Connecticut Department of Economic and Community Development Historic Brownfields Revitalization Grant to conduct a Phase II/Limited Phase III Environmental Site Assessment (ESA) of the former Scovil Hoe Mill property located at 11 Candlewood Hill Road, in Higganum, Connecticut (the "Site"). The Site is currently unoccupied and owned by the State of Connecticut Department of Transportation (CT DOT), which formerly used the Site as a repair and maintenance and facility.

The objective of this report was to determine if releases of hazardous substances or petroleum products occurred at the recognized environmental conditions (RECs) and areas of concern (AOCs) identified during the Phase I ESA. Identified releases at select RECs were further evaluated to assess the degree and extent of the release area relative to an evaluation for potential preliminary reuse planning purposes. Additional objectives of this report are to present the conceptual models for the 19 RECs identified on *Table 1*.

Phase II/Limited III investigations were performed using the guidance in the Connecticut Department of Energy and Environmental Protection (DEEP) Site Characterization Guidance Document (DEEP, 2010) and Remediation Standard Regulations (DEEP, 2013).

2 Site Overview / Conceptual Site Model

2.1 Physical Description

The Site is located on the south side of Candlewood Hill Road in a residential zone of Higganum, Connecticut (Middlesex County). A portion of a United States Geological Survey (USGS) topographic map showing the Site location is provided as *Figure 1* (USGS, 1971) and is available on-line at http://goto.arcgisonline.com/maps/USA_Topo_Maps.

According to town records, the Site is a 4-acre irregularly-shaped parcel that has been owned by the CT DOT since 1941. Structures located on the Site include two two-story brick buildings, an emergency generator shed, associated paved parking and driveway areas and grass or brush cover. The Site is currently vacant, but was used until approximately 2014 by the CT DOT as a vehicle repair and maintenance facility. A Site plan depicting the current Site layout is provided as *Figure 2*.

The two main buildings were historically part of the D&H Scovil Hoe Company Mill No. 4, with the brick building located on the northern portion of the Site identified as Building 81-115 and the building on the southern portion of the Site as Building 81-106. The mill, which manufactured farming equipment such as planters, hoes, and milled feldspar, operated the Site from approximately 1844 through 1941.

2.1.1 Site Utilities

Water and Sewer

The Site has historically been served by an on-site septic leaching field and two potable water supply wells (*Figure 2*). One potable water supply well is located on the upgradient, westernmost edge of the Site, which was reportedly the supply well used by the CT DOT through 2014. DOT personnel reported that this well was installed at a depth of 128 feet below grade, is constructed of 8" schedule-80 pipe and has a pump set at approximately 100 feet below grade. A historic potable water sample from an interior tap served by this well in 2006, identified concentrations of sodium, chloride, and barium below applicable drinking water criteria.

A second water supply well was identified beneath a manhole, north of Building 81-106. This well likely served both Site buildings during its operation based on observation of water supply piping in a subgrade utility trench located perpendicular to the buildings (*Figure 2*). Based on observation of the accessible visible piping, the supply well is no longer connected to either building, but the downhole well apparatus (well pump, riser pipe) may still be in place. No information pertaining to the construction details of this supply well was identified during the Phase I assessment.

Heat

While the Site buildings are not currently heated, Building 81-115 was reportedly formerly heated using fuel oil stored in a 2,000-gallon underground storage tank (UST) located adjacent to the exterior of the northeast building corner. Similarly Building 81-106 was reportedly heated using fuel oil stored in a 2,000-gallon UST located adjacent to the easternmost wall of the building. DOT removed these USTs in 2014 as documented in a January 2015 Tank Closure Report prepared by TRC Solutions.

Historically, as documented on Sanborn maps, the mill buildings were supplied heat via coal stoves. A coal bin is depicted in the Sanborn maps to the east of Building 81-115.

Other Utilities

- Eversource supplies electricity to the Site via overhead lines along Candlewood Hill Road.
- No electric transformers were observed onsite.
- A stormwater line extends from the toe of the slope of Candlewood Hill Road below Building 81-115 to the southeast discharging to Candlewood Hill Brook.

- The former Scovil Hoe Mill operation had an extensive hydropower network comprised of a former pond (Spar Mill Pond) at the western portion of the Site. Water from the pond was transported to a former building located east of Building 81-106 through a flume located on the south side of Candlewood Hill Brook. A raceway crossing over Candlewood Hill Brook powered a turbine located within the former building. There is evidence of a former subgrade trench network in both Building 81-115 and Building 81-106 that may have been associated with this system. The original purpose of the previously mentioned utility trench located perpendicular to the two buildings may have also been associated with the former hydropower system.

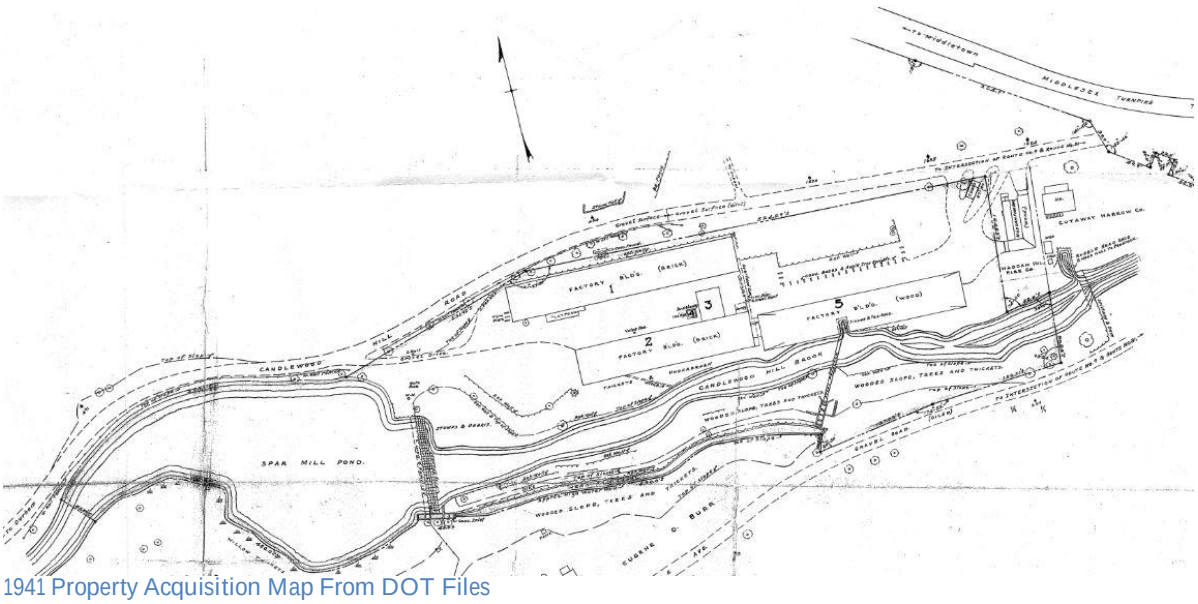
2.1.2 Adjoining Land Use

Based on observations made during the site inspection and available mapping, properties adjoining the Site include the following:

Address	Description	Direction from Site
261 – 271 Saybrook Road	Residential	North
7 Candlewood Hill Road	Community Center/Former volunteer fire building	East
7 – 44 Maple Avenue	Residential	South
Laurel Heights Road	Residential	West
12-60 Candlewood Hill Road	Forest/residential	West

2.2 Site History

Although the date of first development of the Site is unknown due to its age, historic records from the Town of Haddam suggest that the Site was occupied by an early sawmill and then a feldspar mill prior to being purchased by D&H Scovil Hoe Company for their Mill Complex #4 around approximately 1880. A large wooden building, labeled "factory building" in a 1941 town property map, was reportedly constructed on the Site as early as the 1830s. This structure appears to have been demolished by 1950. The 1881 map of Higganum Village suggests that other smaller structures may also have historically existed on the Site. Building 81-106 was reportedly constructed in 1887. Building 81-115 was reportedly built around 1905 to house the forge shop. The Site remained in Scovil Mill's possession until 1931 when it was occupied by Higganum Ice Company from until 1941. At this time, the property was purchased by the CT DOT and the buildings converted into a garage complex.



1941 Property Acquisition Map From DOT Files

A pond appears to have occupied the western portion of the Site from at least 1881 through 1941. In the 1941 and 1950 aerial photos, it appears as though the pond was being filled. The 1957 photo revealed that the pond had been entirely filled. Subsequent, environmental sampling of the fill indicated that it had been filled with a variety of polluted soil and construction materials as further described on *Table 1* as REC-1. The aerial photographs from the 1970's indicate a cone-shaped pile, which could be a sand or salt pile on the former pond area.

2.3 Environmental Setting

2.3.1 Topography

The topography of the Site slopes down moderately to the south towards Candlewood Hill Brook and slopes down gradually from the western to the eastern portion of the Site (USGS, 1971). The regional topography slopes down gradually to the northeast toward the Connecticut River.

2.3.2 Geology

Surficial Geology

Surficial material at the Site is mapped as glacially derived thin till, generally described as being between 10 and 15 feet in thickness (Stone, et al., 1992). Fill material, comprised of ash, metal, brick, concrete, and asphalt fragments, is also present at the Site as confirmed in the boring logs completed by Fuss & O'Neill during the November 2017 investigation.

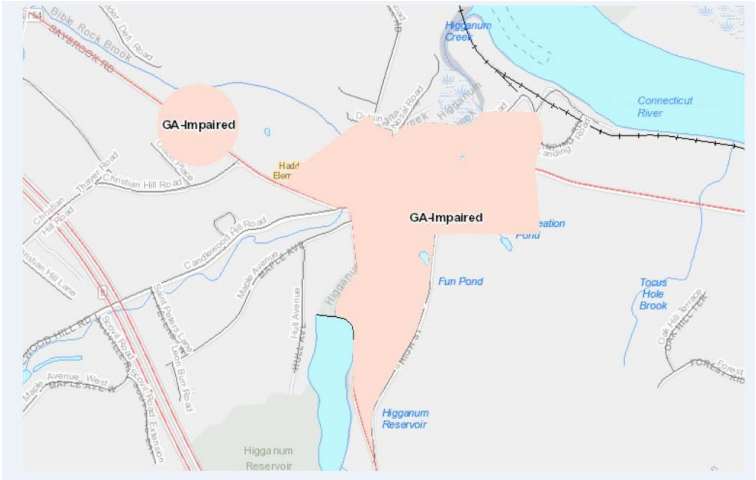
Bedrock Geology

Bedrock beneath the Site is mapped as Monson gneiss, a medium- to coarse-grained gneiss ranging from light to dark in color (Rodgers, 1985). Based on boring logs completed by Fred C. Hart Associates during a 1986 investigation, depth to bedrock at northeastern corner of the Site is approximately 34 feet below grade and depth to bedrock adjacent to the retaining wall comprising the former dam is approximately 14 feet below grade. Boring logs completed by Diversified Technology Consultants (DTC) during a 2006 investigation identified depth to bedrock at the Site between 6 and 14 feet below grade across the Site. Based on boring logs completed by Fuss & O'Neill during their 2017 investigation, depth to bedrock in the center of the Site, around the two buildings, is between 7.5 and 15 feet below grade.

2.3.3 Hydrogeology

Groundwater

The quality of groundwater beneath the Site is classified by the Connecticut Department of Energy and Environmental Protection as GA (DEEP, 2017). GA groundwater is presumed to be used for existing private and potential public or private supplies of water suitable for drinking without treatment (CTDEP, 2011). Groundwater quality east, north, northeast, and southeast of the intersection of Saybrook Road and Rt 81 has been designated by DEEP as "GA-Impaired". Groundwater quality with an impaired goal has the same use goal as GA, but there are known or potential impairment sources as further described in *Section 4*.



Shaded Area designating GA-Impaired Groundwater Quality in the Village of Higganum

Depth to groundwater at the Site ranges from approximately 2 to 15 feet below grade. Groundwater elevation data from investigations have indicated that groundwater at the Site generally flows to the southeast, towards Candlewood Hill Brook.

The direction of groundwater flow within the surficial geological unit is influenced by a number of factors, including the physical characteristics of the geological unit (such as particle size), the local topography, the presence of surface water bodies, the depth to bedrock, and the type of aquifer. For an

unconsolidated, unconfined aquifer, groundwater generally flows in the direction of the greatest topographic gradient. Based on USGS mapping and field observations of the local topography, the inferred groundwater flow direction is to the south and to the east.

Surface Water

The nearest surface water body, Candlewood Hill Brook, is located within the subject Site, flowing west to east along the southern portion of the Site (USGS, 1971). Candlewood Hill Brook is classified by the State of Connecticut as A (DEEP, 2017). Designated uses of such inland surface waters are for potential drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial supply and other legitimate uses including navigation (CTDEP, 2011). Candlewood Hill Brook flows northwest to join with other tributaries that eventually discharge to the Connecticut River, located approximately 0.6 miles northwest of the Site. Topographic maps from the 1940's indicate that Candlewood Hill Brook was dammed in the western third of the Site forming Spar Mill Pond. Spar Mill Pond formerly extended from the existing brook north to the toe of the slope of Candlewood Hill Road. The pond provided water to a flume located on the south side of Candlewood Hill Brook, which served as water power for a former mill building located east of Building 81-106.

The Connecticut River has a classification of SB in this area. Designated uses of such coastal and marine surface waters are for marine fish, shellfish and wildlife habitat, shellfish harvesting for transfer to approved areas for purification prior to human consumption, recreation, industrial and other legitimate uses including navigation (CTDEP, 2011).

2.3.4 Potential Receptors

A preliminary assessment was conducted to evaluate whether sensitive human health or ecological receptors are present at or directly downgradient of the Site. The results of this evaluation are presented below:

- Endangered Species – Based on DEEP Natural Diversity Data Base (NDDB) mapping, the Site is located in an area with state and federal listed species & significant natural communities; which indicates that a potential conflict with a listed species (CTECO, 2018).
- Ecological Receptors – An ecological risk assessment has not been conducted; however, given the proximity of the Site to the Candlewood Hill Brook, the potential for ecological receptors to be impacted by Site exists.
- Flood Zones – FEMA Mapping indicates that 100-year and 500-year flood zones exist on the southern portion of the site extending into the upland.
- Surface Waters – The nearest surface water body is Candlewood Hill Brook, located within the Site boundary, flowing west to east along the southern portion of the Site.
- Aquifer Protection Areas – No aquifer protection areas were identified within a 0.5-mile radius of the Site (CTECO, 2018).

- Public Water Supply Wells – The Atlas of Public Water Supply Sources and Drainage Basins of Connecticut (CTDEEP, 1982) shows no public water supply wells within 0.5-mile radius of the Site.

- Private Water Supply Wells – The Site is served by a private water supply well located on the upgradient, westernmost edge of the Site. Private supply wells serve the entire Village of Higganum. A 2005 Water Quality Monitoring Report, conducted by Diversified Technology Consultants, identified at least 20 private water supply wells in the vicinity of the Site. These private supply wells, including the on Site water supply wells were sampled by DTC in 2005 as discussed further below in *Section 4*.

- Physical Contact with Soil – The potential exists for site occupants and visitors to be exposed to impacted soil or fill in portions of the Site that are not paved or covered by the current building footprints. The potential also exists for future Site occupants and visitors to be exposed to impacted soil or fill if redevelopment requires removal of the existing building or asphalt paving.

- Potential for Vapor Intrusion – VOCs are not present in site groundwater at concentrations that could result in potential vapor intrusion into buildings constructed over the groundwater plume. Additional rounds of groundwater monitoring would be required to evaluate groundwater quality over seasonal trends.

3 Regulatory Framework

The Connecticut Remediation Standard Regulations (RSRs) are the clean-up standards in the State of Connecticut. They also contain procedures to evaluate whether actions (e.g., remediation or institutional controls) will be required to address identified releases of hazardous substances. The RSRs require that the nature and extent of release areas be fully characterized prior to making a final determination of compliance with the RSRs. In instances where AOCs have not been fully characterized, baseline RSR criteria are presented alongside the analytical data as a preliminary evaluative tool.

The RSR criteria that apply to the Site are discussed below.

RSR Criteria Overview

RSR Soil Criteria	Description of Criteria Objectives	Common Alternatives to Compliance with Baseline Criteria
Direct Exposure Criteria (DEC)	DEC are applicable to soil within 15 feet of the ground surface. Soil impacted by a release is typically compared to the residential (Res) DEC unless alternatives or variances are applied.	Industrial/Commercial Criteria[1] Inaccessible Soil[2] Engineered Controls[3] Incidental Sources[4]
Pollutant Mobility Criteria (PMC)	The PMC protect groundwater from constituents leaching out of impacted soil and are dependent upon the groundwater quality classification of a site. Since the Site is located in a GA-designated area, the GA pollutant PMC were used. The GA criteria apply only to soil located above the seasonal low water table.	Engineered Controls[3] Incidental Sources[4] SPLP Analysis[5] Environmentally Isolated Soil[6] Variances for fill[7] Groundwater monitoring[8]
Removal of Dense Non-Aqueous Phase Liquids (DNAPL)	DNAPL shall be contained or removed from soil and groundwater to the maximum extent prudent.	None
RSR Groundwater Criteria	**Description of Criteria Objectives**	**Common Alternatives to Compliance with Baseline Criteria**
Background	The RSRs require that groundwater in a GA area be remediated to background concentrations, which are generally understood to be the concentrations at the nearest location upgradient of and unaffected by the release.	Use of the Groundwater Protection Criteria (GWPC)[9]
Surface Water Protection Criteria (SWPC)	The SWPC ensure that surface water quality is not impaired by the discharge of contaminated groundwater into a surface water body. Groundwater at the Site discharges to Candlewood Hill Brook. The 95 percent upper confidence limit (UCL) of the arithmetic mean of all sample results representative of the groundwater plume is equal to or less than the SWPC.	The SWPC apply to a groundwater plume at the point where it discharges to a surface water body, in this instance, Candlewood Hill Brook. In instances where a surface water body is not located adjacent to the site, the downgradient property boundary is often considered the "point of discharge" for the site.
Volatilization Criteria (VC)	Volatilization criteria protect human health from volatile substances (i.e. VOCs) in shallow groundwater that may migrate into overlying buildings and apply to groundwater within 15 feet of the ground surface or a structure intended for human occupancy. The residential (Res) VC apply unless a land use restriction is recorded. Groundwater at the Site is within 15 feet of the ground surface.	Industrial/Commercial Criteria[1] Vapor mitigation systems[10]

Description of Common Alternatives

1. Industrial/Commercial Criteria – If a property is used exclusively for industrial or commercial activities and an Environmental Land Use Restriction (ELUR) is recorded to prohibit residential use of such property, the industrial/commercial criteria may be applied. This is applicable for both DEC and VC.

2. Inaccessible Soil – The DEC for soil can be waived if the soil is considered inaccessible and an ELUR prohibiting disturbance of such soil is recorded. Inaccessible soil is defined follows:

    - More than four feet below the ground surface
    - More than two feet below a paved surface consisting of at least three-inches of bituminous concrete or concrete, which two feet may include the pavement sub-base
    - Polluted fill beneath a bituminous concrete or concrete surface consisting of at least three-inches of bituminous concrete or concrete if such fill meets the following criteria:
        - Semi-volatile compounds or petroleum hydrocarbons in the fill exceeding the DEC are normal constituents of bituminous concrete
        - Metals in the fill do not exceed two times the applicable DEC
        - No other compounds exceed the DEC
    - Beneath a building or DEEP-approved permanent structure

3. Engineered Controls – Section 22a-133k-2(f)(2) of the RSRs provides a variance to the DEC if a DEEP-approved engineered control is installed to physically isolate the underlying soil, thereby minimizing the potential for contact with the soil. The RSRs also provide a variance to the PMC if the DEEP-approved impermeable engineered control is constructed to minimize the migration of liquids through the soil. With an engineered control in place and an ELUR prohibiting unauthorized disturbance of the engineered control recorded, the DEC and/or the PMC do not apply.

4. Incidental Sources – The DEC and PMC do not apply to metals, petroleum hydrocarbons or semivolatile substances if such pollution is the result of incidental releases due to the normal operation of motor vehicles (not including refueling or repair) or normal paving and maintenance of a bituminous concrete surface.

5. SPLP Analysis – In order to evaluate the actual leaching potential of constituents of concern (COCs), samples can be analyzed using the synthetic precipitate leaching procedure (SPLP) and, for GA areas, compared to the groundwater protection criteria (GWPC).

6. Environmentally Isolated Soil – Polluted soil beneath a building can be considered environmentally isolated if such soil is above the seasonal high water table, is not polluted with volatile organic substances (or, if such substances are present, they have been reduced in concentration to the maximum extent prudent), and is not a continuing source of contamination. The PMC do not apply to environmentally isolated soils, provided an appropriate ELUR is recorded to prohibit disturbance of the soil.

7. Variances for Fill – The RSRs include two variances from the PMC for fill:

    - *Variance for Wood and Coal Ash* – Section 22a-133k-2(c)(4)(B) of the RSRs include an exception from the pollutant mobility criteria for fill containing only coal, coal ash, wood ash, and/or asphalt fragments.
    - *Widespread Polluted Fill Variance* – RCSA 22a-133k-2(f)(1) permits the DEEP to issue a variance from the pollutant mobility criteria for widespread polluted fill provided the property meets certain conditions.

8. Groundwater Monitoring – For substances other than VOCs, Section 22a-133k-2(c)(4)(C) of the RSRs allows an exemption from the PMC based on four consecutive quarters of groundwater sampling under

certain conditions that consider precipitation infiltration, compliance with applicable groundwater criteria, representativeness of sampling locations, and stability of the groundwater plume.

9. GWPC Application – The GWPC apply in GA areas where water distribution systems are available within 200 feet of the parcel, the groundwater plume is not located in an aquifer protection area, the plume is not located within an area of influence of a public water supply well, and the background concentration for groundwater is equal to or less than the groundwater protection criteria.

10. Vapor Mitigation Systems – With notification to the DEEP, engineered systems such as vapor barriers and sub-slab depressurization systems (SSDS) can be used to mitigate potential VOC vapor intrusion. When such systems are in place and properly monitored and maintained, the VC do not apply (22a-133k-3(c)(3)(B)).

4 Previous Investigations

Documents that describe investigation and remediation activities conducted at the Site are listed below followed by a brief summary of key findings based on the previous investigations.

Date/Consultant	Document Title
January 2001 Marin Environmental, Inc.	*Phase I Environmental Site Assessment*
April 2002 HRP Associates, Inc.	*Environmental Condition Assessment Form (ECAF) - ConnDOT Site #25*
November 2005 DTC	*Water Quality Monitoring Evaluation Report – ConnDOT Site #25*
December 2005 DTC	*Task 240 Water Quality Monitoring Evaluation Report - ConnDOT Site #25*
January 2007 DTC	*Task 220 Exploratory Site Investigation*
January 2015 TRC Solutions	*Underground Storage Tank Closure Report – ConnDOT Higganum Repair Garage*
March 2016 TRC Solutions	*Underground Tank Closure Report Addendum – ConnDOT Higganum Repair Garage*
September 2016 Fuss & O'Neill, Inc.	*Summary of Existing Conditions*
February 2018 Fuss & O'Neill, Inc.	*Phase I Environmental Site Assessment*

The 2001 Phase I ESA identified fourteen potential areas of concern (AOCs) on the Site, including the suspected fill area, floor drains, hydraulic lifts, former solvent storage and cleaning areas, utility pits, UST areas, historical forge shop, septic tank and an area of former drum storage. The primary environmental concerns noted included the following:

- Floor drains, observed throughout the Site buildings, reportedly formerly discharged into a catch basin and then directly into Candlewood Hill Brook. At the time the Phase I ESA was conducted, the floor drains reportedly discharged to the on-site septic tank.

- The suspected fill area, on the western section of the Site (approximately ½ to 1 acre), was observed at a higher elevation than the rest of the Site. Two piles of material (including asphalt, soil and concrete), existed in this area; as well as a pile of creosoted wooden beams. Historical documents indicated that this area was also the location where approximately 4-5 drums of pesticides/herbicides and approximately 2,000-gallons of pavement sealer were buried in the late 1970s.

  In June 1988, approximately 70 cubic yards of joint sealer (a tar-like substance) and related impacted soil was removed from this area. Reportedly, at this time, three drums containing joint sealer and one drum containing an unknown liquid were encountered and removed during soil excavation activities.

- Widespread concentrations of PAHs, ETPH, arsenic and lead (many exceeding RSR criteria) identified in soil on Site is likely associated with the presence of historic impacted fill material across the property, rather than solely attributable to specific release areas.

- The 2001 Phase I ESA identified a total of 5 current underground storage tanks (USTs), 6 former USTs, and one above ground storage tank (AST) at the Site as summarized in the following table.

Tank ID	Capacity (gallons)	Content	Date Installed	Date Removed	Tank Construction
H-1	2,000	Heating Oil #2	1941	1989	Steel
D-1	550	Diesel	1955	1989	Steel
R-1	3,000	Unleaded Gasoline	1960	1989	Steel
R-2	3,000	Unleaded Gasoline	1960	1989	Steel
H-2	2,000	Heating Oil #2	1962	1989	Steel
W-1	1,000	Waste Oil	1968	1989	Steel
R1-R1	4,000	Unleaded Gasoline	1989	--	Fiberglass
D1-R1	4,000	Diesel	1989	--	Fiberglass
H1-R1	2,000	Heating Oil #2	1989	--	Fiberglass
H2-R1	2,000	Heating Oil #2	1989	--	Fiberglass
W1-R1	550	Waste Oil	1989	--	Fiberglass

- Several private potable supply wells adjacent to the facility were reportedly impacted by sodium and trichloroethene (TCE). While the sodium was reported to originate on-Site, the Site was not identified as the source of the TCE. A historical report recommended that an alternative potable water source be pursued in order to reduce the number of human receptors affected by impacted groundwater. DEEP issued the Town of Haddam Consent Order #4793 in March 1989 indicating that the Town had a community pollution problem and that the DEEP was unable to determine the entity responsible for impacting the groundwater. As such potable drinking water has been supplied to several properties on Depot Road, Candlewood Hill Road, and Saybrook Road in the vicinity of the Site.

Additionally, the Task 240 water quality monitoring evaluation conducted in 2005 included the sampling of 21 drinking water supply wells within the Site area. Sampling results from four properties located south of Candlewood Hill Brook (7 Killingworth Road, 18 Killingworth Road, 7 Maple Avenue and 8 Hull Avenue) identified concentrations of dieldrin exceeding the CT DPH action level. These detections prompted a significant environmental hazard notification under Connecticut General Statutes Section 22a-6u.

Release Areas

Subsurface investigation activities conducted at the Site included the advancement of soil borings and collection of soil samples, installation of groundwater monitoring wells and collection of groundwater samples, sediment sampling from Candlewood Hill Brook, and a ground-penetrating radar (GPR) survey.

Specifically, the findings of the Task 220 Site Investigation conducted by DTC identified the following 12 release areas. The specific description, details and release mechanisms for each release area are summarized on the attached table.

- DTC-RA-1: Historical Fill/Dump Area (western portion of Site)
- DTC-RA-2: Buried Drums of Joint Sealer (southern portion of Site)
- DTC-RA-3: Drum Storage Shed (southwest of original mill building)
- DTC-RA-4: Solvent Steam Cleaning Area (south of repair bays)
- DTC-RA-5: Historic Solvent Storage Area
- DTC-RA-6: Repair Bays & Fuel Pump Island
- DTC-RA-7: Septic Tank & Leachfield
- DTC-RA-8: Diesel Fuel UST (northeast corner of southern building)
- DTC-RA-9: Heating Oil & Gasoline USTs (east of DTC-RA-8)
- DTC-RA-10: Former Heating oil & Diesel UST Locations (west of northern building)
- DTC-RA-11: Former USTs (located between the two buildings)
- DTC-RA-12: Former Heating oil UST (south of southern building)

Additionally Site groundwater has been impacted by varying concentrations of sodium and chloride. While a salt storage area was formerly located at the Site, reportedly in the area west of the maintenance buildings, the exact location is unknown.

No VOCS, ETPH, PAHs, PCBs, chlorinated pesticides or chlorinated herbicides were identified in the seventeen monitoring wells (with the exception of a trace detection of naphthalene in MW-10D) or the on-site water supply well.

4.1 Summary of 2018 RECs

Nineteen (19) RECs were identified in Fuss & O'Neill's February 2018 Phase I ESA. A complete description of each REC identified in the 2018 Phase I ESA, as well as the corresponding historical

REC/AOC and Release Area designations is presented in *Table 1.* Locations of the AOCs are shown on *Figure 2*.

5 Phase II/Limited III Scope of Study

In November 2017, Phase II/III investigations were conducted at select RECs identified on *Table 1*. Following the November 2017 mobilization, the data was reviewed and a preliminary conceptual release determination was developed for each REC. Through this process, release determination data gaps were also identified for select RECs.

This section provides an overview of the methods used to investigate the Site and evaluate the data collected and describes data quality objectives, constituents of concern, laboratory methods used to analyze environmental samples, and field investigation methods.

5.1 Data Quality Objectives and Reasonable Confidence Protocols

Data quality objectives are used to ensure that data is collected in a manner that permits it to be used to evaluate a site and support decisions based on those evaluations. Procedures used to ensure that the DQOs for the project were met include:

- Development of preliminary conceptual models used to guide the selection of appropriate constituents of concern and sampling locations
- Selection of analytical methods with appropriate detection limits
- Use of pre-determined sample handling and custody procedures
- Use of pre-determined data management and documentation procedures
- Selection of sampling locations and constituents of concern appropriate to the potential release area
- Use of trip blanks, duplicates and laboratory matrix spikes (MS) for quality assurance/quality control (QA/QC)
- Use of Connecticut's Reasonable Confidence Protocols and laboratory QA/QC procedures

5.2 Constituents of Concern

A list of constituents of concern was developed for each REC. The constituent list comprises those compounds most likely to be released based on knowledge of Site operations and results of any previous investigation. As previously discussed, a list of the primary constituents used in Site activities is provided in *Table 1*. The constituents of concern and the analytical methods used are included in the table below.

Constituent of Concern	Analytical Method
VOCs	Field screening using a photoionization detector (PID). Where suspected, VOCs were confirmed with analysis by EPA Method 8260.
Petroleum hydrocarbons	Connecticut ETPH Method
PAHs	EPA Method 8270
PCBs	EPA Method 8082
RCRA 8 Metals	SW6010 (arsenic, barium, cadmium, chromium, copper, lead, nickel, selenium, silver, and zinc). SW-7471 (mercury)
Pesticides	SW 8081B
Sodium/Chloride	SW 6010C

These analytical methods were selected to identify and evaluate potential releases because they are capable of achieving analytical detection limits less than the baseline numeric RSR clean-up criteria applicable to the Site.

Phoenix Environmental Laboratories, a Connecticut-certified laboratory, of Manchester, Connecticut (Phoenix), conducted all sample analyses during the investigation.

5.3 Investigative Procedures

The Phase II/Limited III investigation can be broken down into the following general field methods used to develop lines of evidence for each REC based on its evolving conceptual site model.

5.3.1 Ground Penetrating Radar Survey

On November 9, 2017, Fuss & O'Neill oversaw Underground Surveying, LLC of Brookfield, Connecticut as they completed a GPR survey of select areas at the Site. The GPR survey areas included the locations of former USTs and an approximate area of an underground utility tunnel between the two Site buildings. The GPR survey was conducted in an effort to confirm the presence, location and orientation of remaining USTs, the subsurface tunnel, or other anomalies, which could indicate existing subsurface features. The survey was conducted with the Geophysical Survey Systems, Inc. SIR-3000™.

5.3.2 Soil Sampling

Manual Soil/Sediment Sampling

On November 14, 2017, Fuss & O'Neill also collected five surficial soil samples (FOSS-01 through FOSS-05) from various locations along the bank of the Candlewood Hill Brook. These samples were collected from approximately 0-0.5 feet below grade using manual hand tools. The purpose of these

samples was to evaluate potential impacts to the brook and surficial soils along the brook embankment from the Site.

The five surficial soil samples were submitted for laboratory analysis of RCRA 8 metals, ETPH and PAHs.

Direct-Push Soil Sampling

Between November 15 and 16, 2017, Fuss & O'Neill oversaw Glacier Drilling LLC advance 20 soil borings at select locations across the Site using a direct-push, Geoprobe® drill rig. Soil samples were collected continuously from the ground surface using a 60-inch, stainless steel sampler, and each soil core was inspected by a field scientist for physical evidence of contamination, such as staining or odors. Where VOCs were a potential constituent of concern, samples were also field-screened for vapor-phase VOCs using a photoionization detector (PID).

Soil sampling intervals were selected to characterize the maximum concentrations of constituents of concern within a release area and/or confirm the extent of impacted soil. Alternatively, if visual inspection and field screening did not yield evidence of impacted soil, samples were selected for laboratory analysis from predetermined intervals based on the conceptual release model for each of the following RECs:

- REC-1
- REC-2
- REC-3
- REC-5
- REC-6
- REC-7
- REC-8 & 9
- REC-10
- REC-11
- REC-14
- REC-15
- REC-16

Refer to *Table 1* for the description and conceptual site model of each REC listed above. Field observations at each boring were recorded on the boring logs included as *Appendix A*.

5.3.3 Concrete Chip Sampling

Four concrete chip samples were collected from borings (FOSB-10, FOSB-11, FOSB-14 and FOSB-15) advanced within the building interiors during the investigation.

The concrete chip samples were collected from areas which demonstrated evidence of petroleum staining, concrete deterioration from salt and chemicals, or visible rings from past drum storage at select locations within the Site buildings. While petroleum releases to the floor surfaces was evident, the concrete samples were submitted for laboratory analysis of PCBs to determine if the concrete slab floors were impacted with PCBs.

5.3.4 Monitoring Well Installation & Development

Following advancement of the borings, two groundwater monitoring wells (FOMW-01 & FOMW-02) were installed at the Site using the direct-push Geoprobe® drill rig. Refusal on bedrock was encountered at each monitoring well location at approximately 8 feet below grade. Therefore, the monitoring wells were completed at 8 feet below grade and were constructed with standard 1.5-inch PVC riser and a five-foot, pre-packed, PVC screened interval that intersected the water table at each location. Each monitoring well was finished with flush-mount curb boxes. The specific monitoring well construction details are provided on the well completion logs in *Appendix A* and are summarized on *Table 1.*

Following installation, the newly installed monitoring wells and nine existing monitoring wells were developed using surge-and-purge techniques to remove suspended sediments from the well and to increase the hydraulic connection between the wells and the aquifer.

5.3.5 Groundwater Sampling

On November 22, 2017, Fuss & O'Neill collected groundwater samples from thirteen monitoring wells (11 previously existing wells and the 2 newly installed monitoring wells). Prior to groundwater sampling, each monitoring well was developed using surge and purge techniques to remove residual sediment from the well and to improve hydraulic connectivity to the surrounding aquifer. Additionally, the depth to water was measured at each well (*Table 1*).

A Fuss & O'Neill hydrogeologist sampled each well using a peristaltic pump and dedicated tubing, and following low-flow sampling techniques. Groundwater quality parameters including pH, specific conductivity, dissolved oxygen, temperature, turbidity, and oxidation/reduction potential were monitored and recorded at approximately 3-minute intervals until each had stabilized. The groundwater quality parameters were recorded on the field data sheets, provided as *Appendix B*.

5.3.6 Water Supply Well Sampling

Additionally on November 22, 2017, Fuss & O'Neill collected a sample from the supply well located on the western portion of the Site. The results from this single event analysis should be interpreted as screening data as a shallow sample from less than 15 feet below the ground surface was collected using a peristaltic pump. The electricity for the well pump and water piping were disconnected from the building preventing operation of the well pump and collection of a representative sample from the deeper bedrock aquifer.

The screening sample was submitted for laboratory analysis of sodium, chloride, RCRA 8 metals, VOCs, PAHs and pesticides.

5.4 QA/QC Review and Data Usability

The results for QA/QC samples submitted by Fuss & O'Neill (trip blanks and duplicates) and laboratory narratives provided with each lab report were reviewed to identify issues that could affect the usability of the data. The results of the review are summarized below.

Trip Blanks

Trip blanks for VOC analysis were provided by the laboratory to accompany each cooler of environmental samples to be analyzed for VOCs. Trip blank results were used to determine whether samples may have been compromised as a result of sample container handling or transport.

A total of three trip blanks were submitted for the investigation activities; two with the soil samples and one with the groundwater samples. VOCs were not detected above laboratory reporting limits in any of the trip blanks submitted.

Duplicate Samples

One duplicate soil sample was collected during the subsurface investigation activities conducted in November 2017. The duplicate sample was collected at the same time as the corresponding primary sample and analyzed for the same parameters.

Precision is measured by the relative percent difference (RPD) between the primary and duplicate sample results. RPD goals are $\leq$50 percent for soil and $\leq$30 percent for water. RPDs during the investigation were generally within the target range. Where RPDs were higher than these ranges, the difference typically was attributed to sample heterogeneity and the presence of urban fill materials. Overall, the variation in RPDs is not expected to affect the interpretation of analytical results, but as a conservative measure, release areas were evaluated with respect to the greater of primary or duplicate analytical results.

Reasonable Confidence Protocols

The reasonable confidence protocol packages provided with laboratory reports were reviewed and Phoenix reported that "reasonable confidence" was achieved on all analyses conducted. A review of the narratives identified minor QA/QC issues regarding laboratory method controls/blanks that were considered in interpreting the data. These issues were reviewed and it was determined that the usability of the data was not affected

6 Phase II/Limited III Investigation Results

The results from the investigation, conducted between December 28, 2016 and January 6, 2017 are described in the following subsections. The narrative for the discussion is presented based on review of the historical data described in the reports identified in *Section 4* and the premise that earthwork activities

and disturbance to the subsurface will occur in the future as part of Site redevelopment activities. Therefore, we provide analysis in the context of all of the available information and not exclusively the data collected during the 2017 field event. The analytical data for samples collected during the 2017 investigations are summarized in *Tables 3 through 5*. Copies of the laboratory analytical reports are provided in *Appendix C*.

6.1 GPR Survey Results

Results from the November 9, 2017 GPR survey conducted by Underground Surveying, LLC did not indicate any anomalies existing USTs currently in place at the Site.

6.2 Polluted Fill

Review of boring logs, historical data, and data from the 2017 investigation indicates that the Site is underlain with fill. The fill contains asphalt fragments, coal fragments, coal ash, crushed rock, and small metal fragments. In some areas, the fill is underlain by native material comprised of fine-to-coarse sand with varying composition of gravel. In other areas the fill extends down to the bedrock. A table of generalized fill thickness and depth to bedrock is provided below.

Location	Approximate Depth to Bottom of Fill from Ground Surface (ft)	Approximate Depth to Bedrock From Ground Surface (ft)
West of Building 81-106	6 – 8	8 – 10
Former Spar Mill Pond	10 - 12	12 - 13
Building 81-115	3 - 5	~10
Building 81-106	2 – 6	2 – 8
Septic Tank and Leachfield	~2	~ 10

The fill contains PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)flouranthene, indeno(1,2,3-cd)pyrene), ETPH, and metals (arsenic, lead) at concentrations exceeding the RSR baseline DEC. The source for these constituents of concern is asphalt fragments and coal ash within the fill. Reuse planning for the Site will need to consider remedial options to address the presence of polluted fill.

6.3 Analytical Results for Brook Surface Soil

Five surface soil samples were collected from both the north and south banks of Candlewood Hill Brook. One sample (FOSS-02) was collected at the stormwater outfall with the remaining samples collected at the toe of the slope bank at accessible locations (*Figure 2*). It should be noted that most of the north and south slopes of the brook are comprised of rock, rock fragments, and dense vegetation. There was also evidence of other materials in the northern slope of the brook including metal, asphalt and concrete fragments.

Metals (arsenic, barium, cadmium, chromium, and lead) were detected at concentrations similar to levels in soil samples collected from the upland in the fill. PAHs typically associated with asphalt fragments were detected in each sample submitted for laboratory analysis. The highest concentrations of PAHs detected were reported in samples FOSS-01, FOSS-02 , and FOSS-03 collected from the northern bank south of Building 81-106 and the north and south bank at the stormwater outfall. Several PAH concentrations in these samples exceed the RSR baseline direct exposure criteria.

Inspection of the banks of the brook (including the stormwater outfall area) revealed no evidence of staining or stressed vegetation. The brook is a very high flow velocity environment with very little evidence of accumulated sediment in the bottom. Most of the bottom is exposed rock. Since the slopes of the brook are comprised mostly of rock and vegetation, we observed no significant evidence of erosion along the reach adjacent to the Site.

6.4 Identified Release Areas

The investigation activities identified evidence of releases and sources of impact to site soils from fill material and site activities at several RECs. Some of the impacts are co-mingled and superimposed over one another; thus making it difficult to distinguish specific impacts from the various RECs. As a result, the following eight "Release Areas" were defined. The general description and summary of RSR exceedances per Release Area are discussed in the subsections below. Refer to *Figure 2* for the locations of each REC and Release Area. Refer to *Table 1* for a discussion of the conceptual site model and release determination status for each REC.

6.4.1 F&O RA-1

Release Area 1 is comprised of REC-1 and REC-2. REC-1 is a portion of the former Spar Mill Pond area, located along the western portion of the Site and was reportedly filled with various materials (including materials containing potentially hazardous substances) from approximately 1941 to 1975. REC-2 is located in the southwestern portion of the Site where several containers of an experimental joint sealer were reportedly buried.

Overall, historical Site investigations in these areas identified soil impacted with ETPH, PAHs and VOCs at concentrations greater than the DEC and GA PMC in soil between 0-14 feet below grade. Specifically, petroleum impacts greater than RSR criteria were primarily associated with the historical fill/dumped materials used to fill in Spar Mill Pond. Low levels of pesticides were also historically reported in soil, at concentrations below applicable RSR criteria.

As part of the 2017 investigation activities, two soil borings (FOSB-01 and FOSB-02) were advanced within REC-1 and REC-2 and soil samples were collected from 6-7.5' and 10-12', respectively. Both samples were submitted for laboratory analysis of:

- RCRA 8 Metals
- ETPH
- VOCs

- PAHs

Analytical results indicated varying concentrations of metals, including arsenic, barium, chromium and/or lead were reported in each sample below applicable RSR criteria. VOCs, PAHs and ETPH were not detected above laboratory reporting limits in either of the two samples.

Release Area Conclusions

Petroleum impacts from materials to fill the former Spar Mill Pond are present at concentrations exceeding the DEC from approximately 0 to 14 feet below grade. VOCs and Pesticide impacts exceeding the GA PMC were also historically present in soil above the water table.

We recommend additional sampling in this RA focused on intervals that will be disturbed by future development activities to further assess historic data collected by others pertaining to reported soil concentrations exceeding the PMC and reported "tar-like" layers historically identified in REC-2. Fuss & O'Neill's 2017 investigation data did not identify soil concentrations exceeding PMC or tar in the subsurface.

6.4.2 F&O RA-2

Release Area 2 is comprised of REC-6, which included the building repair bays in the western portion of Building 81-106 and the majority of Building 81-115 as well as the gasoline pump island formerly located between the two buildings. The pump island was removed in November 2014.

A petroleum release was identified below the dispenser piping lines at the time the dispensers were removed. Subsequently, in December 2015, petroleum impacted soil was removed from the piping trench along a 40 foot long corridor to a depth of approximately 2 feet below grade. Shallow soil in historical borings (SB-12, SB-19 & SB-32) was impacted with concentrations of PAHs and ETPH exceeding RSR criteria.

One monitoring well, FOMW-02, was advanced in this area as part of the 2017 investigation and a soil sample from the 6-7.5' depth interval was collected and submitted for:

- RCRA 8 Metals
- ETPH
- VOCs
- PAHs

Analytical results indicated varying concentrations of metals, including arsenic, barium, chromium and lead were reported in the sample below applicable RSR criteria. VOCs, PAHs and ETPH were not detected above laboratory reporting limits.

Release Area Conclusions

While no release was identified from the repair bays to exterior doorways, a shallow petroleum release to soil (0-5 feet below grade) was identified associated with the piping from the USTs to the pumps or surface releases due to overfills and or spills at the dispenser. The remediation performed by DOT in 2015 appears to have been effective at removing the petroleum-impacted soil in the shallow interval of the former pipe trench between 0 to 4 four feet below the ground surface. Formal post remediation groundwater monitoring at this release area has not been performed. Residual petroleum impacts from a release persist at depth below the water table as further described in *Section 6.3*. Shallow soil is comingled with asphalt fragments associated with the worn paved parking surface.

6.4.3 F&O RA-3

Release Area 3 is comprised of REC-8 and REC-9, which include three former USTs located in one tank grave off the east side of Building 81-106. These three USTs (a 4,000-gallon diesel UST, 2,000-gallon heating oil UST and a 2,000-gallon gasoline UST) were removed in November 2014 because they had reached the end of their recommended lifespans. During the removal of the diesel UST, the tank broke and approximately 50 gallons of water and residual product released into the tank grave. Approximately 600 gallons of oil and water were pumped from the tank grave. Confirmatory sidewall samples and one grab groundwater sample were collected from the tank grave following the tank and water removal.

One soil boring, FOSB-09, was advanced in the northern portion of the former tank grave as part of Fuss & O'Neill's 2017 investigation and a soil sample was collected from 11.25-11.5 feet below grade. Analytical results indicated that ETPH, PAHs, PCBs and VOCs were not detected above laboratory reporting limits.

Release Area Conclusions

Constituents of concern were not reported above RSR criteria in the confirmatory soil samples collected in the tank grave at the time the USTs were removed or at depth in the former tank grave during the 2017 event. Formal post remediation groundwater monitoring at this release area has not been performed. Residual petroleum impacts may exist in the vicinity of the stormwater line that extends from Building 81-115 through the southwest portion of the former tank grave to the brook (*Figure 2*). The trench holding the stormwater pipe could serve as a preferential migration pathway and may have retained oil released during the 2014 UST removal. Petroleum impacted soil could be encountered during modifications or complete removal of the stormwater line during reuse construction activities, particularly any activities that occur in the utility trench located east of Building 81-106.

6.4.4 F&O RA-4

Release Area 4 consists of REC-10 which are the former heating oil and diesel USTs formerly located in a paved area immediately west of Building 81-115. While no documentation of tank removal activities have been identified to date, results of the November 2017 GPR survey did not identify evidence of underground tanks in place at this location.

Historical soil borings north and south of the former USTs had concentrations of ETPH and PAHs in shallow soil (0-4 feet below grade) exceeding the DEC and/or PMC, attributable to shallow surficial petroleum releases from UST overfilling, piping or other incidental releases.

Two borings (FOSB-03 and FOSB-16) were advanced in this area during the 2017 investigation and samples were collected from 6-8' and 1-2.5', respectively. Analytical results from samples collected from FOSB-03 and FOSB-16 in 2017 indicated the petroleum impacts did not migrate to depth.

Release Area Conclusions

Historical data indicates that a release of petroleum to the surface soil has occurred within an approximate 20 feet square area at the former tank grave. The surficial release is comingled with polluted fill at the surface that extends beyond the former tank grave footprint comprised of broken asphalt fragments associated with the deteriorated parking surface. Sampling at depth performed in 2017 indicates the surficial petroleum releases has not impacted the subsurface. Depending on the reuse strategy, additional sampling may be required to fully delineate the extent of the petroleum surficial release.

6.4.5 F&O RA-5

Release Area 5 consists of REC-13 which was a 2,000-gallon fuel oil UST formerly located off the northeast corner of Building 81-115 and was used to fuel the building's heating system. This UST was removed in November 2014 and four confirmatory sidewall samples, and one grab groundwater sample were collected from the tank grave.

Release Area Conclusions

Review of historical soil and groundwater samples and analytical results from the confirmatory samples did not identify evidence that a release from this UST had occurred. However, PAHs, VOCs and ETPH were detected above laboratory reporting limits in a grab groundwater sample collected from the tank grave in 2014. Presence of petroleum hydrocarbons in this area below the water table may indicate a release has occurred from the UST feed and return line piping which remains below the boiler and building slab located inside the building.

6.4.6 F&O RA-6

Release Area 6 consists of the former 550-gallon waste oil UST identified as REC-14 on *Table 1.* This UST was formerly located north of the offices and repair bays of Building 81-106 and was removed in November 2014. At the time of tank removal, four confirmatory sidewall samples and one grab groundwater sample were collected from the tank grave. Analytical results indicated that confirmatory sidewall samples had concentrations of PAHs and arsenic reported greater than RSR criteria. Therefore, additional impacted soil was removed in January 2015.

As part of the 2017 investigation activities, one soil boring (FOSB-06) was advanced in this area and a sample was collected from 6.8-7.2 feet below grade. Analytical results indicated that ETPH, PAHs, PCBs and VOCs were not detected above laboratory reporting limits.

Release Area Conclusions

A petroleum release was identified during tank removal activities in 2014 requiring soil remediation, which was implemented January 2015 in the tank grave exterior of the building. Investigation data collected in 2017 from boring FO-SB06 advanced in the former tank grave did not identify evidence of petroleum polluted soil below the water table. Oil staining was observed on concrete slab around the interior waste oil UST fill pipe that still remains inside Building 81-106. Formal post remediation groundwater monitoring at this release area has not been performed.

The former UST is located adjacent to the utility tunnel that extends perpendicular between Building 81-106 and Building 81-115. The subgrade trench for the utility tunnel could serve as a preferential migration pathway that may have been impacted by the petroleum release from the UST. In addition, local soil impacts below the building slab or footing may be present at the UST fill pipe.

6.4.7 F&O RA-7

Release Area 7 includes REC-16, which is the former hydraulic lift area in Building 81-106. Historically, above and in-ground hydraulic vehicle lifts were formerly located in the repair bay located in the center of Building 81-106. An August 1998 DEEP spill report described a release of 70 gallons of hydraulic fluid from the lifts and reportedly a former Site manager indicated contaminated soil was removed when the underground lift was replaced with an above ground lift.

Three soil borings were advanced in this area as part of the 2017 investigation (FOSB-10, FOSB-17 and FOSB-19) and samples were collected from 5.3-6.1, 6.1-7.5' and 5.8-7.1', respectively and submitted for laboratory analysis of:

- RCRA 8 Metals
- ETPH
- PCBs
- VOCs
- PAHs

Release Area Conclusions

Visible evidence of a petroleum release was observed in soil at FOSB-10 and the sample collected from this boring had concentrations of ETPH reported in excess of the DEC and PMC. Total lead also exceeded the DEC in this sample. Concentrations of ETPH also exceeded the DEC and/or PMC in the samples analyzed from FOSB-17 and FOSB-19.

The petroleum release associated with the former hydraulic lifts is located beneath the building slab in the eastern portion of the building comprising an area of at least 400 square feet with impacted soil

located at least two feet above the bedrock, which was encountered at a depth of 8 feet below the building slab. Groundwater samples collected from well MW-06 and HMF-MW-2 within 10 to 40 feet from the release area in 2017 (see *Section 6.3*) did not contain petroleum constituents. Additional characterization is warranted in this RA to determine the full degree and extent of the release area including potentially installing a well(s) inside the building to assess if the release to soil has migrated down into the bedrock aquifer below the building footprint.

6.4.8 F&O RA-8

Release Area 8 includes the building interior concrete floors, identified as REC-17. Evidence of petroleum staining, concrete deterioration from salt and chemicals and rings from drum storage were observed on the floors throughout the Site buildings. During the 2017 Phase II Investigation activities, four concrete chip samples (collected from interior soil borings FSB-10, FOSB-11, FOSB-14 and FOSB-15) were submitted for laboratory analysis of PCBs.

Analytical results indicated that PCBs were not detected above laboratory reporting limits in any of the concrete chip samples analyzed.

Release Area Conclusions

While surficial petroleum releases to the floor surfaces are evident based on the visible staining observed, analytical results from the limited concrete chip samples collected from the stained areas indicate the floors are not impacted with PCBs. It is noted that, based on the intended reuse of the building and the extent to which the concrete slab floors will be disturbed during redevelopment activities, additional characterization of the concrete floors and subsurface below the floors may be warranted.
As noted in this report and the Phase I ESA, former subgrade trench and drainage systems associated with former DOT operations or mill operations exist in both Building 81-115 and Building 81-106. Isolated concrete patched areas and linear patched areas were observed in the floor slab of both buildings indicating past filling of the concrete slab or the subsurface below the slab. During the 2017 investigation nine borings were advanced through the slab to the subsurface at or in the vicinity of observed concrete patching. These data did not indicate evidence of a release, other than polluted fill below the buildings and the petroleum release identified at REC-16 as previously described. However, additional sampling should be implemented to further characterize the subsurface below the buildings at areas that will be disturbed associated with reuse construction including planning for a new floor topping slab or new below slab utility trench.

6.5 Groundwater Sampling Results

On November 22, 2017, thirteen groundwater samples were collected from 11 previously existing monitoring wells (W-25-1S, W-25-1D, W-25-3, D-8, D-17, D-18, D-23, MW-1, HMF-MW-1, HMF-MW-2, and MW-06) and the two newly installed monitoring wells (FOMW-01 and FOMW-02). A grab sample was also collected from the potable water supply well located on the western portion of the

property. A summary of the groundwater analytical results compared to the baseline RSR criteria is provided on *Table 5*. A copy of the groundwater laboratory analytical report is included in *Appendix C.*

Each sample was submitted to Phoenix for laboratory analysis of sodium, chloride, RCRA 8 Metals, VOCs, PAHs, pesticides and/or PCBs.

VOCs, PCBs, Pesticides
Analytical results indicated that VOCs and PCBs were not detected above laboratory reporting limits in any of the groundwater samples analyzed.

The pesticides 4,4-DDE and 4,4-DDT were detected in one of three samples submitted for analysis (*Table 5*). These constituents were detected in the sample collected from MW-F01 at concentrations exceeding RSR baseline criteria. Pesticides have been detected in groundwater samples off-site and previous investigations have concluded an off-site agricultural source.

Sodium and Chloride
Sodium and chloride were detected in all of the groundwater samples submitted for analysis. Eleven of the 14 samples had a sodium concentration that exceeded the drinking water state notification level of 28 mg/l. One sample had a chloride concentration that exceeded the state action level goal of 250 mg/l.

Groundwater Quality In Site Fill
Generally low level concentrations of metals (including barium, chromium, and/or lead) were detected in each of the groundwater samples. Concentrations of lead and chromium reported in the sample collected from FOMW-01, however, exceeded the GWPC. It is noted that elevated turbidity readings were reported in FOMW-01 at the time of sample collection and therefore, a 10-micron field filter was used at the time of sample collection. Based on cumulative review of the Site groundwater data including past sampling events performed by others, the source for the metals is the coal ash within the fill that is present throughout the Site.

Trace concentrations (below applicable RSR criteria) of various PAHs were reported in samples collected from historical monitoring wells D-18, D-23 and MW-1. It is noted that these monitoring wells are located outside Fuss & O'Neill's identified release areas. The source for PAHs at these locations most likely is residual petroleum hydrocarbons within the fill.

Groundwater Quality in Petroleum Release Area Between the Buildings
Concentrations of PAHs detected in monitoring wells FOMW-01 and FOMW-02 screened in the unconsolidated deposits between 3 – 8 feet were reported at levels that exceeded the GWPC and/or SWPC. These wells are located between Building 81-115 and Building 81-106 in the vicinity of the former USTs and dispensers (REC-6, REC-11, REC-14). The magnitude of the petroleum concentrations detected in this area compared to concentrations detected in samples collected outside this area indicate one or more of these RECs as a potential source. Note that petroleum hydrocarbons were not detected in downgradient wells MW-6, HMF-MW-2, and HMF-MW-1 screened in the unconsolidated deposits and shallow weathered bedrock. This single event groundwater snapshot indicates petroleum contamination in the unconsolidated deposits and shallow weathered bedrock has not migrated beyond the area between the buildings. However, as previously discussed, groundwater

impacts in the unconsolidated deposits/shallow weathered bedrock may be present below the eastern portion of Building 81-106 at RA-7 (REC-16).

Potable Supply Well
The water sample collected from the potable supply well was non detect for VOCs, PAHs, and pesticides. Lead was detected at a concentration of 0.004 mg/l below the action level goal of 0.015 mg/l. Sodium (11.4 mg/l) and chloride (41.1 mg/l) were detected at concentrations below the action/notification levels of 28 mg/l and 250 mg/l, respectively. Note these data should be interpreted as screening data only as the well pump was not operable and the water sample was collected at the surface of the water column using a peristaltic pump.

A future task associated with the permitting process required by the CT Department of Public Health (DPH) to permit the well as a public water supply source for a future development will require a long-term pumping test. At the end of the pumping test, a water sample will need to be collected from the bedrock aquifer and analyzed for an extensive list of parameters required by DPH.

6.6 Data Gap Analysis

Groundwater
Monitoring wells were not sampled from each Release Area, due to the inability to locate historical wells or historic wells that no longer provide representative groundwater samples. Installation of additional monitoring wells and implementation of additional rounds of groundwater sampling will need to occur to ultimately make a formal determination of groundwater quality relative to RSR compliance.

A deep bedrock aquifer evaluation was not conducted as part of the 2017 investigation activities. Characterization results of the environmental quality of the overburden aquifer and shallow weathered bedrock aquifer per the wells identified on *Table 1* reveal no evidence of an ongoing release from the Site RECs. However, as part of regulatory obligations in a formal state voluntary or property transfer law remediation program, the legacy of impacts to the deep bedrock aquifer from past Site releases or releases that may have migrated onto the Site from adjacent off-site sources located in the GA-impaired groundwater area may need to be further evaluated.

Soil
The reuse site design will need to integrate remedial alternatives to the greatest extent feasible to achieve closure objectives in a cost-effective manner. As such additional soil sampling should be performed at areas of the Site including REC 16 and other locations identified on *Table 1*. In addition, soil samples should be collected from areas of the Site that will be heavily disturbed by renovation construction activities that will generate excess soil. This includes areas such as stormwater retention/detention areas, utility corridors, and below grade foundations. Pre-characterization of soil that is generated by site construction activities along with a geotechnical survey of the subsurface will allow for preparation of a soil management plan to enable suitable soil to remain on-site and reduce off-site disposal costs.

Candlewood Hill Brook

The sampling data indicates that the northern slope of the brook adjacent to the site contains polluted fill with concentrations of PAHs that exceed baseline RSR DEC. At least one stormwater outfall from the Site exists in the northern bank and other former outfalls may have existed in the past. We observed no evidence of staining or stressed vegetation indicating a former discharge of petroleum or other potentially hazardous substances from the outfall to the brook has occurred.

The brook is a potentially sensitive receptor proximal to the upland release areas that have been identified. The DEEP's *Site Characterization Guidance Document* indicates that the conceptual site release model should consider potential impacts to sediment from identified releases or eroded polluted soil from a release. During this investigation evaluating the general environmental quality of soil that comprises the bank slope was performed. However, sampling of unconsolidated material (sediment in the brook) is very limited given that the brook is a high velocity flow environmental with bottom and banks comprised mostly of rock. During future remedial planning, discussion with the regulators will need to occur to determine if ecological risk assessment is necessary to fulfill Site closeout obligations.

7 Conclusions and Recommendations

The Site is a 4-acre irregularly-shaped parcel on the south side of Candlewood Hill Road located in a residential zone of Higganum, Connecticut that has been owned by the CT DOT since 1941. Structures currently located on the Site include two two-story brick buildings, an emergency generator shed, and associated paved parking and driveway areas. The remainder of the Site is comprised of gravel, grass or overgrown brush. The Site is currently vacant, but was most recently used by the CT DOT as a vehicle repair and maintenance facility. Historically, the Site was part of the D&H Scovil Hoe Company Mill No. 4, which manufactured farming equipment from approximately 1844 through 1942.

Several iterations of environmental investigations have been conducted at the Site, most recently including a 2017 Phase I ESA (conducted by Fuss & O'Neill) which identified nineteen RECs associated with past Site operations. Concurrently with the Phase I ESA, Fuss & O'Neill conducted a Phase II and Limited Phase III site investigation in 2017. Results from the 2017 investigation activities identified the following eight release areas:

Identified Release Areas (RAs)

RA	Description / REC	Released Constituents	Constituents Detected Above Baseline RSR Criteria (Y/N)
F&O RA-1	Historical Fill/Dump Area (REC-1 & REC-2)	VOCs, PAHs & ETPH	Y
F&O RA-2	Repair Bays & Pump Island (REC-6)	PAHs & ETPH	Y
F&O RA-3	Former Diesel, Heating Oil & Gasoline USTs (REC-8 & REC-9)	PAHs, ETPH, Metals	Y
F&O RA-4	Former Heating Oil & Diesel USTs (REC-10)	PAHs & ETPH	Y

F&O RA-5	Former Heating Oil UST (REC-13)	PAHs, VOCs & ETPH	N
F&O RA-6	Waste Oil UST (REC-14)	Metals	N
F&O RA-7	Former Hydraulic Lift Area (REC-16)	ETPH & Lead	Y
F&O RA-8	Interior Floors (REC-18)	Petroleum	N

Remediation of polluted soil by CT DOT through excavation and off-site disposal has occurred at several of the RECs as a step in the process of achieving formal compliance with the Remediation Standard Regulations. Post remediation groundwater monitoring has not been completed, however, there is no evidence of a continuing ongoing release to the subsurface from the Site RECs.

Review of boring logs, historical data, and data from the 2017 investigation indicates that the Site is underlain with fill with concentrations of polynuclear aromatic hydrocarbons, lead, and arsenic exceeding baseline RSR Direct Exposure Criteria. The fill contains asphalt fragments, coal fragments, coal ash, crushed rock, and small metal fragments. In some areas, the fill is underlain by native material comprised of fine-to-coarse sand with varying composition of gravel. In other areas the fill extends down to the bedrock. Release determinations were inconclusive at REC-3, REC-11, and REC-15 where minor incidental petroleum releases may have occurred from these sources which are co-mingled with polluted fill with concentrations exceeding cleanup criteria.

The most recent 2017 round of groundwater sampling data indicates that groundwater quality between the buildings in the unconsolidated deposits has been impacted by petroleum hydrocarbons at concentrations above RSR baseline criteria. Review of the historic data indicates other areas of the Site, particularly the former Spar Mill Pond area, have had past petroleum hydrocarbon, pesticide, and metals impacts exceeding baseline RSR criteria.

Recommendations

The next step in the process is to prepare a Remedial Action Plan based on a final site design for redevelopment of the property. The site design should integrate remedial options to the greatest extent feasible to cost-effectively achieve compliance with the cleanup regulations. This could include construction of new buildings along with new parking and landscaped areas to prevent human contact with the underlying polluted soil either through the self-implementing options described in the cleanup regulations or DEEP-approved engineered controls. Select areas may require excavation and off-site disposal. Soil management strategies should be incorporated into the site design to minimize the quantity of excess polluted soil that will be generated by development activities. Additional sampling will likely need to be performed to address identified data gaps pertaining to groundwater and soil characterization.

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5. If the purpose of this project was to assess the physical characteristics of the Site with respect to the presence in the environment of hazardous substances, waste or petroleum and chemical products and wastes as defined in the work product, unless otherwise noted, no specific attempt was made to check the compliance of present or past owners or operators of the Site with Federal, state, or local laws and regulations, environmental or otherwise.

6. If water level readings have been made, these observations were made at the times and under the conditions stated in the report. However, it must be noted that fluctuations in water levels may occur due to variations in rainfall, passage of time and other factors and such fluctuations may affect the conclusions and recommendations presented herein.

7. Except as noted in the work product, no quantitative laboratory testing was performed as part of the project. Where such analyses have been conducted by an outside laboratory, Consultant has relied upon the data provided, and unless otherwise described in the work product has not conducted an independent evaluation of the reliability of these tests.

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9. Chemical analyses may have been performed for specific parameters during the course of this project, as described in the work product. However, it should be noted that additional chemical constituents not included in the analyses conducted for the project may be present in soil, groundwater, surface water, sediments or building materials at the Site.

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Tables

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Table 1
Summary of Recognized Environmental Conditions & Release Areas

CT DOT Maintenance Facility / Historical Scovil Hoe Mill
11 Candlewood Hill Road
Higganum, Connecticut

Phase I Background Investigation			Phase II/III Conclusions & RSR Evaluation						
					Release Constituents & RSR Exceedances				
Recognized Environmental Condition (REC)	Historic Release Area ID	Description / Conceptual Site Model	Phase II/III Investigations	Release Determination (Based on Results from Previous Investigations)	Soil ■ Exceedance	Res DEC	I/C DEC	GA PMC	GW Detects & Exceedances	Release Area Conclusions
REC-1 Historical Fill/ Dump Area (Western Portion of Site)	*DTC-RA-1* *HRP Release Area 1*	The filled area, located along the western portion of the Site was formerly a portion of Spar Mill Pond, and was reportedly used as a dumpsite from 1941 to 1975. Historical Site investigations identified metal, asphalt and construction debris including a degraded drum containing herbicides. COCs VOCs ETPH PAHs Pesticides Herbicides	Soil borings (DTC 2006): SB-1 through SB-6 Sediment Samples (DTC 2006): SS-4 & SS-5 (from Candlewood Hill Brook) Historical monitoring wells: W-25-1S, W-25-1D and W-25-4 DTC Monitoring wells (2006): MW-10S and MW-10D Soil borings (F&O 2017): FOSB-02	Soil between 0-14 fbg impacted with ETPH, PAHs, & VOCs (specifically 1,2,4-Trimethylbenzene at MW-10D, 14 fbg). Petroleum impacts in excess of RSR criteria were identified at depths ranging from shallow (0-2 feet below grade) to 10-14 fbg (in MW-10D), likely related to historical fill materials. Trace concentrations of the VOC constituent naphthalene and low level chlorinated pesticides (44DDD and 44DDT) were also reported in soil samples at concentrations below RSR criteria.	124TMB PAHs ETPH Pesticides	□ ■ ■ □	□ ■ □ □	■ □ ■ □	ETPH & pesticides were not detected in GW. A trace concentration of naphthalene (a VOC) was detected in MW-10D.	F&O RA – 1 Petroleum impacts from materials used to fill the former Pond are present in soil at concentrations exceeding the DEC from 0 to 14 feet below grade. VOCs and Pesticide impacts exceeding the PMC are also present in soil. Additional sampling is recommended to confirm presence of and determine extent of the "tar-like" layer that was historically identified, as well as SPLP sampling to assess the PMC issues.
REC-2 Buried Drums of Joint Sealer (Southwestern portion of Site)	*DTC-RA-2* *HRP Release Area 2*	Historically, several containers of an experimental joint sealer were reportedly buried in the southwestern portion of the Site (southeast of the two buildings along Candlewood Hill Brook). COCs VOCs ETPH PAHs	Soil borings (DTC 2006): SB-7 & SB-8 Sediment Samples (DTC 2006): SS-3 Historical monitoring wells: W-25-2, W-25-3, MW-9, D-17 & D-18 Soil borings (F&O 2017): FOSB-01	Soil between 0-8 fbg is impacted with ETPH & PAHs exceeding RSR criteria at SB-7 and SB-8. Low levels of pesticides (44DDT) and the VOC constituent naphthalene were also reported in soil, below RSR criteria. Soil impacts are likely related to historical petroleum-impacted fill materials.	PAHs ETPH Pesticides	■ ■ □	■ □ □	□ ■ □	Concentrations of Arsenic historically exceeded the SWPC. Elevated concentrations of sodium and trace PAHs were reported in GW (below RSRs) in 2017.	

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CT DOT Maintenance Facility / Historical Scovil Hoe Mill
11 Candlewood Hill Road
Higganum, Connecticut

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REC-3 Drum Storage Shed	*DTC-RA-3* *HRP PRA- 3*	A storage shed, located southwest of Building 81-106, and the area immediately north of the storage shed were reportedly used for various drum storage. The contents and amount of materials stored within the drums was not reported. COCs VOCs ETPH PAHs Metals	Soil borings (DTC 2006): SB-13 Historical monitoring wells: D-1 & D-19 Soil borings (F&O 2017): FOSB-04	Shallow soil (0-2 fbg) is impacted with ETPH and PAHs exceeding applicable RSR criteria at SB-13 and FOSB-04. Given the fact that the pavement in this area is severely degraded, the source of PAHs and ETPH is likely attributable to asphalt fragments and fill material. Low levels of chlorinated pesticides (44DDT) were also detected in soil at concentrations below RSR criteria.	PAHs ETPH Pesticides	■ ■ □	■ □ □	■ ■ □	N/A	Inconclusive. While petroleum impacts (exceeding DEC & PMC) are present in shallow soil and could be attributable to degraded asphalt fragments and fill material, additional sampling should be conducted to confirm releases from historical drum storage activities did not occur.
REC-4 Solvent Steam Cleaning Area	*DTC-RA-4* *HRP PRA- 5*	An area located south of the repair bays of the western portion of Building 81-106 was identified as a former steam cleaning area with the potential use of solvent-based cleaners. COCs VOCs	Soil borings (DTC 2006): SB-14 & SB-16 DTC Monitoring wells (2006): MW-7	Chlorinated solvents were not detected above laboratory reporting limits in soil. Shallow soil (0-3 fbg) is impacted with ETPH and PAHs exceeding applicable RSR criteria, attributable to the presence of asphalt-containing fill material. It is noted that shallow refusal was encountered between 2.5-3 feet below grade.	PAHs ETPH	■ ■	■ □	□ ■	No COCs detected above laboratory reporting limits in GW.	No Release. Soil impacted by asphalt-containing fill materials.
REC-5 Historic Solvent Storage Area	*DTC-RA-5* *HRP PRA- 6*	A large, fenced impoundment area on the southeastern portion of the Site previously used for general storage and historically used for solvent storage. Historic investigations identified VOCs, lead and petroleum hydrocarbons in soil and groundwater exceeding RSR criteria at sampling point D-3 (located in the southeast corner of fenced area). COCs VOCs ETPH PAHs	Historic Soil Boring/grab GW: D-3 Soil borings (DTC 2006): SB-33 & SB-34 Sediment Samples (DTC 2006): SS-1 DTC Monitoring wells (2006): MW-2 Soil borings (F&O 2017): FOSB-08	VOCs were not detected in soil or groundwater investigated between 2006 and 2017. While shallow soil (0-2 fbg) is impacted with ETPH, PAHs and SPLP Lead exceeding applicable RSR criteria, the source is attributable to impacted fill materials containing asphalt fragments.	PAHs ETPH SPLP Lead	■ ■ □	■ □ □	□ ■ ■	Trace concentration (below RSRs) of naphthalene reported in 2006 gw sample from MW-2.	No Release. Soil impacted primarily by non-native fill materials.

FUSS & O'NEILL

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CT DOT Maintenance Facility / Historical Scovil Hoe Mill
11 Candlewood Hill Road
Higganum, Connecticut

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Recognized Environmental Condition (REC)	Historic Release Area ID	Description / Conceptual Site Model	Phase II/III Investigations	Release Determination (Based on Results from Previous Investigations)	Soil ■ Exceedance	Res DEC	I/C DEC	GA PMC	GW Detects & Exceedances	Release Area Conclusions
<u>REC-6</u> Repair Bays & Pump Island	*DTC-RA-6* *HRP PRA- 7*	This area encompasses the repair bays in the western portion of Building 81-106, the majority of Building 81-115, and the gasoline pump island between the two buildings. The pump island was removed in November 2014 and a petroleum hydrocarbons release was identified below the dispenser piping lines. In December 2015 petroleum impacted soil was removed from the former pump island piping trench along a 40 feet long corridor to a depth of approximately two feet below the ground surface <u>COCs</u> VOCs ETPH PAHs	<u>Soil borings (DTC 2006)</u>: SB-12, SB-19, SB-31 & SB-32 <u>DTC Monitoring wells (2006):</u> MW-4 & MW-5 <u>Soil borings (F&O 2017):</u> FOSB-05 <u>Monitoring wells (F&O 2017):</u> FOMW-01 & FOMW-02	Shallow soil (0-2 fbg) in SB-12, SB-19 & SB-32 is impacted with PAHs exceeding RSR criteria, and soil from 0-5 fbg in MW-4 is impacted with PAHs and ETPH exceeding RSR criteria. A soil sample from FOMW-02 (6-7.5') also had concentrations of metals and select PAHs detected at concentrations below applicable RSR criteria. The source may be related to surficial releases of petroleum from the eastern repair bays of the 1866 building and the western bay of the 1877 building. Impacts could also be attributed to impacted fill material.	PAHs ETPH	■ ■	■ □	□ ■	Historically, concentrations of lead & arsenic exceeded the GWPC & SWPC in downgradient well MW-4 (potentially due to suspended solids). PAHs, pesticides and/or select metals were detected in 2017 groundwater samples collected from FOMW-01 and FOMW-02 at concentrations that exceeded the GWPC and/or SWPC.	<u>F&O RA-2</u> No release from repair bays to exterior doorways. Shallow petroleum release to soil (0-5 feet below grade) associated with piping from USTs to pumps; comingled with impacts from fill material (PAHs exceeding DEC). UST piping release remediated during pump removal; however post remediation groundwater monitoring was not conducted.
<u>REC-7</u> Septic Tank & Leachfield (East of Building 81-115)	*DTC-RA-7* *HRP PRA- 8*	The floor drains in Building 81-115 reportedly discharged directly to the septic tank. Therefore, the soil and groundwater in the area of the septic tank and leachfield could have been impacted by interior releases to the floor drains and from sinks within the Site buildings. <u>COCs</u> VOCs ETPH PAHs Metals	<u>Soil borings (DTC 2006)</u>: SB-24 & SB-25 <u>DTC Monitoring wells (2006):</u> MW-1 <u>Soil borings (F&O 2017):</u> FOSB-07	Soil from 0-3 fb in this area is impacted with PAHs exceeding RSR criteria. Low levels of ETPH and the VOC constituent naphthalene were also detected within the shallow soil. These petroleum impacts are associated with fill materials containing asphalt fragments.	VOCs PAHs ETPH	□ ■ □	□ ■ □	□ □ □	No COCs detected above laboratory reporting limits in GW, with the exception of a trace concentration of chrysene in the 2017 sample collected from MW-1.	<u>No Release.</u> Soil impacted by non-native fill materials.

FUSS & O'NEILL

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CT DOT Maintenance Facility / Historical Scovil Hoe Mill
11 Candlewood Hill Road
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<u>REC-8</u> Diesel Fuel UST	*DTC-RA-8* *HRP PRA- 9C*	A 4,000-gallon diesel fuel UST, 2,000-gallon heating fuel UST and 2,000 gallon gasoline UST were formerly located in one tank grave off the east side of Building 81-106. The diesel and gasoline USTs were used for fueling DOT vehicles, while the heating oil UST was used for the facility's heating systems. The USTs were removed in November 2014 because they reached the end of their recommended lifespans. During the removal of the diesel UST, the tank broke and approximately 50 gallons of water and residual product released into the tank grave (Spill Case No. 2014-05891). Approximately 600 gallons of oil/water was pumped from the tank grave. 8 confirmatory sidewall samples and one grab groundwater sample were collected following tank removal activities. <u>COCs</u> VOCs ETPH PAHs Metals	<u>Soil borings (DTC 2006)</u>: SB-21, SB-22 & SB-23 <u>Sediment Samples (DTC 2006)</u>: SS-2 <u>DTC Monitoring wells (2006):</u> MW-3 <u>TRC Confirmatory Samples (2014):</u> HIG-D-N, HIG-D-E, HIG-D-W, HIG-G-E, HIG-G-W, HIG-FO2-E, HIG-FO2-W, HIG-FO2-S <u>TRC Monitoring Well (2015):</u> HMF-MW-1 & HMF-MW-2 <u>Soil borings (F&O 2017):</u> FOSB-09	Soil from 0-8 fbg is impacted with ETPH, PAHs, total arsenic and/or SPLP lead at concentrations exceeding RSR criteria, likely associated with petroleum releases due to spills, UST overfills, and/or a leaking UST or related piping. Low levels of chlorinated pesticides (44DDT) were also detected in soil at concentrations below RSR criteria. Additionally, the VOC 124TMB, a gasoline constituent, was detected below RSR criteria in one sample from 6-8 fbg (MW-3). Constituents of concern were not reported above RSR criteria in any of the confirmatory soil samples collected during tank removal activities.	124TMB PAHs ETPH Arsenic SPLP Lead Pesticides	□ ■ ■ □ □ □	□ ■ □ □ □ □	□ □ ■ ■ ■ □	GW from nearby monitoring wells (MW-3 & MW-4) did not have COCs reported associated with diesel, heating oil or gasoline. Total arsenic exceeding the SWPC was detected in MW-3 (potentially due to suspended solids). The grab gw sample (HIG-GDF-GW) collected during tank removal activities had concentrations of PAHs and Pb > the GWPC.	<u>F&O RA-3</u> Petroleum release was identified during 2014 tank removal. Bottom confirmatory samples were not collected from the tank grave following tank removal. While groundwater in the area does not appear to be significantly impacted, post remediation groundwater monitoring was not performed.
<u>REC-9</u> Heating Oil & Gasoline USTs	*DTC-RA-9* *HRP PRA-9D*									
<u>REC-10</u> Former Heating Oil & Diesel USTs	*DTC-RA-10* *HRP PRA- 10A*	A heating oil and diesel UST were formerly located in a paved area located immediately west of Building 81-115, outside the garage. No documentation of the removal of these USTs has been identified, however a ground penetrating radar survey conducted in 2017 did not identify anomalies that would be indicative of USTs in place at this location. <u>COCs</u> VOCs ETPH PAHs Metals	<u>Soil borings (DTC 2006)</u>: SB-9, SB-10 & SB-11 <u>Soil borings (F&O 2017):</u> FOSB-03, FOSB-16	Soil from 0-4 fbg in historical borings north and south of the former USTs is impacted with ETPH and PAHs exceeding RSR criteria, potentially associated with surficial petroleum releases from UST filling activities, piping, and/or other incidental releases. One deep sample (6-8') was collected from FOSB-03 in 2017. COCs were not detected in this sample at concentrations that would be indicative of a release from the former UST.	PAHs ETPH	■ ■	■ □	□ ■	GW from nearby historical monitoring well MW-8 did not contain COCs associated with heating or diesel fuel.	<u>F&O RA-4</u> Limited surface release from UST overfills/spills impacted shallow soil with concentrations greater than DEC & PMC. Based on 2017 investigation, impacts did not migrate to depth. Additional sampling is required to fully delineate surface release.

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CT DOT Maintenance Facility / Historical Scovil Hoe Mill
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Higganum, Connecticut

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REC-11 4 Former USTs	*DTC-RA-11* *HRP PRA- 10B*	Four former USTs, including 2 gasoline and 2 waste oil USTs, were historically located in an area between the two Site buildings. No documentation of the removal of these USTs has been identified, however a ground penetrating radar survey conducted in 2017 did not identify anomalies that would be indicative of USTs in place at this location. COCs VOCs ETPH PAHs Metals	Soil borings (DTC 2006): SB-26, SB-27, SB-28, SB-29 & SB-30 DTC Monitoring wells (2006): MW-5 (downgradient) Monitoring wells (F&O 2017): FOMW-01 (upgradient)	Soil from 0-3 fbg in this area is impacted with PAHs exceeding RSR criteria. Low levels of ETPH, Metals and pesticides were identified at concentrations below RSR criteria.	PAHs ETPH Pesticides	■ □ □	■ □ □	□ □ □	Historically, downgradient monitoring well MW-5 did not contain COCs associated with gasoline or waste oil. PAHs, pesticides, chromium & lead were detected in a 2017 groundwater sample (FOMW-01) at concentrations that exceeded the GWPC and/or SWPC.	Inconclusive. Shallow soil impacts are present which could be attributable to fill material containing degraded asphalt fragments or incidental parking lot releases. Samples from depths representative of USTs were not impacted; although it is noted that shallow refusal (4' below grade) was encountered.
REC-12 Former Heating Oil UST	DTC-RA-12 HRP PRA- 10C	A former heating oil UST was located south of the office of Building 81-106. COCs VOCs ETPH PAHs Metals	Soil borings (DTC 2006): SB-17 & SB-18 DTC Monitoring wells (2006): MW-6 (bedrock)	Shallow refusal encountered between 2-3 fbg. Soil from 0-3 fbg in this area is impacted with PAHs exceeding RSR criteria attributable to asphalt containing fill materials. Low levels of ETPH, Metals and naphthalene were identified at concentrations below RSR criteria.	PAHs	■	■	□	No COCs detected above laboratory reporting limits in GW.	No Release. Soil impacted by non-native fill materials.

FUSS & O'NEILL

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CT DOT Maintenance Facility / Historical Scovil Hoe Mill
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Recognized Environmental Condition (REC)	Historic Release Area ID	Description / Conceptual Site Model	Phase II/III Investigations	Release Determination (Based on Results from Previous Investigations)	Soil ■ Exceedance	Res DEC / I/C DEC / GA PMC	GW Detects & Exceedances	Release Area Conclusions
REC-13 Former Heating Oil UST (Northeast corner of Building 81-115)	HRP-PRA-9A	A 2,000-gallon fuel oil UST was formerly located off the northeast corner of Building 81-115 which was used to fuel the building's heating system. A historical monitoring well is located in the vicinity of this former UST, and DTC advanced one soil boring (SB-20) upgradient of the former UST location, however no downgradient sampling locations were advanced. This UST was removed in November 2014 because it had reached the end of its recommended lifespan. TRC collected 4 confirmatory sidewall samples and one grab groundwater sample from the excavation following tank removal activities. COCs ETPH PAHs Metals	DTC Soil borings (2006): SB-20 Historical Monitoring well: D-8 TRC Confirmatory Samples (2014): HIG-FO1-N, HIG-FO1-E, HIG-FO1-S, HIG-FO1-W TRC Monitoring Well (2015): HMF-MW-4	COCs were not detected above laboratory reporting limits in the historical soil samples or in any of the UST closure confirmatory soil samples.	None	None	COCs were not detected in groundwater from the historical monitoring well. The VOC constituent ethylbenzene was detected at a concentration below applicable RSR criteria in the grab gw sample from the tank grave. PAHs and ETPH were reported at concentrations above the GWPC in the grab gw sample.	F&O RA-5 Although no apparent release to soil, constituents reported it is noted that bottom confirmatory samples were not collected following UST removal. Additionally, the grab gw sample collected during UST removal indicated the presence of PAHs, VOCs and ETPH. The potential exists that groundwater impacts could be associated with a release from the feed and return line piping that still exists below the boiler and building slab or an off-site upgradient source.
REC-14 Waste Oil UST	HRP-PRA-9B	A former 550-gallon waste oil UST was located north of the offices and repair bays of Building 81-106. This UST was removed in November 2014 and TRC collected 4 confirmatory sidewall samples and one grab groundwater sample from the excavation following tank removal activities. Due to concentrations of PAHs & arsenic in sidewall samples at concentrations greater than RSR criteria, impacted soil was removed from the tank grave in January 2015. COCs ETPH PAHs Metals PCBs	DTC Monitoring wells (2006): MW-5 TRC Confirmatory Samples (2014): HIG-WO-N, HIG-WO-E, HIG-WO-W, HIG-WO-S, HIG-WO-GW TRC Confirmatory Samples (2015): HIG-WO-E2, HIG-WO-W2, HIG-WO-S2 TRC Monitoring Well (2015): HMF-MW-3 Soil borings (F&O 2017): FOSB-06	Low levels of several RCRA 8 metals were identified in historical soil samples from 6-8 fbg at concentrations consistent with naturally occurring background concentrations. VOCs, ETPH, PAHs and PCBs were not detected in historical soil samples. PAHs and arsenic were either not detected or were detected at concentrations below RSR criteria in the 2015 confirmatory sidewall samples following impacted soil removal	RCRA 8 Metals	□ □ □	COCs were not detected in historical groundwater samples from MW-5. PAHs were reported in the groundwater sample from HMG-MW-3 at concentrations below RSR criteria. It is noted that DEEP's Alternative Criteria for phenanthrene was approved for use at this Site.	F&O RA-6 A release was identified during tank removal activities in 2014 and remediation (via impacted soil removal) was conducted in January 2015. Post remediation groundwater monitoring was not conducted, however. Additionally, based on severe concrete staining observed in the vicinity of the fill pipe in the building interior, the release may extend beneath the building slab.

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Table 1
Summary of Recognized Environmental Conditions & Release Areas

CT DOT Maintenance Facility / Historical Scovil Hoe Mill
11 Candlewood Hill Road
Higganum, Connecticut

Phase I Background Investigation			Phase II/III Conclusions & RSR Evaluation						
					Release Constituents & RSR Exceedances				
Recognized Environmental Condition (REC)	Historic Release Area ID	Description / Conceptual Site Model	Phase II/III Investigations	Release Determination (Based on Results from Previous Investigations)	Soil ■ Exceedance	Res DEC	I/C DEC	GA PMC	GW Detects & Exceedances	Release Area Conclusions
REC-15 Interior Trenches	AOC 2 (Marin)	Evidence of underground trenches running from east to west in the western portion of Building 81-106 was observed. Several floor drains were also mentioned in Marin's 2001 Phase I ESA, which were capped prior to the completion of the report. Three soil borings were completed in 2017 in the vicinity of the trenches. COCs PAHs Metals ETPH PCBs VOCs	Soil borings (F&O 2017): FOSB-11, FOSB-12, FOSB-13	Varying concentrations of metals were reported in shallow soil (0-2 fbg). Concentrations of arsenic exceeded the Res DEC in a sample from FOSB-13, while PAHs were reported detected below RSR criteria.	As PAHs	■ □	■ □	□ □	N/A	Inconclusive. No release was identified based on the limited sampling conducted to date, which was restricted due to the fact that the trenches have been filled with concrete. It is noted that the trench system was in place and in use prior to Site operation by the CT DOT and additional characterization is warranted based on the intended reuse of the building and the extent to which the slab will be disturbed during redevelopment activities.
REC-16 Former Hydraulic Lift Area	AOC 3 (HRP)	Above- and below-ground hydraulic lifts were formerly located in the repair bay located in the center of Building 81-106. A DEEP Spill report dated 8/14/1998 describes a release of 70 gallons of hydraulic fluid from the lifts and a former Site manager stated that contaminated soil was removed from the area when the underground lift were replaced with the above-ground lift. COCs PAHs Metals ETPH PCBs VOCs	Soil borings (F&O 2017): FOSB-10, FOSB-17, FOSB-19	Visible evidence of a release was observed in soil at FOSB-10. Soil at 5-7 fbg was impacted with concentrations of ETPH greater than the RSRs. Concentrations of total lead also exceeded the Res DEC at FOSB-10.	ETPH Lead	■ ■	■ □	■ □	N/A	F&O RA-7 A petroleum release to soil was identified beneath the building slab, associated with the hydraulic lifts formerly located in this portion of the building. Additional characterization is warranted to determine the full degree and extent of the release area.
REC-17 Interior Concrete Floors	N/A	Evidence of petroleum staining, concrete deterioration from salt and chemicals, and rings from drum storage is visible on interior floors throughout the Site buildings. Several interior concrete chip samples were collected to determine if PCBs are present on the concrete slab floors. COCs PCBs	Concrete chip samples (F&O 2017): FOSB-10, FOSB-11, FOSB-14, and FOSB-15	Four concrete chip samples were analyzed for PCBs. PCBs were not detected above laboratory reporting limits in any of the samples.	-	-			N/A	F&O RA-8 A petroleum release to floor surfaces is evident based on visible staining observed, however analytical results indicate no PCBs are present based on the limited concrete chip sampling conducted to date. It is noted that additional characterization is warranted based on the intended reuse of the building and the extent to which the slab will be disturbed during redevelopment activities.

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Phase I Background Investigation			Phase II/III Conclusions & RSR Evaluation						
					Release Constituents & RSR Exceedances				
Recognized Environmental Condition (REC)	Historic Release Area ID	Description / Conceptual Site Model	Phase II/III Investigations	Release Determination (Based on Results from Previous Investigations)	Soil ■ Exceedance	Res DEC / I/C DEC / GA PMC		GW Detects & Exceedances	Release Area Conclusions
REC-18 Potential Solvent Release Area	HRP-PRA-4	The April 2002 ECAF identified a potential solvent release area located outside the repair bays of the eastern half of Building 81-106. <u>COCs</u> VOCs	<u>DTC Monitoring wells (2006):</u> MW-8	VOCs were not detected in soil with the exception of trace concentrations of naphthalene in samples collected from 0-2 and 4-6 fbg.	Naph	□	□	□	VOCs were not detected above laboratory reporting limits in MW-8.	<u>No Release.</u> Soil impacted by non-native fill materials.
REC-19 Former Salt Storage Activities	N/A	The Site historically was used as a salt storage facility from 1941 through 1973; however the exact location of the salt storage area is unknown. Based on aerial photographs, the storage location was most likely in the area of the former Spar Mill Pond. Historical data obtained from Metcalf & Eddy in 1986 indicated the presence of elevated sodium and chloride concentration in certain on-site monitoring wells. <u>COCs</u> Sodium Chloride	<u>DTC Investigation (2006):</u> 18 Groundwater samples	N/A	N/A	N/A			Historically, varying concentrations of sodium and chloride were detected in each of the 18 groundwater samples. Highest concentrations were reported in MW-8 (located west of the southern maintenance building) with chloride slightly exceeding the DPH MCL.	Historical Release to Groundwater.
Other Considerations										
<u>On-Site Supply Well</u>	N/A	A water supply well, located near the northwest corner of the Site, currently provides the Site with potable water. DTC collected a sample from an interior sink located in the northern repair garage in 2006 and F&O collected a grab sample during the 2017 investigation. <u>COCs</u> VOCs PCBs PAHs Metals ETPH Pesticides & Herbicides	<u>DTC Investigation (2006):</u> One Potable Water sample <u>F&O Investigation (2017):</u> One potable water sample	N/A	N/A	N/A			Historically, trace sodium, chloride & barium were detected below criteria. COCs were not detected in the 2017 grab sample, although the pump was not operational.	No Apparent release; but pumping from the deeper aquifer was not possible at the time the 2017 grab sample was collected.

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Table 1
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CT DOT Maintenance Facility / Historical Scovil Hoe Mill
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Phase I Background Investigation			Phase II/III Conclusions & RSR Evaluation						
					Release Constituents & RSR Exceedances				
Recognized Environmental Condition (REC)	Historic Release Area ID	Description / Conceptual Site Model	Phase II/III Investigations	Release Determination (Based on Results from Previous Investigations)	Soil ■ Exceedance	Res DEC	I/C DEC	GA PMC	GW Detects & Exceedances	Release Area Conclusions
Out-of-Use Supply Well	N/A	A second supply well was identified just north of the southern building. Due to inaccessibility, no sample could be collected from this well. COCs VOCs PCBs PAHs Metals ETPH Pesticides & Herbicides	N/A	N/A	N/A	N/A			Low level concentrations of sodium, chloride and barium were detected below applicable criteria.	No Release. This well remains to be a potential contaminant pathway however and should be abandoned in accordance with State regulations.
Surface Soil Samples	N/A	Various surface soil samples were collected from the outfall that exists beneath southeast corner of building 81-106, the suspected outfall from the drainage ditch beneath center of Building 81-106, and from the southern bank of Candlewood Brook. The purpose of these samples was to evaluate potential impacts from the Site to the brook sediment. COCs Metals ETPH PAHs	Surface samples (F&O 2017): FOSS-01 through FOSS-05	Varying concentrations of metals were reported in each of the surficial soils samples (0-0.5 fbg) at levels that were below applicable RSR criteria. Concentrations of PAHs and/or ETPH exceeded the Res DEC and/or PMC in three of the five samples, attributable to site-wide fill material.	PAHs ETPH Metals	■ ■ ■ ■ □ ■ □ □ □			N/A	No Release. Soil impacted by non-native fill materials

Notes:

RA = Release Area
PRA = Potential Release Area
UST = Underground Storage Tank
DEC = Direct Exposure Criteria
PMC = Pollutant Mobility Criteria
DPH = Department of Public Health
MCL = Maximum Contaminant Level

Constituents of Concern:

VOCs = Volatile Organic Compounds
ETPH = Extractable Total Petroleum Hydrocarbons
PAHs = Polycyclic Aromatic Hydrocarbons
PCBs = Polychlorinated Biphenyls
RCRA 8 Metals = Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver

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Table 2
Monitoring Well Construction and Groundwater Gauging Data

Former Scovil Hoe Mill
11 Candlewood Hill Road
Higganum, Connecticut

MW ID	Installer	Installation Date	Installation Depth (per Log)	Screened Interval	Screened Formation	Historical Data		11/22/2017	
						DTB (PVC)	Elevation (PVC)	DTB (PVC)	DTW (PVC)
MW-1	DTC	UNK	14.00	4-14	W BR	12.95	99.7	12.92	4.95
HMF-MW-1	DTC	6/19/2006	UNK	UNK	UNK	UNK	UNK	NM	4.71
HMF-MW-2	DTC	6/19/2006	UNK	UNK	UNK	UNK	UNK	14.00	5.64
MW-6	DTC	6/20/2006	15.00	5-15	OB/W BR	13.9	102.89	14.11	6.77
MW-7	DTC	6/20/2006	13.00	3-13	W BR	12.53	103.77	11.70	4.84
D-8	M&E	UNK	UNK	UNK	UNK	27.05	UNK	27.50	14.49
D-17	M&E	UNK	UNK	UNK	UNK	35.36	UNK	36.00	12.62
D-18	M&E	UNK	UNK	UNK	UNK	51.47	UNK	15.75	12.26
D-23	M&E	UNK	UNK	UNK	UNK	UNK	UNK	NM	8.10
W-25-1S	M&E	UNK	UNK	UNK	UNK	14	124.46	17.70	12.59
W-25-1D	M&E	UNK	UNK	UNK	UNK	33.6	124.46	36.10	12.72
W-25-3	M&E	UNK	UNK	UNK	UNK	16	115.03	NM	12.28
FOMW-01	F&O	11/15/2017	8.00	3-8	OB (Top of Rock)	N/A	N/A	7.39	1.81
FOMW-02	F&O	11/15/2017	8.00	3-8	OB (Top of Rock)	N/A	N/A	7.41	4.68

Notes:
UNK - Unknown
W BR - Weathered Bedrock
OB/W BR - Overburden / Weathered Bedrock
OB - Overburden
NM - Not measured

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Table 3A
Summary of Soil Analytical Results

Former Scovil Hoe Mill
11 Candlewood Hill Road
Higganum, Connecticut

Parameters	CT DEEP RSRs GA PMC	CT DEEP RSRs Res DEC	CT DEEP RSRs I/C DEC	Sample Location	FOMW-01	FOMW-02	FOSB-01	FOSB-02	FOSB-03	FOSB-04	FOSB-05	FOSB-06	FOSB-07	FOSB-08	FOSB-09	FOSB-10	FOSB-11	FOSB-12	FOSB-13	FOSB-14	FOSB-15^{DUP}	FOSB-16	FOSB-17	FOSB-19	FOSB-18
				Sample Depth (feet)	0.5-2'	6-7.5'	6-7.5'	10-12'	6-8'	1-2.4'	1-2.5'	6.8-7.2'	2-3'	0.5-1.5'	11.25-11.5'	5.3-6.1'	5.5-7'	0.5-1.5'	0.8-1.75'	1.5-2.5'	1-2.5'	1-2.5'	6.1-7.5'	5.8-7.1'	5.5-7.2'
				Sample Date	11/15/2017	11/15/2017	11/15/2017	11/15/2017	11/15/2017	11/15/2017	11/15/2017	11/15/2017	11/15/2017	11/15/2017	11/15/2017	11/16/2017	11/16/2017	11/16/2017	11/16/2017	11/16/2017	11/16/2017	11/16/2017	11/16/2017	11/16/2017	11/16/2017
				Sample Number	1305171115-05	1305171115-08	1305171115-01	1305171115-02	1305171115-03	1305171115-04	1305171115-06	1305171115-07	1305171115-09	1305171115-10	1305171115-11	1305171116-17	1305171116-19	1305171116-20	1305171116-21	1305171116-23	1305171116-25	1305171116-27	1305171116-28	1305171116-29	1305171116-30
				Phoenix Lab ID	BZ42540	BZ42543	BZ42536	BZ42537	BZ42538	BZ42539	BZ42541	BZ42542	BZ42544	BZ42545	BZ42546	BZ43551	BZ43553	BZ43554	BZ43555	BZ43557	BZ43559	BZ43561	BZ43562	BZ43563	BZ43564
Metals, Total (mg/kg)																									
Arsenic	N/A	10	10		2.48	1.21	0.74	< 0.74	< 0.66	2.36	6.29	1.18	< 0.80	7.89	< 0.70	9.19	3.21	0.94	10.2	< 0.82	1.24	0.8	< 0.66	< 0.65	1.01
Barium	N/A	4,700	140,000		79.6	56.9	52	10.7	25.6	25.5	61.1	69.7	15.8	72.4	21.2	367	30.1	23.9	52.4	15.4	39.6	22.2	17.8	21.1	32.8
Cadmium	N/A	34	1,000		0.47	0.43	< 0.36	< 0.37	< 0.33	0.38	< 0.36	< 0.37	0.71	7.95	< 0.35	1.98	0.56	< 0.41	4.67	< 0.41	0.67	< 0.39	0.5	< 0.33	0.43
Chromium	N/A	NE	NE		14.8	8.78	16.6	4.58	8.1	19.5	16	4.26	10.2	35.8	2.03	28.2	19.3	8.63	14.8	7.75	18.5	9.86	11.9	10.4	10.3
Lead	N/A	400	1,000		3.82	12.3	1.72	4.59	1.01	26.6	3.04	< 0.37	< 0.40	80.6	< 0.35	498	0.95	3.27	129	0.82	4.77	2.05	3.32	0.78	7.22
Mercury	N/A	20	610		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.03	< 0.03	< 0.03	0.05	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Selenium	N/A	340	10,000		< 1.4	< 1.5	< 1.4	< 1.5	< 1.3	< 1.4	< 1.5	< 1.5	< 1.6	< 1.5	< 1.4	< 1.5	< 1.3	< 1.6	< 1.4	< 1.6	< 1.3	< 1.6	< 1.3	< 1.3	< 1.4
Silver	N/A	340	10,000		< 0.36	< 0.37	< 0.36	< 0.37	< 0.33	< 0.34	< 0.36	< 0.37	< 0.40	< 0.38	< 0.35	< 0.37	< 0.32	< 0.41	< 0.36	< 0.41	< 0.32	< 0.39	< 0.33	< 0.33	< 0.35
ETPH (mg/kg)																									
Ext. Petroleum H.C. (C9-C36)	500	500	2,500		< 53	< 55	< 55	< 57	< 53	310	< 53	< 61	< 63	260	< 55	30,000	< 52	< 56	< 54	< 58	< 54	< 56	9,500	1,800	< 53
PCBs (mg/kg)																									
Total PCBs	0.0005**	1	10		---	---	---	---	---	---	---	< 0.41	< 0.43	---	< 0.36	< 0.40	< 0.35	< 0.38	< 0.36	< 0.38	< 0.36	---	< 0.34	< 0.36	---
VOCs (ug/kg)																									
Carbon Disulfide	800	500,000	1,000,000		< 5.4	< 280	< 4.4	< 5.6	< 4.2	< 4.8	< 5.1	< 5.1	< 6.0	< 5.7	< 4.8	< 5.7	< 4.8	< 4.3	< 6.6	< 5.0	< 4.8	< 5.3	< 4.7	< 5.0	8
Ethylbenzene	10,100	500,000	1,000,000		< 5.4	< 280	< 4.4	< 5.6	< 4.2	< 4.8	< 5.1	< 5.1	< 6.0	< 5.7	< 4.8	8.4	< 4.8	< 4.3	< 6.6	< 5.0	< 4.8	< 5.3	< 4.7	< 5.0	< 5.2
m&p-Xylene	NE	NE	NE		< 5.4	< 280	< 4.4	< 5.6	< 4.2	< 4.8	< 5.1	< 5.1	< 6.0	< 5.7	< 4.8	17	< 4.8	< 4.3	< 6.6	< 5.0	< 4.8	< 5.3	< 4.7	< 5.0	< 5.2
Naphthalene	5,600	1,000,000	2,500,000		< 250	< 280	< 4.4	< 5.6	< 4.2	< 4.8	< 5.1	< 5.1	< 6.0	< 5.7	< 4.8	180	< 4.8	< 390	< 6.6	< 5.0	< 320	< 5.3	< 280	< 210	< 5.2
o-Xylene	NE	NE	NE		< 5.4	< 280	< 4.4	< 5.6	< 4.2	< 4.8	< 5.1	< 5.1	< 6.0	< 5.7	< 4.8	14	< 4.8	< 4.3	< 6.6	< 5.0	< 4.8	< 5.3	< 4.7	< 5.0	< 5.2
Total Xylenes	19,500	500,000	1,000,000		< 5.4	< 280	< 4.4	< 5.6	< 4.2	< 4.8	< 5.1	< 5.1	< 6.0	< 5.7	< 4.8	31	< 4.8	< 4.3	< 6.6	< 5.0	< 4.8	< 5.3	< 4.7	< 5.0	< 5.2
PAHs (ug/kg)																									
2-Methylnaphthalene	560	270,000	1,000,000		< 140	< 150	< 150	< 150	< 150	< 140	< 140	< 160	< 170	< 150	< 140	< 160	< 140	< 150	< 150	< 150	< 140	< 150	< 130	< 150	< 140
Acenaphthene	8,400	1,000,000	2,500,000		< 140	< 150	< 150	< 150	< 150	< 140	< 140	< 160	< 170	< 150	< 140	170	< 140	< 150	< 150	< 150	< 140	< 150	< 130	< 150	< 140
Acenaphthylene	8,400	1,000,000	2,500,000		< 140	< 150	< 150	< 150	< 150	2,500	< 140	< 160	< 170	< 150	< 140	< 160	< 140	< 150	< 150	< 150	< 140	< 150	< 130	< 150	< 140
Anthracene	40,000	1,000,000	2,500,000		< 140	< 150	< 150	< 150	< 150	880	< 140	< 160	< 170	< 150	< 140	220	< 140	< 150	< 150	< 150	< 140	< 150	< 130	< 150	< 140
Benz(a)anthracene	1,000	1,000	7,800		< 140	< 150	< 150	< 150	< 150	2,100	< 140	< 160	< 170	210	< 140	390	< 140	< 150	170	< 150	150	< 150	< 130	< 150	< 140
Benzo(a)pyrene	1,000	1,000	1,000		< 140	< 150	< 150	< 150	< 150	4,800	< 140	< 160	< 170	300	< 140	380	< 140	< 150	< 150	< 150	150	< 150	< 130	< 150	< 140
Benzo(b)fluoranthene	1,000	1,000	7,800		< 140	< 150	< 150	< 150	< 150	3,900	< 140	< 160	< 170	310	< 140	330	< 140	< 150	150	< 150	160	< 150	< 130	< 150	< 140
Benzo(ghi)perylene	1,000	8,400	78,000		340	< 150	< 150	< 150	< 150	4,100	< 140	< 160	< 170	430	< 140	370	< 140	< 150	< 150	< 150	< 140	< 150	< 130	< 150	< 140
Benzo(k)fluoranthene	1,000	8,400	78,000		< 140	< 150	< 150	< 150	< 150	3,200	< 140	< 160	< 170	420	< 140	420	< 140	< 150	160	< 150	170	< 150	< 130	< 150	< 140
Chrysene	1,000	84,000	780,000		< 140	160	< 150	< 150	< 150	3,000	< 140	< 160	< 170	460	< 140	490	< 140	< 150	230	< 150	250	< 150	< 130	< 150	< 140
Dibenz(a,h)anthracene	1,000	1,000	1,000		< 140	< 150	< 150	< 150	< 150	890	< 140	< 160	< 170	< 150	< 140	< 160	< 140	< 150	< 150	< 150	< 140	< 150	< 130	< 150	< 140
Fluoranthene	5,600	1,000,000	2,500,000		< 140	180	< 150	< 150	< 150	2,100	< 140	< 160	< 170	590	< 140	830	< 140	< 150	320	< 150	410	< 150	< 130	< 150	< 140
Fluorene	5,600	1,000,000	2,500,000		< 140	< 150	< 150	< 150	< 150	< 140	< 140	< 160	< 170	< 150	< 140	510	< 140	< 150	< 150	< 150	< 140	< 150	< 130	< 150	< 140
Indeno(1,2,3-cd)pyrene	1,000	1,000	7,800		260	< 150	< 150	< 150	< 150	4,800	< 140	< 160	< 170	450	< 140	350	< 140	< 150	< 150	< 150	< 140	< 150	< 130	< 150	< 140
Naphthalene	5,600	1,000,000	2,500,000		< 140	< 150	< 150	< 150	< 150	170	< 140	< 160	< 170	< 150	< 140	< 160	< 140	< 150	< 150	< 150	< 140	< 150	< 130	< 150	< 140
Phenanthrene	4,000	1,000,000	2,500,000		< 140	< 150	< 150	< 150	< 150	410	< 140	< 160	< 170	370	< 140	930	< 140	< 150	150	< 150	320	< 150	< 130	< 150	< 140
Pyrene	4,000	1,000,000	2,500,000		< 140	240	< 150	< 150	< 150	2,800	< 140	< 160	< 170	560	< 140	1,700	< 140	< 150	330	< 150	420	< 150	< 130	< 150	< 140

Notes:
Bold indicates a detection
Bold and highlighted cells indicates an exceedance of one or more of the listed criteria
Res DEC - Residential Direct Exposure Criteria
I/C DEC - Industrial/Commercial Direct Exposure Criteria
GA PMC - Pollutant Mobility Criteria
Green Text = DEEP fast-track approveable additional polluting substances; DEEP approval required
N/A - not applicable
SB-15^{DUP} - indicates a duplicate sample was collected; the higher results of the two samples was reported
mg/kg - milligrams per kilogram
mg/L - milligrams per Liter
VOCs - Volatile Organic Compounds
PAHs - Polynuclear Aromatic Hydrocarbons
PCBs - Polycyclic Chlorinated Biphenyls
ETPH - Extractable Total Petroleum Hydrocarbons
** Pollutant Mobility Criteria units for PCBs are mg/L

FUSS & O'NEILL

Table 3B
Summary of Surface Soil Analytical Results

Former Scovil Hoe Mill
11 Candlewood Hill Road
Higganum, Connecticut

			Sample Location	FOSS-01	FOSS-02	FOSS-03	FOSS-04	FOSS-05
			Sample Depth (feet)	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'
			Sample Date	11/14/2017	11/14/2017	11/14/2017	11/14/2017	11/14/2017
			Sample Number	1305171114-01	1305171114-02	1305171114-03	1305171114-04	1305171114-05
			Phoenix Lab ID	BZ41805	BZ41806	BZ41807	BZ41808	BZ41809
Parameters	CT DEEP RSRs							
	GA PMC	Res DEC	I/C DEC					
Metals, Total (mg/kg)								
Arsenic	N/A	10	10	3.93	2.32	< 0.75	1.8	< 0.76
Barium	N/A	4,700	140,000	71.9	45.3	18.4	27.2	15.1
Cadmium	N/A	34	1,000	0.63	< 0.35	< 0.38	0.54	< 0.38
Chromium	N/A	NE	NE	25.3	17	3.88	5.25	4
Lead	N/A	400	1,000	60.9	28	9.96	32.5	7.65
Mercury	N/A	20	610	< 0.03	< 0.03	< 0.03	< 0.04	< 0.03
Selenium	N/A	340	10,000	< 1.8	< 1.4	< 1.5	< 2.1	< 1.5
Silver	N/A	340	10,000	< 0.44	< 0.35	< 0.38	< 0.52	< 0.38
ETPH (mg/kg)								
Ext. Petroleum H.C. (C9-C36)	500	500	2,500	540	< 290	< 60	110	< 280
PAHs (ug/kg)								
2-Methylnaphthalene	560	270,000	1,000,000	< 180	< 150	< 160	< 380	< 150
Acenaphthene	8,400	1,000,000	2,500,000	< 180	< 150	< 160	< 380	< 150
Acenaphthylene	8,400	1,000,000	2,500,000	600	840	210	< 380	160
Anthracene	40,000	1,000,000	2,500,000	380	680	430	< 380	170
Benz(a)anthracene	1,000	1,000	7,800	1,200	2,600	1,100	< 380	530
Benzo(a)pyrene	1,000	1,000	1,000	1,500	3,100	1,100	< 380	590
Benzo(b)fluoranthene	1,000	1,000	7,800	1,500	2,800	870	< 380	500
Benzo(ghi)perylene	1,000	8,400	78,000	1,100	2,400	830	< 380	450
Benzo(k)fluoranthene	1,000	8,400	78,000	1,200	3,000	1,200	410	580
Chrysene	1,000	84,000	780,000	1,500	3,300	1,400	450	720
Dibenz(a,h)anthracene	1,000	1,000	1,000	190	400	< 160	< 380	< 150
Fluoranthene	5,600	1,000,000	2,500,000	2,600	5,600	2,700	780	1,200
Fluorene	5,600	1,000,000	2,500,000	< 180	230	< 160	< 380	< 150
Indeno(1,2,3-cd)pyrene	1,000	1,000	7,800	1,300	2,800	900	< 380	480
Naphthalene	5,600	1,000,000	2,500,000	< 180	< 150	< 160	< 380	< 150
Phenanthrene	4,000	1,000,000	2,500,000	900	2,400	1,500	390	550
Pyrene	4,000	1,000,000	2,500,000	2,600	5,400	2,500	710	1,200

Notes:
Bold indicates a detection
Bold and highlighted cells indicates an exceedance of one or more of the listed criteria
Res DEC - Residential Direct Exposure Criteria
I/C DEC - Industrial/Commercial Direct Exposure Criteria
GA PMC - Pollutant Mobility Criteria
Green Text = DEEP fast-track approveable additional polluting substances; DEEP approval required
N/A - not applicable
mg/kg - milligrams per kilogram
mg/L - milligrams per Liter
PAHs - Polynuclear Aromatic Hydrocarbons
ETPH - Extractable Total Petroleum Hydrocarbons

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Table 4
Summary of Concrete Chip Analytical Results

Former Scovil Hoe Mill
11 Candlewood Hill Road
Higganum, Connecticut

			Sample Location	FOSB-10	FOSB-11	FOSB-14	FOSB-15
			Sample Depth	0-0.25'	0-0.25'	0-0.25'	0-0.25'
			Sample Date	11/16/2017	11/16/2017	11/16/2017	11/16/2017
			Sample Number	1305171116-16	1305171116-18	1305171116-22	1305171116-24
			Phoenix ID	BZ43550	BZ43552	BZ43556	BZ43558
Parameters	CT DEEP RSRs						
	GA PMC	Res DEC	I/C DEC				
PCBs (ug/kg)							
PCB-1016	0.0005**	1	10	< 0.34	< 0.35	< 0.34	< 0.34
PCB-1221	0.0005**	1	10	< 0.34	< 0.35	< 0.34	< 0.34
PCB-1232	0.0005**	1	10	< 0.34	< 0.35	< 0.34	< 0.34
PCB-1242	0.0005**	1	10	< 0.34	< 0.35	< 0.34	< 0.34
PCB-1248	0.0005**	1	10	< 0.34	< 0.35	< 0.34	< 0.34
PCB-1254	0.0005**	1	10	< 0.34	< 0.35	< 0.34	< 0.34
PCB-1260	0.0005**	1	10	< 0.34	< 0.35	< 0.34	< 0.34
PCB-1262	0.0005**	1	10	< 0.34	< 0.35	< 0.34	< 0.34
PCB-1268	0.0005**	1	10	< 0.34	< 0.35	< 0.34	< 0.34

Notes:

Bold indicates a detection

Bold and highlighted cells indicates an exceedance of one or more of the listed criteria

Res DEC - Residential Direct Exposure Criteria

I/C DEC - Industrial/Commercial Direct Exposure Criteria

GA PMC - Pollutant Mobility Criteria

mg/kg - milligrams per kilogram

mg/L - milligrams per Liter

PCBs - Polycyclic Chlorinated Biphenyls

** Pollutant Mobility Criteria units for PCBs are mg/L

FUSS & O'NEILL

Table 5
Summary of Groundwater Analytical Results

Former Scovil Hoe Mill
11 Candlewood Hill Road
Higganum, Connecticut

Parameters	CT DEEP RSRs GWPC	CT DEEP RSRs Res VC	CT DEEP RSRs SWPC	Monitoring Well ID	W-25-1S	W-25-1D	W-25-3	D-8*	D-17*	D-18*	D-23*	MW-F01*	MW-F02*	MW-1	HMF-MW-1	HMF-MW-2	MW-06*	PW-1*
				Sample Depth (feet)	16	34	16	25	34	13	18	5	6.5	10	12	12	11	---
				Sample Date	11/22/2017	11/22/2017	11/22/2017	11/22/2017	11/22/2017	11/22/2017	11/22/2017	11/22/2017	11/22/2017	11/22/2017	11/22/2017	11/22/2017	11/22/2017	11/22/2017
				Sample Number	1305171122-02	1305171122-04	1305171122-06	1305171122-16	1305171122-10	1305171122-08	1305171122-05	1305171122-11	1305171122-09	1305171122-07	1305171122-14	1305171122-12	1305171122-03	1305171122-13
				Phoenix Lab ID	BZ46416	BZ46418	BZ46420	BZ46429	BZ46424	BZ46422	BZ46419	BZ46425	BZ46423	BZ46421	BZ46428	BZ46426	BZ46417	BZ46427
Miscellaneous (mg/L)																		
Sodium	NE	NE	NE		25.2	9.29	82.8	169	30.5	75.5	97.7	36.7	107	55.1	75.2	84	74.6	11.4
Chloride	NE	NE	[10,000]		40.3	8.5	136	268	57.2	70.9	157	14.4	98.6	80.8	91	73.3	88.9	41.1
Metals, Total (mg/L)																		
Arsenic	0.05	NE	0.004		< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Barium	1	NE	[2.2]		0.016	0.009	0.037	0.072	0.015	0.023	0.019	0.146	0.016	0.018	0.01	0.007	0.02	< 0.002
Cadmium	0.005	NE	0.006		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Chromium	0.05	NE	NE		< 0.001	0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	0.064	0.004	< 0.001	< 0.001	< 0.001	0.002	< 0.001
Lead	0.015	NE	0.013		< 0.002	0.003	0.004	< 0.002	0.003	< 0.002	0.004	0.054	0.009	0.004	< 0.002	0.005	0.008	0.004
Mercury	0.002	NE	0.0004		< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Selenium	0.05	NE	0.05		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Silver	0.036	NE	0.012		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
PCBs (ug/L)																		
Total PCBs	0.5	NE	0.5		---	---	---	---	---	< 0.47	---	---	< 0.50	< 0.10	< 0.47	---	---	---
VOCs (ug/L)																		
Total VOCs	Varies	Varies	Varies		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
PAHs (ug/L)																		
2-Methylnaphthalene	[28]	[1000]	[62]		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.35	0.33	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	[420]	[30500]	[150]		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05	0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	420	NE	0.3		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	2.7	1.8	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	2,000	NE	1,100,000		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	0.09	1.1	0.86	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benz(a)anthracene	0.06	NE	0.3		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	1.3	3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	0.2	NE	0.3		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	3.7	4.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	0.08	NE	0.3		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	3.3	4.6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	[0.48]	NE	[150]		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	3.5	3.6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	0.5	NE	0.3		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05	3.3	3.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	[4.8]	NE	[0.54]		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	1.5	3.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	[0.1]	NE	[0.30]		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	1.5	1.3	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	280	NE	3,700		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	1.6	4.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	280	{37,642}	140,000		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.23	0.28	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	[0.1]	NE	[0.30]		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	3.4	3.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	280	NE	[210]		< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.10	0.35	0.39	< 0.10	< 0.09	< 0.09	< 0.10	< 0.10
Phenanthrene	200	NE	[14]		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.34	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	200	NE	110,000		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	2.5	5.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pesticides (ug/L)																		
4,4' -DDD	[0.10]	NE	[0.05]		---	---	---	---	< 0.047	---	---	< 2.6	---	< 0.052	---	---	---	< 0.051
4,4' -DDE	[0.10]	NE	[0.05]		---	---	---	---	< 0.047	---	---	0.78	---	< 0.052	---	---	---	< 0.051
4,4' -DDT	[0.10]	NE	[0.05]		---	---	---	---	< 0.047	---	---	3	---	< 0.052	---	---	---	< 0.051

Notes:

Bold indicates a detection
Bold and shaded cells indicates an exceedance of one or more of the listed criteria
GWPC - Groundwater Protection Criteria
SWPC - Surface Water Protection Criteria
Res VC - Residential Volatilization Criteria
[Green Text] = DEEP fast-track approveable additional polluting substances and alternative criteria; DEEP approval required
{Red text} = draft proposed 2008 criteria for which no other recommendations have been made; DEEP approval required
* - denotes that the sample was field filtered for metals analyses prior to sample collection due to elevated turbidity

--- - not analyzed
mg/L - milligrams per Liter
ug/L - micrograms per Liter
VOCs - Volatile Organic Compounds
PAHs - Polynuclear Aromatic Hydrocarbons
PCBs - Polychlorinated Biphenyls

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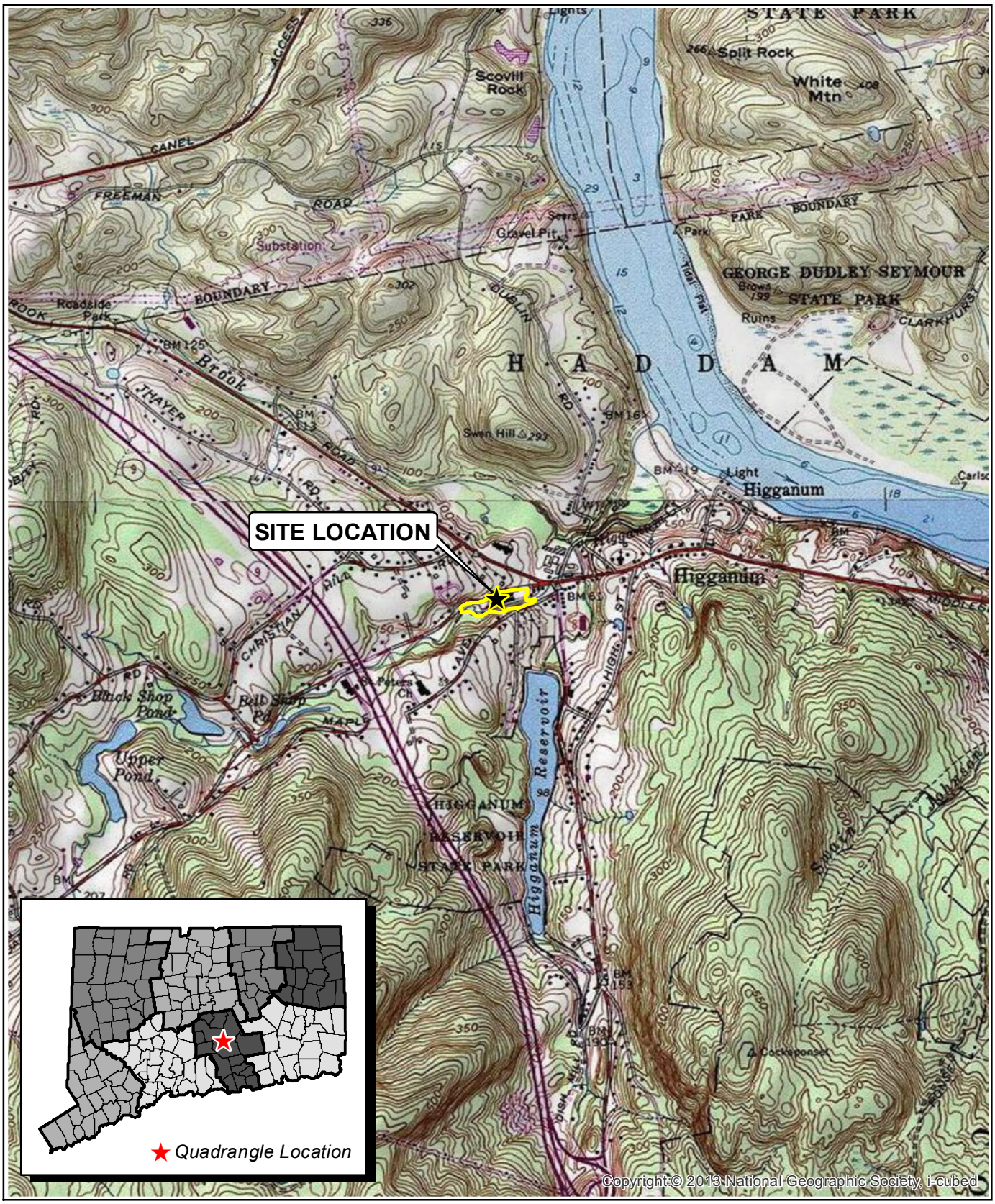
Figures



Path: F:\P2016\0476\A20\Deliverables\Report\Phase I ESA\GIS\Phase_I_Figure1_Basemap.mxd

N

0 0.25 0.5

Miles

Data Source(s):
1. Parcel boundaries - CT DEEP
2. Basemap - National Geographic TOPO! 1:24,000-scale maps; TOPO! maps are seamless, scanned images of United States Geological Survey (USGS) paper topographic maps. http://goto.arcgisonline.com/maps/USA_Topo_Maps

Disclaimer: This map is not the product of a Professional Land Survey. It was created by Fuss & O'Neill, Inc. for general reference, informational, planning and guidance use, and is not a legally authoratative source as to location of natural or manmade features. Proper interpretation of this map may require the assistance of appropriate professional services. Fuss & O'Neill, Inc. makes no warrantee, express or implied, related to the spatial accuracy, reliability, completeness, or currentness of this map.

Site Location Map
11 Candlewood Hill Road

HIGGANUM CONNECTICUT

FUSS & O'NEILL
146 Hartford Road
Manchester, CT 06040
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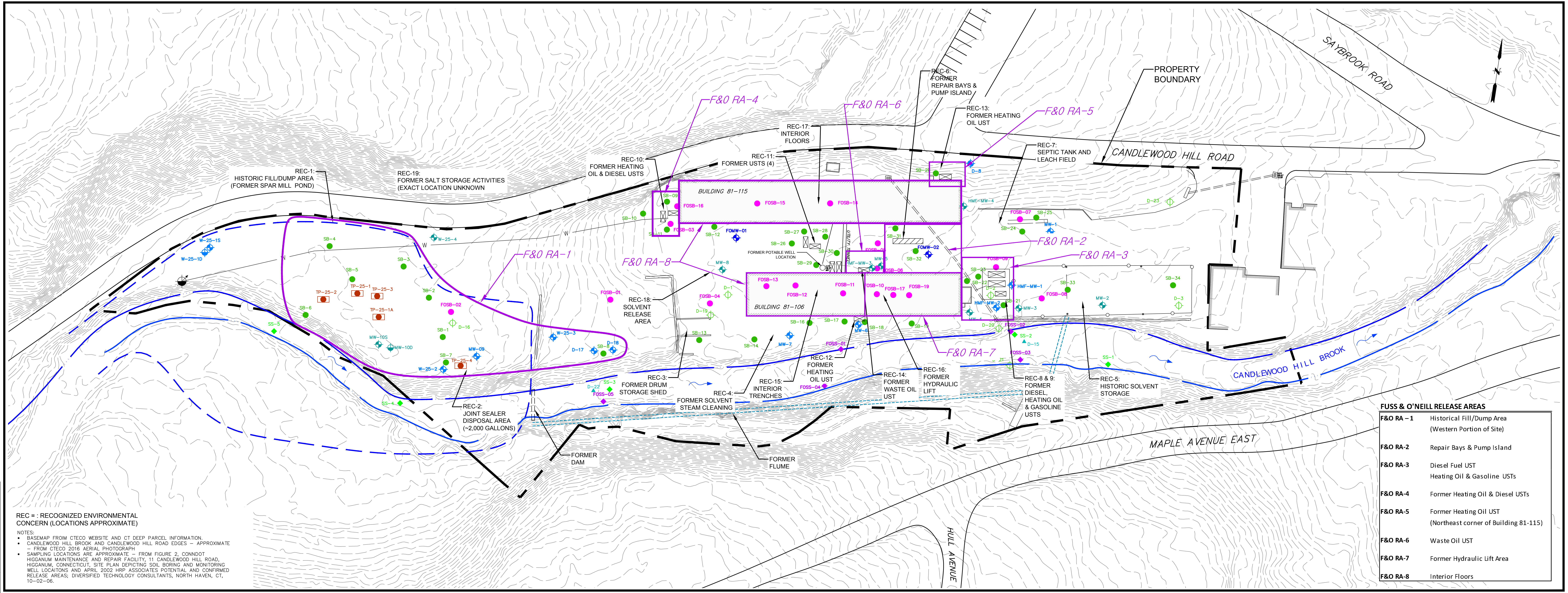
PROJ. No. 20160476.A20

DATE: FEBRUARY 2018

FIGURE 1



REC = : RECOGNIZED ENVIRONMENTAL CONCERN (LOCATIONS APPROXIMATE)

NOTES:
- BASEMAP FROIM CTECO WEBSITE AND CT DEEP PARCEL INFORMATION.
- CANDLEWOOD HILL BROOK AND CANDLEWOOD HILL ROAD EDGES – APPROXIMATE – FROM CTECO 2016 AERIAL PHOTOGRAPH
- SAMPLING LOCATIONS ARE APPROXIMATE – FROM FIGURE 2, CONNDOT HIGGANUM MAINTENANCE AND REPAIR FACILITY, 11 CANDLEWOOD HILL ROAD, HIGGANUM, CONNECTICUT, SITE PLAN DEPICTING SOIL BORING AND MONITORING WELL LOCAITONS AND APRIL 2002 HRP ASSOCIATES POTENTIAL AND CONFIRMED RELEASE AREAS; DIVERSIFIED TECHNOLOGY CONSULTANTS, NORTH HAVEN, CT, 10–02–06.

FUSS & O'NEILL RELEASE AREAS

F&O RA – 1	Historical Fill/Dump Area (Western Portion of Site)
F&O RA-2	Repair Bays & Pump Island
F&O RA-3	Diesel Fuel UST Heating Oil & Gasoline USTs
F&O RA-4	Former Heating Oil & Diesel USTs
F&O RA-5	Former Heating Oil UST (Northeast corner of Building 81-115)
F&O RA-6	Waste Oil UST
F&O RA-7	Former Hydraulic Lift Area
F&O RA-8	Interior Floors

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

LEGEND:

- FOMW–01 — MONITORING WELL LOCATION – INSTALLED 2017
- FOSB–01 — MONITORING WELL LOCATION – DRILLED 2017
- FOSS–05 — SEDIMENT SAMPLE LOCATION – 2017
- SB–1 — HISTRORICAL SOIL BORING (LOCATION APPROXIMATE)
- D–19 — HISTRORICAL SOIL BORING AND GROUNDWATER SAMPLE (LOCATION APPROXIMATE)
- SS–4 — HISTRORICAL SEDIMENT SAMPLE (LOCATION APPROXIMATE)
- TP–25–1A — HISTRORICAL TEST PIT (LOCATION APPROXIMATE)
- W–25–1S, W–25–1D — HISTRORICAL MONITORING WELL (LOCATED AND SURVEYED – 2017)
- MW–10S, MW–10D — HISTRORICAL MONITORING WELL (LOCATION APPROXIMATE – NOT FOUND IN 2017)
- DOT WATER SUPPLY WELL

SCALE:
HORZ.: 1" = 60'
VERT.:
DATUM:
HORZ.:
VERT.:
0 25 50
GRAPHIC SCALE

FUSS & O'NEILL
146 HARTFORD ROAD
MANCHESTER, CONNECTICUT 06040
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SITE PLAN, SAMPLING LOCATIONS AND RELEASE AREAS

11 CANDLEWOOD HILL ROAD

HIGGANUM CONNECTICUT

PROJ. No.: 20160476A20
DATE: FEBRUARY 2018

FIGURE 2

FUSS & O'NEILL

Appendix A

Boring Logs & Monitoring Well Completion Reports

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-01
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 30s ~~overcast~~ sunny

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: DTE RA-2, W of site above lowe retaining wa
Date Started: 11/15/2017
Date/Time Completed: 11/15/2017 @ 0840
Depth to Saturated Zone: ~5.75
Sample # Prefix: 13051711 15 - 01

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		34/60	0-0.3	ASPHALT	ND				
			0.3-1.25	Sand f-c, tr gravel, tr coal, loose, dry, no odor, brwn					
			1.25-2.8	Same as above, coal, trash, dark brown					
			2.8-5	no recovery					
5		34/60	5-5.75	Rock, tr gravel, tr sand f-c, loose, dry, grey, no odor					
			5.75-7.8	Sand-fine, some silt/clay, tr coal, trash, tr gravel, some mottling, moist compact no odor			-01 0850	4-7.5	1 Glass 1 Mech 2 H2O
			7.8-10	no recovery					
10		26/36	10-10.5	same as 5.75-7.8					
			10.5-11.2	bedrock					
			11.2-13	no recovery Refusal at 13' EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	13'

REMARKS
Field Instrument = PID-1
PID/OVM
If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	13	To 0	
Other		To	

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BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-02
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 30s ~~overcast~~ sunny

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: DTC RA-1 W of site, on top of hill
Date Started: 11/15/2017
Date/Time Completed: 11/15/2017 @ 0900
Depth to Saturated Zone: ~8'
Sample # Prefix: 13051711 15 . 02

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0	8	50/60	0-0.8	Topsoil, sand f-c, little gravel, tr asphalt, loose, dry, no odor, dark brown	ND				
			0.8-4.1	sand f-c, tr gravel, tr coal, tr ash, loose, dry, no odor, brown					
			4.1-5	no recovery					
5		37/60	5-6.5	same as 0.8-4.1					
			6.5-8.1	same as some metal discoloration, moist					
			8.1-10	no recovery					
10		41/60	10-11.1	same as 6.5-8.1, wet					
			11.1-12.3	same as 6.5-8.1, no gravel, slight petro smell, wet			-02 0910	10-12	1 4oz, 1 MeOH 2 H2O
			12.3-13.4	Sand f-c, tr coal, some mottling loose, wet, no odor					
			13.4-15	no recovery					
				15' EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	15'

REMARKS
Field Instrument = PID-1 If refusal is encountered, describe all efforts used to confirm.
PID/OVM

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	15	To 0	
Other		To	

BORING LOG

FUSS & O'NEILL

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-03
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 30s overcast sunny

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: DTC-RA-10, directly off SW corner of N bldg
Date Started: 11/15/2017
Date/Time Completed: 11/15/2017 @ 0930
Depth to Saturated Zone: ~~0~~ ~1.5'
Sample # Prefix: 13051711 15-03

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		18/60	0-1.5	Sand f-c, ltl gravel, tr rock, trace, loose, dry, no odor, dark red-brown	ND				
			1.5-3.2	same as 0-1.5, wet					
			3.2-5	no recovery					
5		54/60	5-8.3	Sand-fine, some silt/clay, tr gravel tr coal, compact, ~~wet~~ moist, wet			-03 @0940	6-9	1 G402 1 MeOH 2420
			8.5-9.75	Sand f-c, tr coal, tr gravel, loose, dry, no odor					
			9.75-10	no recovery					
				REFUSAL @ 10' EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1-5"	Geoprobe	10'

REMARKS
Field Instrument = PID-1 PID/OVM
If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	10	To 0	
Other		To	

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB04

Sheet #: 1 of 1

Project #: 20160476.A20

Weather: 30s ~~overcast~~ sunny

Contractor: Glacier

Operator: Mike

F&O Representative: BSC

Drilling Method: Geoprobe

Sampling Method: Dedicated trowel/ terra cores

Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: DTC-RA-3, SW of Shdg near former sheds

Date Started: 11/ 15 /2017

Date/Time Completed: 11/ 15 /2017 @ 0950

Depth to Saturated Zone: ~2.4'

Sample # Prefix: 13051711 15 - 04

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		32/60	0-0.7	Sand f-c, tr asphalt, tr gravel, tr coal, loose, dry, no odor	ND		-04 ~~1224~~ 1000	1-2.4	1 @ 8oz 1 MeOH 2 H2O
			0.7-2.4	Sand f-c, tr coal, tr ash, tr gravel, some matting, loose, ~~moist~~ dry, no odor					
			2.4-3.2	Sand f-c, some gravel, loose, wet, no odor					
			3.2-5	no recovery					
5		41/48	5-6.2	same as 2.4-3.2, tr coal					
			6.2-8.4	bedrock					
			8.4-9	no recovery					
				REFUSAL @ 9' EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	9'

REMARKS

Field Instrument = PID-1 PID/OVM

If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:

Trace (tr) 0 to 10% Some (sm) 20 to 35%

Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:

SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	9	To 0	
Other		To	

BORING LOG

FUSS & O'NEILL

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: MW-01
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 30s ~~overcast~~ sunny

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: DTC-RA-11 N of NW corner of S bldg
Date Started: 11/ 15/2017
Date/Time Completed: 11/ 15/2017 @ 1010
Depth to Saturated Zone: ~2'
Sample # Prefix: 13051711 15 - 05

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0	~~42/60~~	42/60	0 - 0.5	sand f-c, tr asphalt, tr gravel, tr coal	ND		-05 1020	0.5-2	1 GEO2 1 MeOH 2 H2O
			0.5 - 2	sand f-c, tr ~~clay~~, tr gravel, tr brick tr ash, loose, dry, no odor					
			2 - ~~2.75~~ 3.25	same as 0.5-2. no brick, wet, ltl coal					
			3.25 - 3.5	rock					
			3.5 - 5	no recovery					
5		50/60	~~5~~ - 6	sand f-c, tr coal. tr ash, loose, wet, no odor					
			6 - 6.25	sand-fine, silt/clay, tr coal, loose, wet, no odor					
			6.25 - 7.25	sand f-c, tr gravel, loose, wet, no odor					
			7.25 - 9.2	bedrock					
			9.2 - 10	no recovery					
				REFUSAL @ 10' EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	10'

REMARKS
Field Instrument = PID-1
PID/OVM

If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	10	To 0	
Other		To	

FUSS & O'NEILL

MONITORING WELL COMPLETION REPORT

GENERAL INFORMATION

Project Name: CT DOT Higganum Maintenance Facility
Well ID: MW-01
Project Location: Higganum, CT
Project No.: 20160476.A20
F&O Engineer/Geologist: BSC
Ground Surface Elevation: _____
Date of Completion: 11/15/2017
Permit #: _____
Well Location Description: SW of N bldg (NW of S bldg)
E1 Top of Steel Casing: _____
Drilling Contractor/Name: Glacier / Mike
E1 Top of PVC Casing: _____
Drilling Method: Geoprobe
Measuring Point: TPS / PVC
Well Cover (see codes): _____

WELL CONSTRUCTION

WELL CASING/RISER
Diameter: 4 in.
Type: curb box
Stick-up: 0 ft.

SUMP (below screen)
Diameter: 1.5 in.
Type: PVC cap
Length: 4 in.

PROTECTIVE CASING
Diameter: 4 in.
Type: Road Box / Stand Pipe
Stick-up: 0 ft
Depth to Bottom: 3 ft
Seal Material: concrete

SCREEN INTERVALS
Screen Interval: 8 - 3 ft
Diameter: 1.5 in.
Slot Size: ?
Description: PVC / Other: _____
Type: Perforated / Slotted / Wire-Wrap / Pre-Pack / Other: _____

BOREHOLE
Diameter: 1.5 in.
Total Boring Depth: 8' ft.
Refusal: (y) n Depth: 10 ft.

ANNULAR FILL

SURFACE SEAL (Approximate volumes if available)
Interval: 1 - 0 ft.
Tremied: Y / (N)
Volume: 1 bags
Description: Concrete / Other: _____

BACKFILL
Interval: — ft.
Tremied: Y / N
Volume: — bags
Description: Bentonite Grout / Cuttings / Sand / Native Material
Other: —

LOWER SEAL
Interval: 2 - 1 ft.
Tremied: (Y) / N
Volume: 1/4 bags
Description: Bentonite Pellets / Bentonite Chips / Other: _____

FILTER
Interval: — ft.
Tremied: Y / N
Volume: — bags
Description: Sand Filter (type:) — / Other: —

LOWER BACKFILL
Interval: 8 - 2 ft.
Tremied: (Y) / N
Volume: 1 bags
Description: Bentonite Grout / Cuttings / (Sand) / Native Material
Other: _____

MONITORING WELL DEVELOPMENT*

Development Method: Surge Block / Submersible Pump / Peristaltic Pump / Waterra / Bailer / Other _____
Date: 11/16/17

*See Monitoring Well Development Data Sheet for details

BORING LOG

FUSS & O'NEILL

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-05
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 40s sunny

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: DTC - RA-6, near former tank graves b/t bldg
Date Started: 11/ 15/2017
Date/Time Completed: 11/15/2017 @ 1050
Depth to Saturated Zone: 3.5'
Sample # Prefix: 13051711 15 . 06

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		45/60	0 - 0.2	Asphalt	ND		-06 1105	1-2.5	1 4802 1 MeOH 2 H2O
			0.2 - 1.2	Sand f-c, tr metals, tr sh, tr coal, tr gravel, loose, dry, no odor, purple-brown					
			1.2 - 3.75	Sand f-c, tr gravel, tr rock, tr metals, loose, dry, no odor, wet @ 3.5'					
			3.75 - 5	no recovery					
				REFUSAL @ 5' EOB (4 ATTEMPTS)					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	5'

REMARKS
Field Instrument = PID-1
PID/OVM

If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	5	To 0	
Other		To	

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-06
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 40s sunny

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: HRP-PRA-98, near NW-5 and former oil tank
Date Started: 11/15/2017
Date/Time Completed: 11/15/2017 @ 1130
Depth to Saturated Zone: ~5'

Sample # Prefix: 13051711 15 - 07

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		28/60	0-0.7	sand f-c and gravel, tr organics, tr coal, tr ash, tr metals, loose, dry, no odor	ND				
			0.7-1.7	same as 0-0.7, no organics			-07 1145	6.8-7.2	1G 802 1G 402 1 MeOH 2 H2O
			1.7-2.3	same as 0.7-1.7, ~~no organics~~ some gravel					
			2.3-5	no recovery					
5		35/60	5-5.25	same as 1.7-2.3, wet					
			5.25-6.8	pea gravel, some sand f-c, tr gravel					
			6.8-7.2	sand f-c tr gravel, loose, wet, no odor					
			7.2-7.9	bedrock					
			7.9-10	no recovery					
				10' EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	10'

REMARKS
Field Instrument = PID-1 PID/OVM
If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	10	To 0	
Other		To	

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: MW-02
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 40s sunny

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: DTC - RA-8, E of pump island
Date Started: 11/15/2017
Date/Time Completed: 11/15/2017 @ 1150
Depth to Saturated Zone: ~5.8
Sample # Prefix: 13051711 15 - 09

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		39/60	0 - 1.6	Sand f-c, ltl gravel, tr coal, tr ash, loose, dry, no odor					
			1.6 - 3.25	Sand f-c and gravel, tr coal, tr ash, tr brick, loose, dry, no odor					
			3.25-5	no recovery					
5		46/60	5-5.8	pea gravel					
			5.8 - 7.6	Sand f-c, some petro, loose, wet, petro odor (most petro visible from 6.9' - 7.6')	5.9		-08 1200 -	6-7.5	1 Geoz 1 MeOH 2 H2O
			7.6 - 7.8	bedrock					
			7.8	vein of petro					
			7.8 - 8.8	bedrock					
			8.8 - 10	no recovery					
				10' EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	10'

REMARKS
Field Instrument = PID-1 PID/OVM
If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	10	To 0	
Other		To	

FUSS & O'NEILL

MONITORING WELL COMPLETION REPORT

GENERAL INFORMATION

Project Name: CT DOT Higganum Maintenance Facility
Well ID: MW-02
Project Location: Higganum, CT
Project No.: 20160476.A20
F&O Engineer/Geologist: BSC
Ground Surface Elevation:
Date of Completion: 11/15/2017
Permit #:
Well Location Description: E of former pumpisland
El Top of Steel Casing:
Drilling Contractor/Name: Glacier
El Top of PVC Casing:
Drilling Method: Geoprobe
Measuring Point: TPS / PVC
Well Cover (see codes):

WELL CONSTRUCTION

WELL CASING/RISER
Diameter: 4 in.
Type: curbbox
Stick-up: 0 ft.

SUMP (below screen)
Diameter: 1.5 in.
Type: PVC CAP
Length: 4 in.

PROTECTIVE CASING
Diameter: 4 in. Type: Road Box / Stand Pipe
Stick-up: 0 ft Depth to Bottom: 3 ft
Seal Material: concrete

SCREEN INTERVALS
Screen Interval: 8-3 ft Diameter: 1.5 in. Slot Size: ?
Description: PVC / Other:
Type: Perforated / Slotted / Wire-Wrap / Pre-Pack / Other:

BOREHOLE
Diameter: 1.5 in. Total Boring Depth: 8 ft. Refusal: (y) n Depth: 10 ft.

ANNULAR FILL

SURFACE SEAL (Approximate volumes if available)
Interval: 1-0 ft. Tremied: Y / N Volume: 1 bags Description: Concrete / Other:

BACKFILL
Interval: — ft. Tremied: Y / N Volume: — bags Description: Bentonite Grout / Cuttings / Sand / Native Material Other:

LOWER SEAL
Interval: 2-1 ft. Tremied: Y / N Volume: 1/4 bags Description: Bentonite Pellets / Bentonite Chips / Other:

FILTER
Interval: — ft. Tremied: Y / N Volume: — bags Description: Sand Filter (type:) — / Other: —

LOWER BACKFILL
Interval: 8-2 ft. Tremied: Y / N Volume: 1 bags Description: Bentonite Grout / Cuttings / Sand / Native Material Other:

MONITORING WELL DEVELOPMENT*

Development Method: Surge Block / Submersible Pump / Peristaltic Pump / Waterra / Bailer / Other
Date: 11/16/17

*See Monitoring Well Development Data Sheet for details

BORING LOG

FUSS & O'NEILL

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-07
Sheet #: 1 of 1
Project #: 20160476.A20
Weather:

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: DTC-RA-7, former septic field
Date Started: 11/15/2017
Date/Time Completed: 11/15/2017 @
Depth to Saturated Zone: ~1.9
Sample # Prefix: 13051711 15 - 09

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		41/60	0-0.4	Asphalt	ND				
			0.4-1.3	Sand f-c, tr coal, tr gravel					
			1.3-1.9	Rock			-09 1305	2-3	1 GBOZ 1 GHOZ 1 MeOH 2 H2O
			1.9-2.2	Sand f-c, ~~some~~ tr silt, tr coal, tr metals, loose, ~~dry~~ no odor, wet					
			2.2-3.4	Same as 1.9-2.2. no silt,					
			3.4-5	no recovery, ~~compact~~					
5		36/60	5-6.7	Same as 1.9-2.2					
			6.7-7.8	Same as 1.9-2.2, no silt					
			7.8-8	bedrock					
			8-10	no recovery					
				REFUSAL @ 10' EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	10'

REMARKS
Field Instrument = PID-1 PID/OVM
If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	10	To 0	
Other		To	

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-09
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 40s, ~~exc~~ Sunny

Contractor: Glacier
Operator: MIKE
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: DTC-RA-5, E of S bldg in former bldg footprint
Date Started: 11/15/2017
Date/Time Completed: 11/15/2017 @ 1320
Depth to Saturated Zone: ~6.4'
Sample # Prefix: 13051711 15 - 10

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		31/60	0-0.4	Sand and gravel, some asphalt	ND				
			0.4-1.2	Sand f-c, tr gravel, tr coal, tr metal, tr ash, loose, dry, no odor, brown					
			1.2-1.5	sand f-c and coal/coal ash, tr gravel, loose, dry, no odor, black			-10 1330	0.5-1.5	1G 8oz 1 MeOH 2 H2O
			1.5-2.6	Sand f-c, tr coal, tr brick, loose, no odor, ~~moist~~ at ~2'					
			2.6-5	no recovery					
5'		24/36	5-5.4	Rock					
			5.4-6.4	Sand f-c, tr gravel, tr coal/ash loose, dry, no odor, light olive brown					
			6.4-7	Sand f-c, lt gravel, tr coal, loose, moist, no odor, brown					
				bedrock					
			7-8	no recovery					
				REFUSAL @ 8' EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	8'

REMARKS
Field Instrument = PID-1 PID/OVM
If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	8	To 0	
Other		To	

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-09
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 40s sunny

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: DTC - BA - 9, off NE corner of SH
Date Started: 11/15/2017
Date/Time Completed: 11/15/2017 @ 1340
Depth to Saturated Zone:

Sample # Prefix: 13051711 15 - 11

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		24/60	0 - 2	Pea gravel, some sand f-c, tr coal/ash, loose, dry, no odor	ND				
			2-5	No recovery					
5		33/60	5 - 7.6	same as 0-2, tr gravel, moist					
			7.6-7.75	rock					
			7.75-10	no recovery					
10		19/60	10 - 11.25	same as 5-7.6, wet			-11 1350	11.25-11.5	1 G8oz 1 G4oz 1 MeoH 2 H2O
			11.25-11.5	Sand f-c, tr coal, loose, wet, no odor					
			11.5-11.6	bedrock					
			11.6-15	no recovery					
				15' EOB; REFUSAL ON BEDROCK					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	15'

REMARKS
Field Instrument = PID-1
PID/OVM

If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To		See Monitoring Well Completion Report
Bentonite Grout/Chips		To		
Cuttings/Native Material	15	To	0	
Other		To		

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-10
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 40s, rain

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: S bldg, near former lifts
Date Started: 11/16/2017
Date/Time Completed: 11/16/2017 @ 0920
Depth to Saturated Zone: ~5'
Sample # Prefix: 13051711 16 - 16/17

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		19/60	0-0.4	CONCRETE	ND		-16 0900	0-0.25	1G40Z
			0.4-1.6	Sand f-c, some gravel/concrete, loose, dry; no odor					
			1.6-5	no recovery					
5		36/60	5-5.3	Sand f-c, ltl gravel, tr coal, loose, wet, no odor, brown					2G80Z
			5.3-6.1	sand f-c, ltl gravel, petro, loose, wet, black, petro smell	0.2		-17 0925	5.3-6.1	~~1G40Z~~ 1MeOH 2H2O
			6.1-6.5	Same as 5.3-6.1, rock	ND				
			6.5-7.5	weathered bedrock, tr petro smell					
			7.5-10	no recovery					
				REFUSAL @ 10' EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	10'

REMARKS
Field Instrument = PID-1 If refusal is encountered, describe all efforts used to confirm.
PID/OVM

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, f-M; sm f angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To		See Monitoring Well
Bentonite Grout/Chips		To		Completion Report
Cuttings/Native Material	10	To	0	
Other		To		

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-11
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 40s, rain

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: S bldg, center repair bay
Date Started: 11/16/2017
Date/Time Completed: 11/16/2017 @ 0955
Depth to Saturated Zone: ~2.9'
Sample # Prefix: 13051711 16 - 18

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		40/60	0 - 0.8	concrete			-18 0950	0 - 0.3	1 G802
			0.8	vein of sand - c, loose, dry, no odor, brown					
			0.8 - 1.2	sand f-c and coal, loose, dry, no odor. black					
			1.2 - 2.9	same as ~~0.8~~ 0.8, tr coal			-19 1005	5.5 - 7	2G802 1 MeOH 2 ice
			2.9 - 3.3	same as 1.2-2.9, wet, tr silt/clay					
			3.3-5	no recovery					
5		42/60	5 - 5.1	same as 2.9 - 3.3					
			5.1	coal seam					
			5.1 - 5.5	same as 2.9 - 3.3, and gravel					
			5.5 - 5.9	ROCK					
			5.9 - 6.8	sand f-c, tr coal, tr ash, tr metal slag, tr gravel, loose, dry; no odor					
			6.8 - 7.5	same as 5.9 - 6.8, wet					
			7.5 - 8.5	bedrock					
				REFUSAL @ 10 EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	10

REMARKS
Field Instrument = PID-1 If refusal is encountered, describe all efforts used to confirm.
PID/OVM

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr): 0 to 10%
Little (ltl): 10 to 20%
Some (sm): 20 to 35%
And: 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft.
lor.
taff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	10	To 0	
Other		To	

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2017

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-12
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 40s overcast

Contractor: Glacier
Operator: MIKE
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: S bldg, W bay, E end of trenches
Date Started: 11/16/2017
Date/Time Completed: 11/16/2017 @ 1045
Depth to Saturated Zone: 0.7'
Sample # Prefix: 13051711 16 - 20

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		32/60	0-0.7	concrete	ND				
			0.7-1.5	sand f-c, tr gravel, tr concrete, tr coal/petro, tr metal, loose, moist, no odor			-20 1100	0.5-1.5	2 glass 1 Meoh 2 H2O
			1.5-2.7	same as 0.7-1.5, no petro, no concrete, no metal, tr rock					
			2.7-5	no recovery					
5		24/30	5-5.5	same as 1.5-2.7					
			5.5-6.2	concrete					
			6.2-6.7	weathered bedrock					
			6.7-7.5	no recovery					
				REFUSAL @ 7.5', EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	7.5'

REMARKS
Field Instrument = PID-1 If refusal is encountered, describe all efforts used to confirm.
PID/OVM

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	7.5	To 0	
Other		To	

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-13
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 40s overcast

Contractor: Glacier
Operator: MIKE
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: Sbldg, Wbay, Wside Hench
Date Started: 11/16/2017
Date/Time Completed: 11/16/2017 @ 1103
Depth to Saturated Zone: unknown/ >3'

Sample # Prefix: 13051711 16 - 21

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		21/36	0-0.6	concrete	ND		-21 1110	0.8-1.75	2 9802 1 MeOH 2 H2O
			0.6-0.8	Sand f-c, tr coal, yellowbrown loose, dry, no odor					
			0.8-1.1	Sand f-c and brick					
			1.1-1.25	Sand f-c and coal					
			1.25-1.3	ash					
			1.3-1.75	Sand f-c and coal					
			1.75-3	no recovery					
				REFUSAL @ 3' ON METAL EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	3'

REMARKS
Field Instrument = PID-1 If refusal is encountered, describe all efforts used to confirm.
PID/OVM

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	3	To 0	
Other		To	

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-14
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 40s overcast

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: N bldg, E bay near drum ring
Date Started: 11/16/2017
Date/Time Completed: 11/16/2017 @ 1200
Depth to Saturated Zone: ~1.9
Sample # Prefix: 13051711 16 - 22/23

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		32/60	0-0.3	concrete	ND		-22 1230	0-0.3	1G802
			0.3-1.3	~~coal and~~ sand f-c some coal AND concrete, loose, dry, no odor					
			1.3-1.9	Sand f-c, tr coal, loose, dry, no odor, brown			-23 1235	1.5-2.5	2G802 1 MeOH 2 H2O
			1.9-2.3	Same as 1.3-1.9, wet					
			2.3-2.5	sand f-c, tr gravel, loose, wet, no odor, orange					
			2.5-3.2	Same as 1.9-2.3					
			3.2-5	no recovery					
				5' EOB due to ceiling height limitations for geoprobe					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	5

REMARKS
Field Instrument = PID-1 PID/OVM
If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	5	To 0	
Other		To	

DUPE

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-15
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: SOS Sunny

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: N bldg, adj. to W bay, near pressure floor drain
Date Started: 11/16/2017
Date/Time Completed: 11/16/2017 @ ~~1435~~ 1235
Depth to Saturated Zone: ~2'

Sample # Prefix: 13051711 16 - 24/25/26

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		41/60	0-0.7	Concrete	ND		-24 1300	0-0.3	1 GBOZ
			0.7-1.3	Sand f-c, some coal, loose, dry, brown, no odor					
			1.3-2	Same as 0.7-1.3, tr coal			-25 1310	1-2.5	2 GBOZ 1 MeOH 2 H2O
			2-2.9	Same as 1.3-2, wet, tr metal slag		(DUP)	-26 1320	1-2.5	2 GBOZ 1 MeOH 2 H2O
			2.9-3.4	Same as 2-2.9, some silt/clay					
			3.4-5	no recovery					
5		160		Same as 1.3-2					
				Coal and Sand f-c					
				Same as 1.3-2, ltl gravel					
				Sand - fine and silt clay (SiH, tr coal, tr metals, compact, wet, no odor					
				no recovery					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	10'

REMARKS
Field Instrument = PID-1 PID/OVM
If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	10	To 0	
Other		To	

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT Higganum Maintenance

Project Location: Higganum, CT

Location ID: SB-16
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: 50s overcast

Contractor: Glacier
Operator: Mike
F&O Representative: BSC
Drilling Method: Geoprobe
Sampling Method: Dedicated trowel/ terra cores
Hammer Weight: N/A Hammer Fall (inches): N/A

Location Description: Just W of N bldg N garage bay
Date Started: 11/16/2017
Date/Time Completed: 11/16/2017 @ 1340
Depth to Saturated Zone: ~1.2'

Sample # Prefix: 13051711 16 - 27

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		40/60	0-0.3	TOPSOIL, tr asphalt, tr gravel, tr organics	ND				
			0.3-1.6	Sand f-c, tr coal, tr metals, tr brick, loose, dry, no odor, wet @ 1.2			-27 1400	1-2.5	2 6802 1 MeOH 2 H2O
			1.6-2.5	same as 1.2-1.6, evidence of petro					
			2.5-3.3	Sand f-c, ltl gravel/rock, tr coal, loose, dry, no odor					
			3.3-5	no recovery					
5		23/60	5-5.7	Same as 2.5-3.3, wet, tr metals					
			5.7-6.75	same as 5- , some clay/silt, compact					
			6.75-10	no recovery					
				REFUSAL @ 10' EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	Geoprobe	10'

REMARKS
Field Instrument = PID-1 If refusal is encountered, describe all efforts used to confirm.
PID/OVM

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	10	To 0	
Other		To	

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT HIGGANUM

Project Location: HIGGANUM, CT

Location ID: SB-17
Sheet #: 1 of 1
Project #: 20160476.A20
Weather: SOS, OVERCAST

Contractor: GLACIER
Operator: MIKE
F&O Representative: BSE
Drilling Method: GEOPROBE
Sampling Method: TERRACORE / DED. TROWEL
Hammer Weight: — Hammer Fall (inches): —

Location Description: ~~SB-17~~ 13' E OF SB-10
Date Started: 11/10/17
Date/Time Completed: 11/16/17 @1420
Depth to Saturated Zone: ~2.4'
Sample # Prefix: 1305171116 - 28

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		39/60	0-0.6	concrete	ND				
			0.6-1.75	sand f-c, tr gravel, tr brick, tr coal, tr ash					
			1.75-2.4	sand f-c and coal, tr gravel					
			2.4-3.25	sand fine and clay/silt, tr gravel, wet					
			3.25-5	no recovery					
5		~~XXX~~ 30/36	5-5.7	sand, ltl gravel, tr coal, tr metals					
			5.7-6.1	rock, some sand					
			6.1-6.7	sand f-c, tr metal, tr coal, tr petro odor + staining			~~-28~~ 1430	6.1-7.5	1 G80Z 1 MeOH 2 H2O
			6.7-7.2	rock					
			7.2-7.5	same as 6.1-6.7, hydraulic fluid odor	0.1				
			7.5-8	no recovery					
				REFUSAL @ 8', EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	GEOPROBE	8'

REMARKS
Field Instrument = PID/OVM

If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10%
Little (ltl) 10 to 20%
Some (sm) 20 to 35%
And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	8	To	1
Other		To	

FUSS & O'NEILL

BORING LOG

Project Name: CT DOT HIGGANUM

Project Location: HIGGANUM, CT

Location ID: SB-19

Sheet #: 1 of 1

Project #: 20160476.A20

Weather: 50s OVERCAST

Contractor: GLACIER

Operator: MIKE

F&O Representative: BSL

Drilling Method: GEOPROBE

Sampling Method: TERRACORE (DEDICATED) TROWEL

Hammer Weight: — Hammer Fall (inches): —

Location Description: 10.5' E OF SB-17 (23.5' E OF SB-10)

Date Started: 11/16/17

Date/Time Completed: 11/16/17 @1445

Depth to Saturated Zone: ~6.7'

Sample # Prefix: 1305171116 - 29

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		37/60	0-0.6	concrete	ND				
			0.6-1.2	sand f-c, tr gravel					
			1.2-1.7	sand and rock and coal					
			1.7-1.8	sand f-c, tr coal, tr metals, loose, brown, dry, no odor					
			1.8-2.7	sand f-c and coal					
			2.7-3.1	same as 1.7-1.8. NO metals					
			3.1-5	no recovery					
5		25/36	5-5.8	sand f-c, tr coal			-29 1455	5.8-7.1	1G 802 1 MeOH 2 H2O
			5.8-7.1	sand fine, some clay/silt, tr coal, tr metals, compact, no odor, tr rock, wet @ 6.7'					
			7.1-8	no recovery					

REFUSAL @ 8', EOB

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	GEOPROBE	8'

REMARKS

Field Instrument = PID / OVM

If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:

Trace (tr) 0 to 10%; Little (ltl) 10 to 20%; Some (sm) 20 to 35%; And 35 to 50%

EXAMPLE DESCRIPTION:

SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	8	To 0	
Other		To	

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BORING LOG

Project Name: CT DOT, HIGGANUM

Project Location: HIGGANUM, CT

Location ID: SB-18

Sheet #: 1 of 1

Project #: 20160476.A20

Weather: SOS Overcast

Contractor: GLACIER

Operator: MIKE

F&O Representative: BSC

Drilling Method: GEOPROBE

Sampling Method: TERRACORE / DEDICATED TROWEL

Hammer Weight: — Hammer Fall (inches): —

Location Description: ~17' E OF MW-02

Date Started: 11/16/17

Date/Time Completed: 11/16/17 @ 1515

Depth to Saturated Zone:

Sample # Prefix: 2305171116-30

DRILLING DETAILS			MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0		42/60	0-0.4	asphalt, sand f-c, tr coal, loose, dry,	ND				
			0.4-1.2	Sand f-c, tr gravel, tr coal, loose, dry, no odor					
			1.2-1.6	Sand f-c and coal, trash, loose, dry, no odor					
			1.6-2.1	Same as 0.4-1.2					
			2.1-2.6	rock					
			2.6-3.5	Sand f-c, tr coal, tr metals, ltl gravel, loose, dry, no odor					
			3.5-5	no recovery					
5		30/60	5-5.4	Sand f-c / crushed rock, loose, dry, white, no odor					
			5.4-6.1	Sand f-c, tr coal, tr rock, black/brown, loose, dry, no odor					
			6.1-6.3	rock fragments					
			6.3-6.5	Sand f-c, tr rock, tr coal, tr metal, loose, dry, no odor					
			6.5-6.8	rock fragments			-30 1525	5.5-7.2	1 GLASS 1 MEOH 2 H2O
			6.8-7.2	Same as 6.3-6.5					
			7.2-7.5	rock fragments					
			7.5-10	no recovery					
				REFUSAL @ 10' EOB					

BORING DIAMETER	BORING METHOD	BORING DEPTH
1.5"	GEOPROBE	10'

REMARKS

Field Instrument = PID/OVM

If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:

Trace (tr) 0 to 10% | Some (sm) 20 to 35%

Little (ltl) 10 to 20% | And 35 to 50%

EXAMPLE DESCRIPTION:

SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	See Monitoring Well Completion Report
Bentonite Grout/Chips		To	
Cuttings/Native Material	10	To 0	
Other		To	

FUSS & O'NEILL

Appendix B

Groundwater Sampling Field Data Sheets

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility	
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**
Sample#: 1305171122- 02	**WELL ID: W-25-1S**

FUSS & O'NEILL

Purge Data

Date: 11/22/17

Start time: 0850 **Stop time:** 0920 **Sample time:** 0922

Pump Rate: 200 (ml/m) **Depth Sampled:** 16 ft

Total time purged: 30 **Sampler:** BSC / NVP

Volume Purged: 6 (ltr) **Weather:** Overcast 40s

Purge Device: Dedicated / Nondedicated

Device Type: Bladder / Peristaltic / Submersible

Filtered? N / Y ~~**Filter Size:** 10u / 0.45u **Filtered in:** Field / Lab~~

Appearance: Clear, no odor

Well Yield: High / Moderate / Low / Dry

Well Diameter: 2"

Comments:

PVC: 12.59

TPS: 12.79

DTB: 17.7

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1	HNO3
P250	1	Ice
Amber L	1	Ice

Field Parameter Data

Instrument ID# Testwell HF Sci# 1 YSI600XL

Water Level (ft)	Time	Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
12.59	0850	START	PURGE				
12.63	0910	2.88	3.16	5.75	13.7	201.9	-117.5
12.63	0913	1.55	3.07	5.75	13.7	199.5	-112.1
12.63	0916	1.08	3.18	5.77	13.7	194.6	-121.2
12.63	0919	1.03	3.09	5.77	13.7	202.1	-119.1
	0922	Sample					
<0.3'		<5 / ± 0.1%	± 10% when > 1	± 0.1	± 3% (0.5 deg)	± 3%	

Well Condition Checklist

(circle appropriate item(s), cross out if not applicable)

General Condition: Good / Needs Repair

Protective Steel: OK / Cracked / Leaking / Bent / Loose / None

Well # Visible?: Y / N

Well Cap: Good / Broken / None

Evidence of rain water between steel and PVC?: Y / N

Evidence of ponding around well?: Y / N

Gopher type holes around collar?: Y / N

Comments:

Is well plumb?: Y / N

Lock: Good / Broken / None

Rust around cap: Y / N

PVC Riser: Good / Damaged / None

Concrete collar: OK / Cracked / Leaking / None

Other evidence of: Rodents / Insects / None

Curb Box: N / Y (key is: Hex / Pent / Other)

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility	FUSS & O'NEILL
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**
Sample#: 1305171122- 03	**WELL ID: MW-06**

Purge Data

Date: 11/22/17
Start time: 1010 **Stop time:** 1051 **Sample time:** 1051
Pump Rate: 200 (ml/m) **Depth Sampled:** 11'
Total time purged: 41 **Sampler:** BSG/NVP
Volume Purged: 8 (ltr) **Weather:** 40s rain
Purge Device: Dedicated / Nondedicated
Device Type: Bladder / Peristaltic / Submersible
Filtered? N / Y **Filter Size:** 10u / 0.45u **Filtered in:** Field / Lab
Appearance: slightly cloudy **PVC:** 6.77
Well Yield: High / Moderate / Low / Dry **TPS:** 7.11
Well Diameter: 2" **DTB:** 14.0 + 0.61 = 14.11
Comments:

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1	F/HNO3
P250	1	Ice
~~Amber L~~	0	Ice

Field Parameter Data

Instrument ID# CINCO / HF Sci# 2 / ~~Hach~~ YSI 600#2

Water Level (ft)	Time	Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
6.77	1010	←		START			0
8.00	1020	335.3	3.58	6.28	13.4	467.6	351.7
8.35	1030	191.3	3.27	6.27	13.5	459.5	365.2
8.66	1040	90.7	3.83	6.29	13.5	447.9	386.1
8.85	1050	103.9	3.85	6.27	13.6	448.2	387.6
	1051	←		STOP			»
	1051	←		SAMPLE			»
<0.3'		<5 / ± 0.1%	± 10% when > 1	± 0.1	± 3% (0.5 deg)	± 3%	

(circle appropriate item(s), cross out if not applicable)

Well Condition Checklist

General Condition: Good / Needs Repair
Protective Steel: OK / Cracked / Leaking / Bent / Loose/ None
Well # Visible?: Y / N
Well Cap: Good / Broken / None
Evidence of rain water between steel and PVC?: Y / N
Evidence of ponding around well?: Y / N
Gopher type holes around collar?: Y / N
Comments:

Is well plumb?: Y / N
Lock: Good / Broken / None
Rust around cap: Y / N
PVC Riser: Good / Damaged / None
Concrete collar: OK / Cracked / Leaking / None
Other evidence of: Rodents / Insects / None
Curb Box: N / Y (Key is: Hex / Pent / Other)

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility	
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**
Sample#: 1305171122- 04	**WELL ID:** W-25-1SD

FUSS & O'NEILL

Purge Data

Date: 11/22/17

Start time: 0940 **Stop time:** 1010 **Sample time:** 1010

Pump Rate: 200 (ml/m) **Depth Sampled:** 34 FT

Total time purged: 30 **Sampler:** BSC/NVP

Volume Purged: 6 (ltr)

Purge Device: (Dedicated) / Nondedicated **Weather:** Overcast 40s

Device Type: Bladder / (Peristaltic) / Submersible

Filtered? (N) / Y ~~Filter Size: 10u / 0.45u Filtered In: Field / Lab~~

Appearance: Clear, no odor **PVC:** 12.72

Well Yield: (High) / Moderate / Low / Dry **TPS:** 12.92

Well Diameter: 2" **DTB:** 36.1

Comments:

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1	HNO3
P250	1	Ice
Amber L	2	Ice

Field Parameter Data

Instrument ID# TestWell HF Sci# 1 ~~YSI 600 XL~~

Water Level (ft)	Time	Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
12.72	0940	START	PURGE				
12.79	1000	3.03	3.12	7.32	12.8	196.9	-124.7
12.78	1003	2.36	2.92	7.33	12.6	196.7	-120.5
12.78	1006	2.02	2.90	7.31	12.7	196.4	-121.4
	1010	SAMPLE					
<0.3'		<5 / ± 0.1%	± 10% when > 1	± 0.1	± 3% (0.5 deg)	± 3%	

Well Condition Checklist

(circle appropriate item(s), cross out if not applicable)

General Condition: (Good) / Needs Repair

Protective Steel: (OK) / Cracked / Leaking / Bent / Loose/ None

Well # Visible?: (Y) / N

Well Cap: (Good) / Broken / None

Evidence of rain water between steel and PVC?: Y / (N)

Evidence of ponding around well?: Y / (N)

Gopher type holes around collar?: Y / (N)

Comments:

Is well plumb?: (Y) / N

Lock: (Good) / Broken / None

Rust around cap: Y / (N)

PVC Riser: (Good) / Damaged / None

Concrete collar: (OK) / Cracked / Leaking / None

Other evidence of: Rodents / Insects / (None)

Curb Box: (N) / Y (key is: Hex / Pent / Other)

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility		FUSS & O'NEILL
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**	
Sample#: 1305171122- 05	**WELL ID:** D-23	

Purge Data

Date: 11/22/17
Start time: 1112 **Stop time:** 1212 **Sample time:** 1213
Pump Rate: 200 (ml/m) **Depth Sampled:** 18
Total time purged: 60 **Sampler:** BSC/NVP
Volume Purged: 12 (ltr)
Purge Device: Dedicated / Nondedicated **Weather:** 40s rain
Device Type: Bladder / Peristaltic / Submersible
Filtered? N / Y **Filter Size:** 10u / 0.45u **Filtered in:** Field / Lab
Appearance: brown → light brown **PVC:** —
Well Yield: High / Moderate / Low / Dry **TPS:** 8-10
Well Diameter: 3" **DTB:**
Comments: (TPS)

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1	HNO3
P250	1	Ice
~~Amber L~~	0	Ice

Field Parameter Data

Instrument ID# Cinco / HF Sci# 2 / YSI 600 #2

Water Level (ft) (TPS)	Time	Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
8.10	1112	←		START		→	
8.99	1122	589.7	7.04	6.02	15.8	670	-65.6
9.04	1132	1016	0.07	6.30	15.7	623	59.9
9.05	1142	636.5	0.31	6.23	15.4	637	174.3
9.07	1152	266.2	0.21	6.43	15.5	648	49.2
9.07	1202	198.3	0.25	6.52	15.5	653	25.3
9.07	1212	196.7	0.25	6.49	15.6	646	70.3
	1212	→		STOP			
	1213	←		SAMPLED			

<0.3' | <5 / ± 0.1% | ± 10% when > 1 | ± 0.1 | ± 3% (0.5 deg) | ± 3%

Well Condition Checklist

(circle appropriate item(s), cross out if not applicable)

General Condition: Good / Needs Repair
Protective Steel: OK / Cracked / Leaking / Bent / Loose / None
Well # Visible?: Y / N
Well Cap: Good / Broken / None
Evidence of rain water between steel and PVC?: Y / N
Evidence of ponding around well?: Y / N
Gopher type holes around collar?: Y / N
Comments:

Is well plumb?: Y / N
Lock: Good / Broken / None
Rust around cap: Y / N
PVC Riser: Good / Damaged / None
Concrete collar: OK / Cracked / Leaking / None
Other evidence of: Rodents / Insects / ~~None~~
Curb Box: N / Y (~~key is:~~ Hex / Pent / Other)

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility	
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**
Sample#: 1305171122- 06	**WELL ID:** W-25-3

FUSS & O'NEILL

Purge Data

Date: 11/22/17

Start time: 1048 **Stop time:** 1117 **Sample time:** 1118

Pump Rate: 200 (ml/m) **Depth Sampled:** 16'

Total time purged: 30 **Sampler:** BSC/NVP

Volume Purged: 6 (ltr)

Purge Device: Dedicated / Nondedicated **Weather:** Overcast 40s

Device Type: Bladder / Peristaltic / Submersible

Filtered? N / Y ~~**Filter Size:** 10u / 0.45u **Filtered in:** Field / Lab~~

Appearance: **PVC:** 12.28

Well Yield: High / Moderate / Low / Dry **TPS:** 12.47

Well Diameter: **DTB:**

Comments:

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1	HNO3
P250	1	Ice
Amber L	1	Ice

Field Parameter Data

Instrument ID# Testwell HF Sci# 1 YSI600#1

Water Level (ft)	Time	Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
12.28	1048	START	PURGE				
12.49	1108	3.52	0.58	5.77	14.0	574.4	-190.1
12.46	1111	2.79	0.82	5.76	14.0	573.9	-190.9
12.46	1114	2.68	0.84	5.76	14.0	575.2	-190.3
12.46	1117	2.08	0.81	5.77	14.0	574.0	-189.9
	1118	Sample					
<0.3'		<5 / ± 0.1%	± 10% when > 1	± 0.1	± 3% (0.5 deg)	± 3%	

Well Condition Checklist

(circle appropriate item(s), cross out if not applicable)

General Condition: Good / Needs Repair

Protective Steel: OK / Cracked / Leaking / Bent / Loose/ None

Well # Visible?: Y / N

Well Cap: Good / Broken / None

Evidence of rain water between steel and PVC?: Y / N

Evidence of ponding around well?: Y / N

Gopher type holes around collar?: Y / N

Comments:

Is well plumb?: Y / N

Lock: Good / Broken / None

Rust around cap: Y / N

PVC Riser: Good / Damaged / None

Concrete collar: OK / Cracked / Leaking / None

Other evidence of: Rodents / Insects / None

Curb Box: N / Y (key is: Hex / Pent / Other)

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility		FUSS & O'NEILL
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**	
Sample#: 1305171122- 07	**WELL ID:** MW-1	

Purge Data

Date: 11/22/17

Start time: 1240 **Stop time:** 1346 **Sample time:** 1347

Pump Rate: 200 (ml/m) **Depth Sampled:** 10'

Total time purged: 66 **Sampler:** BSC/NVP

Volume Purged: 13 (ltr)

Purge Device: Dedicated / Nondedicated **Weather:** 40s rain

Device Type: Bladder / Peristaltic / Submersible

Filtered? N / Y **Filter Size:** 10u / 0.45u **Filtered in:** Field / Lab

Appearance: clear **PVC:** 4.95

Well Yield: High / Moderate / Low / Dry **TPS:** 5.33

Well Diameter: 2" **DTB:** 12.92

Comments:

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1	HNO3
P250	1	Ice
Amber L	2	Ice

→ PCBs + Pesticides

Field Parameter Data

Instrument ID#

Cinco | HF Sci# 2 | YSI 600 #2

Water Level (ft)	Time	Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
4.95	1240	←		START		→	
5.08	1250	40.36	0.66	6.84	14.9	391.2	369.3
5.21	1300	36.82	0.63	6.36	15.1	396.6	369.6
5.22	1310	28.59	0.56	6.36	15.2	396.2	372.3
5.23	1320	24.41	0.55	6.37	15.3	396.8	374.0
5.23	1330	14.36	0.48	6.38	15.3	397.3	375.3
5.23	1340	8.37	0.47	6.38	15.3	399.2	377.1
5.23	1345	4.61	0.50	6.38	15.2	400.5	377.4
	1346	←	STOP			→	
	1347	←	SAMPLE			→	
<0.3'		<5 / ± 0.1%	± 10% when > 1	± 0.1	± 3% (0.5 deg)	± 3%	

Well Condition Checklist

(circle appropriate item(s), cross out if not applicable)

General Condition: Good / Needs Repair

Protective Steel: OK / Cracked / Leaking / Bent / Loose / None

Well # Visible?: Y / N

Well Cap: Good / Broken / None

Evidence of rain water between steel and PVC?: Y / N

Evidence of ponding around well?: Y / N

Gopher type holes around collar?: Y / N

Comments:

Is well plumb?: Y / N

Lock: Good / Broken / None

Rust around cap: Y / N

PVC Riser: Good / Damaged / None

Concrete collar: OK / Cracked / Leaking / None

Other evidence of: Rodents / Insects / None

Curb Box: N / Y (key is: Hex / Pent / Other)

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility	FUSS & O'NEILL
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**
Sample#: 1305171122-08	**WELL ID: D-18**

Purge Data

Date: 11/22/17

Start time: 1135 **Stop time:** 1231 **Sample time:** 1232

Pump Rate: 200 (ml/m) **Depth Sampled:** 13 ft

Total time purged: 54 min **Sampler:** BSC/NVP

Volume Purged: 10.8 (ltr)

Purge Device: (Dedicated) / Nondedicated **Weather:** Overcast 40s

Device Type: Bladder / (Peristaltic) / Submersible

Filtered? N / (Y) **Filter Size:** (10u) / 0.45u **Filtered in:** (Field) / Lab

Appearance: clear, no odor **PVC:** 12.26

Well Yield: (High) / Moderate / Low / Dry **TPS:** 12.45

Well Diameter: 2" **DTB:** 15.75

Comments:

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1 F	HNO3
P250	1	Ice
Amber L	1	Ice

1 → PCBs

Field Parameter Data

Instrument ID# Testwell | HF Sci# 1 | YSI 600#1

Water Level (ft)	Time	Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
12.26	1135	START	PURGE				
12.45	1155	30.88	5.41	6.22	13.6	239.8	-77.4
12.45	1225	22.89	4.25	6.12	13.6	306.7	-95.9
12.45	1228	18.70	4.37	6.15	13.5	326.9	-95.7
12.45	1231	18.33	4.62	6.14	13.5	354.7	-79.4
	1232	Sample					
<0.3'		<5 / ± 0.1%	± 10% when > 1	± 0.1	± 3% (0.5 deg)	± 3%	

Well Condition Checklist

(circle appropriate item(s), cross out if not applicable)

General Condition: (Good) / Needs Repair

Protective Steel: OK / Cracked / Leaking / (Bent) / Loose / None

Well # Visible?: (Y) / N

Well Cap: (Good) / Broken / None

Evidence of rain water between steel and PVC?: Y / (N)

Evidence of ponding around well?: Y / (N)

Gopher type holes around collar?: Y / (N)

Comments:

Is well plumb?: (Y) / N

Lock: (Good) / Broken / None

Rust around cap: Y / (N)

PVC Riser: (Good) / Damaged / None

Concrete collar: (OK) / Cracked / Leaking / None

Other evidence of: Rodents / Insects / (None)

Curb Box: (N) / Y (key is: Hex / Pent / Other)

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility	
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**
Sample#: 1305171122- 09	**WELL ID:** MW - FO2

FUSS & O'NEILL

Purge Data

Date: 11/22/17

Start time: 1417 **Stop time:** 1449 **Sample time:** 1559

Pump Rate: 200 (ml/m) **Depth Sampled:** 6.50

Total time purged: 32 **Sampler:** BSC/NVP

Volume Purged: 6 (ltr)

Purge Device: Dedicated / Nondedicated **Weather:** 40s rain

Device Type: Bladder / Peristaltic / Submersible

Filtered? N / Y **Filter Size:** 100 / 0.45u **Filtered in:** Field / Lab

Appearance: Brown **PVC:** 4.68

Well Yield: High / Moderate / Low / Dry **TPS:** 5.19

Well Diameter: 1.5" **DTB:** 7.41

Comments:

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1	F HNO3
P250	1	Ice
Amber L	1	Ice
		→ PCBs

Field Parameter Data

Instrument ID#

CINCO | HF Sci# 2 | YSI600 # 2

Water Level (ft)	Time	Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
4.68	1417	←	→	START	→	→	→
5.10	1427	485.3	4.02	7.59	13.9	780	353.1
—	—	RANDOM	—	—	—	—	—
5.95	1437	705.9	3.60	7.50	14.4	756	312.5
6.26	1447	583.1	3.73	7.57	14.0	734	271.2
	1449	Well dry - allow to recharge.					
		Sampled recharge					
		↓		↓			
5.64	1559	←	→	SAMPLE	→	→	→
<0.3'		<5 / ± 0.1%	± 10% when > 1	± 0.1	± 3% (0.5 deg)	± 3%	

Well Condition Checklist

(circle appropriate item(s), cross out if not applicable)

General Condition: Good / Needs Repair

Protective Steel: OK / Cracked / Leaking / Bent / Loose/ None

Well # Visible?: Y / N

Well Cap: Good / Broken / None

Evidence of rain water between steel and PVC?: Y / N

Evidence of ponding around well?: Y / N

Gopher type holes around collar?: Y / N

Comments:

Is well plumb?: Y / N

Lock: Good / Broken / None

Rust around cap: Y / N

PVC Riser: Good / Damaged / None

Concrete collar: OK / Cracked / Leaking / None

Other evidence of: Rodents / Insects / None

Curb Box: N / Y (key is: Hex / Pent / Other)

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility	
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**
Sample#: 1305171122- 10	**WELL ID:** D-17

FUSS & O'NEILL

Purge Data

Date: 11/22/17

Start time: 1305 **Stop time:** 1402 **Sample time:** 1404

Pump Rate: 200 (ml/m) **Depth Sampled:** 34 Ft

Total time purged: 57 Min **Sampler:** BSC/NVP

Volume Purged: 11.4 (ltr)

Purge Device: (Dedicated) / Nondedicated **Weather:** Overcast 40s

Device Type: Bladder / (Peristaltic) / Submersible

Filtered? N / (Y) **Filter Size:** (10u) / 0.45u **Filtered in:** Field / Lab

Appearance: **PVC:** ~~~

Well Yield: (High) / Moderate / Low / Dry **TPS:** 12.62

Well Diameter: **DTB:** 36 Ft

Comments:

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1	F HNO3
P250	1	Ice
Amber L	1	Ice

→ Pesticides

Field Parameter Data

Instrument ID#

Water Level (ft)	Time	HF Sci# Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
12.62	1305	START	PURGE				
15.78	1350	31.97	0.89	6.33	12.6	313.5	-175.2
15.78	1353	454.7	1.57	6.25	12.6	309.9	-161.2
15.76	1356	215.2	1.61	6.33	12.6	309.5	-172.8
15.74	1359	42.85	0.43	7.64	12.7	313.3	-239.1
15.74	1402	45.65	0.20	7.72	12.7	313.9	-228.7
	1404	Sample					
<0.3'		<5 / ± 0.1%	± 10% when > 1	± 0.1	± 3% (0.5 deg)	± 3%	

Well Condition Checklist

(circle appropriate item(s), cross out if not applicable)

General Condition: (Good) / Needs Repair

Protective Steel: (OK) / Cracked / Leaking / Bent / Loose / None

Well # Visible?: (Y) / N

Well Cap: (Good) / Broken / None

Evidence of rain water between steel and PVC?: Y / (N)

Evidence of ponding around well?: Y / (N)

Gopher type holes around collar?: Y / (N)

Comments:

Is well plumb?: Y / (N)

Lock: (Good) / Broken / None

Rust around cap: Y / (N)

PVC Riser: Good / Damaged / (None)

Concrete collar: (OK) / Cracked / Leaking / None

Other evidence of: Rodents / Insects / (None)

Curb Box: (N) / Y (key is: Hex / Pent / Other)

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility	FUSS & O'NEILL
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**
Sample#: 1305171122- 11	**WELL ID:** MW-F01

Purge Data

Date: 11/22/17

Start time: 1505 Stop time: 1536 Sample time: 1537
Pump Rate: 200 (ml/m) Depth Sampled: 5'
Total time purged: 31 Sampler: BSC/NVP
Volume Purged: 6 (ltr)
Purge Device: Dedicated / Nondedicated Weather: 40s rain
Device Type: Bladder / Peristaltic / Submersible
Filtered? N / Y Filter Size: 10u / 0.45u Filtered in: Field / Lab
Appearance: Brown PVC: 1.81
Well Yield: High / Moderate / Low / Dry TPS: 2.07
Well Diameter: 1.5" DTB: 7.39
Comments:

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1	F/HNO3
P250	1	Ice
Amber L	1 → Pesticides	Ice

Field Parameter Data

Instrument ID#

Cinco | HF Sci# 2 | YSI 600#2

Water Level (ft)	Time	Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
1.81	1505	START					
1.83	1515	972.3	8.13	10.12	10.4	255.2	-225.0
1.84	1525	1068	8.60	10.16	9.6	246.7	-80.2
	1535	815.4	8.96	10.17	9.4	242.0	-24.1
	1536	STOP					
	1537	SAMPLE					
		<5 / ± 0.1%	± 10% when > 1	± 0.1	± 3% (0.5 deg)	± 3%	

(circle appropriate item(s), cross out if not applicable)

Repair
...ing / Bent / Loose/ None

PVC?: Y / N

Is well plumb?: Y / N
Lock: Good / Broken / None
Rust around cap: Y / N
PVC Riser: Good / Damaged / None
Concrete collar: OK / Cracked / Leaking / None
Other evidence of: Rodents / Insects / None
Curb Box: N / Y (Key is: Hex / Pent / Other)

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility	FUSS & O'NEILL
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**
Sample#: 1305171122- 12	**WELL ID: [redacted] HMF-MW-2**

Purge Data

Date: 11/22/17

Start time: 1435 **Stop time:** 1505 **Sample time:** 1506
Pump Rate: ~~200~~ 200 (ml/m) **Depth Sampled:** 12 ft
Total time purged: 30 **Sampler:** BSC/NVP
Volume Purged: 6 (ltr)
Purge Device: (Dedicated) / Nondedicated **Weather:** Overcast 40s
Device Type: Bladder / (Peristaltic) / Submersible
Filtered? (N) / Y ~~**Filter Size:** 10u / 0.45u **Filtered in:** Field / Lab~~
Appearance: Clear, no odor **PVC:** 5.64
Well Yield: (High) / Moderate / Low / Dry **TPS:** 6.0
Well Diameter: 2" **DTB:** 14.00
Comments:

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1	HNO3
P250	1	Ice
Amber L	Q	Ice

Field Parameter Data

Instrument ID# Testwell | HF Sci# 1 | YSI 600#1

Water Level (ft)	Time	Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
5.64	1435	START	PURGE				
6.05	1455	20.14	4.82	6.93	13.7	500.9	-154.2
6.05	1458	17.11	~~4.82~~ 498.3	6.91	13.7	495.2	-152.8
6.05	1501	16.71	4.98	6.91	13.7	498.0	-151.7
6.05	1504	13.62	4.93	6.91	13.7	499.4	-150.1
	1506	Sample					
	1528	4.73	before P250 HNO3 sample (no need to filter)				

<0.3' | <5 / ± 0.1% | ± 10% when > 1 | ± 0.1 | ± 3% (0.5 deg) | ± 3%

Well Condition Checklist

(circle appropriate item(s), cross out if not applicable)

General Condition: (Good) / Needs Repair
Protective Steel: (OK) / Cracked / Leaking / Bent / Loose / None
Well # Visible?: (Y) / N
Well Cap: (Good) / Broken / None
Evidence of rain water between steel and PVC?: (Y) / N
Evidence of ponding around well?: Y / (N)
Gopher type holes around collar?: Y / (N)
Comments:

Is well plumb?: (Y) / N
Lock: (Good) / Broken / None
Rust around cap: Y / (N)
PVC Riser: (Good) / Damaged / None
Concrete collar: (OK) / Cracked / Leaking / None
Other evidence of: Rodents / Insects / (None)
Curb Box: N / (Y) (key is: (Hex) / Pent / Other)

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility		FUSS & O'NEILL
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**	
Sample#: 1305171122- ~~[illegible]~~ 13	**WELL ID:** ~~[illegible]~~ PW-1	

Purge Data

Date: 11/22/17
Start time: 1641 **Stop time:** 1641 **Sample time:** 1641
Pump Rate: 200 (ml/m) **Depth Sampled:** unknown
Total time purged: 0 **Sampler:** (BSC)/NVP
Volume Purged: 0 (ltr)
Purge Device: (Dedicated) / Nondedicated **Weather:** 40s, rain
Device Type: Bladder / (Peristaltic) / Submersible
Filtered? N / (Y) **Filter Size:** (10u) / 0.45u **Filtered in:** (Field) / Lab
Appearance: **PVC:** NO PVC
Well Yield: (High) / Moderate / Low / Dry **TPS:** COULD NOT MEASURE
Well Diameter: **DTB:** ↓
Comments:
could not measure DTW w/CINCO because tape ~~[illegible]~~ kept getting stuck in wires/structures in well

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1	F/HNO3
~~P250~~ P120	1	Ice
Amber L	1 → Pesticides	Ice

Field Parameter Data

Instrument ID#

CINCO		HF Sci# 2	YSI 600 #2 →				
Water Level (ft)	Time	Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
N.M.		~~POTABLE WATER SUPPLY~~					
		~~GRAB SAMPLE~~					
↓	1641	184.9	1.98	8.92	10.7	182.7	288.2
		(GRAB SAMPLE, DID NOT PURGE)					
<0.3'		<5 / ± 0.1%	± 10% when > 1	± 0.1	± 3% (0.5 deg)	± 3%	

Well Condition Checklist

(circle appropriate item(s), cross out if not applicable)

General Condition: (Good) / Needs Repair
Protective Steel: ~~OK~~ / Cracked / Leaking / Bent / Loose/ None
Well # Visible?: Y / (N)
Well Cap: (Good) / Broken / None
Evidence of rain water between steel and PVC?: Y / (N)
Evidence of ponding around well?: Y / (N)
Gopher type holes around collar?: Y / (N)
Comments:

Is well plumb?: Y / (N)
Lock: (Good) / Broken / ~~None~~
Rust around cap: (Y) / N
PVC Riser: Good / Damaged / (None)
Concrete collar: OK / Cracked / Leaking / (None)
Other evidence of: Rodents / Insects / (None)
Curb Box: (N) / (Y) (key is: ~~[illegible]~~ / Pent / Other)

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility	FUSS & O'NEILL
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**
Sample#: 1305171122- 14	**WELL ID: ~~HMW-3~~ HMF-MW-1**

Purge Data

Date: 11/22/17

Start time: 1535 **Stop time:** 1605 **Sample time:** 1606

Pump Rate: 200 (ml/m) **Depth Sampled:** 12'

Total time purged: 30 **Sampler:** BSC/(NVP)

Volume Purged: 6 (ltr)

Purge Device: (Dedicated) / Nondedicated **Weather:** Overcast 40s

Device Type: Bladder / (Peristaltic) / Submersible

Filtered? N / Y **Filter Size:** 10u / 0.45u **Filtered in:** Field / Lab

Appearance: **PVC:** 4.71

Well Yield: (High) / Moderate / Low / Dry **TPS:** 5.12

Well Diameter: **DTB:**

Comments:

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1	HNO3
P250	1	Ice
Amber L	1	Ice
	→	PCBs

Field Parameter Data

Instrument ID# Testo 60 **HF Sci#** 1 **YSI 600#** 1

Water Level (ft)	Time	Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
4.71	1535	START	~~2.71~~	~~7.~~		~~557.2~~	
4.79	1555	18.31	2.71	7.90	14.9	557.2	-174.8
4.79	1558	15.26	2.62	7.88	14.9	559.1	-174.4
4.79	1601	12.82	2.53	7.89	14.7	563.2	-175.0
4.79	1604	11.55	2.52	7.88	14.7	561.9	-172.9
	1606	Sample					
		4.89	before HNO3 sample collected (no need Filter)				

<0.3' <5 / ± 0.1% ± 10% when > 1 ± 0.1 ± 3% (0.5 deg) ± 3%

Well Condition Checklist

(circle appropriate item(s), cross out if not applicable)

General Condition: (Good) / Needs Repair

Protective Steel: (OK) / Cracked / Leaking / Bent / Loose / None

Well # Visible?: (Y) / N

Well Cap: (Good) / Broken / None

Evidence of rain water between steel and PVC?: Y / (N)

Evidence of ponding around well?: Y / (N)

Gopher type holes around collar?: Y / (N)

Comments:

Is well plumb?: (Y) / N

Lock: Good / Broken / (None)

Rust around cap: Y / (N)

PVC Riser: (Good) / Damaged / None

Concrete collar: (OK) / Cracked / Leaking / None

Other evidence of: Rodents / Insects / (None)

Curb Box: N / (Y) (key is: (Hex) / Pent / Other)

Monitoring Well Sample Log

Low Flow Sampling

Client/Project Name: CT DOT Higganum Maintenance & Repair Facility	FUSS & O'NEILL
Project Location: Higganum, CT	**PROJECT #: 20160476.A20**
Sample#: 1305171122- 16	**WELL ID:** D-8

Purge Data

Date: 11/22/17

Start time: 1650 **Stop time:** 1717 **Sample time:** 1718

Pump Rate: 200 (ml/m) **Depth Sampled:** 25 ft

Total time purged: 27 **Sampler:** BSC/NVP

Volume Purged: 5.4 (ltr)

Purge Device: (Dedicated) / Nondedicated **Weather:** overcast 40s

Device Type: Bladder / (Peristaltic) / Submersible

Filtered? N / (Y) ~~Filter Size:~~ (0u) / 0.45u **Filtered in:** (Field) / Lab

Appearance:

Well Yield: (High) / Moderate / Low / Dry **PVC:** 14.49

Well Diameter: **TPS:** 14.62

Comments: **DTB:** 27.5

Sample Data

Container	Quantity	Preservative
VOA	3	HCl
Amber L	2	Ice
P250	1 F	HNO3 F
P250	1	Ice
Amber L	1	Ice

Field Parameter Data

Instrument ID#

Water Level (ft)	Time	HF Sci# Turbidity (ntu)	Dissolved Oxygen (mg/L)	pH (S.U.)	Temp. (deg C)	Specific Conductivity (uS)	ORP(mV)
14.49	1650	START					
15.01	1710	30.60	4.22	6.30	13.6	1076	-140.6
15.02	1713	29.66	4.14	6.22	13.4	1066	-138.9
15.02	1716	23.46	4.19	6.20	13.3	1051	-134.4
10.	1718	Sample					
	1750	16.36					
<0.3'		<5 / ± 0.1%	± 10% when > 1	± 0.1	± 3% (0.5 deg)	± 3%	

Well Condition Checklist

(circle appropriate item(s), cross out if not applicable)

General Condition: (Good) / Needs Repair

Protective Steel: (OK) / Cracked / Leaking / Bent / Loose / None

Well # Visible?: (Y) / N

Well Cap: (Good) / Broken / None

Evidence of rain water between steel and PVC?: Y / (N)

Evidence of ponding around well?: Y / (N)

Gopher type holes around collar?: Y / (N)

Comments:

Is well plumb?: (Y) / N

Lock: (Good) / Broken / None

Rust around cap: Y / (N)

PVC Riser: (Good) / Damaged / None

Concrete collar: (OK) / Cracked / Leaking / None

Other evidence of: Rodents / Insects / (None)

Curb Box: (N) / Y (key is: Hex / Pent / Other)

FUSS & O'NEILL

Appendix C

Laboratory Reports (on CD)

PHOENIX
Environmental Laboratories, Inc.

Wednesday, November 22, 2017

Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Sample ID#s: BZ41805 - BZ41809

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 22, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/14/17	15:40
Location Code:	F&O	Received by:	B	11/14/17	17:50
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ41805
Phoenix ID: BZ41805

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171114-01

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.44	0.44	mg/Kg	1	11/16/17	MA	SW6010C
Arsenic	3.93	0.89	mg/Kg	1	11/16/17	MA	SW6010C
Barium	71.9	0.44	mg/Kg	1	11/16/17	MA	SW6010C
Cadmium	0.63	0.44	mg/Kg	1	11/16/17	MA	SW6010C
Chromium	25.3	0.44	mg/Kg	1	11/16/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/16/17	RS	SW7471B
Lead	60.9	0.44	mg/Kg	1	11/16/17	MA	SW6010C
Selenium	< 1.8	1.8	mg/Kg	1	11/16/17	MA	SW6010C
Percent Solid	73		%		11/14/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/16/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	AA/VCK	SW3545A
Mercury Digestion	Completed				11/16/17	W/W	SW7471B
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	540	67	mg/Kg	1	11/20/17	JRB	CTETPH 8015D
Identification	**		mg/Kg	1	11/20/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	117		%	1	11/20/17	JRB	50 - 150 %
Polynuclear Aromatic HC							
2-Methylnaphthalene	ND	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Acenaphthene	ND	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Acenaphthylene	600	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Anthracene	380	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benz(a)anthracene	1200	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(a)pyrene	1500	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	1500	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Benzo(ghi)perylene	1100	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	1200	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Chrysene	1500	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	190	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Fluoranthene	2600	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Fluorene	ND	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	1300	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Naphthalene	ND	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Phenanthrene	900	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Pyrene	2600	180	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	59		%	10	11/16/17	DD	30 - 130 %
% Nitrobenzene-d5	61		%	10	11/16/17	DD	30 - 130 %
% Terphenyl-d14	61		%	10	11/16/17	DD	30 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

TPH Comment:
**Petroleum hydrocarbon chromatogram contains a multicomponent hydrocarbon distribution in the range of C12 to C36. The sample was quantitated against a C9-C36 alkane hydrocarbon standard.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
November 22, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 22, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/14/17	16:00
Location Code:	F&O	Received by:	B	11/14/17	17:50
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ41805
Phoenix ID: BZ41806

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171114-02

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.35	0.35	mg/Kg	1	11/16/17	MA	SW6010C
Arsenic	2.32	0.71	mg/Kg	1	11/16/17	MA	SW6010C
Barium	45.3	0.35	mg/Kg	1	11/16/17	MA	SW6010C
Cadmium	< 0.35	0.35	mg/Kg	1	11/16/17	MA	SW6010C
Chromium	17.0	0.35	mg/Kg	1	11/16/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/16/17	RS	SW7471B
Lead	28.0	0.35	mg/Kg	1	11/16/17	MA	SW6010C
Selenium	< 1.4	1.4	mg/Kg	1	11/16/17	MA	SW6010C
Percent Solid	85		%		11/14/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/15/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	AA/VCK	SW3545A
Mercury Digestion	Completed				11/16/17	W/W	SW7471B
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	290	mg/Kg	5	11/16/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	5	11/16/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	115		%	5	11/16/17	JRB	50 - 150 %
Polynuclear Aromatic HC							
2-Methylnaphthalene	ND	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Acenaphthene	ND	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Acenaphthylene	840	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Anthracene	680	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benz(a)anthracene	2600	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(a)pyrene	3100	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	2800	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Benzo(ghi)perylene	2400	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	3000	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Chrysene	3300	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	400	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Fluoranthene	5600	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Fluorene	230	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	2800	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Naphthalene	ND	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Phenanthrene	2400	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Pyrene	5400	150	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	43		%	10	11/16/17	DD	30 - 130 %
% Nitrobenzene-d5	43		%	10	11/16/17	DD	30 - 130 %
% Terphenyl-d14	44		%	10	11/16/17	DD	30 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director
November 22, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 22, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/14/17	16:20
Location Code:	F&O	Received by:	B	11/14/17	17:50
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ41805
Phoenix ID: BZ41807

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171114-03

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.38	0.38	mg/Kg	1	11/16/17	MA	SW6010C
Arsenic	< 0.75	0.75	mg/Kg	1	11/16/17	MA	SW6010C
Barium	18.4	0.38	mg/Kg	1	11/16/17	MA	SW6010C
Cadmium	< 0.38	0.38	mg/Kg	1	11/16/17	MA	SW6010C
Chromium	3.88	0.38	mg/Kg	1	11/16/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/16/17	RS	SW7471B
Lead	9.96	0.38	mg/Kg	1	11/16/17	MA	SW6010C
Selenium	< 1.5	1.5	mg/Kg	1	11/16/17	MA	SW6010C
Percent Solid	81		%		11/14/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/15/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	AA/VCK	SW3545A
Mercury Digestion	Completed				11/16/17	W/W	SW7471B
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	60	mg/Kg	1	11/16/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/16/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	73		%	1	11/16/17	JRB	50 - 150 %
Polynuclear Aromatic HC							
2-Methylnaphthalene	ND	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Acenaphthene	ND	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Acenaphthylene	210	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Anthracene	430	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Benz(a)anthracene	1100	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Benzo(a)pyrene	1100	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	870	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Benzo(ghi)perylene	830	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	1200	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Chrysene	1400	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Fluoranthene	2700	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Fluorene	ND	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	900	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Naphthalene	ND	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Phenanthrene	1500	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Pyrene	2500	160	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	54		%	10	11/15/17	DD	30 - 130 %
% Nitrobenzene-d5	49		%	10	11/15/17	DD	30 - 130 %
% Terphenyl-d14	54		%	10	11/15/17	DD	30 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

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Analysis Report

November 22, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/14/17	16:30
Location Code:	F&O	Received by:	B	11/14/17	17:50
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ41805
Phoenix ID: BZ41808

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171114-04

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.52	0.52	mg/Kg	1	11/16/17	MA	SW6010C
Arsenic	1.8	1.0	mg/Kg	1	11/16/17	MA	SW6010C
Barium	27.2	0.52	mg/Kg	1	11/16/17	MA	SW6010C
Cadmium	0.54	0.52	mg/Kg	1	11/16/17	MA	SW6010C
Chromium	5.25	0.52	mg/Kg	1	11/16/17	MA	SW6010C
Mercury	< 0.04	0.04	mg/Kg	1	11/16/17	RS	SW7471B
Lead	32.5	0.52	mg/Kg	1	11/16/17	MA	SW6010C
Selenium	< 2.1	2.1	mg/Kg	1	11/16/17	MA	SW6010C
Percent Solid	69		%		11/14/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/15/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	AA/VCK	SW3545A
Mercury Digestion	Completed				11/16/17	W/W	SW7471B
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	110	72	mg/Kg	1	11/16/17	JRB	CTETPH 8015D
Identification	**		mg/Kg	1	11/16/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	83		%	1	11/16/17	JRB	50 - 150 %
Polynuclear Aromatic HC							
2-Methylnaphthalene	ND	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Acenaphthene	ND	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Acenaphthylene	ND	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Anthracene	ND	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Benzo(ghi)perylene	ND	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	410	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Chrysene	450	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Fluoranthene	780	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Fluorene	ND	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Naphthalene	ND	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Phenanthrene	390	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
Pyrene	710	380	ug/Kg	20	11/16/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	54		%	20	11/16/17	DD	30 - 130 %
% Nitrobenzene-d5	47		%	20	11/16/17	DD	30 - 130 %
% Terphenyl-d14	53		%	20	11/16/17	DD	30 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

TPH Comment:
**Petroleum hydrocarbon chromatogram contains a multicomponent hydrocarbon distribution in the range of C9 to C36. The sample was quantitated against a C9-C36 alkane hydrocarbon standard.

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Analysis Report

November 22, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/14/17	16:40
Location Code:	F&O	Received by:	B	11/14/17	17:50
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ41805
Phoenix ID: BZ41809

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171114-05

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.38	0.38	mg/Kg	1	11/16/17	MA	SW6010C
Arsenic	< 0.76	0.76	mg/Kg	1	11/16/17	MA	SW6010C
Barium	15.1	0.38	mg/Kg	1	11/16/17	MA	SW6010C
Cadmium	< 0.38	0.38	mg/Kg	1	11/16/17	MA	SW6010C
Chromium	4.00	0.38	mg/Kg	1	11/16/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/16/17	RS	SW7471B
Lead	7.65	0.38	mg/Kg	1	11/16/17	MA	SW6010C
Selenium	< 1.5	1.5	mg/Kg	1	11/16/17	MA	SW6010C
Percent Solid	89		%		11/14/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/15/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	AA/VCK	SW3545A
Mercury Digestion	Completed				11/16/17	W/W	SW7471B
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	280	mg/Kg	5	11/16/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	5	11/16/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	73		%	5	11/16/17	JRB	50 - 150 %
Polynuclear Aromatic HC							
2-Methylnaphthalene	ND	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Acenaphthene	ND	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Acenaphthylene	160	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Anthracene	170	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Benz(a)anthracene	530	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Benzo(a)pyrene	590	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	500	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)

Ver 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Benzo(ghi)perylene	450	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	580	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Chrysene	720	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Fluoranthene	1200	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Fluorene	ND	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	480	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Naphthalene	ND	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Phenanthrene	550	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
Pyrene	1200	150	ug/Kg	10	11/15/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	54		%	10	11/15/17	DD	30 - 130 %
% Nitrobenzene-d5	48		%	10	11/15/17	DD	30 - 130 %
% Terphenyl-d14	54		%	10	11/15/17	DD	30 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

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QA/QC Report

November 22, 2017

QA/QC Data

SDG I.D.: GBZ41805

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 409829 (mg/kg), QC Sample No: BZ41805 (BZ41805, BZ41806, BZ41807, BZ41808, BZ41809)														
Mercury - Soil	BRL	0.03	<0.03	<0.03	NC	84.8	89.2	5.1	101			70 - 130	30	
Comment:														
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.														
QA/QC Batch 409754 (mg/kg), QC Sample No: BZ42014 (BZ41805, BZ41806, BZ41807, BZ41808, BZ41809)														
ICP Metals - Soil														
Arsenic	BRL	0.66	3.01	2.56	NC	79.8			86.4			75 - 125	30	
Barium	BRL	0.33	91.4	58.6	43.7	82.3			75.0			75 - 125	30	r
Cadmium	BRL	0.33	<0.38	<0.45	NC	81.1			88.8			75 - 125	30	
Chromium	BRL	0.33	11.3	11.2	0.90	82.4			94.6			75 - 125	30	
Lead	BRL	0.33	12.2	9.71	22.7	78.8			91.7			75 - 125	30	
Selenium	BRL	1.3	<1.5	<1.8	NC	79.7			75.2			75 - 125	30	
Silver	BRL	0.33	<0.38	<0.45	NC	76.6			94.2			75 - 125	30	

r = This parameter is outside laboratory RPD specified recovery limits.

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QA/QC Report

November 22, 2017

QA/QC Data

SDG I.D.: GBZ41805

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 409698 (ug/kg), QC Sample No: BZ41426 10X (BZ41806)										
Polynuclear Aromatic HC - Soil										
2-Methylnaphthalene	ND	130	58	54	7.1	55	60	8.7	30 - 130	30
Acenaphthene	ND	130	73	68	7.1	64	72	11.8	30 - 130	30
Acenaphthylene	ND	130	69	65	6.0	61	68	10.9	30 - 130	30
Anthracene	ND	130	71	69	2.9	63	72	13.3	30 - 130	30
Benz(a)anthracene	ND	130	63	60	4.9	55	64	15.1	30 - 130	30
Benzo(a)pyrene	ND	130	65	62	4.7	56	65	14.9	30 - 130	30
Benzo(b)fluoranthene	ND	130	64	59	8.1	55	63	13.6	30 - 130	30
Benzo(ghi)perylene	ND	130	63	59	6.6	56	61	8.5	30 - 130	30
Benzo(k)fluoranthene	ND	130	71	68	4.3	62	69	10.7	30 - 130	30
Chrysene	ND	130	68	62	9.2	57	67	16.1	30 - 130	30
Dibenz(a,h)anthracene	ND	130	65	61	6.3	56	62	10.2	30 - 130	30
Fluoranthene	ND	130	68	64	6.1	63	74	16.1	30 - 130	30
Fluorene	ND	130	72	68	5.7	63	70	10.5	30 - 130	30
Indeno(1,2,3-cd)pyrene	ND	130	60	57	5.1	54	59	8.8	30 - 130	30
Naphthalene	ND	130	60	56	6.9	57	63	10.0	30 - 130	30
Phenanthrene	ND	130	63	60	4.9	60	68	12.5	30 - 130	30
Pyrene	ND	130	70	65	7.4	64	74	14.5	30 - 130	30
% 2-Fluorobiphenyl	59	%	68	64	6.1	60	66	9.5	30 - 130	30
% Nitrobenzene-d5	60	%	69	62	10.7	65	71	8.8	30 - 130	30
% Terphenyl-d14	65	%	71	67	5.8	64	68	6.1	30 - 130	30
Comment:										
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)										
QA/QC Batch 409697 (ug/kg), QC Sample No: BZ41848 10X (BZ41807, BZ41808, BZ41809)										
Polynuclear Aromatic HC - Soil										
2-Methylnaphthalene	ND	130	53	52	1.9	50	56	11.3	30 - 130	30
Acenaphthene	ND	130	68	66	3.0	61	69	12.3	30 - 130	30
Acenaphthylene	ND	130	62	59	5.0	56	62	10.2	30 - 130	30
Anthracene	ND	130	68	65	4.5	61	69	12.3	30 - 130	30
Benz(a)anthracene	ND	130	57	55	3.6	51	57	11.1	30 - 130	30
Benzo(a)pyrene	ND	130	65	62	4.7	58	65	11.4	30 - 130	30
Benzo(b)fluoranthene	ND	130	58	55	5.3	51	58	12.8	30 - 130	30
Benzo(ghi)perylene	ND	130	62	58	6.7	54	60	10.5	30 - 130	30
Benzo(k)fluoranthene	ND	130	75	71	5.5	66	74	11.4	30 - 130	30
Chrysene	ND	130	70	66	5.9	62	70	12.1	30 - 130	30
Dibenz(a,h)anthracene	ND	130	63	60	4.9	56	63	11.8	30 - 130	30
Fluoranthene	ND	130	60	58	3.4	55	62	12.0	30 - 130	30
Fluorene	ND	130	64	63	1.6	59	67	12.7	30 - 130	30
Indeno(1,2,3-cd)pyrene	ND	130	54	52	3.8	50	54	7.7	30 - 130	30
Naphthalene	ND	130	56	55	1.8	54	60	10.5	30 - 130	30
Phenanthrene	ND	130	60	58	3.4	55	61	10.3	30 - 130	30

QA/QC Data

SDG I.D.: GBZ41805

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Pyrene	ND	130	61	60	1.7	55	63	13.6	30 - 130	30
% 2-Fluorobiphenyl	64	%	65	60	8.0	57	65	13.1	30 - 130	30
% Nitrobenzene-d5	54	%	58	56	3.5	54	61	12.2	30 - 130	30
% Terphenyl-d14	65	%	65	63	3.1	58	67	14.4	30 - 130	30

Comment:

Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

QA/QC Batch 409702 (mg/Kg), QC Sample No: BZ42307 (BZ41807, BZ41808, BZ41809)

TPH by GC (Extractable Products) - Soil

Ext. Petroleum H.C. (C9-C36)	ND	50	93	94	1.1	94	94	0.0	60 - 120	30
% n-Pentacosane	79	%	77	81	5.1	74	83	11.5	50 - 150	30

Comment:

Additional surrogate criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%. The ETPH/DRO LCS has been normalized based on the alkane calibration.

QA/QC Batch 409703 (mg/Kg), QC Sample No: BZ42315 (BZ41805, BZ41806)

TPH by GC (Extractable Products) - Soil

Ext. Petroleum H.C. (C9-C36)	ND	50	92	91	1.1	95	88	7.7	60 - 120	30
% n-Pentacosane	70	%	75	80	6.5	77	74	4.0	50 - 150	30

Comment:

Additional surrogate criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%. The ETPH/DRO LCS has been normalized based on the alkane calibration.

QA/QC Batch 409918 (ug/kg), QC Sample No: BZ42326 10X (BZ41805)

Polynuclear Aromatic HC - Soil

2-Methylnaphthalene	ND	130	56	58	3.5	58			30 - 130	30
Acenaphthene	ND	130	69	72	4.3	65			30 - 130	30
Acenaphthylene	ND	130	66	71	7.3	64			30 - 130	30
Anthracene	ND	130	70	74	5.6	63			30 - 130	30
Benz(a)anthracene	ND	130	62	65	4.7	57			30 - 130	30
Benzo(a)pyrene	ND	130	63	68	7.6	55			30 - 130	30
Benzo(b)fluoranthene	ND	130	59	61	3.3	50			30 - 130	30
Benzo(ghi)perylene	ND	130	58	59	1.7	45			30 - 130	30
Benzo(k)fluoranthene	ND	130	69	74	7.0	59			30 - 130	30
Chrysene	ND	130	64	67	4.6	58			30 - 130	30
Dibenz(a,h)anthracene	ND	130	64	64	0.0	56			30 - 130	30
Fluoranthene	ND	130	66	66	0.0	57			30 - 130	30
Fluorene	ND	130	67	73	8.6	63			30 - 130	30
Indeno(1,2,3-cd)pyrene	ND	130	60	61	1.7	52			30 - 130	30
Naphthalene	ND	130	57	57	0.0	59			30 - 130	30
Phenanthrene	ND	130	60	60	0.0	55			30 - 130	30
Pyrene	ND	130	65	69	6.0	57			30 - 130	30
% 2-Fluorobiphenyl	62	%	63	68	7.6	62			30 - 130	30
% Nitrobenzene-d5	60	%	68	64	6.1	71			30 - 130	30
% Terphenyl-d14	70	%	68	71	4.3	61			30 - 130	30

Comment:

MSD notreported for this batch.

Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

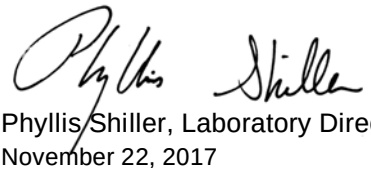
QA/QC Data

SDG I.D.: GBZ41805

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference



Phyllis Shiller, Laboratory Director
November 22, 2017

Wednesday, November 22, 2017

Criteria: CT: GAM, RC

State: CT

Sample Criteria Exceedances Report

GBZ41805 - FO

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
BZ41805	$8100SIMSM	Indeno(1,2,3-cd)pyrene	CT / RSR DEC RES (mg/kg) / APS Organics	1300	180	1000	1000	ug/Kg
BZ41805	$8100SIMSM	Benzo(a)pyrene	CT / RSR DEC RES (mg/kg) / Semivolatiles	1500	180	1000	1000	ug/Kg
BZ41805	$8100SIMSM	Benzo(b)fluoranthene	CT / RSR DEC RES (mg/kg) / Semivolatiles	1500	180	1000	1000	ug/Kg
BZ41805	$8100SIMSM	Benz(a)anthracene	CT / RSR DEC RES (mg/kg) / Semivolatiles	1200	180	1000	1000	ug/Kg
BZ41805	$8100SIMSM	Benzo(ghi)perylene	CT / RSR GA,GAA (mg/kg) / APS Organics	1100	180	1000	1000	ug/Kg
BZ41805	$8100SIMSM	Indeno(1,2,3-cd)pyrene	CT / RSR GA,GAA (mg/kg) / APS Organics	1300	180	1000	1000	ug/Kg
BZ41805	$8100SIMSM	Chrysene	CT / RSR GA,GAA (mg/kg) / APS Organics	1500	180	1000	1000	ug/Kg
BZ41805	$8100SIMSM	Benz(a)anthracene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	1200	180	1000	1000	ug/Kg
BZ41805	$8100SIMSM	Benzo(a)pyrene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	1500	180	1000	1000	ug/Kg
BZ41805	$8100SIMSM	Benzo(b)fluoranthene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	1500	180	1000	1000	ug/Kg
BZ41805	$8100SIMSM	Benzo(k)fluoranthene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	1200	180	1000	1000	ug/Kg
BZ41805	$ETPH_SMR	Ext. Petroleum H.C. (C9-C36)	CT / RSR DEC RES (mg/kg) / Pest/PCB/TPH	540	67	500	500	mg/Kg
BZ41805	$ETPH_SMR	Ext. Petroleum H.C. (C9-C36)	CT / RSR GA,GAA (mg/kg) / Pesticides/TPH	540	67	500	500	mg/Kg
BZ41806	$8100SIMSM	Indeno(1,2,3-cd)pyrene	CT / RSR DEC RES (mg/kg) / APS Organics	2800	150	1000	1000	ug/Kg
BZ41806	$8100SIMSM	Benzo(b)fluoranthene	CT / RSR DEC RES (mg/kg) / Semivolatiles	2800	150	1000	1000	ug/Kg
BZ41806	$8100SIMSM	Benz(a)anthracene	CT / RSR DEC RES (mg/kg) / Semivolatiles	2600	150	1000	1000	ug/Kg
BZ41806	$8100SIMSM	Benzo(a)pyrene	CT / RSR DEC RES (mg/kg) / Semivolatiles	3100	150	1000	1000	ug/Kg
BZ41806	$8100SIMSM	Chrysene	CT / RSR GA,GAA (mg/kg) / APS Organics	3300	150	1000	1000	ug/Kg
BZ41806	$8100SIMSM	Indeno(1,2,3-cd)pyrene	CT / RSR GA,GAA (mg/kg) / APS Organics	2800	150	1000	1000	ug/Kg
BZ41806	$8100SIMSM	Benzo(ghi)perylene	CT / RSR GA,GAA (mg/kg) / APS Organics	2400	150	1000	1000	ug/Kg
BZ41806	$8100SIMSM	Benzo(a)pyrene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	3100	150	1000	1000	ug/Kg
BZ41806	$8100SIMSM	Benzo(b)fluoranthene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	2800	150	1000	1000	ug/Kg
BZ41806	$8100SIMSM	Benzo(k)fluoranthene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	3000	150	1000	1000	ug/Kg
BZ41806	$8100SIMSM	Pyrene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	5400	150	4000	4000	ug/Kg
BZ41806	$8100SIMSM	Benz(a)anthracene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	2600	150	1000	1000	ug/Kg
BZ41807	$8100SIMSM	Benz(a)anthracene	CT / RSR DEC RES (mg/kg) / Semivolatiles	1100	160	1000	1000	ug/Kg
BZ41807	$8100SIMSM	Benzo(a)pyrene	CT / RSR DEC RES (mg/kg) / Semivolatiles	1100	160	1000	1000	ug/Kg
BZ41807	$8100SIMSM	Chrysene	CT / RSR GA,GAA (mg/kg) / APS Organics	1400	160	1000	1000	ug/Kg
BZ41807	$8100SIMSM	Benz(a)anthracene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	1100	160	1000	1000	ug/Kg
BZ41807	$8100SIMSM	Benzo(a)pyrene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	1100	160	1000	1000	ug/Kg
BZ41807	$8100SIMSM	Benzo(k)fluoranthene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	1200	160	1000	1000	ug/Kg

REASONABLE CONFIDENCE PROTOCOL
LABORATORY ANALYSIS QA/QC CERTIFICATION FORM

Laboratory Name: Phoenix Environmental Labs, Inc. ***Client:*** Fuss & O'Neill, Inc.

Project Location: CT DOT HIGGANUM MAINTENANCE ***Project Number:***

Laboratory Sample ID(s): BZ41805-BZ41809 ***Sampling Date(s):*** 11/14/2017

List RCP Methods Used (e.g., 8260, 8270, et cetera) 6010, 7470/7471, 8270, ETPH

1	**For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?**	☑ Yes ☐ No
1A	**Were the method specified preservation and holding time requirements met?**	☑ Yes ☐ No
1B	***VPH and EPH methods only:*** **Was the VPH or EPH method conducted without significant modifications (see section 11.3 of respective RCP methods)**	☐ Yes ☐ No ☑ NA
2	**Were all samples received by the laboratory in a condition consistent with that described on the associated Chain-of-Custody document(s)?**	☑ Yes ☐ No
3	**Were samples received at an appropriate temperature (< 6 Degrees C)?**	☑ Yes ☐ No ☐ NA
4	**Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents acheived? See Section: ICP Narration.**	☐ Yes ☑ No
5	**a) Were reporting limits specified or referenced on the chain-of-custody?** **b) Were these reporting limits met?**	☑ Yes ☐ No ☑ Yes ☐ No
6	**For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?**	☐ Yes ☑ No
7	**Are project-specific matrix spikes and laboratory duplicates included in the data set?**	☑ Yes ☐ No

Notes: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A or 1B is "No", the data package does not meet the requirements for "Reasonable Confidence". This form may not be altered and all questions must be answered.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete.

Authorized Signature: Ethan Lee **Position:** Project Manager

Printed Name: Ethan Lee **Date:** Wednesday, November 22, 2017

Name of Laboratory Phoenix Environmental Labs, Inc.

This certification form is to be used for RCP methods only.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

RCP Certification Report

November 22, 2017

SDG I.D.: GBZ41805

SDG Comments

Metals Analysis:
The client requested a shorter list of elements than the 6010 RCP list. Only the RCRA 8 Metals are reported as requested on the chain of custody.

8270 Semi-volatile Organics:
The client requested a short list for 8270 RCP Semivolatile. Only the PAH constituents are reported as requested on the chain-of-custody.

ETPH Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

AU-FID1 11/16/17-1 Jeff Bucko, Chemist 11/16/17

BZ41806, BZ41807, BZ41809

The initial calibration (ETPHO18I) RSD for the compound list was less than 30% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

AU-FID11 11/20/17-1 Jeff Bucko, Chemist 11/20/17

BZ41805

The initial calibration (ETPHO26I) RSD for the compound list was less than 30% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

AU-FID21 11/16/17-1 Jeff Bucko, Chemist 11/16/17

BZ41808

The initial calibration (ETPHN13I) RSD for the compound list was less than 30% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

QC (Batch Specific):

Batch 409702 (BZ42307)

BZ41807, BZ41808, BZ41809

All LCS recoveries were within 60 - 120 with the following exceptions: None.
All LCSD recoveries were within 60 - 120 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional surrogate criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%. The ETPH/DRO LCS has been normalized based on the alkane calibration.

Batch 409703 (BZ42315)

BZ41805, BZ41806

All LCS recoveries were within 60 - 120 with the following exceptions: None.
All LCSD recoveries were within 60 - 120 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional surrogate criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%. The ETPH/DRO LCS has been normalized based on the alkane calibration.

Mercury Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Certification Report

November 22, 2017

SDG I.D.: GBZ41805

Mercury Narration

Instrument:

MERLIN 11/16/17 08:14 Rick Schweitzer, Chemist 11/16/17

BZ41805, BZ41806, BZ41807, BZ41808, BZ41809

The method preparation blank contains all of the acids and reagents as the samples; the instrument blanks do not.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

QC (Site Specific):

Batch 409829 (BZ41805)

BZ41805, BZ41806, BZ41807, BZ41808, BZ41809

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
All MS recoveries were within 75 - 125 with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? No.

QC Batch 409754 (Samples: BZ41805, BZ41806, BZ41807, BZ41808, BZ41809): -----

The Sample/Duplicate RPD exceeds the method criteria for one or more analytes, therefore there may be variability in the reported result. (Barium)

Instrument:

ARCOS 11/16/17 08:55 Mike Arsenault, Chemist 11/16/17

BZ41805, BZ41806, BZ41807, BZ41808, BZ41809

Additional criteria for CCV and ICSAB:
Sodium and Potassium are poor performing elements, the laboratory's in-house limits are 85-115% (CCV) and 70-130% (ICSAB).The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 409754 (BZ42014)

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Certification Report

November 22, 2017

SDG I.D.: GBZ41805

ICP Metals Narration

BZ41805, BZ41806, BZ41807, BZ41808, BZ41809

All LCS recoveries were within 75 - 125 with the following exceptions: None.

SVOASIM Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

CHEM06 11/15/17-2 Damien Drobinski, Chemist 11/15/17

BZ41806

Initial Calibration Verification (CHEM06/BNSIM_1023):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM06/1115_33-BNSIM_1023):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM06 11/16/17-2 Damien Drobinski, Chemist 11/16/17

BZ41805

Initial Calibration Verification (CHEM06/BNSIM_1023):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM06/1116_33-BNSIM_1023):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM25 11/15/17-1 Damien Drobinski, Chemist 11/15/17

BZ41807, BZ41808, BZ41809

Initial Calibration Verification (CHEM25/BNSIM_1109):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM25/1115_04-BNSIM_1109):

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Tel. (860) 645-1102 Fax (860) 645-0823

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RCP Certification Report

November 22, 2017

SDG I.D.: GBZ41805

SVOASIM Narration

Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 409697 (BZ41848)

BZ41807, BZ41808, BZ41809

All LCS recoveries were within 30 - 130 with the following exceptions: None.
All LCSD recoveries were within 30 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

Batch 409698 (BZ41426)

BZ41806

All LCS recoveries were within 30 - 130 with the following exceptions: None.
All LCSD recoveries were within 30 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

Batch 409918 (BZ42326)

BZ41805

All LCS recoveries were within 30 - 130 with the following exceptions: None.
All LCSD recoveries were within 30 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
MSD notreported for this batch.
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

Temperature Narration

The samples were received at 5.6C with cooling initiated.
(Note acceptance criteria is above freezing up to 6°C)

5.6 owe
n

FUSS & O'NEILL
(860) 646-2469 • www.FandO.com

☒ 146 Hartford Road, Manchester, CT 06040
☐ 56 Quarry Road, Trumbull, CT 06611
☐ 1419 Richland Street, Columbia, SC 29201
☐ 78 Interstate Drive, West Springfield, MA 01089
☐ 317 Iron Horse Way, Suite 204, Providence, RI 02908
☐ 80 Washington Street, Suite 301, Poughkeepsie, NY
☐ Other _____

CHAIN-OF-CUSTODY RECORD 38425

Turnaround
☐ 24-Hour* ☐ 72-Hour* ☐ Other _____ (days)
☐ 48 Hour* ☒ Standard (____ days) *Surcharge Applies

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER	LABORATORY
CT DOT HIGGANUM MAINTENANCE FACILITY	HIGGANUM, CT	20160476.A20	PHOENIX

REPORT TO: STEFANIE WIERSZCHALEK (F&O) + DAN JAHNE (F&O)
INVOICE TO: ↓
P.O. NO.:
Sampler's Signature: [signature] Date: 11/14/17

Source Codes:
MW=Monitoring Well PW=Potable Water T=Treatment Facility S=Soil B=Sediment
SW=Surface Water ST=Stormwater W=Waste A=Air C=Concrete
X=Other _____

Analysis Request / Containers

Item No.	Transfer Check 1	2	3	4	Sample Number	Source Code	Date Sampled	Time Sampled	RCRA8 Metals	ETPH	VOCs	Soil VOA Vial, ☐ As is ☐ HCl	Soil VOA Vial, ☐ methanol	Glass Soil Container (8) oz	Na2(SO4)	Other:	Other:	Water VOA Vial, ☐ As is ☐ HCl	Glass Amber ( ) ml ☐ As is ☐ H2SO4	Plastic - As is ☐ 250 ml ☐ 500 ml ☐ 1000 ml	Plastic - H2SO4, ☐ 250 ml ☐ 500 ml	Plastic - HNO3, 250 ml ☐ Filtered ☐ 0.45µ ☐ 10x	Plastic - NaOH, 250 ml	Comments
01					1305171114-01	S	11/14/17	1540	X	X	X			1										41805
02					-02			1600																41806
03					-03			1620																41807
04					-04			1630																41808
05					-05			1640																41809

Transfer Number	Relinquished By	Accepted By	Date	Time
1	[signature]	[signature]	11/14/17	17:30
2				
3				
4				

Charge Exceptions: ☒ CT Tax Exempt ☒ QA/QC ☐ Other _____
____ Duplicates ____ Blanks (Item Nos:)
Reporting and Detection Limit Requirements: ☒ RCP Deliverables ☐ MCP CAM Cert.
GA PMC ResDEC
Additional Comments:

PHOENIX
Environmental Laboratories, Inc.

Tuesday, November 28, 2017

Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Sample ID#s: BZ42536 - BZ42548

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/15/17	8:50
Location Code:	F&O-PCB	Received by:	LB	11/15/17	16:38
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ42536
Phoenix ID: BZ42536

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-01

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.36	0.36	mg/Kg	1	11/16/17	MA	SW6010C
Arsenic	0.74	0.71	mg/Kg	1	11/16/17	MA	SW6010C
Barium	52.0	0.36	mg/Kg	1	11/16/17	MA	SW6010C
Cadmium	< 0.36	0.36	mg/Kg	1	11/16/17	MA	SW6010C
Chromium	16.6	0.36	mg/Kg	1	11/16/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/17/17	RS	SW7471B
Lead	1.72	0.36	mg/Kg	1	11/16/17	MA	SW6010C
Selenium	< 1.4	1.4	mg/Kg	1	11/16/17	MA	SW6010C
Percent Solid	89		%		11/15/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/16/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	BC/V	SW3545A
Mercury Digestion	Completed				11/16/17	W/W	SW7471B
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	55	mg/Kg	1	11/18/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/18/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	77		%	1	11/18/17	JRB	50 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,1,1-Trichloroethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	2.7	ug/Kg	1	11/20/17	JLI	SW8260
1,1,2-Trichloroethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,1-Dichloroethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,1-Dichloroethene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,1-Dichloropropene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,3-Trichlorobenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,2,3-Trichloropropane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dibromoethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dichlorobenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dichloroethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dichloropropane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,3-Dichlorobenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,3-Dichloropropane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
1,4-Dichlorobenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
2,2-Dichloropropane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
2-Chlorotoluene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
2-Hexanone	ND	22	ug/Kg	1	11/20/17	JLI	SW8260
2-Isopropyltoluene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
4-Chlorotoluene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
4-Methyl-2-pentanone	ND	22	ug/Kg	1	11/20/17	JLI	SW8260
Acetone	ND	220	ug/Kg	1	11/20/17	JLI	SW8260
Acrylonitrile	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Benzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Bromobenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Bromochloromethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Bromodichloromethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Bromoform	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Bromomethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Carbon Disulfide	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Carbon tetrachloride	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Chlorobenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Chloroethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Chloroform	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Chloromethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Dibromochloromethane	ND	2.7	ug/Kg	1	11/20/17	JLI	SW8260
Dibromomethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Dichlorodifluoromethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Ethylbenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Hexachlorobutadiene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Isopropylbenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
m&p-Xylene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Methyl Ethyl Ketone	ND	27	ug/Kg	1	11/20/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	8.9	ug/Kg	1	11/20/17	JLI	SW8260
Methylene chloride	ND	8.9	ug/Kg	1	11/20/17	JLI	SW8260
Naphthalene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
n-Butylbenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
n-Propylbenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
o-Xylene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
p-Isopropyltoluene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
sec-Butylbenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Styrene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
tert-Butylbenzene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Tetrachloroethene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	8.9	ug/Kg	1	11/20/17	JLI	SW8260
Toluene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Total Xylenes	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	8.9	ug/Kg	1	11/20/17	JLI	SW8260
Trichloroethene	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Trichlorofluoromethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Trichlorotrifluoroethane	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
Vinyl chloride	ND	4.4	ug/Kg	1	11/20/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	11/20/17	JLI	70 - 130 %
% Bromofluorobenzene	96		%	1	11/20/17	JLI	70 - 130 %
% Dibromofluoromethane	94		%	1	11/20/17	JLI	70 - 130 %
% Toluene-d8	98		%	1	11/20/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthylene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Chrysene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluorene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Naphthalene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Phenanthrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	63		%	10	11/17/17	DD	30 - 130 %
% Nitrobenzene-d5	64		%	10	11/17/17	DD	30 - 130 %
% Terphenyl-d14	73		%	10	11/17/17	DD	30 - 130 %
Field Extraction	Completed				11/15/17		SW5035A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.
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Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/15/17	9:10
Location Code:	F&O-PCB	Received by:	LB	11/15/17	16:38
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ42536
Phoenix ID: BZ42537

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-02

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.37	0.37	mg/Kg	1	11/16/17	MA	SW6010C
Arsenic	< 0.74	0.74	mg/Kg	1	11/16/17	MA	SW6010C
Barium	10.7	0.37	mg/Kg	1	11/16/17	MA	SW6010C
Cadmium	< 0.37	0.37	mg/Kg	1	11/16/17	MA	SW6010C
Chromium	4.58	0.37	mg/Kg	1	11/16/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/17/17	RS	SW7471B
Lead	4.59	0.37	mg/Kg	1	11/16/17	MA	SW6010C
Selenium	< 1.5	1.5	mg/Kg	1	11/16/17	MA	SW6010C
Percent Solid	85		%		11/15/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/16/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	BC/V	SW3545A
Mercury Digestion	Completed				11/16/17	W/W	SW7471B
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	57	mg/Kg	1	11/18/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/18/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	90		%	1	11/18/17	JRB	50 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,1,1-Trichloroethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.4	ug/Kg	1	11/20/17	JLI	SW8260
1,1,2-Trichloroethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,1-Dichloroethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,1-Dichloroethene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,1-Dichloropropene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-02

Phoenix I.D.: BZ42537

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,3-Trichlorobenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,2,3-Trichloropropane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dibromoethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dichlorobenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dichloroethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dichloropropane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,3-Dichlorobenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,3-Dichloropropane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
1,4-Dichlorobenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
2,2-Dichloropropane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
2-Chlorotoluene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
2-Hexanone	ND	28	ug/Kg	1	11/20/17	JLI	SW8260
2-Isopropyltoluene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
4-Chlorotoluene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
4-Methyl-2-pentanone	ND	28	ug/Kg	1	11/20/17	JLI	SW8260
Acetone	ND	280	ug/Kg	1	11/20/17	JLI	SW8260
Acrylonitrile	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Benzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Bromobenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Bromochloromethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Bromodichloromethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Bromoform	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Bromomethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Carbon Disulfide	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Carbon tetrachloride	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Chlorobenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Chloroethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Chloroform	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Chloromethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Dibromochloromethane	ND	3.4	ug/Kg	1	11/20/17	JLI	SW8260
Dibromomethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Dichlorodifluoromethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Ethylbenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Hexachlorobutadiene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Isopropylbenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
m&p-Xylene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Methyl Ethyl Ketone	ND	34	ug/Kg	1	11/20/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	11	ug/Kg	1	11/20/17	JLI	SW8260
Methylene chloride	ND	11	ug/Kg	1	11/20/17	JLI	SW8260
Naphthalene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
n-Butylbenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
n-Propylbenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
o-Xylene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
p-Isopropyltoluene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
sec-Butylbenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Styrene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
tert-Butylbenzene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Tetrachloroethene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	11	ug/Kg	1	11/20/17	JLI	SW8260
Toluene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Total Xylenes	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	11	ug/Kg	1	11/20/17	JLI	SW8260
Trichloroethene	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Trichlorofluoromethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Trichlorotrifluoroethane	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
Vinyl chloride	ND	5.6	ug/Kg	1	11/20/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	99		%	1	11/20/17	JLI	70 - 130 %
% Bromofluorobenzene	83		%	1	11/20/17	JLI	70 - 130 %
% Dibromofluoromethane	98		%	1	11/20/17	JLI	70 - 130 %
% Toluene-d8	94		%	1	11/20/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthylene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Chrysene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluorene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Naphthalene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Phenanthrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	63		%	10	11/17/17	DD	30 - 130 %
% Nitrobenzene-d5	66		%	10	11/17/17	DD	30 - 130 %
% Terphenyl-d14	73		%	10	11/17/17	DD	30 - 130 %
Field Extraction	Completed				11/15/17		SW5035A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/15/17	9:40
Location Code:	F&O-PCB	Received by:	LB	11/15/17	16:38
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ42536
Phoenix ID: BZ42538

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-03

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.33	0.33	mg/Kg	1	11/16/17	MA	SW6010C
Arsenic	< 0.66	0.66	mg/Kg	1	11/16/17	MA	SW6010C
Barium	25.6	0.33	mg/Kg	1	11/16/17	MA	SW6010C
Cadmium	< 0.33	0.33	mg/Kg	1	11/16/17	MA	SW6010C
Chromium	8.10	0.33	mg/Kg	1	11/16/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/17/17	RS	SW7471B
Lead	1.01	0.33	mg/Kg	1	11/16/17	MA	SW6010C
Selenium	< 1.3	1.3	mg/Kg	1	11/16/17	MA	SW6010C
Percent Solid	91		%		11/15/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/16/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/16/17	CC/VCK	SW3545A
Mercury Digestion	Completed				11/16/17	W/W	SW7471B
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	53	mg/Kg	1	11/18/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/18/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	86		%	1	11/18/17	JRB	50 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,1,1-Trichloroethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	2.5	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2-Trichloroethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloropropene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260

Ver 1

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-03

Phoenix I.D.: BZ42538

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,3-Trichlorobenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,2,3-Trichloropropane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dibromoethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichlorobenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichloroethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichloropropane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,3-Dichlorobenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,3-Dichloropropane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
1,4-Dichlorobenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
2,2-Dichloropropane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
2-Chlorotoluene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
2-Hexanone	ND	21	ug/Kg	1	11/18/17	JLI	SW8260
2-Isopropyltoluene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
4-Chlorotoluene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
4-Methyl-2-pentanone	ND	21	ug/Kg	1	11/18/17	JLI	SW8260
Acetone	ND	210	ug/Kg	1	11/18/17	JLI	SW8260
Acrylonitrile	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Benzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Bromobenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Bromochloromethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Bromodichloromethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Bromoform	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Bromomethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Carbon Disulfide	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Carbon tetrachloride	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Chlorobenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Chloroethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Chloroform	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Chloromethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Dibromochloromethane	ND	2.5	ug/Kg	1	11/18/17	JLI	SW8260
Dibromomethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Dichlorodifluoromethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Ethylbenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Hexachlorobutadiene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Isopropylbenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
m&p-Xylene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Methyl Ethyl Ketone	ND	25	ug/Kg	1	11/18/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	8.5	ug/Kg	1	11/18/17	JLI	SW8260
Methylene chloride	ND	8.5	ug/Kg	1	11/18/17	JLI	SW8260
Naphthalene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
n-Butylbenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
n-Propylbenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
o-Xylene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
p-Isopropyltoluene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
sec-Butylbenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Styrene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
tert-Butylbenzene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Tetrachloroethene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	8.5	ug/Kg	1	11/18/17	JLI	SW8260
Toluene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Total Xylenes	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	8.5	ug/Kg	1	11/18/17	JLI	SW8260
Trichloroethene	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorofluoromethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorotrifluoroethane	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
Vinyl chloride	ND	4.2	ug/Kg	1	11/18/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	11/18/17	JLI	70 - 130 %
% Bromofluorobenzene	97		%	1	11/18/17	JLI	70 - 130 %
% Dibromofluoromethane	93		%	1	11/18/17	JLI	70 - 130 %
% Toluene-d8	98		%	1	11/18/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthylene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Chrysene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluorene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Naphthalene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Phenanthrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	62		%	10	11/17/17	DD	30 - 130 %
% Nitrobenzene-d5	63		%	10	11/17/17	DD	30 - 130 %
% Terphenyl-d14	74		%	10	11/17/17	DD	30 - 130 %
Field Extraction	Completed				11/15/17		SW5035A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.
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Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/15/17	10:00
Location Code:	F&O-PCB	Received by:	LB	11/15/17	16:38
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ42536
Phoenix ID: BZ42539

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-04

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.34	0.34	mg/Kg	1	11/17/17	MA	SW6010C
Arsenic	2.36	0.69	mg/Kg	1	11/17/17	MA	SW6010C
Barium	25.5	0.34	mg/Kg	1	11/17/17	MA	SW6010C
Cadmium	0.38	0.34	mg/Kg	1	11/17/17	MA	SW6010C
Chromium	19.5	0.34	mg/Kg	1	11/17/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/17/17	RS	SW7471B
Lead	26.6	0.34	mg/Kg	1	11/17/17	MA	SW6010C
Selenium	< 1.4	1.4	mg/Kg	1	11/17/17	MA	SW6010C
Percent Solid	92		%		11/15/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/16/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	BC/V	SW3545A
Mercury Digestion	Completed				11/16/17	W/W	SW7471B
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	310	54	mg/Kg	1	11/20/17	JRB	CTETPH 8015D
Identification	**		mg/Kg	1	11/20/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	76		%	1	11/20/17	JRB	50 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,1,1-Trichloroethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	2.9	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2-Trichloroethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloropropene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-04

Phoenix I.D.: BZ42539

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,3-Trichlorobenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,2,3-Trichloropropane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dibromoethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichlorobenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichloroethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichloropropane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,3-Dichlorobenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,3-Dichloropropane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
1,4-Dichlorobenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
2,2-Dichloropropane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
2-Chlorotoluene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
2-Hexanone	ND	24	ug/Kg	1	11/18/17	JLI	SW8260
2-Isopropyltoluene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
4-Chlorotoluene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
4-Methyl-2-pentanone	ND	24	ug/Kg	1	11/18/17	JLI	SW8260
Acetone	ND	240	ug/Kg	1	11/18/17	JLI	SW8260
Acrylonitrile	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Benzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Bromobenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Bromochloromethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Bromodichloromethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Bromoform	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Bromomethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Carbon Disulfide	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Carbon tetrachloride	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Chlorobenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Chloroethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Chloroform	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Chloromethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Dibromochloromethane	ND	2.9	ug/Kg	1	11/18/17	JLI	SW8260
Dibromomethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Dichlorodifluoromethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Ethylbenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Hexachlorobutadiene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Isopropylbenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
m&p-Xylene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Methyl Ethyl Ketone	ND	29	ug/Kg	1	11/18/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	9.6	ug/Kg	1	11/18/17	JLI	SW8260
Methylene chloride	ND	9.6	ug/Kg	1	11/18/17	JLI	SW8260
Naphthalene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
n-Butylbenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
n-Propylbenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
o-Xylene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
p-Isopropyltoluene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
sec-Butylbenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Styrene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
tert-Butylbenzene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Tetrachloroethene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	9.6	ug/Kg	1	11/18/17	JLI	SW8260
Toluene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Total Xylenes	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	9.6	ug/Kg	1	11/18/17	JLI	SW8260
Trichloroethene	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorofluoromethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorotrifluoroethane	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
Vinyl chloride	ND	4.8	ug/Kg	1	11/18/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	11/18/17	JLI	70 - 130 %
% Bromofluorobenzene	90		%	1	11/18/17	JLI	70 - 130 %
% Dibromofluoromethane	94		%	1	11/18/17	JLI	70 - 130 %
% Toluene-d8	97		%	1	11/18/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthylene	2500	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Anthracene	880	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benz(a)anthracene	2100	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(a)pyrene	4800	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	3900	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	4100	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	3200	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Chrysene	3000	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	890	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluoranthene	2100	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluorene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	4800	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Naphthalene	170	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Phenanthrene	410	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Pyrene	2800	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	49		%	10	11/17/17	DD	30 - 130 %
% Nitrobenzene-d5	48		%	10	11/17/17	DD	30 - 130 %
% Terphenyl-d14	51		%	10	11/17/17	DD	30 - 130 %
Field Extraction	Completed				11/15/17		SW5035A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

TPH Comment:
**Petroleum hydrocarbon chromatogram contains a multicomponent hydrocarbon distribution in the range of C14 to C36. The sample was quantitated against a C9-C36 alkane hydrocarbon standard.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/15/17	10:20
Location Code:	F&O-PCB	Received by:	LB	11/15/17	16:38
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ42536
Phoenix ID: BZ42540

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-05

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.36	0.36	mg/Kg	1	11/17/17	MA	SW6010C
Arsenic	2.48	0.72	mg/Kg	1	11/17/17	MA	SW6010C
Barium	79.6	0.36	mg/Kg	1	11/17/17	MA	SW6010C
Cadmium	0.47	0.36	mg/Kg	1	11/17/17	MA	SW6010C
Chromium	14.8	0.36	mg/Kg	1	11/17/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/17/17	RS	SW7471B
Lead	3.82	0.36	mg/Kg	1	11/17/17	MA	SW6010C
Selenium	< 1.4	1.4	mg/Kg	1	11/17/17	MA	SW6010C
Percent Solid	93		%		11/15/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/16/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	BC/V	SW3545A
Mercury Digestion	Completed				11/16/17	W/W	SW7471B
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	53	mg/Kg	1	11/22/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/22/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	89		%	1	11/22/17	JRB	50 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
1,1,1-Trichloroethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.2	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2-Trichloroethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloropropene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260

Ver 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,3-Trichlorobenzene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
1,2,3-Trichloropropane	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dibromoethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichlorobenzene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
1,2-Dichloroethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichloropropane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
1,3-Dichlorobenzene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
1,3-Dichloropropane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
1,4-Dichlorobenzene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
2,2-Dichloropropane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
2-Chlorotoluene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
2-Hexanone	ND	27	ug/Kg	1	11/18/17	JLI	SW8260
2-Isopropyltoluene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
4-Chlorotoluene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
4-Methyl-2-pentanone	ND	27	ug/Kg	1	11/18/17	JLI	SW8260
Acetone	ND	270	ug/Kg	1	11/18/17	JLI	SW8260
Acrylonitrile	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Benzene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Bromobenzene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
Bromochloromethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Bromodichloromethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Bromoform	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Bromomethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Carbon Disulfide	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Carbon tetrachloride	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Chlorobenzene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Chloroethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Chloroform	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Chloromethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Dibromochloromethane	ND	3.2	ug/Kg	1	11/18/17	JLI	SW8260
Dibromomethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Dichlorodifluoromethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Ethylbenzene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Hexachlorobutadiene	ND	200	ug/Kg	50	11/20/17	JLI	SW8260
Isopropylbenzene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
m&p-Xylene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Methyl Ethyl Ketone	ND	32	ug/Kg	1	11/18/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	11	ug/Kg	1	11/18/17	JLI	SW8260
Methylene chloride	ND	11	ug/Kg	1	11/18/17	JLI	SW8260
Naphthalene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
n-Butylbenzene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
n-Propylbenzene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
o-Xylene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
p-Isopropyltoluene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
sec-Butylbenzene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
Styrene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
tert-Butylbenzene	ND	250	ug/Kg	50	11/20/17	JLI	SW8260
Tetrachloroethene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	11	ug/Kg	1	11/18/17	JLI	SW8260
Toluene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Total Xylenes	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	500	ug/Kg	50	11/20/17	JLI	SW8260
Trichloroethene	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorofluoromethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorotrifluoroethane	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
Vinyl chloride	ND	5.4	ug/Kg	1	11/18/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	101		%	50	11/20/17	JLI	70 - 130 %
% Bromofluorobenzene	97		%	50	11/20/17	JLI	70 - 130 %
% Dibromofluoromethane	100		%	1	11/18/17	JLI	70 - 130 %
% Toluene-d8	98		%	1	11/18/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthylene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Anthracene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	340	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Chrysene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluoranthene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluorene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	260	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Naphthalene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Phenanthrene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Pyrene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	57		%	10	11/17/17	DD	30 - 130 %
% Nitrobenzene-d5	59		%	10	11/17/17	DD	30 - 130 %
% Terphenyl-d14	63		%	10	11/17/17	DD	30 - 130 %
Field Extraction	Completed				11/15/17		SW5035A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

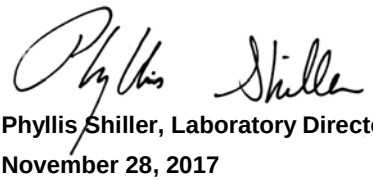
Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

Volatile Comment:
There was a suppression of the last internal standard in the low level analysis, all affected compounds are reported from the methanol preserved high level analysis which did not exhibit this interference.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/15/17	11:05
Location Code:	F&O-PCB	Received by:	LB	11/15/17	16:38
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ42536
Phoenix ID: BZ42541

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-06

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.36	0.36	mg/Kg	1	11/17/17	MA	SW6010C
Arsenic	6.29	0.73	mg/Kg	1	11/17/17	MA	SW6010C
Barium	61.1	0.36	mg/Kg	1	11/17/17	MA	SW6010C
Cadmium	< 0.36	0.36	mg/Kg	1	11/17/17	MA	SW6010C
Chromium	16.0	0.36	mg/Kg	1	11/17/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/17/17	RS	SW7471B
Lead	3.04	0.36	mg/Kg	1	11/17/17	MA	SW6010C
Selenium	< 1.5	1.5	mg/Kg	1	11/17/17	MA	SW6010C
Percent Solid	93		%		11/15/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/16/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	BC/V	SW3545A
Mercury Digestion	Completed				11/16/17	W/W	SW7471B
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	53	mg/Kg	1	11/18/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/18/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	62		%	1	11/18/17	JRB	50 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,1,1-Trichloroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.1	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2-Trichloroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloropropene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-06

Phoenix I.D.: BZ42541

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,3-Trichlorobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2,3-Trichloropropane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dibromoethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichlorobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichloroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichloropropane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,3-Dichlorobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,3-Dichloropropane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,4-Dichlorobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
2,2-Dichloropropane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
2-Chlorotoluene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
2-Hexanone	ND	26	ug/Kg	1	11/18/17	JLI	SW8260
2-Isopropyltoluene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
4-Chlorotoluene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
4-Methyl-2-pentanone	ND	26	ug/Kg	1	11/18/17	JLI	SW8260
Acetone	ND	260	ug/Kg	1	11/18/17	JLI	SW8260
Acrylonitrile	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Benzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Bromobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Bromochloromethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Bromodichloromethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Bromoform	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Bromomethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Carbon Disulfide	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Carbon tetrachloride	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Chlorobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Chloroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Chloroform	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Chloromethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Dibromochloromethane	ND	3.1	ug/Kg	1	11/18/17	JLI	SW8260
Dibromomethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Dichlorodifluoromethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Ethylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Hexachlorobutadiene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Isopropylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
m&p-Xylene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Methyl Ethyl Ketone	ND	31	ug/Kg	1	11/18/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	10	ug/Kg	1	11/18/17	JLI	SW8260
Methylene chloride	ND	10	ug/Kg	1	11/18/17	JLI	SW8260
Naphthalene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
n-Butylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
n-Propylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
o-Xylene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
p-Isopropyltoluene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
sec-Butylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Styrene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
tert-Butylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Tetrachloroethene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	10	ug/Kg	1	11/18/17	JLI	SW8260
Toluene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Total Xylenes	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	10	ug/Kg	1	11/18/17	JLI	SW8260
Trichloroethene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorofluoromethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorotrifluoroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Vinyl chloride	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	101		%	1	11/18/17	JLI	70 - 130 %
% Bromofluorobenzene	96		%	1	11/18/17	JLI	70 - 130 %
% Dibromofluoromethane	94		%	1	11/18/17	JLI	70 - 130 %
% Toluene-d8	97		%	1	11/18/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Acenaphthene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Acenaphthylene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Anthracene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Chrysene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Fluoranthene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Fluorene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Naphthalene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Phenanthrene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Pyrene	ND	140	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	60		%	10	11/16/17	DD	30 - 130 %
% Nitrobenzene-d5	49		%	10	11/16/17	DD	30 - 130 %
% Terphenyl-d14	61		%	10	11/16/17	DD	30 - 130 %
Field Extraction	Completed				11/15/17		SW5035A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.
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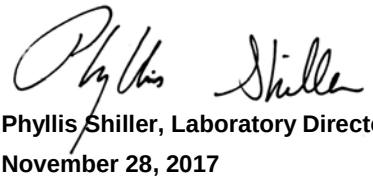


Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/15/17	11:45
Location Code:	F&O-PCB	Received by:	LB	11/15/17	16:38
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ42536
Phoenix ID: BZ42542

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-07

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.37	0.37	mg/Kg	1	11/17/17	MA	SW6010C
Arsenic	1.18	0.74	mg/Kg	1	11/17/17	MA	SW6010C
Barium	69.7	0.37	mg/Kg	1	11/17/17	MA	SW6010C
Cadmium	< 0.37	0.37	mg/Kg	1	11/17/17	MA	SW6010C
Chromium	4.26	0.37	mg/Kg	1	11/17/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/17/17	RS	SW7471B
Lead	< 0.37	0.37	mg/Kg	1	11/17/17	MA	SW6010C
Selenium	< 1.5	1.5	mg/Kg	1	11/17/17	MA	SW6010C
Percent Solid	80		%		11/15/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/16/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	BC/V	SW3545A
Mercury Digestion	Completed				11/16/17	W/W	SW7471B
Extraction for PCB	Completed				11/16/17	X/R	SW3540C
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	61	mg/Kg	1	11/18/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/18/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	70		%	1	11/18/17	JRB	50 - 150 %
PCB (Soxhlet SW3540C)							
PCB-1016	ND	0.41	mg/kg	10	11/17/17	AW	SW8082A
PCB-1221	ND	0.41	mg/kg	10	11/17/17	AW	SW8082A
PCB-1232	ND	0.41	mg/kg	10	11/17/17	AW	SW8082A
PCB-1242	ND	0.41	mg/kg	10	11/17/17	AW	SW8082A
PCB-1248	ND	0.41	mg/kg	10	11/17/17	AW	SW8082A
PCB-1254	ND	0.41	mg/kg	10	11/17/17	AW	SW8082A

Ver 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1260	ND	0.41	mg/kg	10	11/17/17	AW	SW8082A
PCB-1262	ND	0.41	mg/kg	10	11/17/17	AW	SW8082A
PCB-1268	ND	0.41	mg/kg	10	11/17/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	100		%	10	11/17/17	AW	30 - 150 %
% TCMX	88		%	10	11/17/17	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,1,1-Trichloroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.0	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2-Trichloroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloropropene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2,3-Trichloropropane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dibromoethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichlorobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichloroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichloropropane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,3-Dichlorobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,3-Dichloropropane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
1,4-Dichlorobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
2,2-Dichloropropane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
2-Chlorotoluene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
2-Hexanone	ND	25	ug/Kg	1	11/18/17	JLI	SW8260
2-Isopropyltoluene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
4-Chlorotoluene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
4-Methyl-2-pentanone	ND	25	ug/Kg	1	11/18/17	JLI	SW8260
Acetone	ND	250	ug/Kg	1	11/18/17	JLI	SW8260
Acrylonitrile	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Benzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Bromobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Bromochloromethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Bromodichloromethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Bromoform	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Bromomethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Carbon Disulfide	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Carbon tetrachloride	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Chlorobenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Chloroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Chloroform	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Chloromethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dibromochloromethane	ND	3.0	ug/Kg	1	11/18/17	JLI	SW8260
Dibromomethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Dichlorodifluoromethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Ethylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Hexachlorobutadiene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Isopropylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
m&p-Xylene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Methyl Ethyl Ketone	ND	30	ug/Kg	1	11/18/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	10	ug/Kg	1	11/18/17	JLI	SW8260
Methylene chloride	ND	10	ug/Kg	1	11/18/17	JLI	SW8260
Naphthalene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
n-Butylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
n-Propylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
o-Xylene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
p-Isopropyltoluene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
sec-Butylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Styrene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
tert-Butylbenzene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Tetrachloroethene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	10	ug/Kg	1	11/18/17	JLI	SW8260
Toluene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Total Xylenes	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	10	ug/Kg	1	11/18/17	JLI	SW8260
Trichloroethene	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorofluoromethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorotrifluoroethane	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
Vinyl chloride	ND	5.1	ug/Kg	1	11/18/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	101		%	1	11/18/17	JLI	70 - 130 %
% Bromofluorobenzene	98		%	1	11/18/17	JLI	70 - 130 %
% Dibromofluoromethane	92		%	1	11/18/17	JLI	70 - 130 %
% Toluene-d8	99		%	1	11/18/17	JLI	70 - 130 %
Polynuclear Aromatic HC							
2-Methylnaphthalene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Acenaphthene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Acenaphthylene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Anthracene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Chrysene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Fluoranthene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Fluorene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Naphthalene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Phenanthrene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
Pyrene	ND	160	ug/Kg	10	11/16/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	63		%	10	11/16/17	DD	30 - 130 %
% Nitrobenzene-d5	57		%	10	11/16/17	DD	30 - 130 %
% Terphenyl-d14	63		%	10	11/16/17	DD	30 - 130 %
Field Extraction	Completed				11/15/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/15/17	12:00
Location Code:	F&O-PCB	Received by:	LB	11/15/17	16:38
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ42536
Phoenix ID: BZ42543

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-08

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.37	0.37	mg/Kg	1	11/17/17	MA	SW6010C
Arsenic	1.21	0.74	mg/Kg	1	11/17/17	MA	SW6010C
Barium	56.9	0.37	mg/Kg	1	11/17/17	MA	SW6010C
Cadmium	0.43	0.37	mg/Kg	1	11/17/17	MA	SW6010C
Chromium	8.78	0.37	mg/Kg	1	11/17/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/17/17	RS	SW7471B
Lead	12.3	0.37	mg/Kg	1	11/17/17	MA	SW6010C
Selenium	< 1.5	1.5	mg/Kg	1	11/17/17	MA	SW6010C
Percent Solid	89		%		11/15/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/16/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	BC/V	SW3545A
Mercury Digestion	Completed				11/16/17	W/W	SW7471B
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	55	mg/Kg	1	11/18/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/18/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	75		%	1	11/18/17	JRB	50 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	57	ug/Kg	50	11/18/17	JLI	SW8260
1,1,1-Trichloroethane	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	57	ug/Kg	50	11/18/17	JLI	SW8260
1,1,2-Trichloroethane	ND	100	ug/Kg	50	11/18/17	JLI	SW8260
1,1-Dichloroethane	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
1,1-Dichloroethene	ND	140	ug/Kg	50	11/18/17	JLI	SW8260
1,1-Dichloropropene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-08

Phoenix I.D.: BZ42543

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,3-Trichlorobenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
1,2,3-Trichloropropane	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	57	ug/Kg	50	11/18/17	JLI	SW8260
1,2-Dibromoethane	ND	28	ug/Kg	50	11/18/17	JLI	SW8260
1,2-Dichlorobenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
1,2-Dichloroethane	ND	28	ug/Kg	50	11/18/17	JLI	SW8260
1,2-Dichloropropane	ND	100	ug/Kg	50	11/18/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
1,3-Dichlorobenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
1,3-Dichloropropane	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
1,4-Dichlorobenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
2,2-Dichloropropane	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
2-Chlorotoluene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
2-Hexanone	ND	700	ug/Kg	50	11/18/17	JLI	SW8260
2-Isopropyltoluene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
4-Chlorotoluene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
4-Methyl-2-pentanone	ND	1400	ug/Kg	50	11/18/17	JLI	SW8260
Acetone	ND	14000	ug/Kg	50	11/18/17	JLI	SW8260
Acrylonitrile	ND	28	ug/Kg	50	11/18/17	JLI	SW8260
Benzene	ND	28	ug/Kg	50	11/18/17	JLI	SW8260
Bromobenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Bromochloromethane	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Bromodichloromethane	ND	57	ug/Kg	50	11/18/17	JLI	SW8260
Bromoform	ND	80	ug/Kg	50	11/18/17	JLI	SW8260
Bromomethane	ND	110	ug/Kg	50	11/18/17	JLI	SW8260
Carbon Disulfide	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Carbon tetrachloride	ND	100	ug/Kg	50	11/18/17	JLI	SW8260
Chlorobenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Chloroethane	ND	150	ug/Kg	50	11/18/17	JLI	SW8260
Chloroform	ND	120	ug/Kg	50	11/18/17	JLI	SW8260
Chloromethane	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Dibromochloromethane	ND	57	ug/Kg	50	11/18/17	JLI	SW8260
Dibromomethane	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Dichlorodifluoromethane	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Ethylbenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Hexachlorobutadiene	ND	200	ug/Kg	50	11/18/17	JLI	SW8260
Isopropylbenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
m&p-Xylene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Methyl Ethyl Ketone	ND	1700	ug/Kg	50	11/18/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	570	ug/Kg	50	11/18/17	JLI	SW8260
Methylene chloride	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Naphthalene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
n-Butylbenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
n-Propylbenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
o-Xylene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
p-Isopropyltoluene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
sec-Butylbenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Styrene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
tert-Butylbenzene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Tetrachloroethene	ND	100	ug/Kg	50	11/18/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	140	ug/Kg	50	11/18/17	JLI	SW8260
Toluene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Total Xylenes	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	570	ug/Kg	50	11/18/17	JLI	SW8260
Trichloroethene	ND	100	ug/Kg	50	11/18/17	JLI	SW8260
Trichlorofluoromethane	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Trichlorotrifluoroethane	ND	280	ug/Kg	50	11/18/17	JLI	SW8260
Vinyl chloride	ND	40	ug/Kg	50	11/18/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	101		%	50	11/18/17	JLI	70 - 130 %
% Bromofluorobenzene	95		%	50	11/18/17	JLI	70 - 130 %
% Dibromofluoromethane	91		%	50	11/18/17	JLI	70 - 130 %
% Toluene-d8	98		%	50	11/18/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthylene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Chrysene	160	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluoranthene	180	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluorene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Naphthalene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Phenanthrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Pyrene	240	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	55		%	10	11/17/17	DD	30 - 130 %
% Nitrobenzene-d5	47		%	10	11/17/17	DD	30 - 130 %
% Terphenyl-d14	53		%	10	11/17/17	DD	30 - 130 %
Field Extraction	Completed				11/15/17		SW5035A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Elevated reporting limits for volatiles due to the presence of non-target compounds.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/15/17	13:05
Location Code:	F&O-PCB	Received by:	LB	11/15/17	16:38
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ42536
Phoenix ID: BZ42544

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-09

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.40	0.40	mg/Kg	1	11/17/17	MA	SW6010C
Arsenic	< 0.80	0.80	mg/Kg	1	11/17/17	MA	SW6010C
Barium	15.8	0.40	mg/Kg	1	11/17/17	MA	SW6010C
Cadmium	0.71	0.40	mg/Kg	1	11/17/17	MA	SW6010C
Chromium	10.2	0.40	mg/Kg	1	11/17/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	< 0.40	0.40	mg/Kg	1	11/17/17	MA	SW6010C
Selenium	< 1.6	1.6	mg/Kg	1	11/17/17	MA	SW6010C
Percent Solid	78		%		11/15/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/16/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	BC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Extraction for PCB	Completed				11/16/17	X/R	SW3540C
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	63	mg/Kg	1	11/18/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/18/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	57		%	1	11/18/17	JRB	50 - 150 %
PCB (Soxhlet SW3540C)							
PCB-1016	ND	0.43	mg/kg	10	11/17/17	AW	SW8082A
PCB-1221	ND	0.43	mg/kg	10	11/17/17	AW	SW8082A
PCB-1232	ND	0.43	mg/kg	10	11/17/17	AW	SW8082A
PCB-1242	ND	0.43	mg/kg	10	11/17/17	AW	SW8082A
PCB-1248	ND	0.43	mg/kg	10	11/17/17	AW	SW8082A
PCB-1254	ND	0.43	mg/kg	10	11/17/17	AW	SW8082A

Ver 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1260	ND	0.43	mg/kg	10	11/17/17	AW	SW8082A
PCB-1262	ND	0.43	mg/kg	10	11/17/17	AW	SW8082A
PCB-1268	ND	0.43	mg/kg	10	11/17/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	107		%	10	11/17/17	AW	30 - 150 %
% TCMX	90		%	10	11/17/17	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,1,1-Trichloroethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.6	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2-Trichloroethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloropropene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2,3-Trichloropropane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dibromoethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichlorobenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichloroethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichloropropane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,3-Dichlorobenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,3-Dichloropropane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
1,4-Dichlorobenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
2,2-Dichloropropane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
2-Chlorotoluene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
2-Hexanone	ND	30	ug/Kg	1	11/18/17	JLI	SW8260
2-Isopropyltoluene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
4-Chlorotoluene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
4-Methyl-2-pentanone	ND	30	ug/Kg	1	11/18/17	JLI	SW8260
Acetone	ND	300	ug/Kg	1	11/18/17	JLI	SW8260
Acrylonitrile	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Benzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Bromobenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Bromochloromethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Bromodichloromethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Bromoform	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Bromomethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Carbon Disulfide	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Carbon tetrachloride	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Chlorobenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Chloroethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Chloroform	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Chloromethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dibromochloromethane	ND	3.6	ug/Kg	1	11/18/17	JLI	SW8260
Dibromomethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Dichlorodifluoromethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Ethylbenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Hexachlorobutadiene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Isopropylbenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
m&p-Xylene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Methyl Ethyl Ketone	ND	36	ug/Kg	1	11/18/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	12	ug/Kg	1	11/18/17	JLI	SW8260
Methylene chloride	ND	12	ug/Kg	1	11/18/17	JLI	SW8260
Naphthalene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
n-Butylbenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
n-Propylbenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
o-Xylene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
p-Isopropyltoluene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
sec-Butylbenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Styrene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
tert-Butylbenzene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Tetrachloroethene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	12	ug/Kg	1	11/18/17	JLI	SW8260
Toluene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Total Xylenes	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	12	ug/Kg	1	11/18/17	JLI	SW8260
Trichloroethene	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorofluoromethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorotrifluoroethane	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
Vinyl chloride	ND	6.0	ug/Kg	1	11/18/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	11/18/17	JLI	70 - 130 %
% Bromofluorobenzene	96		%	1	11/18/17	JLI	70 - 130 %
% Dibromofluoromethane	97		%	1	11/18/17	JLI	70 - 130 %
% Toluene-d8	98		%	1	11/18/17	JLI	70 - 130 %
Polynuclear Aromatic HC							
2-Methylnaphthalene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthylene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Anthracene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Chrysene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluoranthene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluorene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Naphthalene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Phenanthrene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Pyrene	ND	170	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	51		%	10	11/17/17	DD	30 - 130 %
% Nitrobenzene-d5	43		%	10	11/17/17	DD	30 - 130 %
% Terphenyl-d14	55		%	10	11/17/17	DD	30 - 130 %
Field Extraction	Completed				11/15/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/15/17	13:30
Location Code:	F&O-PCB	Received by:	LB	11/15/17	16:38
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ42536
Phoenix ID: BZ42545

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-10

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.38	0.38	mg/Kg	1	11/17/17	MA	SW6010C
Arsenic	7.89	0.76	mg/Kg	1	11/17/17	MA	SW6010C
Barium	72.4	0.38	mg/Kg	1	11/17/17	MA	SW6010C
Cadmium	7.95	0.38	mg/Kg	1	11/17/17	MA	SW6010C
Chromium	35.8	0.38	mg/Kg	1	11/17/17	MA	SW6010C
Mercury	0.04	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	80.6	0.38	mg/Kg	1	11/17/17	MA	SW6010C
Selenium	< 1.5	1.5	mg/Kg	1	11/17/17	MA	SW6010C
Percent Solid	88		%		11/15/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/16/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	BC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	260	56	mg/Kg	1	11/18/17	JRB	CTETPH 8015D
Identification	**		mg/Kg	1	11/18/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	73		%	1	11/18/17	JRB	50 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,1,1-Trichloroethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.4	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2-Trichloroethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloropropene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,3-Trichlorobenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichloropropane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromoethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichlorobenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloroethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloropropane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichlorobenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichloropropane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
1,4-Dichlorobenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
2,2-Dichloropropane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
2-Chlorotoluene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
2-Hexanone	ND	28	ug/Kg	1	11/19/17	JLI	SW8260
2-Isopropyltoluene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
4-Chlorotoluene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
4-Methyl-2-pentanone	ND	28	ug/Kg	1	11/19/17	JLI	SW8260
Acetone	ND	280	ug/Kg	1	11/19/17	JLI	SW8260
Acrylonitrile	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Benzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Bromobenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Bromochloromethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Bromodichloromethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Bromoform	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Bromomethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Carbon Disulfide	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Carbon tetrachloride	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Chlorobenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Chloroethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Chloroform	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Chloromethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Dibromochloromethane	ND	3.4	ug/Kg	1	11/19/17	JLI	SW8260
Dibromomethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Dichlorodifluoromethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Ethylbenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Hexachlorobutadiene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Isopropylbenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
m&p-Xylene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Methyl Ethyl Ketone	ND	34	ug/Kg	1	11/19/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	11	ug/Kg	1	11/19/17	JLI	SW8260
Methylene chloride	ND	11	ug/Kg	1	11/19/17	JLI	SW8260
Naphthalene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
n-Butylbenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
n-Propylbenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
o-Xylene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
p-Isopropyltoluene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
sec-Butylbenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Styrene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
tert-Butylbenzene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Tetrachloroethene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	11	ug/Kg	1	11/19/17	JLI	SW8260
Toluene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Total Xylenes	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	11	ug/Kg	1	11/19/17	JLI	SW8260
Trichloroethene	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorofluoromethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorotrifluoroethane	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
Vinyl chloride	ND	5.7	ug/Kg	1	11/19/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	94		%	1	11/19/17	JLI	70 - 130 %
% Bromofluorobenzene	97		%	1	11/19/17	JLI	70 - 130 %
% Dibromofluoromethane	102		%	1	11/19/17	JLI	70 - 130 %
% Toluene-d8	91		%	1	11/19/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthylene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benz(a)anthracene	210	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(a)pyrene	300	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	310	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	430	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	420	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Chrysene	460	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluoranthene	590	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluorene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	450	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Naphthalene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Phenanthrene	370	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Pyrene	560	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	56		%	10	11/17/17	DD	30 - 130 %
% Nitrobenzene-d5	50		%	10	11/17/17	DD	30 - 130 %
% Terphenyl-d14	54		%	10	11/17/17	DD	30 - 130 %
Field Extraction	Completed				11/15/17		SW5035A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

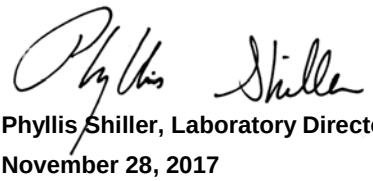
Comments:

TPH Comment:
**Petroleum hydrocarbon chromatogram contains a multicomponent hydrocarbon distribution in the range of C9 to C36. The sample was quantitated against a C9-C36 alkane hydrocarbon standard.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/15/17	13:50
Location Code:	F&O-PCB	Received by:	LB	11/15/17	16:38
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ42536
Phoenix ID: BZ42546

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-11

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.35	0.35	mg/Kg	1	11/17/17	MA	SW6010C
Arsenic	< 0.70	0.70	mg/Kg	1	11/17/17	MA	SW6010C
Barium	21.2	0.35	mg/Kg	1	11/17/17	MA	SW6010C
Cadmium	< 0.35	0.35	mg/Kg	1	11/17/17	MA	SW6010C
Chromium	2.03	0.35	mg/Kg	1	11/17/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	< 0.35	0.35	mg/Kg	1	11/17/17	MA	SW6010C
Selenium	< 1.4	1.4	mg/Kg	1	11/17/17	MA	SW6010C
Percent Solid	90		%		11/15/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/16/17	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				11/15/17	BC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Extraction for PCB	Completed				11/16/17	X/R	SW3540C
Total Metals Digest	Completed				11/15/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	55	mg/Kg	1	11/18/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/18/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	69		%	1	11/18/17	JRB	50 - 150 %
PCB (Soxhlet SW3540C)							
PCB-1016	ND	0.36	mg/kg	10	11/17/17	AW	SW8082A
PCB-1221	ND	0.36	mg/kg	10	11/17/17	AW	SW8082A
PCB-1232	ND	0.36	mg/kg	10	11/17/17	AW	SW8082A
PCB-1242	ND	0.36	mg/kg	10	11/17/17	AW	SW8082A
PCB-1248	ND	0.36	mg/kg	10	11/17/17	AW	SW8082A
PCB-1254	ND	0.36	mg/kg	10	11/17/17	AW	SW8082A

Ver 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1260	ND	0.36	mg/kg	10	11/17/17	AW	SW8082A
PCB-1262	ND	0.36	mg/kg	10	11/17/17	AW	SW8082A
PCB-1268	ND	0.36	mg/kg	10	11/17/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	107		%	10	11/17/17	AW	30 - 150 %
% TCMX	98		%	10	11/17/17	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1,1-Trichloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	2.9	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2-Trichloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloropropene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromoethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichlorobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichlorobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,4-Dichlorobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
2,2-Dichloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
2-Chlorotoluene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
2-Hexanone	ND	24	ug/Kg	1	11/19/17	JLI	SW8260
2-Isopropyltoluene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
4-Chlorotoluene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
4-Methyl-2-pentanone	ND	24	ug/Kg	1	11/19/17	JLI	SW8260
Acetone	ND	240	ug/Kg	1	11/19/17	JLI	SW8260
Acrylonitrile	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Benzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromochloromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromodichloromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromoform	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromomethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Carbon Disulfide	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Carbon tetrachloride	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Chlorobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Chloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Chloroform	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Chloromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dibromochloromethane	ND	2.9	ug/Kg	1	11/19/17	JLI	SW8260
Dibromomethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Dichlorodifluoromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Ethylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Hexachlorobutadiene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Isopropylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
m&p-Xylene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Methyl Ethyl Ketone	ND	29	ug/Kg	1	11/19/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	9.6	ug/Kg	1	11/19/17	JLI	SW8260
Methylene chloride	ND	9.6	ug/Kg	1	11/19/17	JLI	SW8260
Naphthalene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
n-Butylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
n-Propylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
o-Xylene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
p-Isopropyltoluene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
sec-Butylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Styrene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
tert-Butylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Tetrachloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	9.6	ug/Kg	1	11/19/17	JLI	SW8260
Toluene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Total Xylenes	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	9.6	ug/Kg	1	11/19/17	JLI	SW8260
Trichloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorofluoromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorotrifluoroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Vinyl chloride	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	94		%	1	11/19/17	JLI	70 - 130 %
% Bromofluorobenzene	98		%	1	11/19/17	JLI	70 - 130 %
% Dibromofluoromethane	99		%	1	11/19/17	JLI	70 - 130 %
% Toluene-d8	91		%	1	11/19/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthylene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Anthracene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Chrysene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluoranthene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluorene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-11

Phoenix I.D.: BZ42546

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Naphthalene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Phenanthrene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Pyrene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	53		%	10	11/17/17	DD	30 - 130 %
% Nitrobenzene-d5	42		%	10	11/17/17	DD	30 - 130 %
% Terphenyl-d14	57		%	10	11/17/17	DD	30 - 130 %
Field Extraction	Completed				11/15/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/15/17	14:00
Location Code:	F&O-PCB	Received by:	LB	11/15/17	16:38
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ42536
Phoenix ID: BZ42547

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-12

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	50	ug/Kg	50	11/18/17	JLI	SW8260
1,1,1-Trichloroethane	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	50	ug/Kg	50	11/18/17	JLI	SW8260
1,1,2-Trichloroethane	ND	100	ug/Kg	50	11/18/17	JLI	SW8260
1,1-Dichloroethane	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
1,1-Dichloroethene	ND	140	ug/Kg	50	11/18/17	JLI	SW8260
1,1-Dichloropropene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
1,2,3-Trichloropropane	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	50	ug/Kg	50	11/18/17	JLI	SW8260
1,2-Dibromoethane	ND	25	ug/Kg	50	11/18/17	JLI	SW8260
1,2-Dichlorobenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
1,2-Dichloroethane	ND	25	ug/Kg	50	11/18/17	JLI	SW8260
1,2-Dichloropropane	ND	100	ug/Kg	50	11/18/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
1,3-Dichlorobenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
1,3-Dichloropropane	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
1,4-Dichlorobenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
2,2-Dichloropropane	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
2-Chlorotoluene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
2-Hexanone	ND	700	ug/Kg	50	11/18/17	JLI	SW8260
2-Isopropyltoluene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
4-Chlorotoluene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
4-Methyl-2-pentanone	ND	1300	ug/Kg	50	11/18/17	JLI	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-12

Phoenix I.D.: BZ42547

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Acetone	ND	5000	ug/Kg	50	11/18/17	JLI	SW8260
Acrylonitrile	ND	25	ug/Kg	50	11/18/17	JLI	SW8260
Benzene	ND	25	ug/Kg	50	11/18/17	JLI	SW8260
Bromobenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Bromochloromethane	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Bromodichloromethane	ND	50	ug/Kg	50	11/18/17	JLI	SW8260
Bromoform	ND	80	ug/Kg	50	11/18/17	JLI	SW8260
Bromomethane	ND	100	ug/Kg	50	11/18/17	JLI	SW8260
Carbon Disulfide	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Carbon tetrachloride	ND	100	ug/Kg	50	11/18/17	JLI	SW8260
Chlorobenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Chloroethane	ND	150	ug/Kg	50	11/18/17	JLI	SW8260
Chloroform	ND	120	ug/Kg	50	11/18/17	JLI	SW8260
Chloromethane	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Dibromochloromethane	ND	50	ug/Kg	50	11/18/17	JLI	SW8260
Dibromomethane	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Dichlorodifluoromethane	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Ethylbenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Hexachlorobutadiene	ND	200	ug/Kg	50	11/18/17	JLI	SW8260
Isopropylbenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
m&p-Xylene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Methyl Ethyl Ketone	ND	3000	ug/Kg	50	11/18/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Methylene chloride	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Naphthalene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
n-Butylbenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
n-Propylbenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
o-Xylene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
p-Isopropyltoluene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
sec-Butylbenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Styrene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
tert-Butylbenzene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Tetrachloroethene	ND	100	ug/Kg	50	11/18/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	130	ug/Kg	50	11/18/17	JLI	SW8260
Toluene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Total Xylenes	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	500	ug/Kg	50	11/18/17	JLI	SW8260
Trichloroethene	ND	100	ug/Kg	50	11/18/17	JLI	SW8260
Trichlorofluoromethane	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Trichlorotrifluoroethane	ND	250	ug/Kg	50	11/18/17	JLI	SW8260
Vinyl chloride	ND	40	ug/Kg	50	11/18/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	100		%	50	11/18/17	JLI	70 - 130 %
% Bromofluorobenzene	98		%	50	11/18/17	JLI	70 - 130 %
% Dibromofluoromethane	92		%	50	11/18/17	JLI	70 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Toluene-d8	98		%	50	11/18/17	JLI	70 - 130 %
Field Extraction	Completed				11/15/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

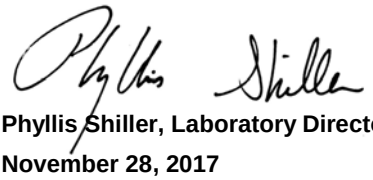
TRIP BLANK INCLUDED.

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/15/17	14:05
Location Code:	F&O-PCB	Received by:	LB	11/15/17	16:38
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ42536
Phoenix ID: BZ42548

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-13

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,1,1-Trichloroethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.0	ug/Kg	1	11/18/17	JLI	SW8260
1,1,2-Trichloroethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloroethene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,1-Dichloropropene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2,3-Trichloropropane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dibromoethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichlorobenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichloroethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,2-Dichloropropane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,3-Dichlorobenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,3-Dichloropropane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
1,4-Dichlorobenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
2,2-Dichloropropane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
2-Chlorotoluene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
2-Hexanone	ND	25	ug/Kg	1	11/18/17	JLI	SW8260
2-Isopropyltoluene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
4-Chlorotoluene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
4-Methyl-2-pentanone	ND	25	ug/Kg	1	11/18/17	JLI	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-13

Phoenix I.D.: BZ42548

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Acetone	ND	250	ug/Kg	1	11/18/17	JLI	SW8260
Acrylonitrile	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Benzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Bromobenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Bromochloromethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Bromodichloromethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Bromoform	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Bromomethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Carbon Disulfide	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Carbon tetrachloride	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Chlorobenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Chloroethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Chloroform	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Chloromethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Dibromochloromethane	ND	3.0	ug/Kg	1	11/18/17	JLI	SW8260
Dibromomethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Dichlorodifluoromethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Ethylbenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Hexachlorobutadiene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Isopropylbenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
m&p-Xylene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Methyl Ethyl Ketone	ND	30	ug/Kg	1	11/18/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	10	ug/Kg	1	11/18/17	JLI	SW8260
Methylene chloride	ND	10	ug/Kg	1	11/18/17	JLI	SW8260
Naphthalene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
n-Butylbenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
n-Propylbenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
o-Xylene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
p-Isopropyltoluene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
sec-Butylbenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Styrene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
tert-Butylbenzene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Tetrachloroethene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	10	ug/Kg	1	11/18/17	JLI	SW8260
Toluene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Total Xylenes	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	10	ug/Kg	1	11/18/17	JLI	SW8260
Trichloroethene	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorofluoromethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Trichlorotrifluoroethane	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
Vinyl chloride	ND	5.0	ug/Kg	1	11/18/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	100		%	1	11/18/17	JLI	70 - 130 %
% Bromofluorobenzene	96		%	1	11/18/17	JLI	70 - 130 %
% Dibromofluoromethane	91		%	1	11/18/17	JLI	70 - 130 %

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171115-13

Phoenix I.D.: BZ42548

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Toluene-d8	98		%	1	11/18/17	JLI	70 - 130 %
Field Extraction	Completed				11/15/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

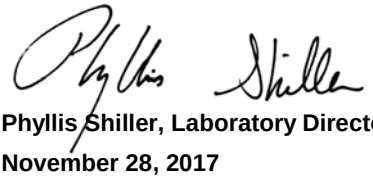
Comments:

TRIP BLANK INCLUDED.

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.



Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

November 28, 2017

QA/QC Data

SDG I.D.: GBZ42536

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 410035 (mg/kg), QC Sample No: BZ32852 (BZ42544, BZ42545, BZ42546)														
Mercury - Soil	BRL	0.03	0.10	0.12	NC	92.9	93.4	0.5	102			70 - 130	30	
Comment:														
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.														
QA/QC Batch 409829 (mg/kg), QC Sample No: BZ41805 (BZ42536, BZ42537, BZ42538, BZ42539, BZ42540, BZ42541, BZ42542, BZ42543)														
Mercury - Soil	BRL	0.03	<0.03	<0.03	NC	84.8	89.2	5.1	101			70 - 130	30	
Comment:														
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.														
QA/QC Batch 409779 (mg/kg), QC Sample No: BZ42314 (BZ42536, BZ42537, BZ42538)														
ICP Metals - Soil														
Arsenic	BRL	0.67	4.15	2.94	NC	89.6			92.3			75 - 125	30	
Barium	BRL	0.33	107	77.9	31.5	79.5			122			75 - 125	30	r
Cadmium	BRL	0.33	0.64	<0.47	NC	96.6			100			75 - 125	30	
Chromium	BRL	0.33	15.9	19.4	19.8	93.8			110			75 - 125	30	
Lead	BRL	0.33	6.58	7.56	13.9	92.3			99.0			75 - 125	30	
Selenium	BRL	1.3	<1.9	<1.9	NC	90.7			80.6			75 - 125	30	
Silver	BRL	0.33	<0.47	<0.47	NC	89.4			106			75 - 125	30	
QA/QC Batch 409780 (mg/kg), QC Sample No: BZ42539 (BZ42539, BZ42540, BZ42541, BZ42542, BZ42543, BZ42544, BZ42545, BZ42546)														
ICP Metals - Soil														
Arsenic	BRL	0.67	2.36	2.20	NC	106			88.6			75 - 125	30	
Barium	BRL	0.33	25.5	19.8	25.2	89.2			96.2			75 - 125	30	
Cadmium	BRL	0.33	0.38	<0.32	NC	109			92.8			75 - 125	30	
Chromium	BRL	0.33	19.5	20.4	4.50	107			95.9			75 - 125	30	
Lead	BRL	0.33	26.6	31.3	16.2	104			97.0			75 - 125	30	
Selenium	BRL	1.3	<1.4	<1.3	NC	105			81.7			75 - 125	30	
Silver	BRL	0.33	<0.34	<0.32	NC	102			97.6			75 - 125	30	

r = This parameter is outside laboratory RPD specified recovery limits.

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QA/QC Report

November 28, 2017

QA/QC Data

SDG I.D.: GBZ42536

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 409914 (mg/kg), QC Sample No: BZ42031 10X (BZ42542, BZ42544, BZ42546)											
Polychlorinated Biphenyls - Soil											
PCB-1016	ND	0.17	68	72	5.7	62	91	37.9	40 - 140	30	r
PCB-1221	ND	0.17							40 - 140	30	
PCB-1232	ND	0.17							40 - 140	30	
PCB-1242	ND	0.17							40 - 140	30	
PCB-1248	ND	0.17							40 - 140	30	
PCB-1254	ND	0.17							40 - 140	30	
PCB-1260	ND	0.17	99	101	2.0	72	105	37.3	40 - 140	30	r
PCB-1262	ND	0.17							40 - 140	30	
PCB-1268	ND	0.17							40 - 140	30	
% DCBP (Surrogate Rec)	96	%	108	107	0.9	76	112	38.3	30 - 150	30	r
% TCMX (Surrogate Rec)	43	%	51	53	3.8	59	97	48.7	30 - 150	30	r
QA/QC Batch 409785 (mg/Kg), QC Sample No: BZ42326 (BZ42536, BZ42537, BZ42539, BZ42540, BZ42541, BZ42542, BZ42543, BZ42544, BZ42545, BZ42546)											
TPH by GC (Extractable Products) - Soil											
Ext. Petroleum H.C. (C9-C36)	ND	50	90	89	1.1				60 - 120	30	
% n-Pentacosane	82	%	76	77	1.3				50 - 150	30	

Comment:

*The MS/MSD could not be reported due to the presence of ETPH in the original sample. The LCS was within QA/QC criteria.

Additional surrogate criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%. The ETPH/DRO LCS has been normalized based on the alkane calibration.

QA/QC Batch 410313 (ug/kg), QC Sample No: BZ42326 (BZ42538, BZ42539, BZ42540, BZ42541, BZ42542, BZ42543 (50X) , BZ42544, BZ42547 (50X) , BZ42548)

Volatiles - Soil

1,1,1,2-Tetrachloroethane	ND	5.0	104	102	1.9	102	105	2.9	70 - 130	30	
1,1,1-Trichloroethane	ND	5.0	96	96	0.0	95	98	3.1	70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	3.0	103	105	1.9	101	105	3.9	70 - 130	30	
1,1,2-Trichloroethane	ND	5.0	101	100	1.0	100	103	3.0	70 - 130	30	
1,1-Dichloroethane	ND	5.0	101	99	2.0	102	102	0.0	70 - 130	30	
1,1-Dichloroethene	ND	5.0	96	94	2.1	70	74	5.6	70 - 130	30	
1,1-Dichloropropene	ND	5.0	99	98	1.0	98	100	2.0	70 - 130	30	
1,2,3-Trichlorobenzene	ND	5.0	96	97	1.0	65	67	3.0	70 - 130	30	m
1,2,3-Trichloropropane	ND	5.0	97	101	4.0	98	101	3.0	70 - 130	30	
1,2,4-Trichlorobenzene	ND	5.0	98	99	1.0	74	74	0.0	70 - 130	30	
1,2,4-Trimethylbenzene	ND	1.0	96	95	1.0	93	92	1.1	70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	5.0	104	110	5.6	94	99	5.2	70 - 130	30	
1,2-Dibromoethane	ND	5.0	100	100	0.0	101	104	2.9	70 - 130	30	
1,2-Dichlorobenzene	ND	5.0	99	97	2.0	94	95	1.1	70 - 130	30	
1,2-Dichloroethane	ND	5.0	94	93	1.1	94	96	2.1	70 - 130	30	
1,2-Dichloropropane	ND	5.0	97	95	2.1	99	101	2.0	70 - 130	30	
1,3,5-Trimethylbenzene	ND	1.0	96	96	0.0	93	92	1.1	70 - 130	30	

QA/QC Data

SDG I.D.: GBZ42536

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
1,3-Dichlorobenzene	ND	5.0	99	98	1.0	96	95	1.0	70 - 130	30	
1,3-Dichloropropane	ND	5.0	100	99	1.0	101	103	2.0	70 - 130	30	
1,4-Dichlorobenzene	ND	5.0	98	96	2.1	96	95	1.0	70 - 130	30	
2,2-Dichloropropane	ND	5.0	104	102	1.9	107	111	3.7	70 - 130	30	
2-Chlorotoluene	ND	5.0	95	95	0.0	95	96	1.0	70 - 130	30	
2-Hexanone	ND	25	100	106	5.8	95	99	4.1	70 - 130	30	
2-Isopropyltoluene	ND	5.0	107	107	0.0	98	95	3.1	70 - 130	30	
4-Chlorotoluene	ND	5.0	99	97	2.0	98	98	0.0	70 - 130	30	
4-Methyl-2-pentanone	ND	25	105	110	4.7	101	107	5.8	70 - 130	30	
Acetone	ND	10	77	80	3.8	47	50	6.2	70 - 130	30	m
Acrylonitrile	ND	5.0	107	112	4.6	112	114	1.8	70 - 130	30	
Benzene	ND	1.0	97	96	1.0	97	99	2.0	70 - 130	30	
Bromobenzene	ND	5.0	95	96	1.0	98	98	0.0	70 - 130	30	
Bromochloromethane	ND	5.0	100	98	2.0	99	101	2.0	70 - 130	30	
Bromodichloromethane	ND	5.0	97	97	0.0	93	97	4.2	70 - 130	30	
Bromoform	ND	5.0	109	111	1.8	98	102	4.0	70 - 130	30	
Bromomethane	ND	5.0	89	89	0.0	53	61	14.0	70 - 130	30	m
Carbon Disulfide	ND	5.0	116	114	1.7	82	87	5.9	70 - 130	30	
Carbon tetrachloride	ND	5.0	104	104	0.0	93	97	4.2	70 - 130	30	
Chlorobenzene	ND	5.0	101	98	3.0	102	104	1.9	70 - 130	30	
Chloroethane	ND	5.0	92	91	1.1	41	43	4.8	70 - 130	30	m
Chloroform	ND	5.0	94	93	1.1	97	98	1.0	70 - 130	30	
Chloromethane	ND	5.0	87	88	1.1	74	76	2.7	70 - 130	30	
cis-1,2-Dichloroethene	ND	5.0	98	97	1.0	101	100	1.0	70 - 130	30	
cis-1,3-Dichloropropene	ND	5.0	103	100	3.0	100	104	3.9	70 - 130	30	
Dibromochloromethane	ND	3.0	111	109	1.8	104	105	1.0	70 - 130	30	
Dibromomethane	ND	5.0	95	96	1.0	95	98	3.1	70 - 130	30	
Dichlorodifluoromethane	ND	5.0	98	97	1.0	64	64	0.0	70 - 130	30	m
Ethylbenzene	ND	1.0	102	99	3.0	103	102	1.0	70 - 130	30	
Hexachlorobutadiene	ND	5.0	94	96	2.1	60	56	6.9	70 - 130	30	m
Isopropylbenzene	ND	1.0	98	98	0.0	97	97	0.0	70 - 130	30	
m&p-Xylene	ND	2.0	101	99	2.0	101	102	1.0	70 - 130	30	
Methyl ethyl ketone	ND	5.0	98	101	3.0	97	100	3.0	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	1.0	106	103	2.9	110	113	2.7	70 - 130	30	
Methylene chloride	ND	5.0	88	86	2.3	89	90	1.1	70 - 130	30	
Naphthalene	ND	5.0	101	105	3.9	84	90	6.9	70 - 130	30	
n-Butylbenzene	ND	1.0	97	97	0.0	83	78	6.2	70 - 130	30	
n-Propylbenzene	ND	1.0	97	97	0.0	96	94	2.1	70 - 130	30	
o-Xylene	ND	2.0	103	100	3.0	103	104	1.0	70 - 130	30	
p-Isopropyltoluene	ND	1.0	98	98	0.0	88	85	3.5	70 - 130	30	
sec-Butylbenzene	ND	1.0	100	100	0.0	91	87	4.5	70 - 130	30	
Styrene	ND	5.0	102	99	3.0	102	103	1.0	70 - 130	30	
tert-Butylbenzene	ND	1.0	97	97	0.0	92	90	2.2	70 - 130	30	
Tetrachloroethene	ND	5.0	98	99	1.0	101	102	1.0	70 - 130	30	
Tetrahydrofuran (THF)	ND	5.0	107	114	6.3	115	113	1.8	70 - 130	30	
Toluene	ND	1.0	98	97	1.0	100	103	3.0	70 - 130	30	
trans-1,2-Dichloroethene	ND	5.0	96	95	1.0	92	95	3.2	70 - 130	30	
trans-1,3-Dichloropropene	ND	5.0	100	99	1.0	98	103	5.0	70 - 130	30	
trans-1,4-dichloro-2-butene	ND	5.0	123	129	4.8	117	121	3.4	70 - 130	30	
Trichloroethene	ND	5.0	100	98	2.0	99	102	3.0	70 - 130	30	
Trichlorofluoromethane	ND	5.0	87	85	2.3	30	31	3.3	70 - 130	30	m
Trichlorotrifluoroethane	ND	5.0	107	105	1.9	76	78	2.6	70 - 130	30	
Vinyl chloride	ND	5.0	91	90	1.1	80	82	2.5	70 - 130	30	

Parameter	Blank	Blk RL		LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
% 1,2-dichlorobenzene-d4	101	%		101	102	1.0	101	101	0.0	70 - 130	30
% Bromofluorobenzene	97	%		100	100	0.0	99	99	0.0	70 - 130	30
% Dibromofluoromethane	95	%		95	96	1.0	95	96	1.0	70 - 130	30
% Toluene-d8	99	%		99	100	1.0	98	99	1.0	70 - 130	30

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

QA/QC Batch 409918 (ug/kg), QC Sample No: BZ42326 10X (BZ42536, BZ42537, BZ42538, BZ42539, BZ42540)

Polynuclear Aromatic HC - Soil

2-Methylnaphthalene	ND	130		56	58	3.5	58			30 - 130	30
Acenaphthene	ND	130		69	72	4.3	65			30 - 130	30
Acenaphthylene	ND	130		66	71	7.3	64			30 - 130	30
Anthracene	ND	130		70	74	5.6	63			30 - 130	30
Benz(a)anthracene	ND	130		62	65	4.7	57			30 - 130	30
Benzo(a)pyrene	ND	130		63	68	7.6	55			30 - 130	30
Benzo(b)fluoranthene	ND	130		59	61	3.3	50			30 - 130	30
Benzo(ghi)perylene	ND	130		58	59	1.7	45			30 - 130	30
Benzo(k)fluoranthene	ND	130		69	74	7.0	59			30 - 130	30
Chrysene	ND	130		64	67	4.6	58			30 - 130	30
Dibenz(a,h)anthracene	ND	130		64	64	0.0	56			30 - 130	30
Fluoranthene	ND	130		66	66	0.0	57			30 - 130	30
Fluorene	ND	130		67	73	8.6	63			30 - 130	30
Indeno(1,2,3-cd)pyrene	ND	130		60	61	1.7	52			30 - 130	30
Naphthalene	ND	130		57	57	0.0	59			30 - 130	30
Phenanthrene	ND	130		60	60	0.0	55			30 - 130	30
Pyrene	ND	130		65	69	6.0	57			30 - 130	30
% 2-Fluorobiphenyl	62	%		63	68	7.6	62			30 - 130	30
% Nitrobenzene-d5	60	%		68	64	6.1	71			30 - 130	30
% Terphenyl-d14	70	%		68	71	4.3	61			30 - 130	30

Comment:

MSD notreported for this batch.

Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

QA/QC Batch 410443 (ug/kg), QC Sample No: BZ42540 (BZ42536, BZ42537, BZ42540 (50X))

Volatiles - Soil

1,1,1,2-Tetrachloroethane	ND	5.0		101	101	0.0	97	95	2.1	70 - 130	30
1,1,1-Trichloroethane	ND	5.0		99	98	1.0	90	90	0.0	70 - 130	30
1,1,2,2-Tetrachloroethane	ND	3.0		97	99	2.0	99	96	3.1	70 - 130	30
1,1,2-Trichloroethane	ND	5.0		92	98	6.3	97	94	3.1	70 - 130	30
1,1-Dichloroethane	ND	5.0		97	98	1.0	96	95	1.0	70 - 130	30
1,1-Dichloroethene	ND	5.0		90	90	0.0	70	71	1.4	70 - 130	30
1,1-Dichloropropene	ND	5.0		95	97	2.1	94	94	0.0	70 - 130	30
1,2,3-Trichlorobenzene	ND	5.0		91	91	0.0	93	89	4.4	70 - 130	30
1,2,3-Trichloropropane	ND	5.0		98	100	2.0	96	89	7.6	70 - 130	30
1,2,4-Trichlorobenzene	ND	5.0		89	91	2.2	94	86	8.9	70 - 130	30
1,2,4-Trimethylbenzene	ND	1.0		90	90	0.0	88	85	3.5	70 - 130	30
1,2-Dibromo-3-chloropropane	ND	5.0		100	104	3.9	96	96	0.0	70 - 130	30
1,2-Dibromoethane	ND	5.0		97	99	2.0	97	94	3.1	70 - 130	30
1,2-Dichlorobenzene	ND	5.0		92	93	1.1	93	90	3.3	70 - 130	30
1,2-Dichloroethane	ND	5.0		94	96	2.1	88	87	1.1	70 - 130	30
1,2-Dichloropropane	ND	5.0		91	93	2.2	94	92	2.2	70 - 130	30
1,3,5-Trimethylbenzene	ND	1.0		92	93	1.1	91	88	3.4	70 - 130	30

QA/QC Data

SDG I.D.: GBZ42536

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
1,3-Dichlorobenzene	ND	5.0	90	92	2.2	92	89	3.3	70 - 130	30	
1,3-Dichloropropane	ND	5.0	95	96	1.0	96	93	3.2	70 - 130	30	
1,4-Dichlorobenzene	ND	5.0	90	91	1.1	91	87	4.5	70 - 130	30	
2,2-Dichloropropane	ND	5.0	105	101	3.9	104	103	1.0	70 - 130	30	
2-Chlorotoluene	ND	5.0	90	91	1.1	90	88	2.2	70 - 130	30	
2-Hexanone	ND	25	96	98	2.1	95	93	2.1	70 - 130	30	
2-Isopropyltoluene	ND	5.0	102	103	1.0	101	100	1.0	70 - 130	30	
4-Chlorotoluene	ND	5.0	90	92	2.2	91	89	2.2	70 - 130	30	
4-Methyl-2-pentanone	ND	25	99	105	5.9	101	99	2.0	70 - 130	30	
Acetone	ND	10	70	74	5.6	53	51	3.8	70 - 130	30	m
Acrylonitrile	ND	5.0	102	106	3.8	109	106	2.8	70 - 130	30	
Benzene	ND	1.0	90	92	2.2	93	92	1.1	70 - 130	30	
Bromobenzene	ND	5.0	90	92	2.2	90	88	2.2	70 - 130	30	
Bromochloromethane	ND	5.0	95	98	3.1	96	94	2.1	70 - 130	30	
Bromodichloromethane	ND	5.0	94	97	3.1	88	87	1.1	70 - 130	30	
Bromoform	ND	5.0	107	109	1.9	95	94	1.1	70 - 130	30	
Bromomethane	ND	5.0	87	86	1.2	62	64	3.2	70 - 130	30	m
Carbon Disulfide	ND	5.0	107	106	0.9	85	84	1.2	70 - 130	30	
Carbon tetrachloride	ND	5.0	107	106	0.9	91	91	0.0	70 - 130	30	
Chlorobenzene	ND	5.0	95	96	1.0	96	93	3.2	70 - 130	30	
Chloroethane	ND	5.0	88	89	1.1	42	42	0.0	70 - 130	30	m
Chloroform	ND	5.0	93	94	1.1	91	89	2.2	70 - 130	30	
Chloromethane	ND	5.0	81	81	0.0	79	79	0.0	70 - 130	30	
cis-1,2-Dichloroethene	ND	5.0	89	93	4.4	94	89	5.5	70 - 130	30	
cis-1,3-Dichloropropene	ND	5.0	95	98	3.1	95	95	0.0	70 - 130	30	
Dibromochloromethane	ND	3.0	105	107	1.9	98	95	3.1	70 - 130	30	
Dibromomethane	ND	5.0	92	96	4.3	91	90	1.1	70 - 130	30	
Dichlorodifluoromethane	ND	5.0	91	92	1.1	84	83	1.2	70 - 130	30	
Ethylbenzene	ND	1.0	96	97	1.0	97	95	2.1	70 - 130	30	
Hexachlorobutadiene	ND	5.0	93	94	1.1	94	90	4.3	70 - 130	30	
Isopropylbenzene	ND	1.0	92	93	1.1	93	92	1.1	70 - 130	30	
m&p-Xylene	ND	2.0	95	96	1.0	96	94	2.1	70 - 130	30	
Methyl ethyl ketone	ND	5.0	96	95	1.0	97	95	2.1	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	1.0	97	98	1.0	99	97	2.0	70 - 130	30	
Methylene chloride	ND	5.0	80	81	1.2	78	77	1.3	70 - 130	30	
Naphthalene	ND	5.0	96	98	2.1	95	92	3.2	70 - 130	30	
n-Butylbenzene	ND	1.0	92	93	1.1	91	87	4.5	70 - 130	30	
n-Propylbenzene	ND	1.0	92	92	0.0	92	91	1.1	70 - 130	30	
o-Xylene	ND	2.0	97	98	1.0	97	96	1.0	70 - 130	30	
p-Isopropyltoluene	ND	1.0	93	93	0.0	92	90	2.2	70 - 130	30	
sec-Butylbenzene	ND	1.0	96	97	1.0	96	94	2.1	70 - 130	30	
Styrene	ND	5.0	94	95	1.1	97	95	2.1	70 - 130	30	
tert-Butylbenzene	ND	1.0	94	94	0.0	93	92	1.1	70 - 130	30	
Tetrachloroethene	ND	5.0	93	95	2.1	93	94	1.1	70 - 130	30	
Tetrahydrofuran (THF)	ND	5.0	105	106	0.9	107	106	0.9	70 - 130	30	
Toluene	ND	1.0	93	94	1.1	95	95	0.0	70 - 130	30	
trans-1,2-Dichloroethene	ND	5.0	90	90	0.0	85	83	2.4	70 - 130	30	
trans-1,3-Dichloropropene	ND	5.0	94	97	3.1	94	91	3.2	70 - 130	30	
trans-1,4-dichloro-2-butene	ND	5.0	111	113	1.8	108	109	0.9	70 - 130	30	
Trichloroethene	ND	5.0	96	97	1.0	96	95	1.0	70 - 130	30	
Trichlorofluoromethane	ND	5.0	86	86	0.0	31	30	3.3	70 - 130	30	m
Trichlorotrifluoroethane	ND	5.0	104	105	1.0	78	79	1.3	70 - 130	30	
Vinyl chloride	ND	5.0	83	82	1.2	81	81	0.0	70 - 130	30	

Parameter	Blank	Blk RL		LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
% 1,2-dichlorobenzene-d4	102	%		101	102	1.0	102	101	1.0	70 - 130	30
% Bromofluorobenzene	98	%		101	102	1.0	101	100	1.0	70 - 130	30
% Dibromofluoromethane	94	%		98	97	1.0	94	94	0.0	70 - 130	30
% Toluene-d8	99	%		98	99	1.0	99	100	1.0	70 - 130	30

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

QA/QC Batch 409919 (ug/kg), QC Sample No: BZ42625 10X (BZ42541, BZ42542, BZ42543, BZ42544, BZ42545, BZ42546)

Polynuclear Aromatic HC - Soil

2-Methylnaphthalene	ND	130		59	54	8.8	47	47	0.0	30 - 130	30
Acenaphthene	ND	130		76	72	5.4	58	59	1.7	30 - 130	30
Acenaphthylene	ND	130		68	64	6.1	52	53	1.9	30 - 130	30
Anthracene	ND	130		76	72	5.4	58	57	1.7	30 - 130	30
Benz(a)anthracene	ND	130		64	61	4.8	48	47	2.1	30 - 130	30
Benzo(a)pyrene	ND	130		74	70	5.6	54	54	0.0	30 - 130	30
Benzo(b)fluoranthene	ND	130		64	61	4.8	47	46	2.2	30 - 130	30
Benzo(ghi)perylene	ND	130		69	66	4.4	52	49	5.9	30 - 130	30
Benzo(k)fluoranthene	ND	130		83	78	6.2	63	63	0.0	30 - 130	30
Chrysene	ND	130		77	75	2.6	59	59	0.0	30 - 130	30
Dibenz(a,h)anthracene	ND	130		74	69	7.0	54	51	5.7	30 - 130	30
Fluoranthene	ND	130		68	63	7.6	51	50	2.0	30 - 130	30
Fluorene	ND	130		74	69	7.0	56	55	1.8	30 - 130	30
Indeno(1,2,3-cd)pyrene	ND	130		63	60	4.9	46	43	6.7	30 - 130	30
Naphthalene	ND	130		60	56	6.9	50	51	2.0	30 - 130	30
Phenanthrene	ND	130		67	65	3.0	51	50	2.0	30 - 130	30
Pyrene	ND	130		69	65	6.0	51	50	2.0	30 - 130	30
% 2-Fluorobiphenyl	60	%		68	65	4.5	54	54	0.0	30 - 130	30
% Nitrobenzene-d5	50	%		62	58	6.7	51	50	2.0	30 - 130	30
% Terphenyl-d14	65	%		73	67	8.6	53	52	1.9	30 - 130	30

Comment:

Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

QA/QC Batch 409922 (mg/Kg), QC Sample No: BZ42985 (BZ42538)

TPH by GC (Extractable Products) - Soil

Ext. Petroleum H.C. (C9-C36)	ND	50		98	88	10.8	69	68	1.5	60 - 120	30
% n-Pentacosane	67	%		81	85	4.8	78	75	3.9	50 - 150	30

Comment:

Additional surrogate criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%. The ETPH/DRO LCS has been normalized based on the alkane calibration.

QA/QC Batch 410328 (ug/kg), QC Sample No: BZ43250 (BZ42545, BZ42546)

Volatiles - Soil

1,1,1,2-Tetrachloroethane	ND	5.0		105	102	2.9	92	94	2.2	70 - 130	30
1,1,1-Trichloroethane	ND	5.0		106	104	1.9	101	100	1.0	70 - 130	30
1,1,2,2-Tetrachloroethane	ND	3.0		105	105	0.0	94	98	4.2	70 - 130	30
1,1,2-Trichloroethane	ND	5.0		98	100	2.0	94	94	0.0	70 - 130	30
1,1-Dichloroethane	ND	5.0		106	104	1.9	103	102	1.0	70 - 130	30
1,1-Dichloroethene	ND	5.0		108	102	5.7	98	97	1.0	70 - 130	30
1,1-Dichloropropene	ND	5.0		105	104	1.0	101	100	1.0	70 - 130	30
1,2,3-Trichlorobenzene	ND	5.0		104	103	1.0	85	87	2.3	70 - 130	30
1,2,3-Trichloropropane	ND	5.0		93	95	2.1	85	86	1.2	70 - 130	30
1,2,4-Trichlorobenzene	ND	5.0		102	100	2.0	83	83	0.0	70 - 130	30
1,2,4-Trimethylbenzene	ND	1.0		101	100	1.0	93	92	1.1	70 - 130	30

QA/QC Data

SDG I.D.: GBZ42536

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
1,2-Dibromo-3-chloropropane	ND	5.0	106	107	0.9	86	90	4.5	70 - 130	30
1,2-Dibromoethane	ND	5.0	97	97	0.0	88	91	3.4	70 - 130	30
1,2-Dichlorobenzene	ND	5.0	104	102	1.9	92	92	0.0	70 - 130	30
1,2-Dichloroethane	ND	5.0	101	102	1.0	94	95	1.1	70 - 130	30
1,2-Dichloropropane	ND	5.0	103	102	1.0	98	98	0.0	70 - 130	30
1,3,5-Trimethylbenzene	ND	1.0	104	102	1.9	97	95	2.1	70 - 130	30
1,3-Dichlorobenzene	ND	5.0	101	99	2.0	90	89	1.1	70 - 130	30
1,3-Dichloropropane	ND	5.0	97	96	1.0	88	89	1.1	70 - 130	30
1,4-Dichlorobenzene	ND	5.0	103	101	2.0	90	90	0.0	70 - 130	30
2,2-Dichloropropane	ND	5.0	115	113	1.8	106	102	3.8	70 - 130	30
2-Chlorotoluene	ND	5.0	103	101	2.0	95	94	1.1	70 - 130	30
2-Hexanone	ND	25	92	97	5.3	78	85	8.6	70 - 130	30
2-Isopropyltoluene	ND	5.0	114	112	1.8	105	103	1.9	70 - 130	30
4-Chlorotoluene	ND	5.0	101	99	2.0	92	90	2.2	70 - 130	30
4-Methyl-2-pentanone	ND	25	102	106	3.8	91	97	6.4	70 - 130	30
Acetone	ND	10	76	81	6.4	90	90	0.0	70 - 130	30
Acrylonitrile	ND	5.0	103	106	2.9	90	93	3.3	70 - 130	30
Benzene	ND	1.0	101	99	2.0	97	96	1.0	70 - 130	30
Bromobenzene	ND	5.0	103	100	3.0	94	94	0.0	70 - 130	30
Bromochloromethane	ND	5.0	98	96	2.1	94	94	0.0	70 - 130	30
Bromodichloromethane	ND	5.0	108	107	0.9	99	100	1.0	70 - 130	30
Bromoform	ND	5.0	104	105	1.0	84	88	4.7	70 - 130	30
Bromomethane	ND	5.0	105	101	3.9	92	91	1.1	70 - 130	30
Carbon Disulfide	ND	5.0	119	115	3.4	106	106	0.0	70 - 130	30
Carbon tetrachloride	ND	5.0	112	109	2.7	102	102	0.0	70 - 130	30
Chlorobenzene	ND	5.0	102	100	2.0	94	93	1.1	70 - 130	30
Chloroethane	ND	5.0	117	110	6.2	107	104	2.8	70 - 130	30
Chloroform	ND	5.0	98	98	0.0	95	96	1.0	70 - 130	30
Chloromethane	ND	5.0	107	102	4.8	92	90	2.2	70 - 130	30
cis-1,2-Dichloroethene	ND	5.0	105	101	3.9	101	99	2.0	70 - 130	30
cis-1,3-Dichloropropene	ND	5.0	112	108	3.6	102	101	1.0	70 - 130	30
Dibromochloromethane	ND	3.0	112	108	3.6	98	98	0.0	70 - 130	30
Dibromomethane	ND	5.0	104	103	1.0	97	96	1.0	70 - 130	30
Dichlorodifluoromethane	ND	5.0	117	113	3.5	92	92	0.0	70 - 130	30
Ethylbenzene	ND	1.0	102	101	1.0	95	94	1.1	70 - 130	30
Hexachlorobutadiene	ND	5.0	112	110	1.8	93	93	0.0	70 - 130	30
Isopropylbenzene	ND	1.0	106	105	0.9	101	98	3.0	70 - 130	30
m&p-Xylene	ND	2.0	100	99	1.0	94	93	1.1	70 - 130	30
Methyl ethyl ketone	ND	5.0	92	91	1.1	81	83	2.4	70 - 130	30
Methyl t-butyl ether (MTBE)	ND	1.0	103	101	2.0	96	97	1.0	70 - 130	30
Methylene chloride	ND	5.0	76	73	4.0	79	78	1.3	70 - 130	30
Naphthalene	ND	5.0	102	107	4.8	89	93	4.4	70 - 130	30
n-Butylbenzene	ND	1.0	112	110	1.8	101	99	2.0	70 - 130	30
n-Propylbenzene	ND	1.0	108	105	2.8	100	97	3.0	70 - 130	30
o-Xylene	ND	2.0	102	101	1.0	97	95	2.1	70 - 130	30
p-Isopropyltoluene	ND	1.0	108	106	1.9	99	97	2.0	70 - 130	30
sec-Butylbenzene	ND	1.0	109	108	0.9	102	101	1.0	70 - 130	30
Styrene	ND	5.0	98	97	1.0	91	90	1.1	70 - 130	30
tert-Butylbenzene	ND	1.0	107	105	1.9	100	98	2.0	70 - 130	30
Tetrachloroethene	ND	5.0	109	108	0.9	105	102	2.9	70 - 130	30
Tetrahydrofuran (THF)	ND	5.0	92	97	5.3	84	91	8.0	70 - 130	30
Toluene	ND	1.0	105	104	1.0	101	98	3.0	70 - 130	30
trans-1,2-Dichloroethene	ND	5.0	104	102	1.9	98	97	1.0	70 - 130	30

QA/QC Data

SDG I.D.: GBZ42536

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
trans-1,3-Dichloropropene	ND	5.0	107	105	1.9	95	94	1.1	70 - 130	30
trans-1,4-dichloro-2-butene	ND	5.0	120	122	1.7	96	102	6.1	70 - 130	30
Trichloroethene	ND	5.0	103	102	1.0	97	95	2.1	70 - 130	30
Trichlorofluoromethane	ND	5.0	112	109	2.7	102	102	0.0	70 - 130	30
Trichlorotrifluoroethane	ND	5.0	115	114	0.9	107	104	2.8	70 - 130	30
Vinyl chloride	ND	5.0	110	107	2.8	96	96	0.0	70 - 130	30
% 1,2-dichlorobenzene-d4	94	%	102	102	0.0	101	102	1.0	70 - 130	30
% Bromofluorobenzene	100	%	100	99	1.0	98	99	1.0	70 - 130	30
% Dibromofluoromethane	102	%	97	98	1.0	98	98	0.0	70 - 130	30
% Toluene-d8	90	%	103	103	0.0	104	104	0.0	70 - 130	30

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

m = This parameter is outside laboratory MS/MSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
November 28, 2017

Tuesday, November 28, 2017

Criteria: CT: GAM, RC

State: CT

Sample Criteria Exceedances Report

GBZ42536 - FO-PCB

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
BZ42539	$8100SIMSM	Indeno(1,2,3-cd)pyrene	CT / RSR DEC RES (mg/kg) / APS Organics	4800	140	1000	1000	ug/Kg
BZ42539	$8100SIMSM	Benzo(a)pyrene	CT / RSR DEC RES (mg/kg) / Semivolatiles	4800	140	1000	1000	ug/Kg
BZ42539	$8100SIMSM	Benz(a)anthracene	CT / RSR DEC RES (mg/kg) / Semivolatiles	2100	140	1000	1000	ug/Kg
BZ42539	$8100SIMSM	Benzo(b)fluoranthene	CT / RSR DEC RES (mg/kg) / Semivolatiles	3900	140	1000	1000	ug/Kg
BZ42539	$8100SIMSM	Benzo(ghi)perylene	CT / RSR GA,GAA (mg/kg) / APS Organics	4100	140	1000	1000	ug/Kg
BZ42539	$8100SIMSM	Chrysene	CT / RSR GA,GAA (mg/kg) / APS Organics	3000	140	1000	1000	ug/Kg
BZ42539	$8100SIMSM	Indeno(1,2,3-cd)pyrene	CT / RSR GA,GAA (mg/kg) / APS Organics	4800	140	1000	1000	ug/Kg
BZ42539	$8100SIMSM	Benzo(k)fluoranthene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	3200	140	1000	1000	ug/Kg
BZ42539	$8100SIMSM	Benzo(b)fluoranthene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	3900	140	1000	1000	ug/Kg
BZ42539	$8100SIMSM	Benzo(a)pyrene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	4800	140	1000	1000	ug/Kg
BZ42539	$8100SIMSM	Benz(a)anthracene	CT / RSR GA,GAA (mg/kg) / Semivolatiles	2100	140	1000	1000	ug/Kg
BZ42543	$8260MAR	1,2-Dibromoethane	CT / RSR DEC RES (mg/kg) / Volatiles	ND	28	7	7	ug/Kg
BZ42543	$8260MAR	1,2-Dibromo-3-chloropropane	CT / RSR GA,GAA (mg/kg) / APS Organics	ND	57	5	5	ug/Kg
BZ42543	$8260MAR	Tetrahydrofuran (THF)	CT / RSR GA,GAA (mg/kg) / APS Organics	ND	140	80	80	ug/Kg
BZ42543	$8260MAR	Bromodichloromethane	CT / RSR GA,GAA (mg/kg) / APS Organics	ND	57	20	20	ug/Kg
BZ42543	$8260MAR	Bromomethane	CT / RSR GA,GAA (mg/kg) / APS Organics	ND	110	70	70	ug/Kg
BZ42543	$8260MAR	1,1,2,2-Tetrachloroethane	CT / RSR GA,GAA (mg/kg) / Volatiles	ND	57	10	10	ug/Kg
BZ42543	$8260MAR	1,2-Dibromoethane	CT / RSR GA,GAA (mg/kg) / Volatiles	ND	28	10	10	ug/Kg
BZ42543	$8260MAR	1,2-Dichloroethane	CT / RSR GA,GAA (mg/kg) / Volatiles	ND	28	20	20	ug/Kg
BZ42543	$8260MAR	Acrylonitrile	CT / RSR GA,GAA (mg/kg) / Volatiles	ND	28	10	10	ug/Kg
BZ42543	$8260MAR	Benzene	CT / RSR GA,GAA (mg/kg) / Volatiles	ND	28	20	20	ug/Kg
BZ42543	$8260MAR	Dibromochloromethane	CT / RSR GA,GAA (mg/kg) / Volatiles	ND	57	10	10	ug/Kg
BZ42543	$8260MAR	Methylene chloride	CT / RSR GA,GAA (mg/kg) / Volatiles	ND	280	100	100	ug/Kg
BZ42543	$8260MAR	1,1,1,2-Tetrachloroethane	CT / RSR GA,GAA (mg/kg) / Volatiles	ND	57	20	20	ug/Kg

REASONABLE CONFIDENCE PROTOCOL
LABORATORY ANALYSIS QA/QC CERTIFICATION FORM

Laboratory Name: Phoenix Environmental Labs, Inc. ***Client:*** Fuss & O'Neill, Inc.

Project Location: CT DOT HIGGANUM MAINTENANCE ***Project Number:***

Laboratory Sample ID(s): BZ42536-BZ42548 ***Sampling Date(s):*** 11/15/2017

List RCP Methods Used (e.g., 8260, 8270, et cetera) 6010, 7470/7471, 8082, 8260, 8270, ETPH

1	**For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?**	☑ Yes ☐ No
1A	**Were the method specified preservation and holding time requirements met?**	☑ Yes ☐ No
1B	***VPH and EPH methods only:*** **Was the VPH or EPH method conducted without significant modifications (see section 11.3 of respective RCP methods)**	☐ Yes ☐ No ☑ NA
2	**Were all samples received by the laboratory in a condition consistent with that described on the associated Chain-of-Custody document(s)?**	☑ Yes ☐ No
3	**Were samples received at an appropriate temperature (< 6 Degrees C)?**	☑ Yes ☐ No ☐ NA
4	**Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents acheived? See Sections: ICP Narration, VOA Narration.**	☐ Yes ☑ No
5	**a) Were reporting limits specified or referenced on the chain-of-custody?** **b) Were these reporting limits met?**	☑ Yes ☐ No ☐ Yes ☑ No
6	**For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?**	☐ Yes ☑ No
7	**Are project-specific matrix spikes and laboratory duplicates included in the data set?**	☑ Yes ☐ No

Notes: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A or 1B is "No", the data package does not meet the requirements for "Reasonable Confidence". This form may not be altered and all questions must be answered.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete.

Authorized Signature: Ethan Lee **Position:** Project Manager

Printed Name: Ethan Lee **Date:** Tuesday, November 28, 2017

Name of Laboratory Phoenix Environmental Labs, Inc.

This certification form is to be used for RCP methods only.

Environmental Laboratories, Inc.
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RCP Certification Report

November 28, 2017

SDG I.D.: GBZ42536

SDG Comments

Metals Analysis:
The client requested a shorter list of elements than the 6010 RCP list. Only the RCRA 8 Metals are reported as requested on the chain of custody.

8270 Semi-volatile Organics:
The client requested a short list for 8270 RCP Semivolatile. Only the PAH constituents are reported as requested on the chain-of-custody.

BZ42543 - Sample(s) required a dilution for Volatiles due to the presence of target and/or non-target compounds. This resulted in elevated reporting limits that exceed the requested criteria for one or more analytes.

ETPH Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

AU-FID1 11/20/17-1 Jeff Bucko, Chemist 11/20/17

BZ42539

The initial calibration (ETPHO18I) RSD for the compound list was less than 30% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

AU-FID11 11/17/17-1 Jeff Bucko, Chemist 11/17/17

BZ42545

The initial calibration (ETPHO26I) RSD for the compound list was less than 30% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

AU-FID21 11/17/17-1 Jeff Bucko, Chemist 11/17/17

BZ42536, BZ42537, BZ42541, BZ42542, BZ42543, BZ42544, BZ42546

The initial calibration (ETPHN13I) RSD for the compound list was less than 30% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

AU-FID21 11/22/17-1 Jeff Bucko, Chemist 11/22/17

BZ42540

The initial calibration (ETPHN13I) RSD for the compound list was less than 30% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

AU-XL2 11/17/17-1 Jeff Bucko, Chemist 11/17/17

BZ42538

The initial calibration (ETPHO23I) RSD for the compound list was less than 30% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

QC (Batch Specific):

Batch 409785 (BZ42326)

BZ42536, BZ42537, BZ42539, BZ42540, BZ42541, BZ42542, BZ42543, BZ42544, BZ42545, BZ42546

All LCS recoveries were within 60 - 120 with the following exceptions: None.
All LCSD recoveries were within 60 - 120 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
*The MS/MSD could not be reported due to the presence of ETPH in the original sample. The LCS was within QA/QC criteria.
Additional surrogate criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%. The ETPH/DRO LCS has been

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RCP Certification Report

November 28, 2017

SDG I.D.: GBZ42536

ETPH Narration

normalized based on the alkane calibration.

Batch 409922 (BZ42985)

BZ42538

All LCS recoveries were within 60 - 120 with the following exceptions: None.
All LCSD recoveries were within 60 - 120 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional surrogate criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%. The ETPH/DRO LCS has been normalized based on the alkane calibration.

Mercury Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

MERLIN 11/17/17 08:24 Rick Schweitzer, Chemist 11/17/17

BZ42536, BZ42537, BZ42538, BZ42539, BZ42540, BZ42541, BZ42542, BZ42543

The method preparation blank contains all of the acids and reagents as the samples; the instrument blanks do not.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

MERLIN 11/20/17 08:06 Rick Schweitzer, Chemist 11/20/17

BZ42544, BZ42545, BZ42546

The method preparation blank contains all of the acids and reagents as the samples; the instrument blanks do not.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 409829 (BZ41805)

BZ42536, BZ42537, BZ42538, BZ42539, BZ42540, BZ42541, BZ42542, BZ42543

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.

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Certification Report

November 28, 2017

SDG I.D.: GBZ42536

Mercury Narration

Batch 410035 (BZ32852)

BZ42544, BZ42545, BZ42546

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? No.

QC Batch 409779 (Samples: BZ42536, BZ42537, BZ42538): -----

The Sample/Duplicate RPD exceeds the method criteria for one or more analytes, therefore there may be variability in the reported result. (Barium)

Instrument:

ARCOS 11/16/17 08:55 Mike Arsenault, Chemist 11/16/17

BZ42536, BZ42537, BZ42538, BZ42539, BZ42540, BZ42541, BZ42542, BZ42543, BZ42544, BZ42545, BZ42546

Additional criteria for CCV and ICSAB:
Sodium and Potassium are poor performing elements, the laboratory's in-house limits are 85-115% (CCV) and 70-130% (ICSAB).The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 409779 (BZ42314)

BZ42536, BZ42537, BZ42538

All LCS recoveries were within 75 - 125 with the following exceptions: None.

QC (Site Specific):

Batch 409780 (BZ42539)

BZ42539, BZ42540, BZ42541, BZ42542, BZ42543, BZ42544, BZ42545, BZ42546

All LCS recoveries were within 75 - 125 with the following exceptions: None.
All MS recoveries were within 75 - 125 with the following exceptions: None.

PCB Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

RCP Certification Report

November 28, 2017

SDG I.D.: GBZ42536

PCB Narration

AU-ECD6 11/17/17-1 Adam Werner, Chemist 11/17/17

BZ42542, BZ42544, BZ42546

The initial calibration (PC906AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PC906BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 409914 (BZ42031)

BZ42542, BZ42544, BZ42546

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

SVOASIM Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

CHEM06 11/16/17-2 Damien Drobinski, Chemist 11/16/17

BZ42536, BZ42537, BZ42538, BZ42539, BZ42540

Initial Calibration Verification (CHEM06/BNSIM_1023):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM06/1116_33-BNSIM_1023):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM25 11/16/17-2 Damien Drobinski, Chemist 11/16/17

BZ42541, BZ42542, BZ42543, BZ42544, BZ42545, BZ42546

Initial Calibration Verification (CHEM25/BNSIM_1109):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM25/1116_35-BNSIM_1109):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.

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RCP Certification Report

November 28, 2017

SDG I.D.: GBZ42536

SVOASIM Narration

The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 409918 (BZ42326)

BZ42536, BZ42537, BZ42538, BZ42539, BZ42540

All LCS recoveries were within 30 - 130 with the following exceptions: None.
All LCSD recoveries were within 30 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
MSD notreported for this batch.
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

Batch 409919 (BZ42625)

BZ42541, BZ42542, BZ42543, BZ42544, BZ42545, BZ42546

All LCS recoveries were within 30 - 130 with the following exceptions: None.
All LCSD recoveries were within 30 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

VOA Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? No.

QC Batch 410443 (Samples: BZ42536, BZ42537, BZ42540): -----

The LCS/LCSD recovery is acceptable. One or more analytes in the site specific matrix spike recovery is below the method criteria, therefore a low bias is likely. (Acetone, Bromomethane, Chloroethane, Trichlorofluoromethane)

Instrument:

CHEM03 11/18/17-1 Jane Li, Chemist 11/18/17

BZ42538, BZ42539, BZ42540, BZ42541, BZ42542, BZ42543, BZ42544, BZ42547, BZ42548

Initial Calibration Verification (CHEM03/VT-L1030):
99% of target compounds met criteria.
The following compounds had %RSDs >20%: Acetone 21% (20%)
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM03/1118L01-VT-L1030):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.

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RCP Certification Report

November 28, 2017

SDG I.D.: GBZ42536

VOA Narration

The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM03 11/19/17-2 Jane Li, Chemist 11/19/17

BZ42536, BZ42537, BZ42540

Initial Calibration Verification (CHEM03/VT-L1030):
99% of target compounds met criteria.
The following compounds had %RSDs >20%: Acetone 21% (20%)
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM03/1119L35-VT-L1030):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM18 11/19/17-1 Jane Li, Chemist 11/19/17

BZ42545, BZ42546

Initial Calibration Verification (CHEM18/VT-M1117):
98% of target compounds met criteria.
The following compounds had %RSDs >20%: Chloroethane 22% (20%), Methylene chloride 37% (20%)
The following compounds did not meet recommended response factors: Acetone 0.086 (0.1)
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM18/1119M02-VT-M1117):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 410313 (BZ42326)

BZ42538, BZ42539, BZ42540, BZ42541, BZ42542, BZ42543, BZ42544, BZ42547, BZ42548

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

Batch 410328 (BZ43250)

BZ42545, BZ42546

All LCS recoveries were within 70 - 130 with the following exceptions: None.

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ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

RCP Certification Report

November 28, 2017

SDG I.D.: GBZ42536

VOA Narration

All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

QC (Site Specific):

Batch 410443 (BZ42540)

BZ42536, BZ42537, BZ42540

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
All MS recoveries were within 70 - 130 with the following exceptions: Acetone(53%), Bromomethane(62%), Chloroethane(42%), Trichlorofluoromethane(31%)
All MSD recoveries were within 70 - 130 with the following exceptions: Acetone(51%), Bromomethane(64%), Chloroethane(42%), Trichlorofluoromethane(30%)
All MS/MSD RPDs were less than 30% with the following exceptions: None.
A matrix effect is suspected when a MS/MSD recovery is outside of criteria. No further action is required if LCS/LCSD compounds are within criteria.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

Temperature Narration

The samples were received at 1.6C with cooling initiated.
(Note acceptance criteria is above freezing up to 6°C)

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(860) 646-2469 • www.FandO.com

146 Hartford Road, Manchester, CT 06040
56 Quarry Road, Trumbull, CT 06611
1419 Richland Street, Columbia, SC 29201
78 Interstate Drive, West Springfield, MA 01089
317 Iron Horse Way, Suite 204, Providence, RI 02908
80 Washington Street, Suite 301, Poughkeepsie, NY
Other _____

1610010

CHAIN-OF-CUSTODY RECORD 38419

Turnaround
24-Hour* 72 Hour* Other _____ (days)
48-Hour* Standard (____ days) *Surcharge Applies

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER	LABORATORY
CTDOT HIGGANUM MAINTENANCE FACILITY	HIGGANUM, CT	20160476.A20	PHOENIX

REPORT TO: STEFANIE WIERSZCHALEK (F+O) + DAN JAHNE (F+O)
INVOICE TO: ↓
P.O. NO.:
Sampler's Signature: [signature] Date: 11/15/17

Source Codes:
MW=Monitoring Well PW=Potable Water T=Treatment Facility S=Soil B=Sediment
SW=Surface Water ST=Stormwater W=Waste A=Air C=Concrete
X=Other _____

Analysis Request / Containers

Item No.	Transfer Check 1	2	3	4	Sample Number	Source Code	Date Sampled	Time Sampled	ETPH	PAHs	VOCs	RCRA 8 METALS	PCBs	Soil VOA Vial, X=methanol	Soil VOA Vial, X=water	Glass Soil Container (8) oz	Glass Soil Container (4) oz	Other:	Other:	Water VOA Vial, ☐ As is ☐ HCl	Glass Amber ( ) ml, ☐ As is ☐ H2SO4	Plastic - As is, ☐ 250 ml ☐ 500 ml ☐ 1000 ml	Plastic - H2SO4, ☐ 250 ml ☐ 500 ml	Plastic - HNO3, 250 ml ☐ Filtered ☐ 0.45µ ☐ 10µ	Plastic - NaOH, 250 ml	Comments
01					130517 1115-01	S	11/15/17	0850	X	X	X	X					1	2	1								42536
02					-02			0910	X	X	X	X					1	2	1								42537
03					-03			0940	X	X	X	X					1	2	1								42538
04					-04			1000	X	X	X	X					1	2	1								42539
05					-05			1020	X	X	X	X					1	2	1								42540
06					-06			1105	X	X	X	X					1	2	1								42541
07					-07			1145	X	X	X	X	X				1	2	1	1							42542
08					-08			1200	X	X	X	X					1	2	1								42543
09					-09			1305	X	X	X	X	X				1	2	1	1							42544
10					-10			1330	X	X	X	X					1	2	1								42545

Transfer Number	Relinquished By	Accepted By	Date	Time
1	[signature]	TTBUMM	11/15/17	10:38
2				
3				
4				

Charge Exceptions: CT Tax Exempt QA/QC ☐ Other _____
____ Duplicates ____ Blanks (Item Nos: _____)
Reporting and Detection Limit Requirements: RCP Deliverables ☐ MCP CAM Cert.
GA RMC, RES DEC
Additional Comments:

1.6WC010

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☐ 56 Quarry Road, Trumbull, CT 06611
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☐ 78 Interstate Drive, West Springfield, MA 01089
☐ 317 Iron Horse Way, Suite 204, Providence, RI 02908
☐ 80 Washington Street, Suite 301, Poughkeepsie, NY
☐ Other

CHAIN-OF-CUSTODY RECORD 38420

Turnaround
☐ 24-Hour* ☐ 72-Hour* ☐ Other ____ (days)
☐ 48-Hour* X Standard (____ days) *Surcharge Applies

Project Name	Project Location	Project Number	Laboratory
CT DOT HIGGANUM MAINTENANCE FACILITY	HIGGANUM, CT	20160476.A20	PHOENIX

Report To: STEFANIE WIERSZCHALEK (F+O) + DAN JAHNE (F+O)
Invoice To: ↓
P.O. No.:
Sampler's Signature: [signature] Date: 11/15/17

Source Codes:
MW=Monitoring Well PW=Potable Water T=Treatment Facility S=Soil B=Sediment
SW=Surface Water ST=Stormwater W=Waste A=Air C=Concrete
X=Other TRIP BLANK

Analysis Request / Containers

Item No.	Transfer Check 1	2	3	4	Sample Number	Source Code	Date Sampled	Time Sampled	ETPH	PAHs	VOCs	RCRA 8 Metals	PCBs	Soil VOA Vial, X Methanol	Soil VOA Vial, X Water	Glass Soil Container (8) oz	Other: Glass Soil Container (4) 8z	Other	Water VOA Vial, ☐ As is	Glass Amber ( ) mL, ☐ As is	Plastic - As is, ☐ 250 ml	Plastic - H_2SO_4, ☐ 250 ml	Plastic - HNO_3, 250 ml	Plastic - NaOH, 250 ml	☐ Filtered	☐ 0.45µ	☐ 10µ	Comments
11					130517 1115 -11	S	11/15/17	1350	X	X	X	X	X	1	2	1	1											42546
12					-12	X	↓	1400			X			1														42547
13					-13	X	↓	1405			X				2														42548

Transfer Number	Relinquished By	Accepted By	Date	Time
1	[signature]	TFEDEX	11/15/17	1638
2				
3				
4				

Charge Exceptions: X CT Tax Exempt X QA/QC ☐ Other ____
____ Duplicates 2 Blanks (Item Nos: 12, 13)
Reporting and Detection Limit Requirements: X RCP Deliverables ☐ MCP CAM Cert.
GA PMC, RES DEC
Additional Comments:

PHOENIX
Environmental Laboratories, Inc.

Tuesday, November 28, 2017

Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Sample ID#s: BZ43548 - BZ43564

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/16/17	8:30
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43548

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-14

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	50	ug/Kg	50	11/19/17	JLI	SW8260
1,1,1-Trichloroethane	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	50	ug/Kg	50	11/19/17	JLI	SW8260
1,1,2-Trichloroethane	ND	100	ug/Kg	50	11/19/17	JLI	SW8260
1,1-Dichloroethane	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
1,1-Dichloroethene	ND	140	ug/Kg	50	11/19/17	JLI	SW8260
1,1-Dichloropropene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
1,2,3-Trichloropropane	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	50	ug/Kg	50	11/19/17	JLI	SW8260
1,2-Dibromoethane	ND	25	ug/Kg	50	11/19/17	JLI	SW8260
1,2-Dichlorobenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
1,2-Dichloroethane	ND	25	ug/Kg	50	11/19/17	JLI	SW8260
1,2-Dichloropropane	ND	100	ug/Kg	50	11/19/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
1,3-Dichlorobenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
1,3-Dichloropropane	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
1,4-Dichlorobenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
2,2-Dichloropropane	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
2-Chlorotoluene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
2-Hexanone	ND	700	ug/Kg	50	11/19/17	JLI	SW8260
2-Isopropyltoluene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
4-Chlorotoluene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
4-Methyl-2-pentanone	ND	1300	ug/Kg	50	11/19/17	JLI	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-14

Phoenix I.D.: BZ43548

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Acetone	ND	5000	ug/Kg	50	11/19/17	JLI	SW8260
Acrylonitrile	ND	25	ug/Kg	50	11/19/17	JLI	SW8260
Benzene	ND	25	ug/Kg	50	11/19/17	JLI	SW8260
Bromobenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Bromochloromethane	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Bromodichloromethane	ND	50	ug/Kg	50	11/19/17	JLI	SW8260
Bromoform	ND	80	ug/Kg	50	11/19/17	JLI	SW8260
Bromomethane	ND	100	ug/Kg	50	11/19/17	JLI	SW8260
Carbon Disulfide	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Carbon tetrachloride	ND	100	ug/Kg	50	11/19/17	JLI	SW8260
Chlorobenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Chloroethane	ND	150	ug/Kg	50	11/19/17	JLI	SW8260
Chloroform	ND	120	ug/Kg	50	11/19/17	JLI	SW8260
Chloromethane	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Dibromochloromethane	ND	50	ug/Kg	50	11/19/17	JLI	SW8260
Dibromomethane	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Dichlorodifluoromethane	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Ethylbenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Hexachlorobutadiene	ND	200	ug/Kg	50	11/19/17	JLI	SW8260
Isopropylbenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
m&p-Xylene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Methyl Ethyl Ketone	ND	3000	ug/Kg	50	11/19/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Methylene chloride	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Naphthalene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
n-Butylbenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
n-Propylbenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
o-Xylene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
p-Isopropyltoluene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
sec-Butylbenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Styrene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
tert-Butylbenzene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Tetrachloroethene	ND	100	ug/Kg	50	11/19/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	130	ug/Kg	50	11/19/17	JLI	SW8260
Toluene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Total Xylenes	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	500	ug/Kg	50	11/19/17	JLI	SW8260
Trichloroethene	ND	100	ug/Kg	50	11/19/17	JLI	SW8260
Trichlorofluoromethane	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Trichlorotrifluoroethane	ND	250	ug/Kg	50	11/19/17	JLI	SW8260
Vinyl chloride	ND	40	ug/Kg	50	11/19/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	100		%	50	11/19/17	JLI	70 - 130 %
% Bromofluorobenzene	95		%	50	11/19/17	JLI	70 - 130 %
% Dibromofluoromethane	90		%	50	11/19/17	JLI	70 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Toluene-d8	98		%	50	11/19/17	JLI	70 - 130 %
Field Extraction	Completed				11/16/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

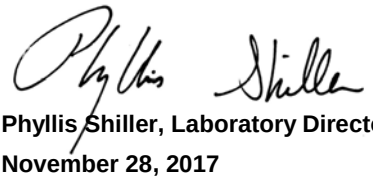
TRIP BLANK INCLUDED.

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/16/17	8:35
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43549

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-15

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1,1-Trichloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2-Trichloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloropropene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromoethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichlorobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichlorobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,4-Dichlorobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
2,2-Dichloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
2-Chlorotoluene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
2-Hexanone	ND	25	ug/Kg	1	11/19/17	JLI	SW8260
2-Isopropyltoluene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
4-Chlorotoluene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
4-Methyl-2-pentanone	ND	25	ug/Kg	1	11/19/17	JLI	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-15

Phoenix I.D.: BZ43549

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Acetone	ND	250	ug/Kg	1	11/19/17	JLI	SW8260
Acrylonitrile	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Benzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromochloromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromodichloromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromoform	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromomethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Carbon Disulfide	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Carbon tetrachloride	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Chlorobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Chloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Chloroform	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Chloromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Dibromochloromethane	ND	3.0	ug/Kg	1	11/19/17	JLI	SW8260
Dibromomethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Dichlorodifluoromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Ethylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Hexachlorobutadiene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Isopropylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
m&p-Xylene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Methyl Ethyl Ketone	ND	30	ug/Kg	1	11/19/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Methylene chloride	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Naphthalene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
n-Butylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
n-Propylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
o-Xylene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
p-Isopropyltoluene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
sec-Butylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Styrene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
tert-Butylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Tetrachloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Toluene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Total Xylenes	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Trichloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorofluoromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorotrifluoroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Vinyl chloride	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	97		%	1	11/19/17	JLI	70 - 130 %
% Bromofluorobenzene	93		%	1	11/19/17	JLI	70 - 130 %
% Dibromofluoromethane	94		%	1	11/19/17	JLI	70 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Toluene-d8	98		%	1	11/19/17	JLI	70 - 130 %
Field Extraction	Completed				11/16/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

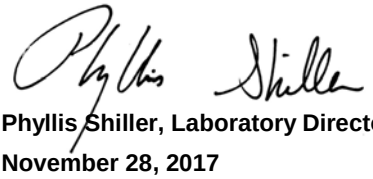
Comments:

TRIP BLANK INCLUDED.

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	CONCRETE	Collected by:		11/16/17	9:00
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43550

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-16

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Percent Solid	96		%		11/16/17	Q	SW846-%Solid
Soil Extraction for PCB	Completed				11/17/17	AA/V	SW3545A
Polychlorinated Biphenyls							
PCB-1016	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1221	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1232	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1242	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1248	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1254	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1260	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1262	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1268	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	104		%	10	11/21/17	AW	30 - 150 %
% TCMX	104		%	10	11/21/17	AW	30 - 150 %

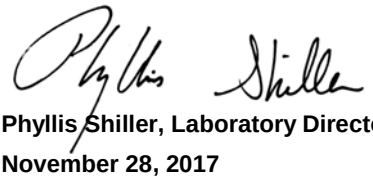
Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.



Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/16/17	9:25
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43551

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-17

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.37	0.37	mg/Kg	1	11/18/17	MA	SW6010C
Arsenic	9.19	0.73	mg/Kg	1	11/18/17	MA	SW6010C
Barium	367	0.37	mg/Kg	1	11/18/17	MA	SW6010C
Cadmium	1.98	0.37	mg/Kg	1	11/18/17	MA	SW6010C
Chromium	28.2	0.37	mg/Kg	1	11/18/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	498	3.7	mg/Kg	10	11/20/17	MA	SW6010C
Selenium	< 1.5	1.5	mg/Kg	1	11/18/17	MA	SW6010C
Percent Solid	82		%		11/16/17	Q	SW846-%Solid
Soil Extraction for PCB	Completed				11/17/17	AA/V	SW3545A
Soil Extraction SVOA PAH	Completed				11/17/17	JJ/V	SW3545A
Extraction of CT ETPH	Completed				11/17/17	CC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Total Metals Digest	Completed				11/17/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	30000	3000	mg/Kg	50	11/21/17	JRB	CTETPH 8015D
Identification	**		mg/Kg	50	11/21/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	Diluted Out		%	50	11/21/17	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	400	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1221	ND	400	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1232	ND	400	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1242	ND	400	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1248	ND	400	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1254	ND	400	ug/Kg	10	11/21/17	AW	SW8082A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1260	ND	400	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1262	ND	400	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1268	ND	400	ug/Kg	10	11/21/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	90		%	10	11/21/17	AW	30 - 150 %
% TCMX	81		%	10	11/21/17	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
1,1,1-Trichloroethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.4	ug/Kg	1	11/22/17	JLI	SW8260
1,1,2-Trichloroethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
1,1-Dichloroethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
1,1-Dichloroethene	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
1,1-Dichloropropene	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
1,2,3-Trichloropropane	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/22/17	JLI	SW8260
1,2-Dibromoethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
1,2-Dichlorobenzene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
1,2-Dichloroethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
1,2-Dichloropropane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
1,3-Dichlorobenzene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
1,3-Dichloropropane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
1,4-Dichlorobenzene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
2,2-Dichloropropane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
2-Chlorotoluene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
2-Hexanone	ND	28	ug/Kg	1	11/22/17	JLI	SW8260
2-Isopropyltoluene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
4-Chlorotoluene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
4-Methyl-2-pentanone	ND	28	ug/Kg	1	11/22/17	JLI	SW8260
Acetone	ND	280	ug/Kg	1	11/22/17	JLI	SW8260
Acrylonitrile	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Benzene	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Bromobenzene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
Bromochloromethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Bromodichloromethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Bromoform	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Bromomethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Carbon Disulfide	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Carbon tetrachloride	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Chlorobenzene	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Chloroethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Chloroform	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Chloromethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dibromochloromethane	ND	3.4	ug/Kg	1	11/22/17	JLI	SW8260
Dibromomethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Dichlorodifluoromethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Ethylbenzene	8.4	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Hexachlorobutadiene	ND	200	ug/Kg	50	11/20/17	JLI	SW8260
Isopropylbenzene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
m&p-Xylene	17	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Methyl Ethyl Ketone	ND	34	ug/Kg	1	11/22/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	11	ug/Kg	1	11/22/17	JLI	SW8260
Methylene chloride	ND	11	ug/Kg	1	11/22/17	JLI	SW8260
Naphthalene	180	180	ug/Kg	50	11/20/17	JLI	SW8260
n-Butylbenzene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
n-Propylbenzene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
o-Xylene	14	5.7	ug/Kg	1	11/22/17	JLI	SW8260
p-Isopropyltoluene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
sec-Butylbenzene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
Styrene	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
tert-Butylbenzene	ND	440	ug/Kg	50	11/20/17	JLI	SW8260
Tetrachloroethene	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	11	ug/Kg	1	11/22/17	JLI	SW8260
Toluene	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Total Xylenes	31.0	5.7	ug/Kg	1	11/22/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	880	ug/Kg	50	11/20/17	JLI	SW8260
Trichloroethene	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Trichlorofluoromethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Trichlorotrifluoroethane	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
Vinyl chloride	ND	5.7	ug/Kg	1	11/22/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	100		%	50	11/20/17	JLI	70 - 130 %
% Bromofluorobenzene	103		%	50	11/20/17	JLI	70 - 130 %
% Dibromofluoromethane	101		%	1	11/22/17	JLI	70 - 130 %
% Toluene-d8	88		%	1	11/22/17	JLI	70 - 130 %
Polynuclear Aromatic HC							
2-Methylnaphthalene	ND	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthene	170	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthylene	ND	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Anthracene	220	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benz(a)anthracene	390	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(a)pyrene	380	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	330	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	370	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	420	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Chrysene	490	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluoranthene	830	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluorene	510	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	350	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Naphthalene	ND	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Phenanthrene	930	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Pyrene	1700	160	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	61		%	10	11/17/17	DD	30 - 130 %
% Nitrobenzene-d5	66		%	10	11/17/17	DD	30 - 130 %
% Terphenyl-d14	54		%	10	11/17/17	DD	30 - 130 %
Field Extraction	Completed				11/16/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

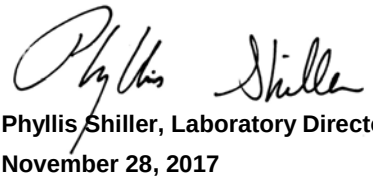
TPH Comment:
**Petroleum hydrocarbon chromatogram contains a multicomponent hydrocarbon distribution in the range of C16 to C36. The sample was quantitated against a C9-C36 alkane hydrocarbon standard.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

Volatile Comment:
There was a suppression of the last internal standard in the low level analysis, all affected compounds are reported from the methanol preserved high level analysis which did not exhibit this interference.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	CONCRETE	Collected by:		11/16/17	9:50
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43552

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-18

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Percent Solid	96		%		11/16/17	Q	SW846-%Solid
Soil Extraction for PCB	Completed				11/17/17	AA/V	SW3545A
Polychlorinated Biphenyls							
PCB-1016	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1221	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1232	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1242	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1248	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1254	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1260	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1262	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1268	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	86		%	10	11/22/17	AW	30 - 150 %
% TCMX	83		%	10	11/22/17	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/16/17	10:05
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43553

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-19

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.32	0.32	mg/Kg	1	11/18/17	MA	SW6010C
Arsenic	3.21	0.65	mg/Kg	1	11/18/17	MA	SW6010C
Barium	30.1	0.32	mg/Kg	1	11/18/17	MA	SW6010C
Cadmium	0.56	0.32	mg/Kg	1	11/18/17	MA	SW6010C
Chromium	19.3	0.32	mg/Kg	1	11/18/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	0.95	0.32	mg/Kg	1	11/18/17	MA	SW6010C
Selenium	< 1.3	1.3	mg/Kg	1	11/18/17	MA	SW6010C
Percent Solid	94		%		11/16/17	Q	SW846-%Solid
Soil Extraction for PCB	Completed				11/17/17	AA/V	SW3545A
Soil Extraction SVOA PAH	Completed				11/17/17	JJ/V	SW3545A
Extraction of CT ETPH	Completed				11/17/17	JC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Total Metals Digest	Completed				11/17/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	52	mg/Kg	1	11/19/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/19/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	78		%	1	11/19/17	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1221	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1232	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1242	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1248	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1254	ND	350	ug/Kg	10	11/22/17	AW	SW8082A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1260	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1262	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1268	ND	350	ug/Kg	10	11/22/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	90		%	10	11/22/17	AW	30 - 150 %
% TCMX	77		%	10	11/22/17	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1,1-Trichloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	2.9	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2-Trichloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloropropene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromoethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichlorobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichlorobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,4-Dichlorobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
2,2-Dichloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
2-Chlorotoluene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
2-Hexanone	ND	24	ug/Kg	1	11/19/17	JLI	SW8260
2-Isopropyltoluene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
4-Chlorotoluene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
4-Methyl-2-pentanone	ND	24	ug/Kg	1	11/19/17	JLI	SW8260
Acetone	ND	240	ug/Kg	1	11/19/17	JLI	SW8260
Acrylonitrile	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Benzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromochloromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromodichloromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromoform	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromomethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Carbon Disulfide	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Carbon tetrachloride	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Chlorobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Chloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Chloroform	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Chloromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dibromochloromethane	ND	2.9	ug/Kg	1	11/19/17	JLI	SW8260
Dibromomethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Dichlorodifluoromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Ethylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Hexachlorobutadiene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Isopropylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
m&p-Xylene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Methyl Ethyl Ketone	ND	29	ug/Kg	1	11/19/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	9.7	ug/Kg	1	11/19/17	JLI	SW8260
Methylene chloride	ND	9.7	ug/Kg	1	11/19/17	JLI	SW8260
Naphthalene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
n-Butylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
n-Propylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
o-Xylene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
p-Isopropyltoluene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
sec-Butylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Styrene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
tert-Butylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Tetrachloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	9.7	ug/Kg	1	11/19/17	JLI	SW8260
Toluene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Total Xylenes	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	9.7	ug/Kg	1	11/19/17	JLI	SW8260
Trichloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorofluoromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorotrifluoroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Vinyl chloride	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	11/19/17	JLI	70 - 130 %
% Bromofluorobenzene	96		%	1	11/19/17	JLI	70 - 130 %
% Dibromofluoromethane	95		%	1	11/19/17	JLI	70 - 130 %
% Toluene-d8	99		%	1	11/19/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthylene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Anthracene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Chrysene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluoranthene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluorene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-19

Phoenix I.D.: BZ43553

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Naphthalene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Phenanthrene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Pyrene	ND	140	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	59		%	10	11/17/17	DD	30 - 130 %
% Nitrobenzene-d5	59		%	10	11/17/17	DD	30 - 130 %
% Terphenyl-d14	64		%	10	11/17/17	DD	30 - 130 %
Field Extraction	Completed				11/16/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/16/17	11:00
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43554

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-20

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.41	0.41	mg/Kg	1	11/18/17	MA	SW6010C
Arsenic	0.94	0.81	mg/Kg	1	11/18/17	MA	SW6010C
Barium	23.9	0.41	mg/Kg	1	11/18/17	MA	SW6010C
Cadmium	< 0.41	0.41	mg/Kg	1	11/18/17	MA	SW6010C
Chromium	8.63	0.41	mg/Kg	1	11/18/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	3.27	0.41	mg/Kg	1	11/18/17	MA	SW6010C
Selenium	< 1.6	1.6	mg/Kg	1	11/18/17	MA	SW6010C
Percent Solid	88		%		11/16/17	Q	SW846-%Solid
Soil Extraction for PCB	Completed				11/17/17	AA/V	SW3545A
Soil Extraction SVOA PAH	Completed				11/17/17	JJ/V	SW3545A
Extraction of CT ETPH	Completed				11/17/17	JC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Total Metals Digest	Completed				11/17/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	56	mg/Kg	1	11/19/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/19/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	67		%	1	11/19/17	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	380	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1221	ND	380	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1232	ND	380	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1242	ND	380	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1248	ND	380	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1254	ND	380	ug/Kg	10	11/22/17	AW	SW8082A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1260	ND	380	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1262	ND	380	ug/Kg	10	11/22/17	AW	SW8082A
PCB-1268	ND	380	ug/Kg	10	11/22/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	113		%	10	11/22/17	AW	30 - 150 %
% TCMX	87		%	10	11/22/17	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
1,1,1-Trichloroethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	2.6	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2-Trichloroethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloropropene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
1,2,3-Trichloropropane	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromoethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichlorobenzene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
1,2-Dichloroethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloropropane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
1,3-Dichlorobenzene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
1,3-Dichloropropane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
1,4-Dichlorobenzene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
2,2-Dichloropropane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
2-Chlorotoluene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
2-Hexanone	ND	22	ug/Kg	1	11/19/17	JLI	SW8260
2-Isopropyltoluene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
4-Chlorotoluene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
4-Methyl-2-pentanone	ND	22	ug/Kg	1	11/19/17	JLI	SW8260
Acetone	ND	220	ug/Kg	1	11/19/17	JLI	SW8260
Acrylonitrile	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Benzene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Bromobenzene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
Bromochloromethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Bromodichloromethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Bromoform	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Bromomethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Carbon Disulfide	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Carbon tetrachloride	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Chlorobenzene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Chloroethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Chloroform	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Chloromethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dibromochloromethane	ND	2.6	ug/Kg	1	11/19/17	JLI	SW8260
Dibromomethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Dichlorodifluoromethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Ethylbenzene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Hexachlorobutadiene	ND	200	ug/Kg	50	11/20/17	JLI	SW8260
Isopropylbenzene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
m&p-Xylene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Methyl Ethyl Ketone	ND	26	ug/Kg	1	11/19/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	8.6	ug/Kg	1	11/19/17	JLI	SW8260
Methylene chloride	ND	8.6	ug/Kg	1	11/19/17	JLI	SW8260
Naphthalene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
n-Butylbenzene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
n-Propylbenzene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
o-Xylene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
p-Isopropyltoluene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
sec-Butylbenzene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
Styrene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
tert-Butylbenzene	ND	390	ug/Kg	50	11/20/17	JLI	SW8260
Tetrachloroethene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	8.6	ug/Kg	1	11/19/17	JLI	SW8260
Toluene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Total Xylenes	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	770	ug/Kg	50	11/20/17	JLI	SW8260
Trichloroethene	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorofluoromethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorotrifluoroethane	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
Vinyl chloride	ND	4.3	ug/Kg	1	11/19/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	100		%	50	11/20/17	JLI	70 - 130 %
% Bromofluorobenzene	94		%	50	11/20/17	JLI	70 - 130 %
% Dibromofluoromethane	102		%	1	11/19/17	JLI	70 - 130 %
% Toluene-d8	98		%	1	11/19/17	JLI	70 - 130 %
Polynuclear Aromatic HC							
2-Methylnaphthalene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Acenaphthylene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Chrysene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluoranthene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Fluorene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Naphthalene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Phenanthrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
Pyrene	ND	150	ug/Kg	10	11/17/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	65		%	10	11/17/17	DD	30 - 130 %
% Nitrobenzene-d5	61		%	10	11/17/17	DD	30 - 130 %
% Terphenyl-d14	73		%	10	11/17/17	DD	30 - 130 %
Field Extraction	Completed				11/16/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
There was a suppression of the last internal standard in the low level analysis, all affected compounds are reported from the methanol preserved high level analysis which did not exhibit this interference.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/16/17	11:10
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43555

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-21

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.36	0.36	mg/Kg	1	11/18/17	MA	SW6010C
Arsenic	10.2	0.72	mg/Kg	1	11/18/17	MA	SW6010C
Barium	52.4	0.36	mg/Kg	1	11/18/17	MA	SW6010C
Cadmium	4.67	0.36	mg/Kg	1	11/18/17	MA	SW6010C
Chromium	14.8	0.36	mg/Kg	1	11/18/17	MA	SW6010C
Mercury	0.05	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	129	0.36	mg/Kg	1	11/18/17	MA	SW6010C
Selenium	< 1.4	1.4	mg/Kg	1	11/18/17	MA	SW6010C
Percent Solid	91		%		11/16/17	Q	SW846-%Solid
Soil Extraction for PCB	Completed				11/17/17	AA/V	SW3545A
Soil Extraction SVOA PAH	Completed				11/17/17	JJ/V	SW3545A
Extraction of CT ETPH	Completed				11/17/17	JC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Total Metals Digest	Completed				11/17/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	54	mg/Kg	1	11/19/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/19/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	88		%	1	11/19/17	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	360	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1221	ND	360	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1232	ND	360	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1242	ND	360	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1248	ND	360	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1254	ND	360	ug/Kg	10	11/20/17	AW	SW8082A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1260	ND	360	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1262	ND	360	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1268	ND	360	ug/Kg	10	11/20/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	94		%	10	11/20/17	AW	30 - 150 %
% TCMX	83		%	10	11/20/17	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,1,1-Trichloroethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	4.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2-Trichloroethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloropropene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichloropropane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromoethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichlorobenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloroethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloropropane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichlorobenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichloropropane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
1,4-Dichlorobenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
2,2-Dichloropropane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
2-Chlorotoluene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
2-Hexanone	ND	33	ug/Kg	1	11/19/17	JLI	SW8260
2-Isopropyltoluene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
4-Chlorotoluene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
4-Methyl-2-pentanone	ND	33	ug/Kg	1	11/19/17	JLI	SW8260
Acetone	ND	330	ug/Kg	1	11/19/17	JLI	SW8260
Acrylonitrile	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Benzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Bromobenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Bromochloromethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Bromodichloromethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Bromoform	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Bromomethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Carbon Disulfide	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Carbon tetrachloride	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Chlorobenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Chloroethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Chloroform	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Chloromethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dibromochloromethane	ND	4.0	ug/Kg	1	11/19/17	JLI	SW8260
Dibromomethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Dichlorodifluoromethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Ethylbenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Hexachlorobutadiene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Isopropylbenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
m&p-Xylene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Methyl Ethyl Ketone	ND	40	ug/Kg	1	11/19/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	13	ug/Kg	1	11/19/17	JLI	SW8260
Methylene chloride	ND	13	ug/Kg	1	11/19/17	JLI	SW8260
Naphthalene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
n-Butylbenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
n-Propylbenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
o-Xylene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
p-Isopropyltoluene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
sec-Butylbenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Styrene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
tert-Butylbenzene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Tetrachloroethene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	13	ug/Kg	1	11/19/17	JLI	SW8260
Toluene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Total Xylenes	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	13	ug/Kg	1	11/19/17	JLI	SW8260
Trichloroethene	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorofluoromethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorotrifluoroethane	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
Vinyl chloride	ND	6.6	ug/Kg	1	11/19/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	108		%	1	11/19/17	JLI	70 - 130 %
% Bromofluorobenzene	86		%	1	11/19/17	JLI	70 - 130 %
% Dibromofluoromethane	102		%	1	11/19/17	JLI	70 - 130 %
% Toluene-d8	97		%	1	11/19/17	JLI	70 - 130 %
Polynuclear Aromatic HC							
2-Methylnaphthalene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthylene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Anthracene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benz(a)anthracene	170	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	150	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	160	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Chrysene	230	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluoranthene	320	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluorene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Naphthalene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Phenanthrene	150	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Pyrene	330	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	59		%	10	11/18/17	DD	30 - 130 %
% Nitrobenzene-d5	55		%	10	11/18/17	DD	30 - 130 %
% Terphenyl-d14	65		%	10	11/18/17	DD	30 - 130 %
Field Extraction	Completed				11/16/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	CONCRETE	Collected by:		11/16/17	12:30
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43556

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-22

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Percent Solid	95		%		11/16/17	Q	SW846-%Solid
Soil Extraction for PCB	Completed				11/17/17	AA/V	SW3545A
Polychlorinated Biphenyls							
PCB-1016	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1221	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1232	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1242	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1248	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1254	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1260	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1262	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1268	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	90		%	10	11/20/17	AW	30 - 150 %
% TCMX	84		%	10	11/20/17	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.
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Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/16/17	12:35
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43557

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-23

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.41	0.41	mg/Kg	1	11/18/17	MA	SW6010C
Arsenic	< 0.82	0.82	mg/Kg	1	11/18/17	MA	SW6010C
Barium	15.4	0.41	mg/Kg	1	11/18/17	MA	SW6010C
Cadmium	< 0.41	0.41	mg/Kg	1	11/18/17	MA	SW6010C
Chromium	7.75	0.41	mg/Kg	1	11/18/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	0.82	0.41	mg/Kg	1	11/18/17	MA	SW6010C
Selenium	< 1.6	1.6	mg/Kg	1	11/18/17	MA	SW6010C
Percent Solid	85		%		11/16/17	Q	SW846-%Solid
Soil Extraction for PCB	Completed				11/17/17	AA/V	SW3545A
Soil Extraction SVOA PAH	Completed				11/17/17	JJ/V	SW3545A
Extraction of CT ETPH	Completed				11/17/17	JC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Total Metals Digest	Completed				11/17/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	58	mg/Kg	1	11/19/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/19/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	63		%	1	11/19/17	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	380	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1221	ND	380	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1232	ND	380	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1242	ND	380	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1248	ND	380	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1254	ND	380	ug/Kg	10	11/20/17	AW	SW8082A

Ver 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1260	ND	380	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1262	ND	380	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1268	ND	380	ug/Kg	10	11/20/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	75		%	10	11/20/17	AW	30 - 150 %
% TCMX	74		%	10	11/20/17	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1,1-Trichloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2-Trichloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloropropene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromoethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichlorobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichlorobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,4-Dichlorobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
2,2-Dichloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
2-Chlorotoluene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
2-Hexanone	ND	25	ug/Kg	1	11/19/17	JLI	SW8260
2-Isopropyltoluene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
4-Chlorotoluene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
4-Methyl-2-pentanone	ND	25	ug/Kg	1	11/19/17	JLI	SW8260
Acetone	ND	250	ug/Kg	1	11/19/17	JLI	SW8260
Acrylonitrile	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Benzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromochloromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromodichloromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromoform	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromomethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Carbon Disulfide	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Carbon tetrachloride	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Chlorobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Chloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Chloroform	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Chloromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dibromochloromethane	ND	3.0	ug/Kg	1	11/19/17	JLI	SW8260
Dibromomethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Dichlorodifluoromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Ethylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Hexachlorobutadiene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Isopropylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
m&p-Xylene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Methyl Ethyl Ketone	ND	30	ug/Kg	1	11/19/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Methylene chloride	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Naphthalene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
n-Butylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
n-Propylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
o-Xylene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
p-Isopropyltoluene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
sec-Butylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Styrene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
tert-Butylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Tetrachloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Toluene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Total Xylenes	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Trichloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorofluoromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorotrifluoroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Vinyl chloride	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	98		%	1	11/19/17	JLI	70 - 130 %
% Bromofluorobenzene	96		%	1	11/19/17	JLI	70 - 130 %
% Dibromofluoromethane	99		%	1	11/19/17	JLI	70 - 130 %
% Toluene-d8	98		%	1	11/19/17	JLI	70 - 130 %
Polynuclear Aromatic HC							
2-Methylnaphthalene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthylene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Anthracene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Chrysene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluoranthene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluorene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-23

Phoenix I.D.: BZ43557

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Naphthalene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Phenanthrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Pyrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	60		%	10	11/18/17	DD	30 - 130 %
% Nitrobenzene-d5	62		%	10	11/18/17	DD	30 - 130 %
% Terphenyl-d14	62		%	10	11/18/17	DD	30 - 130 %
Field Extraction	Completed				11/16/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.
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Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	CONCRETE	Collected by:		11/16/17	13:00
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43558

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-24

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Percent Solid	96		%		11/16/17	Q	SW846-%Solid
Soil Extraction for PCB	Completed				11/17/17	AA/V	SW3545A
Polychlorinated Biphenyls							
PCB-1016	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1221	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1232	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1242	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1248	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1254	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1260	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1262	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
PCB-1268	ND	340	ug/Kg	10	11/20/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	98		%	10	11/20/17	AW	30 - 150 %
% TCMX	95		%	10	11/20/17	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.
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Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/16/17	13:10
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43559

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-25

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.32	0.32	mg/Kg	1	11/18/17	MA	SW6010C
Arsenic	1.24	0.65	mg/Kg	1	11/18/17	MA	SW6010C
Barium	39.6	0.32	mg/Kg	1	11/18/17	MA	SW6010C
Cadmium	0.67	0.32	mg/Kg	1	11/18/17	MA	SW6010C
Chromium	18.5	0.32	mg/Kg	1	11/18/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	4.77	0.32	mg/Kg	1	11/18/17	MA	SW6010C
Selenium	< 1.3	1.3	mg/Kg	1	11/18/17	MA	SW6010C
Percent Solid	91		%		11/16/17	Q	SW846-%Solid
Soil Extraction for PCB	Completed				11/20/17	AA/V	SW3545A
Soil Extraction SVOA PAH	Completed				11/17/17	JJ/V	SW3545A
Extraction of CT ETPH	Completed				11/17/17	CC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Total Metals Digest	Completed				11/17/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	54	mg/Kg	1	11/19/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/19/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	84		%	1	11/19/17	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1221	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1232	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1242	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1248	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1254	ND	360	ug/Kg	10	11/21/17	AW	SW8082A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1260	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1262	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1268	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	90		%	10	11/21/17	AW	30 - 150 %
% TCMX	68		%	10	11/21/17	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1,1-Trichloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	2.9	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2-Trichloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloropropene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
1,2,3-Trichloropropane	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromoethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichlorobenzene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
1,2-Dichloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
1,3-Dichlorobenzene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
1,3-Dichloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
1,4-Dichlorobenzene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
2,2-Dichloropropane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
2-Chlorotoluene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
2-Hexanone	ND	24	ug/Kg	1	11/19/17	JLI	SW8260
2-Isopropyltoluene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
4-Chlorotoluene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
4-Methyl-2-pentanone	ND	24	ug/Kg	1	11/19/17	JLI	SW8260
Acetone	ND	240	ug/Kg	1	11/19/17	JLI	SW8260
Acrylonitrile	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Benzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromobenzene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
Bromochloromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromodichloromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromoform	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Bromomethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Carbon Disulfide	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Carbon tetrachloride	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Chlorobenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Chloroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Chloroform	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Chloromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dibromochloromethane	ND	2.9	ug/Kg	1	11/19/17	JLI	SW8260
Dibromomethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Dichlorodifluoromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Ethylbenzene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Hexachlorobutadiene	ND	200	ug/Kg	50	11/20/17	JLI	SW8260
Isopropylbenzene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
m&p-Xylene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Methyl Ethyl Ketone	ND	29	ug/Kg	1	11/19/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	9.7	ug/Kg	1	11/19/17	JLI	SW8260
Methylene chloride	ND	9.7	ug/Kg	1	11/19/17	JLI	SW8260
Naphthalene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
n-Butylbenzene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
n-Propylbenzene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
o-Xylene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
p-Isopropyltoluene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
sec-Butylbenzene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
Styrene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
tert-Butylbenzene	ND	320	ug/Kg	50	11/20/17	JLI	SW8260
Tetrachloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	9.7	ug/Kg	1	11/19/17	JLI	SW8260
Toluene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Total Xylenes	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	650	ug/Kg	50	11/20/17	JLI	SW8260
Trichloroethene	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorofluoromethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorotrifluoroethane	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
Vinyl chloride	ND	4.8	ug/Kg	1	11/19/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	50	11/20/17	JLI	70 - 130 %
% Bromofluorobenzene	94		%	50	11/20/17	JLI	70 - 130 %
% Dibromofluoromethane	111		%	1	11/19/17	JLI	70 - 130 %
% Toluene-d8	97		%	1	11/19/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthylene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Anthracene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benz(a)anthracene	150	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(a)pyrene	150	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	160	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	170	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Chrysene	250	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluoranthene	410	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluorene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Naphthalene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Phenanthrene	320	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Pyrene	420	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	56		%	10	11/18/17	DD	30 - 130 %
% Nitrobenzene-d5	54		%	10	11/18/17	DD	30 - 130 %
% Terphenyl-d14	58		%	10	11/18/17	DD	30 - 130 %
Field Extraction	Completed				11/16/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

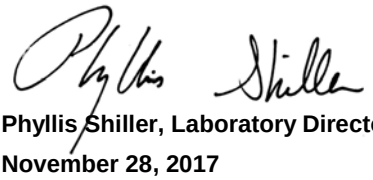
Comments:

Volatile Comment:
There was a suppression of the last internal standard in the low level analysis, all affected compounds are reported from the methanol preserved high level analysis which did not exhibit this interference.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/16/17	13:20
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43560

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-26

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.33	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Arsenic	< 0.65	0.65	mg/Kg	1	11/18/17	MA	SW6010C
Barium	27.1	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Cadmium	< 0.33	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Chromium	9.58	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	< 0.33	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Selenium	< 1.3	1.3	mg/Kg	1	11/18/17	MA	SW6010C
Percent Solid	92		%		11/16/17	Q	SW846-%Solid
Soil Extraction for PCB	Completed				11/20/17	AA/V	SW3545A
Soil Extraction SVOA PAH	Completed				11/17/17	AA/V	SW3545A
Extraction of CT ETPH	Completed				11/17/17	CC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Total Metals Digest	Completed				11/17/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	54	mg/Kg	1	11/19/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/19/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	70		%	1	11/19/17	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1221	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1232	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1242	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1248	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1254	ND	360	ug/Kg	10	11/21/17	AW	SW8082A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1260	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1262	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1268	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	95		%	10	11/21/17	AW	30 - 150 %
% TCMX	76		%	10	11/21/17	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
1,1,1-Trichloroethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.7	ug/Kg	1	11/20/17	JLI	SW8260
1,1,2-Trichloroethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
1,1-Dichloroethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
1,1-Dichloroethene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
1,1-Dichloropropene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
1,2,3-Trichloropropane	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dibromoethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dichlorobenzene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
1,2-Dichloroethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dichloropropane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
1,3-Dichlorobenzene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
1,3-Dichloropropane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
1,4-Dichlorobenzene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
2,2-Dichloropropane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
2-Chlorotoluene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
2-Hexanone	ND	31	ug/Kg	1	11/20/17	JLI	SW8260
2-Isopropyltoluene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
4-Chlorotoluene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
4-Methyl-2-pentanone	ND	31	ug/Kg	1	11/20/17	JLI	SW8260
Acetone	ND	310	ug/Kg	1	11/20/17	JLI	SW8260
Acrylonitrile	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Benzene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Bromobenzene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
Bromochloromethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Bromodichloromethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Bromoform	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Bromomethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Carbon Disulfide	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Carbon tetrachloride	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Chlorobenzene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Chloroethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Chloroform	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Chloromethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dibromochloromethane	ND	3.7	ug/Kg	1	11/20/17	JLI	SW8260
Dibromomethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Dichlorodifluoromethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Ethylbenzene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Hexachlorobutadiene	ND	200	ug/Kg	50	11/20/17	JLI	SW8260
Isopropylbenzene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
m&p-Xylene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Methyl Ethyl Ketone	ND	37	ug/Kg	1	11/20/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	12	ug/Kg	1	11/20/17	JLI	SW8260
Methylene chloride	ND	12	ug/Kg	1	11/20/17	JLI	SW8260
Naphthalene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
n-Butylbenzene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
n-Propylbenzene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
o-Xylene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
p-Isopropyltoluene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
sec-Butylbenzene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
Styrene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
tert-Butylbenzene	ND	340	ug/Kg	50	11/20/17	JLI	SW8260
Tetrachloroethene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	12	ug/Kg	1	11/20/17	JLI	SW8260
Toluene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Total Xylenes	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	670	ug/Kg	50	11/20/17	JLI	SW8260
Trichloroethene	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Trichlorofluoromethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Trichlorotrifluoroethane	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
Vinyl chloride	ND	6.2	ug/Kg	1	11/20/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	98		%	50	11/20/17	JLI	70 - 130 %
% Bromofluorobenzene	95		%	50	11/20/17	JLI	70 - 130 %
% Dibromofluoromethane	107		%	1	11/20/17	JLI	70 - 130 %
% Toluene-d8	95		%	1	11/20/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthylene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Anthracene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Chrysene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluoranthene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluorene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-26

Phoenix I.D.: BZ43560

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Naphthalene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Phenanthrene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Pyrene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	47		%	10	11/18/17	DD	30 - 130 %
% Nitrobenzene-d5	52		%	10	11/18/17	DD	30 - 130 %
% Terphenyl-d14	55		%	10	11/18/17	DD	30 - 130 %
Field Extraction	Completed				11/16/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

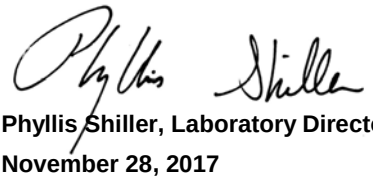
Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

Volatile Comment:
There was a suppression of the last internal standard in the low level analysis, all affected compounds are reported from the methanol preserved high level analysis which did not exhibit this interference.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/16/17	14:00
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43561

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-27

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.39	0.39	mg/Kg	1	11/18/17	MA	SW6010C
Arsenic	0.80	0.79	mg/Kg	1	11/18/17	MA	SW6010C
Barium	22.2	0.39	mg/Kg	1	11/18/17	MA	SW6010C
Cadmium	< 0.39	0.39	mg/Kg	1	11/18/17	MA	SW6010C
Chromium	9.86	0.39	mg/Kg	1	11/18/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	2.05	0.39	mg/Kg	1	11/18/17	MA	SW6010C
Selenium	< 1.6	1.6	mg/Kg	1	11/18/17	MA	SW6010C
Percent Solid	87		%		11/16/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/17/17	AA/V	SW3545A
Extraction of CT ETPH	Completed				11/17/17	CC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Total Metals Digest	Completed				11/17/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	56	mg/Kg	1	11/19/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/19/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	66		%	1	11/19/17	JRB	50 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,1,1-Trichloroethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.2	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2-Trichloroethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloropropene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-27

Phoenix I.D.: BZ43561

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,3-Trichlorobenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichloropropane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromoethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichlorobenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloroethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloropropane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichlorobenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichloropropane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
1,4-Dichlorobenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
2,2-Dichloropropane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
2-Chlorotoluene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
2-Hexanone	ND	26	ug/Kg	1	11/19/17	JLI	SW8260
2-Isopropyltoluene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
4-Chlorotoluene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
4-Methyl-2-pentanone	ND	26	ug/Kg	1	11/19/17	JLI	SW8260
Acetone	ND	260	ug/Kg	1	11/19/17	JLI	SW8260
Acrylonitrile	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Benzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Bromobenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Bromochloromethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Bromodichloromethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Bromoform	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Bromomethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Carbon Disulfide	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Carbon tetrachloride	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Chlorobenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Chloroethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Chloroform	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Chloromethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Dibromochloromethane	ND	3.2	ug/Kg	1	11/19/17	JLI	SW8260
Dibromomethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Dichlorodifluoromethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Ethylbenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Hexachlorobutadiene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Isopropylbenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
m&p-Xylene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Methyl Ethyl Ketone	ND	32	ug/Kg	1	11/19/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	11	ug/Kg	1	11/19/17	JLI	SW8260
Methylene chloride	ND	11	ug/Kg	1	11/19/17	JLI	SW8260
Naphthalene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
n-Butylbenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
n-Propylbenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
o-Xylene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
p-Isopropyltoluene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
sec-Butylbenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Styrene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
tert-Butylbenzene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Tetrachloroethene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	11	ug/Kg	1	11/19/17	JLI	SW8260
Toluene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Total Xylenes	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	11	ug/Kg	1	11/19/17	JLI	SW8260
Trichloroethene	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorofluoromethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorotrifluoroethane	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
Vinyl chloride	ND	5.3	ug/Kg	1	11/19/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	105		%	1	11/19/17	JLI	70 - 130 %
% Bromofluorobenzene	87		%	1	11/19/17	JLI	70 - 130 %
% Dibromofluoromethane	101		%	1	11/19/17	JLI	70 - 130 %
% Toluene-d8	99		%	1	11/19/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthylene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Anthracene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Chrysene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluoranthene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluorene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Naphthalene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Phenanthrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Pyrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	56		%	10	11/18/17	DD	30 - 130 %
% Nitrobenzene-d5	62		%	10	11/18/17	DD	30 - 130 %
% Terphenyl-d14	69		%	10	11/18/17	DD	30 - 130 %
Field Extraction	Completed				11/16/17		SW5035A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

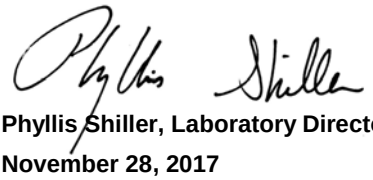
RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/16/17	14:30
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43562

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-28

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.33	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Arsenic	< 0.66	0.66	mg/Kg	1	11/18/17	MA	SW6010C
Barium	17.8	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Cadmium	0.50	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Chromium	11.9	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	3.32	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Selenium	< 1.3	1.3	mg/Kg	1	11/18/17	MA	SW6010C
Percent Solid	97		%		11/16/17	Q	SW846-%Solid
Soil Extraction for PCB	Completed				11/20/17	AA/V	SW3545A
Soil Extraction SVOA PAH	Completed				11/17/17	AA/V	SW3545A
Extraction of CT ETPH	Completed				11/17/17	CC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Total Metals Digest	Completed				11/17/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	9500	500	mg/Kg	10	11/20/17	JRB	CTETPH 8015D
Identification	**		mg/Kg	10	11/20/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	Diluted Out		%	10	11/20/17	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1221	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1232	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1242	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1248	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1254	ND	340	ug/Kg	10	11/21/17	AW	SW8082A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1260	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1262	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1268	ND	340	ug/Kg	10	11/21/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	93		%	10	11/21/17	AW	30 - 150 %
% TCMX	83		%	10	11/21/17	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
1,1,1-Trichloroethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	2.8	ug/Kg	1	11/20/17	JLI	SW8260
1,1,2-Trichloroethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
1,1-Dichloroethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
1,1-Dichloroethene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
1,1-Dichloropropene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
1,2,3-Trichloropropane	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dibromoethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dichlorobenzene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
1,2-Dichloroethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
1,2-Dichloropropane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
1,3-Dichlorobenzene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
1,3-Dichloropropane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
1,4-Dichlorobenzene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
2,2-Dichloropropane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
2-Chlorotoluene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
2-Hexanone	ND	23	ug/Kg	1	11/20/17	JLI	SW8260
2-Isopropyltoluene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
4-Chlorotoluene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
4-Methyl-2-pentanone	ND	23	ug/Kg	1	11/20/17	JLI	SW8260
Acetone	ND	230	ug/Kg	1	11/20/17	JLI	SW8260
Acrylonitrile	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Benzene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Bromobenzene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
Bromochloromethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Bromodichloromethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Bromoform	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Bromomethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Carbon Disulfide	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Carbon tetrachloride	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Chlorobenzene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Chloroethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Chloroform	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Chloromethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dibromochloromethane	ND	2.8	ug/Kg	1	11/20/17	JLI	SW8260
Dibromomethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Dichlorodifluoromethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Ethylbenzene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Hexachlorobutadiene	ND	200	ug/Kg	50	11/19/17	JLI	SW8260
Isopropylbenzene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
m&p-Xylene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Methyl Ethyl Ketone	ND	28	ug/Kg	1	11/20/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	9.4	ug/Kg	1	11/20/17	JLI	SW8260
Methylene chloride	ND	9.4	ug/Kg	1	11/20/17	JLI	SW8260
Naphthalene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
n-Butylbenzene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
n-Propylbenzene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
o-Xylene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
p-Isopropyltoluene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
sec-Butylbenzene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
Styrene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
tert-Butylbenzene	ND	280	ug/Kg	50	11/19/17	JLI	SW8260
Tetrachloroethene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	9.4	ug/Kg	1	11/20/17	JLI	SW8260
Toluene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Total Xylenes	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	550	ug/Kg	50	11/19/17	JLI	SW8260
Trichloroethene	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Trichlorofluoromethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Trichlorotrifluoroethane	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
Vinyl chloride	ND	4.7	ug/Kg	1	11/20/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	99		%	50	11/19/17	JLI	70 - 130 %
% Bromofluorobenzene	104		%	50	11/19/17	JLI	70 - 130 %
% Dibromofluoromethane	103		%	1	11/20/17	JLI	70 - 130 %
% Toluene-d8	80		%	1	11/20/17	JLI	70 - 130 %
Polynuclear Aromatic HC							
2-Methylnaphthalene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthylene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Anthracene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Chrysene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluoranthene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluorene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-28

Phoenix I.D.: BZ43562

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Naphthalene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Phenanthrene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Pyrene	ND	130	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	63		%	10	11/18/17	DD	30 - 130 %
% Nitrobenzene-d5	65		%	10	11/18/17	DD	30 - 130 %
% Terphenyl-d14	69		%	10	11/18/17	DD	30 - 130 %
Field Extraction	Completed				11/16/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

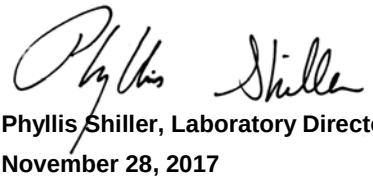
Volatile Comment:
There was a suppression of the last internal standard in the low level analysis, all affected compounds are reported from the methanol preserved high level analysis which did not exhibit this interference.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

TPH Comment:
**Petroleum hydrocarbon chromatogram contains a multicomponent hydrocarbon distribution in the range of C16 to C36. The sample was quantitated against a C9-C36 alkane hydrocarbon standard.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/16/17	14:55
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43563

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-29

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.33	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Arsenic	< 0.65	0.65	mg/Kg	1	11/18/17	MA	SW6010C
Barium	21.1	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Cadmium	< 0.33	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Chromium	10.4	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	0.78	0.33	mg/Kg	1	11/18/17	MA	SW6010C
Selenium	< 1.3	1.3	mg/Kg	1	11/18/17	MA	SW6010C
Percent Solid	91		%		11/16/17	Q	SW846-%Solid
Soil Extraction for PCB	Completed				11/20/17	AA/V	SW3545A
Soil Extraction SVOA PAH	Completed				11/17/17	JJ/V	SW3545A
Extraction of CT ETPH	Completed				11/17/17	CC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Total Metals Digest	Completed				11/17/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	1800	110	mg/Kg	2	11/20/17	JRB	CTETPH 8015D
Identification	**		mg/Kg	2	11/20/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	69		%	2	11/20/17	JRB	50 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1221	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1232	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1242	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1248	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1254	ND	360	ug/Kg	10	11/21/17	AW	SW8082A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1260	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1262	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
PCB-1268	ND	360	ug/Kg	10	11/21/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	71		%	10	11/21/17	AW	30 - 150 %
% TCMX	69		%	10	11/21/17	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1,1-Trichloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2-Trichloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloropropene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichlorobenzene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
1,2,3-Trichloropropane	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromoethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichlorobenzene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
1,2-Dichloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
1,3-Dichlorobenzene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
1,3-Dichloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,4-Dichlorobenzene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
2,2-Dichloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
2-Chlorotoluene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
2-Hexanone	ND	25	ug/Kg	1	11/19/17	JLI	SW8260
2-Isopropyltoluene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
4-Chlorotoluene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
4-Methyl-2-pentanone	ND	25	ug/Kg	1	11/19/17	JLI	SW8260
Acetone	ND	250	ug/Kg	1	11/19/17	JLI	SW8260
Acrylonitrile	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Benzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromobenzene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
Bromochloromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromodichloromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromoform	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Bromomethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Carbon Disulfide	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Carbon tetrachloride	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Chlorobenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Chloroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Chloroform	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Chloromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dibromochloromethane	ND	3.0	ug/Kg	1	11/19/17	JLI	SW8260
Dibromomethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Dichlorodifluoromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Ethylbenzene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Hexachlorobutadiene	ND	200	ug/Kg	50	11/19/17	JLI	SW8260
Isopropylbenzene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
m&p-Xylene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Methyl Ethyl Ketone	ND	30	ug/Kg	1	11/19/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Methylene chloride	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Naphthalene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
n-Butylbenzene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
n-Propylbenzene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
o-Xylene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
p-Isopropyltoluene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
sec-Butylbenzene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
Styrene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
tert-Butylbenzene	ND	210	ug/Kg	50	11/19/17	JLI	SW8260
Tetrachloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Toluene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Total Xylenes	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	420	ug/Kg	50	11/19/17	JLI	SW8260
Trichloroethene	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorofluoromethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorotrifluoroethane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
Vinyl chloride	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	50	11/19/17	JLI	70 - 130 %
% Bromofluorobenzene	93		%	50	11/19/17	JLI	70 - 130 %
% Dibromofluoromethane	105		%	1	11/19/17	JLI	70 - 130 %
% Toluene-d8	90		%	1	11/19/17	JLI	70 - 130 %
Polynuclear Aromatic HC							
2-Methylnaphthalene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthylene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Anthracene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Chrysene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluoranthene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluorene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-29

Phoenix I.D.: BZ43563

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Naphthalene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Phenanthrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Pyrene	ND	150	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	58		%	10	11/18/17	DD	30 - 130 %
% Nitrobenzene-d5	70		%	10	11/18/17	DD	30 - 130 %
% Terphenyl-d14	65		%	10	11/18/17	DD	30 - 130 %
Field Extraction	Completed				11/16/17		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

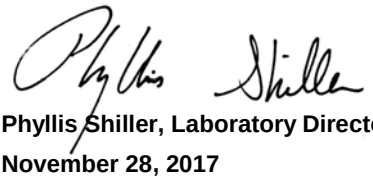
Volatile Comment:
There was a suppression of the last internal standard in the low level analysis, all affected compounds are reported from the methanol preserved high level analysis which did not exhibit this interference.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

TPH Comment:
**Petroleum hydrocarbon chromatogram contains a multicomponent hydrocarbon distribution in the range of C14 to C36. The sample was quantitated against a C9-C36 alkane hydrocarbon standard.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
November 28, 2017
Reviewed and Released by: Ethan Lee, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 28, 2017

FOR: Attn: Ms. Stephanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		11/16/17	15:25
Location Code:	F&O	Received by:	B	11/16/17	18:21
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ43548
Phoenix ID: BZ43564

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-30

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.35	0.35	mg/Kg	1	11/18/17	MA	SW6010C
Arsenic	1.01	0.70	mg/Kg	1	11/18/17	MA	SW6010C
Barium	32.8	0.35	mg/Kg	1	11/18/17	MA	SW6010C
Cadmium	0.43	0.35	mg/Kg	1	11/18/17	MA	SW6010C
Chromium	10.3	0.35	mg/Kg	1	11/18/17	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	11/20/17	RS	SW7471B
Lead	7.22	0.35	mg/Kg	1	11/18/17	MA	SW6010C
Selenium	< 1.4	1.4	mg/Kg	1	11/18/17	MA	SW6010C
Percent Solid	93		%		11/16/17	Q	SW846-%Solid
Soil Extraction SVOA PAH	Completed				11/17/17	JJ/V	SW3545A
Extraction of CT ETPH	Completed				11/17/17	CC/V	SW3545A
Mercury Digestion	Completed				11/20/17	W/W	SW7471B
Total Metals Digest	Completed				11/17/17	B/AG	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	53	mg/Kg	1	11/19/17	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	11/19/17	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	62		%	1	11/19/17	JRB	50 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,1,1-Trichloroethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2,2-Tetrachloroethane	ND	3.1	ug/Kg	1	11/19/17	JLI	SW8260
1,1,2-Trichloroethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloroethene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,1-Dichloropropene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE FACILITY
Client ID: 1305171116-30

Phoenix I.D.: BZ43564

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,3-Trichlorobenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,2,3-Trichloropropane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trichlorobenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,2,4-Trimethylbenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dibromoethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichlorobenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloroethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,2-Dichloropropane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,3,5-Trimethylbenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichlorobenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,3-Dichloropropane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
1,4-Dichlorobenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
2,2-Dichloropropane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
2-Chlorotoluene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
2-Hexanone	ND	26	ug/Kg	1	11/19/17	JLI	SW8260
2-Isopropyltoluene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
4-Chlorotoluene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
4-Methyl-2-pentanone	ND	26	ug/Kg	1	11/19/17	JLI	SW8260
Acetone	ND	260	ug/Kg	1	11/19/17	JLI	SW8260
Acrylonitrile	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Benzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Bromobenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Bromochloromethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Bromodichloromethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Bromoform	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Bromomethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Carbon Disulfide	8.0	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Carbon tetrachloride	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Chlorobenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Chloroethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Chloroform	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Chloromethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,2-Dichloroethene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
cis-1,3-Dichloropropene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Dibromochloromethane	ND	3.1	ug/Kg	1	11/19/17	JLI	SW8260
Dibromomethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Dichlorodifluoromethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Ethylbenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Hexachlorobutadiene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Isopropylbenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
m&p-Xylene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Methyl Ethyl Ketone	ND	31	ug/Kg	1	11/19/17	JLI	SW8260
Methyl t-butyl ether (MTBE)	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Methylene chloride	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Naphthalene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
n-Butylbenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
n-Propylbenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
o-Xylene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
p-Isopropyltoluene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
sec-Butylbenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Styrene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
tert-Butylbenzene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Tetrachloroethene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Tetrahydrofuran (THF)	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Toluene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Total Xylenes	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,2-Dichloroethene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,3-Dichloropropene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
trans-1,4-dichloro-2-butene	ND	10	ug/Kg	1	11/19/17	JLI	SW8260
Trichloroethene	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorofluoromethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Trichlorotrifluoroethane	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
Vinyl chloride	ND	5.2	ug/Kg	1	11/19/17	JLI	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	97		%	1	11/19/17	JLI	70 - 130 %
% Bromofluorobenzene	122		%	1	11/19/17	JLI	70 - 130 %
% Dibromofluoromethane	102		%	1	11/19/17	JLI	70 - 130 %
% Toluene-d8	101		%	1	11/19/17	JLI	70 - 130 %

Polynuclear Aromatic HC

2-Methylnaphthalene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Acenaphthylene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Anthracene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Chrysene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluoranthene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Fluorene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Naphthalene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Phenanthrene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
Pyrene	ND	140	ug/Kg	10	11/18/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	57		%	10	11/18/17	DD	30 - 130 %
% Nitrobenzene-d5	68		%	10	11/18/17	DD	30 - 130 %
% Terphenyl-d14	67		%	10	11/18/17	DD	30 - 130 %
Field Extraction	Completed				11/16/17		SW5035A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

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QA/QC Report

November 28, 2017

QA/QC Data

SDG I.D.: GBZ43548

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 410095 (mg/kg), QC Sample No: BZ43560 (BZ43551, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559, BZ43560, BZ43561, BZ43562, BZ43563, BZ43564)													
ICP Metals - Soil													
Arsenic	BRL	0.68	<0.65	<0.72	NC	95.9			84.9			75 - 125	30
Barium	BRL	0.34	27.1	32.2	17.2	82.8			88.2			75 - 125	30
Cadmium	BRL	0.34	<0.33	<0.36	NC	96.9			90.8			75 - 125	30
Chromium	BRL	0.34	9.58	9.07	5.50	98.7			94.7			75 - 125	30
Lead	BRL	0.34	<0.33	<0.36	NC	109			93.8			75 - 125	30
Selenium	BRL	1.4	<1.3	<1.4	NC	91.1			95.1			75 - 125	30
Silver	BRL	0.34	<0.33	<0.36	NC	92.0			93.5			75 - 125	30
QA/QC Batch 410257 (mg/kg), QC Sample No: BZ43564 (BZ43551, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559, BZ43560, BZ43561, BZ43562, BZ43563, BZ43564)													
Mercury - Soil	BRL	0.03	<0.03	<0.03	NC	91.6	83.0	9.9	88.0			70 - 130	30

Comment:

Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.

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QA/QC Report

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QA/QC Data

SDG I.D.: GBZ43548

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 410356 (ug/kg), QC Sample No: BZ43560 (BZ43551 (50X) , BZ43554 (50X) , BZ43559 (50X) , BZ43560 (1X, 50X))											
Volatiles - Soil											
1,1,1,2-Tetrachloroethane	ND	5.0	97	116	17.8	104	93	11.2	70 - 130	30	
1,1,1-Trichloroethane	ND	5.0	94	109	14.8	104	91	13.3	70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	3.0	92	108	16.0	98	90	8.5	70 - 130	30	
1,1,2-Trichloroethane	ND	5.0	91	107	16.2	96	88	8.7	70 - 130	30	
1,1-Dichloroethane	ND	5.0	91	108	17.1	103	89	14.6	70 - 130	30	
1,1-Dichloroethene	ND	5.0	88	104	16.7	95	85	11.1	70 - 130	30	
1,1-Dichloropropene	ND	5.0	95	111	15.5	106	96	9.9	70 - 130	30	
1,2,3-Trichlorobenzene	ND	5.0	98	112	13.3	110	97	12.6	70 - 130	30	
1,2,3-Trichloropropane	ND	5.0	92	105	13.2	96	79	19.4	70 - 130	30	
1,2,4-Trichlorobenzene	ND	5.0	92	105	13.2	106	94	12.0	70 - 130	30	
1,2,4-Trimethylbenzene	ND	1.0	93	108	14.9	108	94	13.9	70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	5.0	104	123	16.7	92	88	4.4	70 - 130	30	
1,2-Dibromoethane	ND	5.0	94	110	15.7	99	90	9.5	70 - 130	30	
1,2-Dichlorobenzene	ND	5.0	90	104	14.4	101	90	11.5	70 - 130	30	
1,2-Dichloroethane	ND	5.0	92	109	16.9	103	91	12.4	70 - 130	30	
1,2-Dichloropropane	ND	5.0	93	109	15.8	102	94	8.2	70 - 130	30	
1,3,5-Trimethylbenzene	ND	1.0	93	109	15.8	108	95	12.8	70 - 130	30	
1,3-Dichlorobenzene	ND	5.0	90	105	15.4	104	92	12.2	70 - 130	30	
1,3-Dichloropropane	ND	5.0	90	107	17.3	99	90	9.5	70 - 130	30	
1,4-Dichlorobenzene	ND	5.0	87	102	15.9	101	89	12.6	70 - 130	30	
2,2-Dichloropropane	ND	5.0	100	113	12.2	101	90	11.5	70 - 130	30	
2-Chlorotoluene	ND	5.0	95	109	13.7	110	94	15.7	70 - 130	30	
2-Hexanone	ND	25	94	107	12.9	89	89	0.0	70 - 130	30	
2-Isopropyltoluene	ND	5.0	102	120	16.2	117	105	10.8	70 - 130	30	
4-Chlorotoluene	ND	5.0	90	105	15.4	106	92	14.1	70 - 130	30	
4-Methyl-2-pentanone	ND	25	99	114	14.1	99	92	7.3	70 - 130	30	
Acetone	ND	10	64	77	18.4	61	54	12.2	70 - 130	30	l,m
Acrylonitrile	ND	5.0	99	110	10.5	101	92	9.3	70 - 130	30	
Benzene	ND	1.0	92	108	16.0	104	93	11.2	70 - 130	30	
Bromobenzene	ND	5.0	91	107	16.2	103	92	11.3	70 - 130	30	
Bromochloromethane	ND	5.0	91	109	18.0	100	88	12.8	70 - 130	30	
Bromodichloromethane	ND	5.0	98	117	17.7	100	89	11.6	70 - 130	30	
Bromoform	ND	5.0	100	120	18.2	87	79	9.6	70 - 130	30	
Bromomethane	ND	5.0	99	118	17.5	67	59	12.7	70 - 130	30	m
Carbon Disulfide	ND	5.0	99	117	16.7	83	73	12.8	70 - 130	30	
Carbon tetrachloride	ND	5.0	102	119	15.4	102	91	11.4	70 - 130	30	
Chlorobenzene	ND	5.0	89	104	15.5	102	91	11.4	70 - 130	30	
Chloroethane	ND	5.0	96	109	12.7	22	19	14.6	70 - 130	30	m
Chloroform	ND	5.0	88	104	16.7	98	87	11.9	70 - 130	30	
Chloromethane	ND	5.0	85	98	14.2	93	81	13.8	70 - 130	30	
cis-1,2-Dichloroethene	ND	5.0	94	110	15.7	103	93	10.2	70 - 130	30	

QA/QC Data

SDG I.D.: GBZ43548

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
cis-1,3-Dichloropropene	ND	5.0	101	120	17.2	105	93	12.1	70 - 130	30	
Dibromochloromethane	ND	3.0	103	121	16.1	99	89	10.6	70 - 130	30	
Dibromomethane	ND	5.0	93	110	16.7	96	88	8.7	70 - 130	30	
Dichlorodifluoromethane	ND	5.0	90	104	14.4	94	84	11.2	70 - 130	30	
Ethylbenzene	ND	1.0	91	107	16.2	105	93	12.1	70 - 130	30	
Hexachlorobutadiene	ND	5.0	90	108	18.2	107	94	12.9	70 - 130	30	
Isopropylbenzene	ND	1.0	98	115	16.0	114	100	13.1	70 - 130	30	
m&p-Xylene	ND	2.0	91	107	16.2	105	94	11.1	70 - 130	30	
Methyl ethyl ketone	ND	5.0	89	100	11.6	89	82	8.2	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	1.0	93	108	14.9	103	91	12.4	70 - 130	30	
Methylene chloride	ND	5.0	66	78	16.7	73	65	11.6	70 - 130	30	l,m
Naphthalene	ND	5.0	116	133	13.7	128	116	9.8	70 - 130	30	l
n-Butylbenzene	ND	1.0	94	109	14.8	110	96	13.6	70 - 130	30	
n-Propylbenzene	ND	1.0	91	106	15.2	108	94	13.9	70 - 130	30	
o-Xylene	ND	2.0	98	116	16.8	111	100	10.4	70 - 130	30	
p-Isopropyltoluene	ND	1.0	98	113	14.2	113	99	13.2	70 - 130	30	
sec-Butylbenzene	ND	1.0	97	114	16.1	114	100	13.1	70 - 130	30	
Styrene	ND	5.0	94	113	18.4	107	96	10.8	70 - 130	30	
tert-Butylbenzene	ND	1.0	97	115	17.0	113	99	13.2	70 - 130	30	
Tetrachloroethene	ND	5.0	94	110	15.7	106	95	10.9	70 - 130	30	
Tetrahydrofuran (THF)	ND	5.0	89	101	12.6	93	84	10.2	70 - 130	30	
Toluene	ND	1.0	92	107	15.1	104	92	12.2	70 - 130	30	
trans-1,2-Dichloroethene	ND	5.0	89	106	17.4	103	91	12.4	70 - 130	30	
trans-1,3-Dichloropropene	ND	5.0	99	116	15.8	98	89	9.6	70 - 130	30	
trans-1,4-dichloro-2-butene	ND	5.0	108	125	14.6	98	97	1.0	70 - 130	30	
Trichloroethene	ND	5.0	95	110	14.6	103	92	11.3	70 - 130	30	
Trichlorofluoromethane	ND	5.0	89	103	14.6	18	14	25.0	70 - 130	30	m
Trichlorotrifluoroethane	ND	5.0	95	110	14.6	105	93	12.1	70 - 130	30	
Vinyl chloride	ND	5.0	90	107	17.3	93	81	13.8	70 - 130	30	
% 1,2-dichlorobenzene-d4	103	%	101	100	1.0	101	99	2.0	70 - 130	30	
% Bromofluorobenzene	92	%	99	99	0.0	99	98	1.0	70 - 130	30	
% Dibromofluoromethane	99	%	107	103	3.8	104	97	7.0	70 - 130	30	
% Toluene-d8	97	%	103	101	2.0	102	103	1.0	70 - 130	30	

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

QA/QC Batch 410342 (ug/kg), QC Sample No: BZ43563 (BZ43548 (50X) , BZ43549, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559, BZ43561, BZ43562 (50X) , BZ43563 (1X, 50X) , BZ43564)

Volatiles - Soil

1,1,1,2-Tetrachloroethane	ND	5.0	104	106	1.9	101	93	8.2	70 - 130	30	
1,1,1-Trichloroethane	ND	5.0	101	99	2.0	101	91	10.4	70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	3.0	95	101	6.1	98	91	7.4	70 - 130	30	
1,1,2-Trichloroethane	ND	5.0	95	98	3.1	96	88	8.7	70 - 130	30	
1,1-Dichloroethane	ND	5.0	97	97	0.0	97	91	6.4	70 - 130	30	
1,1-Dichloroethene	ND	5.0	94	93	1.1	94	84	11.2	70 - 130	30	
1,1-Dichloropropene	ND	5.0	104	103	1.0	106	95	10.9	70 - 130	30	
1,2,3-Trichlorobenzene	ND	5.0	111	114	2.7	119	110	7.9	70 - 130	30	
1,2,3-Trichloropropane	ND	5.0	89	96	7.6	94	88	6.6	70 - 130	30	
1,2,4-Trichlorobenzene	ND	5.0	112	111	0.9	112	104	7.4	70 - 130	30	
1,2,4-Trimethylbenzene	ND	1.0	105	105	0.0	104	97	7.0	70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	5.0	103	115	11.0	94	94	0.0	70 - 130	30	
1,2-Dibromoethane	ND	5.0	97	100	3.0	99	91	8.4	70 - 130	30	
1,2-Dichlorobenzene	ND	5.0	99	100	1.0	99	91	8.4	70 - 130	30	

QA/QC Data

SDG I.D.: GBZ43548

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
1,2-Dichloroethane	ND	5.0	95	98	3.1	100	91	9.4	70 - 130	30	
1,2-Dichloropropane	ND	5.0	100	100	0.0	101	92	9.3	70 - 130	30	
1,3,5-Trimethylbenzene	ND	1.0	103	105	1.9	105	96	9.0	70 - 130	30	
1,3-Dichlorobenzene	ND	5.0	102	103	1.0	102	94	8.2	70 - 130	30	
1,3-Dichloropropane	ND	5.0	95	97	2.1	99	89	10.6	70 - 130	30	
1,4-Dichlorobenzene	ND	5.0	100	100	0.0	98	90	8.5	70 - 130	30	
2,2-Dichloropropane	ND	5.0	108	105	2.8	100	95	5.1	70 - 130	30	
2-Chlorotoluene	ND	5.0	105	106	0.9	106	96	9.9	70 - 130	30	
2-Hexanone	ND	25	92	102	10.3	96	91	5.3	70 - 130	30	
2-Isopropyltoluene	ND	5.0	113	116	2.6	114	104	9.2	70 - 130	30	
4-Chlorotoluene	ND	5.0	103	102	1.0	101	95	6.1	70 - 130	30	
4-Methyl-2-pentanone	ND	25	96	106	9.9	102	94	8.2	70 - 130	30	
Acetone	ND	10	64	69	7.5	62	58	6.7	70 - 130	30	l,m
Acrylonitrile	ND	5.0	94	99	5.2	102	97	5.0	70 - 130	30	
Benzene	ND	1.0	98	98	0.0	101	91	10.4	70 - 130	30	
Bromobenzene	ND	5.0	100	103	3.0	99	91	8.4	70 - 130	30	
Bromochloromethane	ND	5.0	94	97	3.1	96	89	7.6	70 - 130	30	
Bromodichloromethane	ND	5.0	106	106	0.0	97	88	9.7	70 - 130	30	
Bromoform	ND	5.0	102	109	6.6	87	82	5.9	70 - 130	30	
Bromomethane	ND	5.0	105	105	0.0	64	53	18.8	70 - 130	30	m
Carbon Disulfide	ND	5.0	109	107	1.9	79	73	7.9	70 - 130	30	
Carbon tetrachloride	ND	5.0	108	106	1.9	100	92	8.3	70 - 130	30	
Chlorobenzene	ND	5.0	99	98	1.0	99	91	8.4	70 - 130	30	
Chloroethane	ND	5.0	98	99	1.0	22	19	14.6	70 - 130	30	m
Chloroform	ND	5.0	93	94	1.1	96	85	12.2	70 - 130	30	
Chloromethane	ND	5.0	88	89	1.1	93	87	6.7	70 - 130	30	
cis-1,2-Dichloroethene	ND	5.0	100	99	1.0	101	93	8.2	70 - 130	30	
cis-1,3-Dichloropropene	ND	5.0	111	112	0.9	105	96	9.0	70 - 130	30	
Dibromochloromethane	ND	3.0	109	111	1.8	97	91	6.4	70 - 130	30	
Dibromomethane	ND	5.0	96	102	6.1	96	88	8.7	70 - 130	30	
Dichlorodifluoromethane	ND	5.0	99	98	1.0	97	91	6.4	70 - 130	30	
Ethylbenzene	ND	1.0	102	101	1.0	103	92	11.3	70 - 130	30	
Hexachlorobutadiene	ND	5.0	109	108	0.9	102	93	9.2	70 - 130	30	
Isopropylbenzene	ND	1.0	107	109	1.9	108	98	9.7	70 - 130	30	
m&p-Xylene	ND	2.0	103	103	0.0	104	93	11.2	70 - 130	30	
Methyl ethyl ketone	ND	5.0	84	95	12.3	93	88	5.5	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	1.0	96	99	3.1	101	94	7.2	70 - 130	30	
Methylene chloride	ND	5.0	72	71	1.4	73	65	11.6	70 - 130	30	m
Naphthalene	ND	5.0	123	128	4.0	141	131	7.4	70 - 130	30	m
n-Butylbenzene	ND	1.0	111	109	1.8	110	99	10.5	70 - 130	30	
n-Propylbenzene	ND	1.0	103	103	0.0	105	96	9.0	70 - 130	30	
o-Xylene	ND	2.0	109	110	0.9	110	99	10.5	70 - 130	30	
p-Isopropyltoluene	ND	1.0	111	112	0.9	110	102	7.5	70 - 130	30	
sec-Butylbenzene	ND	1.0	109	110	0.9	111	101	9.4	70 - 130	30	
Styrene	ND	5.0	105	105	0.0	107	95	11.9	70 - 130	30	
tert-Butylbenzene	ND	1.0	108	110	1.8	109	100	8.6	70 - 130	30	
Tetrachloroethene	ND	5.0	106	105	0.9	106	96	9.9	70 - 130	30	
Tetrahydrofuran (THF)	ND	5.0	84	92	9.1	94	88	6.6	70 - 130	30	
Toluene	ND	1.0	100	100	0.0	102	92	10.3	70 - 130	30	
trans-1,2-Dichloroethene	ND	5.0	100	99	1.0	100	92	8.3	70 - 130	30	
trans-1,3-Dichloropropene	ND	5.0	107	110	2.8	97	92	5.3	70 - 130	30	
trans-1,4-dichloro-2-butene	ND	5.0	114	121	6.0	103	98	5.0	70 - 130	30	
Trichloroethene	ND	5.0	102	101	1.0	103	92	11.3	70 - 130	30	

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Trichlorofluoromethane	ND	5.0	93	92	1.1	17	15	12.5	70 - 130	30	m
Trichlorotrifluoroethane	ND	5.0	101	103	2.0	104	95	9.0	70 - 130	30	
Vinyl chloride	ND	5.0	97	97	0.0	90	84	6.9	70 - 130	30	
% 1,2-dichlorobenzene-d4	97	%	100	100	0.0	99	100	1.0	70 - 130	30	
% Bromofluorobenzene	97	%	101	99	2.0	100	100	0.0	70 - 130	30	
% Dibromofluoromethane	96	%	97	96	1.0	97	99	2.0	70 - 130	30	
% Toluene-d8	99	%	102	101	1.0	101	102	1.0	70 - 130	30	

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

QA/QC Batch 410085 (mg/Kg), QC Sample No: BZ43602 (BZ43551, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559, BZ43560, BZ43561, BZ43562, BZ43563, BZ43564)

TPH by GC (Extractable Products) - Soil

Ext. Petroleum H.C. (C9-C36)	ND	50	75	70	6.9	83	90	8.1	60 - 120	30	
% n-Pentacosane	53	%	75	70	6.9	81	86	6.0	50 - 150	30	

Comment:

Additional surrogate criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%. The ETPH/DRO LCS has been normalized based on the alkane calibration.

QA/QC Batch 410080 (ug/kg), QC Sample No: BZ43665 10X (BZ43560, BZ43561, BZ43562, BZ43563, BZ43564)

Polynuclear Aromatic HC - Soil

2-Methylnaphthalene	ND	130	59	67	12.7	54	62	13.8	30 - 130	30	
Acenaphthene	ND	130	67	78	15.2	65	69	6.0	30 - 130	30	
Acenaphthylene	ND	130	66	75	12.8	62	65	4.7	30 - 130	30	
Anthracene	ND	130	69	80	14.8	66	69	4.4	30 - 130	30	
Benz(a)anthracene	ND	130	61	71	15.2	57	61	6.8	30 - 130	30	
Benzo(a)pyrene	ND	130	65	73	11.6	60	62	3.3	30 - 130	30	
Benzo(b)fluoranthene	ND	130	58	67	14.4	55	59	7.0	30 - 130	30	
Benzo(ghi)perylene	ND	130	58	68	15.9	58	59	1.7	30 - 130	30	
Benzo(k)fluoranthene	ND	130	68	76	11.1	64	64	0.0	30 - 130	30	
Chrysene	ND	130	64	73	13.1	59	64	8.1	30 - 130	30	
Dibenz(a,h)anthracene	ND	130	64	74	14.5	62	64	3.2	30 - 130	30	
Fluoranthene	ND	130	68	78	13.7	65	67	3.0	30 - 130	30	
Fluorene	ND	130	73	81	10.4	69	72	4.3	30 - 130	30	
Indeno(1,2,3-cd)pyrene	ND	130	61	70	13.7	57	62	8.4	30 - 130	30	
Naphthalene	ND	130	56	62	10.2	53	61	14.0	30 - 130	30	
Phenanthrene	ND	130	59	69	15.6	56	58	3.5	30 - 130	30	
Pyrene	ND	130	68	78	13.7	64	67	4.6	30 - 130	30	
% 2-Fluorobiphenyl	53	%	59	66	11.2	54	59	8.8	30 - 130	30	
% Nitrobenzene-d5	61	%	69	77	11.0	64	74	14.5	30 - 130	30	
% Terphenyl-d14	64	%	71	81	13.2	68	69	1.5	30 - 130	30	

Comment:

Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

QA/QC Batch 410083 (ug/Kg), QC Sample No: BZ43769 2X (BZ43550, BZ43551, BZ43552, BZ43553, BZ43554, BZ43555, BZ43556, BZ43557, BZ43558)

Polychlorinated Biphenyls - Soil

PCB-1016	ND	33	84	98	15.4	83	64	25.9	40 - 140	30	
PCB-1221	ND	33							40 - 140	30	
PCB-1232	ND	33							40 - 140	30	
PCB-1242	ND	33							40 - 140	30	
PCB-1248	ND	33							40 - 140	30	
PCB-1254	ND	33							40 - 140	30	

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
PCB-1260	ND	33	90	115	24.4	75	70	6.9	40 - 140	30	
PCB-1262	ND	33							40 - 140	30	
PCB-1268	ND	33							40 - 140	30	
% DCBP (Surrogate Rec)	95	%	115	127	9.9	101	79	24.4	30 - 150	30	
% TCMX (Surrogate Rec)	82	%	93	103	10.2	87	70	21.7	30 - 150	30	
QA/QC Batch 410079 (ug/kg), QC Sample No: BZ43992 10X (BZ43551, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559)											
Polynuclear Aromatic HC - Soil											
2-Methylnaphthalene	ND	130	59	58	1.7	58	59	1.7	30 - 130	30	
Acenaphthene	ND	130	70	72	2.8	68	68	0.0	30 - 130	30	
Acenaphthylene	ND	130	64	64	0.0	63	63	0.0	30 - 130	30	
Anthracene	ND	130	71	69	2.9	68	65	4.5	30 - 130	30	
Benz(a)anthracene	ND	130	63	63	0.0	62	60	3.3	30 - 130	30	
Benzo(a)pyrene	ND	130	69	69	0.0	67	65	3.0	30 - 130	30	
Benzo(b)fluoranthene	ND	130	66	65	1.5	63	62	1.6	30 - 130	30	
Benzo(ghi)perylene	ND	130	54	60	10.5	55	56	1.8	30 - 130	30	
Benzo(k)fluoranthene	ND	130	74	75	1.3	67	65	3.0	30 - 130	30	
Chrysene	ND	130	69	70	1.4	67	64	4.6	30 - 130	30	
Dibenz(a,h)anthracene	ND	130	59	65	9.7	63	62	1.6	30 - 130	30	
Fluoranthene	ND	130	65	63	3.1	62	59	5.0	30 - 130	30	
Fluorene	ND	130	68	69	1.5	66	65	1.5	30 - 130	30	
Indeno(1,2,3-cd)pyrene	ND	130	51	57	11.1	57	56	1.8	30 - 130	30	
Naphthalene	ND	130	59	57	3.4	59	61	3.3	30 - 130	30	
Phenanthrene	ND	130	67	66	1.5	64	62	3.2	30 - 130	30	
Pyrene	ND	130	67	66	1.5	64	61	4.8	30 - 130	30	
% 2-Fluorobiphenyl	57	%	64	66	3.1	62	64	3.2	30 - 130	30	
% Nitrobenzene-d5	51	%	59	60	1.7	59	62	5.0	30 - 130	30	
% Terphenyl-d14	64	%	71	70	1.4	65	63	3.1	30 - 130	30	
Comment:											
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)											
QA/QC Batch 410336 (ug/kg), QC Sample No: BZ44069 (BZ43562)											
Volatiles - Soil											
1,1,1,2-Tetrachloroethane	ND	5.0	99	99	0.0	82	81	1.2	70 - 130	30	
1,1,1-Trichloroethane	ND	5.0	101	100	1.0	92	92	0.0	70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	3.0	100	102	2.0	81	78	3.8	70 - 130	30	
1,1,2-Trichloroethane	ND	5.0	98	100	2.0	84	82	2.4	70 - 130	30	
1,1-Dichloroethane	ND	5.0	102	103	1.0	92	92	0.0	70 - 130	30	
1,1-Dichloroethene	ND	5.0	104	105	1.0	91	88	3.4	70 - 130	30	
1,1-Dichloropropene	ND	5.0	100	101	1.0	89	88	1.1	70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	5.0	99	102	3.0	71	65	8.8	70 - 130	30	m
1,2-Dibromoethane	ND	5.0	94	94	0.0	77	73	5.3	70 - 130	30	
1,2-Dichloroethane	ND	5.0	97	99	2.0	85	84	1.2	70 - 130	30	
1,2-Dichloropropane	ND	5.0	99	101	2.0	90	88	2.2	70 - 130	30	
1,3-Dichloropropane	ND	5.0	93	92	1.1	78	77	1.3	70 - 130	30	
2,2-Dichloropropane	ND	5.0	108	108	0.0	96	96	0.0	70 - 130	30	
2-Hexanone	ND	25	93	94	1.1	80	75	6.5	70 - 130	30	
4-Methyl-2-pentanone	ND	25	101	103	2.0	93	88	5.5	70 - 130	30	
Acetone	ND	10	79	80	1.3	117	109	7.1	70 - 130	30	
Acrylonitrile	ND	5.0	104	104	0.0	87	85	2.3	70 - 130	30	
Benzene	ND	1.0	96	97	1.0	85	85	0.0	70 - 130	30	
Bromochloromethane	ND	5.0	95	97	2.1	82	83	1.2	70 - 130	30	
Bromodichloromethane	ND	5.0	101	102	1.0	86	87	1.2	70 - 130	30	

QA/QC Data

SDG I.D.: GBZ43548

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Bromoform	ND	5.0	97	96	1.0	75	71	5.5	70 - 130	30	
Bromomethane	ND	5.0	100	98	2.0	65	71	8.8	70 - 130	30	m
Carbon Disulfide	ND	5.0	111	112	0.9	90	91	1.1	70 - 130	30	
Carbon tetrachloride	ND	5.0	103	106	2.9	89	90	1.1	70 - 130	30	
Chlorobenzene	ND	5.0	97	96	1.0	75	72	4.1	70 - 130	30	
Chloroethane	ND	5.0	112	110	1.8	99	97	2.0	70 - 130	30	
Chloroform	ND	5.0	96	95	1.0	87	85	2.3	70 - 130	30	
Chloromethane	ND	5.0	100	98	2.0	82	80	2.5	70 - 130	30	
cis-1,2-Dichloroethene	ND	5.0	102	99	3.0	87	84	3.5	70 - 130	30	
cis-1,3-Dichloropropene	ND	5.0	105	106	0.9	83	81	2.4	70 - 130	30	
Dibromochloromethane	ND	3.0	103	104	1.0	84	82	2.4	70 - 130	30	
Dibromomethane	ND	5.0	99	100	1.0	83	79	4.9	70 - 130	30	
Dichlorodifluoromethane	ND	5.0	107	107	0.0	82	81	1.2	70 - 130	30	
Ethylbenzene	ND	1.0	97	96	1.0	82	80	2.5	70 - 130	30	
m&p-Xylene	ND	2.0	96	95	1.0	79	77	2.6	70 - 130	30	
Methyl ethyl ketone	ND	5.0	92	95	3.2	81	79	2.5	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	1.0	100	100	0.0	94	92	2.2	70 - 130	30	
Methylene chloride	ND	5.0	73	74	1.4	89	86	3.4	70 - 130	30	
o-Xylene	ND	2.0	98	98	0.0	81	78	3.8	70 - 130	30	
Styrene	ND	5.0	94	94	0.0	71	67	5.8	70 - 130	30	m
Tetrachloroethene	ND	5.0	105	106	0.9	90	88	2.2	70 - 130	30	
Tetrahydrofuran (THF)	ND	5.0	95	95	0.0	88	84	4.7	70 - 130	30	
Toluene	ND	1.0	100	101	1.0	86	84	2.4	70 - 130	30	
trans-1,2-Dichloroethene	ND	5.0	100	100	0.0	83	83	0.0	70 - 130	30	
trans-1,3-Dichloropropene	ND	5.0	100	101	1.0	73	70	4.2	70 - 130	30	
Trichloroethene	ND	5.0	99	98	1.0	86	85	1.2	70 - 130	30	
Trichlorofluoromethane	ND	5.0	106	104	1.9	93	93	0.0	70 - 130	30	
Trichlorotrifluoroethane	ND	5.0	110	110	0.0	98	99	1.0	70 - 130	30	
Vinyl chloride	ND	5.0	104	104	0.0	85	85	0.0	70 - 130	30	
% Dibromofluoromethane	99	%	97	97	0.0	98	100	2.0	70 - 130	30	
% Toluene-d8	91	%	103	104	1.0	103	103	0.0	70 - 130	30	

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

QA/QC Batch 410322 (ug/Kg), QC Sample No: BZ44767 2X (BZ43559, BZ43560, BZ43562, BZ43563)

Polychlorinated Biphenyls - Soil

PCB-1016	ND	33	90	98	8.5	82	78	5.0	40 - 140	30	
PCB-1221	ND	33							40 - 140	30	
PCB-1232	ND	33							40 - 140	30	
PCB-1242	ND	33							40 - 140	30	
PCB-1248	ND	33							40 - 140	30	
PCB-1254	ND	33							40 - 140	30	
PCB-1260	ND	33	90	103	13.5	86	81	6.0	40 - 140	30	
PCB-1262	ND	33							40 - 140	30	
PCB-1268	ND	33							40 - 140	30	
% DCBP (Surrogate Rec)	93	%	119	119	0.0	101	93	8.2	30 - 150	30	
% TCMX (Surrogate Rec)	85	%	101	107	5.8	87	81	7.1	30 - 150	30	

QA/QC Batch 410812 (ug/kg), QC Sample No: BZ45301 (BZ43551)

Volatiles - Soil

1,1,1,2-Tetrachloroethane	ND	5.0	101	113	11.2	85	112	27.4	70 - 130	30	
1,1,1-Trichloroethane	ND	5.0	97	115	17.0	82	112	30.9	70 - 130	30	r
1,1,2,2-Tetrachloroethane	ND	3.0	97	112	14.4	81	101	22.0	70 - 130	30	

QA/QC Data

SDG I.D.: GBZ43548

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
1,1,2-Trichloroethane	ND	5.0	93	109	15.8	81	101	22.0	70 - 130	30	
1,1-Dichloroethane	ND	5.0	96	113	16.3	82	110	29.2	70 - 130	30	
1,1-Dichloroethene	ND	5.0	90	105	15.4	72	96	28.6	70 - 130	30	
1,1-Dichloropropene	ND	5.0	103	119	14.4	89	117	27.2	70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	5.0	93	113	19.4	76	87	13.5	70 - 130	30	
1,2-Dibromoethane	ND	5.0	97	111	13.5	84	102	19.4	70 - 130	30	
1,2-Dichloroethane	ND	5.0	98	112	13.3	84	111	27.7	70 - 130	30	
1,2-Dichloropropane	ND	5.0	97	111	13.5	86	112	26.3	70 - 130	30	
1,3-Dichloropropane	ND	5.0	94	106	12.0	83	101	19.6	70 - 130	30	
2,2-Dichloropropane	ND	5.0	102	115	12.0	81	110	30.4	70 - 130	30	
2-Hexanone	ND	25	84	100	17.4	71	84	16.8	70 - 130	30	
4-Methyl-2-pentanone	ND	25	95	111	15.5	78	95	19.7	70 - 130	30	
Acetone	ND	10	70	80	13.3	46	52	12.2	70 - 130	30	m
Acrylonitrile	ND	5.0	87	105	18.8	77	94	19.9	70 - 130	30	
Benzene	ND	1.0	96	110	13.6	82	109	28.3	70 - 130	30	
Bromochloromethane	ND	5.0	90	109	19.1	77	100	26.0	70 - 130	30	
Bromodichloromethane	ND	5.0	99	115	15.0	81	108	28.6	70 - 130	30	
Bromoform	ND	5.0	94	107	12.9	72	92	24.4	70 - 130	30	
Bromomethane	ND	5.0	91	109	18.0	42	61	36.9	70 - 130	30	m,r
Carbon Disulfide	ND	5.0	101	118	15.5	63	89	34.2	70 - 130	30	m,r
Carbon tetrachloride	ND	5.0	101	118	15.5	81	112	32.1	70 - 130	30	r
Chlorobenzene	ND	5.0	93	106	13.1	83	106	24.3	70 - 130	30	
Chloroethane	ND	5.0	85	102	18.2	14	19	30.3	70 - 130	30	m
Chloroform	ND	5.0	92	106	14.1	77	102	27.9	70 - 130	30	
Chloromethane	ND	5.0	78	91	15.4	69	91	27.5	70 - 130	30	m
cis-1,2-Dichloroethene	ND	5.0	94	111	16.6	81	108	28.6	70 - 130	30	
cis-1,3-Dichloropropene	ND	5.0	105	124	16.6	90	116	25.2	70 - 130	30	
Dibromochloromethane	ND	3.0	103	118	13.6	82	109	28.3	70 - 130	30	
Dibromomethane	ND	5.0	97	111	13.5	81	105	25.8	70 - 130	30	
Dichlorodifluoromethane	ND	5.0	97	115	17.0	78	105	29.5	70 - 130	30	
Ethylbenzene	ND	1.0	95	108	12.8	84	107	24.1	70 - 130	30	
m&p-Xylene	ND	2.0	94	106	12.0	83	106	24.3	70 - 130	30	
Methyl ethyl ketone	ND	5.0	85	100	16.2	68	83	19.9	70 - 130	30	m
Methyl t-butyl ether (MTBE)	ND	1.0	91	109	18.0	80	102	24.2	70 - 130	30	
Methylene chloride	ND	5.0	77	89	14.5	60	79	27.3	70 - 130	30	m
o-Xylene	ND	2.0	98	113	14.2	89	115	25.5	70 - 130	30	
Styrene	ND	5.0	99	112	12.3	87	112	25.1	70 - 130	30	
Tetrachloroethene	ND	5.0	97	112	14.4	86	114	28.0	70 - 130	30	
Tetrahydrofuran (THF)	ND	5.0	82	100	19.8	67	82	20.1	70 - 130	30	m
Toluene	ND	1.0	95	109	13.7	83	109	27.1	70 - 130	30	
trans-1,2-Dichloroethene	ND	5.0	94	109	14.8	80	108	29.8	70 - 130	30	
trans-1,3-Dichloropropene	ND	5.0	101	117	14.7	83	106	24.3	70 - 130	30	
Trichloroethene	ND	5.0	96	111	14.5	83	111	28.9	70 - 130	30	
Trichlorofluoromethane	ND	5.0	82	97	16.8	13	26	66.7	70 - 130	30	m,r
Trichlorotrifluoroethane	ND	5.0	91	106	15.2	78	101	25.7	70 - 130	30	
Vinyl chloride	ND	5.0	85	100	16.2	66	89	29.7	70 - 130	30	m
% Dibromofluoromethane	98	%	95	100	5.1	97	97	0.0	70 - 130	30	
% Toluene-d8	99	%	102	103	1.0	102	103	1.0	70 - 130	30	

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
m = This parameter is outside laboratory MS/MSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

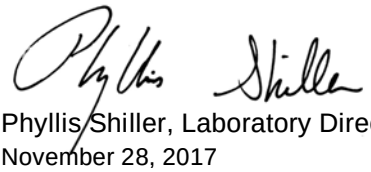
QA/QC Data

SDG I.D.: GBZ43548

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference



Phyllis Shiller, Laboratory Director
November 28, 2017

Tuesday, November 28, 2017

Criteria: CT: GAM, RC

State: CT

Sample Criteria Exceedances Report

GBZ43548 - FO

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
BZ43551	$ETPH_SMR	Ext. Petroleum H.C. (C9-C36)	CT / RSR DEC RES (mg/kg) / Pest/PCB/TPH	30000	3000	500	500	mg/Kg
BZ43551	$ETPH_SMR	Ext. Petroleum H.C. (C9-C36)	CT / RSR GA,GAA (mg/kg) / Pesticides/TPH	30000	3000	500	500	mg/Kg
BZ43551	PB-SM	Lead	CT / RSR DEC RES (mg/kg) / Inorganics	498	3.7	400	400	mg/Kg
BZ43555	AS-SM	Arsenic	CT / RSR DEC RES (mg/kg) / Inorganics	10.2	0.72	10	10	mg/Kg
BZ43562	$ETPH_SMR	Ext. Petroleum H.C. (C9-C36)	CT / RSR DEC RES (mg/kg) / Pest/PCB/TPH	9500	500	500	500	mg/Kg
BZ43562	$ETPH_SMR	Ext. Petroleum H.C. (C9-C36)	CT / RSR GA,GAA (mg/kg) / Pesticides/TPH	9500	500	500	500	mg/Kg
BZ43563	$ETPH_SMR	Ext. Petroleum H.C. (C9-C36)	CT / RSR DEC RES (mg/kg) / Pest/PCB/TPH	1800	110	500	500	mg/Kg
BZ43563	$ETPH_SMR	Ext. Petroleum H.C. (C9-C36)	CT / RSR GA,GAA (mg/kg) / Pesticides/TPH	1800	110	500	500	mg/Kg

REASONABLE CONFIDENCE PROTOCOL
LABORATORY ANALYSIS QA/QC CERTIFICATION FORM

Laboratory Name: Phoenix Environmental Labs, Inc. ***Client:*** Fuss & O'Neill, Inc.

Project Location: CT DOT HIGGANUM MAINTENANCE ***Project Number:***

Laboratory Sample ID(s): BZ43548-BZ43564 ***Sampling Date(s):*** 11/16/2017

List RCP Methods Used (e.g., 8260, 8270, et cetera) 6010, 7470/7471, 8082, 8260, 8270, ETPH

1	**For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?**	☑ Yes ☐ No
1A	**Were the method specified preservation and holding time requirements met?**	☑ Yes ☐ No
1B	***VPH and EPH methods only:*** **Was the VPH or EPH method conducted without significant modifications (see section 11.3 of respective RCP methods)**	☐ Yes ☐ No ☑ NA
2	**Were all samples received by the laboratory in a condition consistent with that described on the associated Chain-of-Custody document(s)?**	☑ Yes ☐ No
3	**Were samples received at an appropriate temperature (< 6 Degrees C)?**	☑ Yes ☐ No ☐ NA
4	**Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents acheived? See Section: VOA Narration.**	☐ Yes ☑ No
5	**a) Were reporting limits specified or referenced on the chain-of-custody?** **b) Were these reporting limits met?**	☑ Yes ☐ No ☑ Yes ☐ No
6	**For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?**	☐ Yes ☑ No
7	**Are project-specific matrix spikes and laboratory duplicates included in the data set?**	☑ Yes ☐ No

Notes: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A or 1B is "No", the data package does not meet the requirements for "Reasonable Confidence". This form may not be altered and all questions must be answered.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete.

Authorized Signature: Ethan Lee **Position:** Project Manager

Printed Name: Ethan Lee **Date:** Tuesday, November 28, 2017

Name of Laboratory Phoenix Environmental Labs, Inc.

This certification form is to be used for RCP methods only.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

RCP Certification Report

November 28, 2017

SDG I.D.: GBZ43548

SDG Comments

Metals Analysis:
The client requested a shorter list of elements than the 6010 RCP list. Only the RCRA 8 Metals are reported as requested on the chain of custody.

8270 Semi-volatile Organics:
The client requested a short list for 8270 RCP Semivolatile. Only the PAH constituents are reported as requested on the chain-of-custody.

ETPH Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

AU-FID11 11/18/17-1 Jeff Bucko, Chemist 11/18/17

BZ43553, BZ43554, BZ43555, BZ43557, BZ43559, BZ43560, BZ43561, BZ43564

The initial calibration (ETPHO26I) RSD for the compound list was less than 30% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

AU-FID11 11/20/17-1 Jeff Bucko, Chemist 11/20/17

BZ43562, BZ43563

The initial calibration (ETPHO26I) RSD for the compound list was less than 30% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

AU-FID11 11/21/17-1 Jeff Bucko, Chemist 11/21/17

BZ43551

The initial calibration (ETPHO26I) RSD for the compound list was less than 30% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

QC (Batch Specific):

Batch 410085 (BZ43602)

BZ43551, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559, BZ43560, BZ43561, BZ43562, BZ43563, BZ43564

All LCS recoveries were within 60 - 120 with the following exceptions: None.
All LCSD recoveries were within 60 - 120 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional surrogate criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%. The ETPH/DRO LCS has been normalized based on the alkane calibration.

Mercury Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

MERLIN 11/20/17 08:06 Rick Schweitzer, Chemist 11/20/17

BZ43551, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559, BZ43560, BZ43561, BZ43562, BZ43563, BZ43564

The method preparation blank contains all of the acids and reagents as the samples; the instrument blanks do not.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.

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Certification Report

November 28, 2017

SDG I.D.: GBZ43548

Mercury Narration

The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

QC (Site Specific):

Batch 410257 (BZ43564)

BZ43551, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559, BZ43560, BZ43561, BZ43562, BZ43563, BZ43564

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
All MS recoveries were within 75 - 125 with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

ARCOS 11/17/17 10:57 Mike Arsenault, Chemist 11/17/17

BZ43551, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559, BZ43560, BZ43561, BZ43562, BZ43563, BZ43564

Additional criteria for CCV and ICSAB:
Sodium and Potassium are poor performing elements, the laboratory's in-house limits are 85-115% (CCV) and 70-130% (ICSAB).The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

ARCOS 11/20/17 06:35 Mike Arsenault, Chemist 11/20/17

BZ43551

Additional criteria for CCV and ICSAB:
Sodium and Potassium are poor performing elements, the laboratory's in-house limits are 85-115% (CCV) and 70-130% (ICSAB).The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

QC (Site Specific):

Batch 410095 (BZ43560)

BZ43551, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559, BZ43560, BZ43561, BZ43562, BZ43563, BZ43564

All LCS recoveries were within 75 - 125 with the following exceptions: None.
All MS recoveries were within 75 - 125 with the following exceptions: None.

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RCP Certification Report

November 28, 2017

SDG I.D.: GBZ43548

PCB Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

AU-ECD24 11/20/17-1 Adam Werner, Chemist 11/20/17

BZ43551, BZ43555, BZ43556, BZ43557, BZ43558

The initial calibration (PC1103AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PC1103BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

AU-ECD24 11/21/17-1 Adam Werner, Chemist 11/21/17

BZ43550, BZ43552, BZ43553, BZ43562, BZ43563

The initial calibration (PC1103AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PC1103BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

AU-ECD5 11/21/17-1 Adam Werner, Chemist 11/21/17

BZ43554, BZ43559, BZ43560

The initial calibration (PC1110AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PC1110BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 410083 (BZ43769)

BZ43550, BZ43551, BZ43552, BZ43553, BZ43554, BZ43555, BZ43556, BZ43557, BZ43558

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

Batch 410322 (BZ44767)

BZ43559, BZ43560, BZ43562, BZ43563

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

SVOASIM Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

CHEM06 11/17/17-2 Damien Drobinski, Chemist 11/17/17

BZ43560, BZ43561, BZ43562, BZ43563, BZ43564

Initial Calibration Verification (CHEM06/BNSIM_1023):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

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RCP Certification Report

November 28, 2017

SDG I.D.: GBZ43548

SVOASIM Narration

Continuing Calibration Verification (CHEM06/1117_33-BNSIM_1023):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM25 11/17/17-2 Damien Drobinski, Chemist 11/17/17

BZ43551, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559

Initial Calibration Verification (CHEM25/BNSIM_1109):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM25/1117_14-BNSIM_1109):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 410079 (BZ43992)

BZ43551, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559

All LCS recoveries were within 30 - 130 with the following exceptions: None.
All LCSD recoveries were within 30 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

Batch 410080 (BZ43665)

BZ43560, BZ43561, BZ43562, BZ43563, BZ43564

All LCS recoveries were within 30 - 130 with the following exceptions: None.
All LCSD recoveries were within 30 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

VOA Narration

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RCP Certification Report

November 28, 2017

SDG I.D.: GBZ43548

VOA Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? No.

QC Batch 410342 (Samples: BZ43548, BZ43549, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559, BZ43561, BZ43562, BZ43563, BZ43564): -----

The LCS/LCSD recovery is acceptable. One or more analytes in the site specific matrix spike recovery is below the method criteria, therefore a low bias is likely. (Bromomethane, Chloroethane, Methylene chloride, Trichlorofluoromethane)

The MS and/or the MSD recovery is above the upper range for one or more analytes that were not reported in the sample(s), therefore no significant bias is suspected. (Naphthalene)

The QC recoveries for one or more analytes is below the method criteria. A slight low bias is likely. (Acetone)

QC Batch 410356 (Samples: BZ43551, BZ43554, BZ43559, BZ43560): -----

The QC recoveries for one or more analytes is below the method criteria. A slight low bias is likely. (Acetone, Methylene chloride)

The LCS and/or the LCSD recovery is above the upper range, therefore a slight high bias is possible. (Naphthalene)

The LCS/LCSD recovery is acceptable. One or more analytes in the site specific matrix spike recovery is below the method criteria, therefore a low bias is likely. (Bromomethane, Chloroethane, Trichlorofluoromethane)

Instrument:

CHEM14 11/19/17-1 Jane Li, Chemist 11/19/17

BZ43548, BZ43549, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559, BZ43561, BZ43562, BZ43563, BZ43564

Initial Calibration Verification (CHEM14/VT-1117):
94% of target compounds met criteria.
The following compounds had %RSDs >20%: Acetone 39% (20%), Bromoform 21% (20%), Methylene chloride 34% (20%), Naphthalene 35% (20%), trans-1,4-dichloro-2-butene 28% (20%)
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM14/1119_02-VT-1117):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM14 11/19/17-2 Jane Li, Chemist 11/19/17

BZ43551, BZ43554, BZ43559, BZ43560

Initial Calibration Verification (CHEM14/VT-1117):
94% of target compounds met criteria.
The following compounds had %RSDs >20%: Acetone 39% (20%), Bromoform 21% (20%), Methylene chloride 34% (20%), Naphthalene 35% (20%), trans-1,4-dichloro-2-butene 28% (20%)
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

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RCP Certification Report

November 28, 2017

SDG I.D.: GBZ43548

VOA Narration

Continuing Calibration Verification (CHEM14/1119_36-VT-1117):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM14 11/22/17-1 Jane Li, Chemist 11/22/17

BZ43551

Initial Calibration Verification (CHEM14/VT-1121):
90% of target compounds met criteria.
The following compounds had %RSDs >20%: 1,2-Dibromo-3-chloropropane 22% (20%), Acetone 31% (20%), Bromoform 24% (20%), cis-1,3-Dichloropropene 22% (20%), Methylene chloride 29% (20%), trans-1,3-Dichloropropene 21% (20%)
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM14/1122_02-VT-1121):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM18 11/19/17-2 Jane Li, Chemist 11/19/17

BZ43562

Initial Calibration Verification (CHEM18/VT-M1117):
98% of target compounds met criteria.
The following compounds had %RSDs >20%: Chloroethane 22% (20%), Methylene chloride 37% (20%)
The following compounds did not meet recommended response factors: Acetone 0.086 (0.1)
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM18/1119M34-VT-M1117):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 410336 (BZ44069)

BZ43562

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

RCP Certification Report

November 28, 2017

SDG I.D.: GBZ43548

VOA Narration

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

Batch 410812 (BZ45301)

BZ43551

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

QC (Site Specific):

Batch 410342 (BZ43563)

BZ43548, BZ43549, BZ43553, BZ43554, BZ43555, BZ43557, BZ43559, BZ43561, BZ43562, BZ43563, BZ43564

All LCS recoveries were within 70 - 130 with the following exceptions: Acetone(64%)
All LCSD recoveries were within 70 - 130 with the following exceptions: Acetone(69%)
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
All MS recoveries were within 70 - 130 with the following exceptions: Acetone(62%), Bromomethane(64%), Chloroethane(22%), Naphthalene(141%), Trichlorofluoromethane(17%)
All MSD recoveries were within 70 - 130 with the following exceptions: Acetone(58%), Bromomethane(53%), Chloroethane(19%), Methylene chloride(65%), Naphthalene(131%), Trichlorofluoromethane(15%)
All MS/MSD RPDs were less than 30% with the following exceptions: None.
A matrix effect is suspected when a MS/MSD recovery is outside of criteria. No further action is required if LCS/LCSD compounds are within criteria.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

Batch 410356 (BZ43560)

BZ43551, BZ43554, BZ43559, BZ43560

All LCS recoveries were within 70 - 130 with the following exceptions: Acetone(64%), Methylene chloride(66%)
All LCSD recoveries were within 70 - 130 with the following exceptions: Naphthalene(133%)
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
All MS recoveries were within 70 - 130 with the following exceptions: Acetone(61%), Bromomethane(67%), Chloroethane(22%), Trichlorofluoromethane(18%)
All MSD recoveries were within 70 - 130 with the following exceptions: Acetone(54%), Bromomethane(59%), Chloroethane(19%), Methylene chloride(65%), Trichlorofluoromethane(14%)
All MS/MSD RPDs were less than 30% with the following exceptions: None.
A matrix effect is suspected when a MS/MSD recovery is outside of criteria. No further action is required if LCS/LCSD compounds are within criteria.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

Temperature Narration

The samples were received at 2.6C with cooling initiated.
(Note acceptance criteria is above freezing up to 6°C)

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☒ 146 Hartford Road, Manchester, CT 06040
☐ 56 Quarry Road, Trumbull, CT 06611
☐ 1419 Richland Street, Columbia, SC 29201
☐ 78 Interstate Drive, West Springfield, MA 01089
☐ 317 Iron Horse Way, Suite 204, Providence, RI 02908
☐ 80 Washington Street, Suite 301, Poughkeepsie, NY
☐ Other

2.6°W/C+IP

CHAIN-OF-CUSTODY RECORD 38421

Turnaround
☐ 24-Hour* ☐ 72-Hour* ☐ Other ____ (days)
☐ 48 Hour* ☒ Standard (____ days) *Surcharge Applies

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER	LABORATORY
CT DOT HIGHGANUM MAINTENANCE FACILITY	HIGHGANUM, CT	20160476.A20	PHOENIX

REPORT TO: STEFANIE WIERSZCHALEK (FO) + DAN JAHNE (FO)
INVOICE TO: ↓
P.O. No.:
Sampler's Signature: [signature] Date: 11/16/17

Source Codes:
MW=Monitoring Well PW=Potable Water T=Treatment Facility S=Soil B=Sediment
SW=Surface Water ST=Stormwater W=Waste A=Air C=Concrete
X=Other TRIP BLANK

Analysis Request / Containers

Item No.	Transfer Check 1	2	3	4	Sample Number	Source Code	Date Sampled	Time Sampled	PAHs	ETPH	VOCs	RCRA 8 METALS	PCBs	Soil VOA Vial ☒ methanol	Soil VOA Vial ☒ water ☐ $NaSO_4$	Glass Soil Container (8) oz	Other: GLASS SOIL CONTAINER (4) oz	Other:	Water VOA Vial ☐ As is ☐ HCl	Glass Amber (___) ml ☐ As is ☐ H_2SO_4	Plastic - As is, ☐ 250 ml ☐ 500 ml ☐ 1000 ml	Plastic - H_2SO_4, ☐ 250 ml ☐ 500 ml	Plastic - HNO_3, 250 ml ☐ Filtered ☐ 0.45µ ☐ 10µ	Plastic - NaOH, 250 ml	Comments
01					130577 1116 - 14	X	11/16/17	0830			X						1									43548
02					-15	X		0835			X							2								43549
03					-16	C		0900					X						1							43550
04					-17	S		0925	X	X	X	X	X				1	2	2							43551
05					-18	C		0950					X						1							43552
06					-19	S		1005	X	X	X	X	X				1	2	2							43553
07					-20	S		1100	X	X	X	X	X				1	2	2							43554
08					-21	S		1110	X	X	X	X	X				1	2	2							43555
09					-22	C		1230					X						1							43556
10					-23	S	↓	1235	X	X	X	X	X				1	2	2							43557

Transfer Number	Relinquished By	Accepted By	Date	Time
1	[signature]	Caradine	11/16/17	1821
2				
3				
4				

Charge Exceptions: ☒ CT Tax Exempt ☒ QA/QC ☐ Other ____
____ Duplicates 2 Blanks (Item Nos: 01, 02)
Reporting and Detection Limit Requirements: ☒ RCP Deliverables ☐ MCP CAM Cert.
GW PMC, NES DEC
Additional Comments:

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☒ 146 Hartford Road, Manchester, CT 06040
☐ 56 Quarry Road, Trumbull, CT 06611
☐ 1419 Richland Street, Columbia, SC 29201
☐ 78 Interstate Drive, West Springfield, MA 01089
☐ 317 Iron Horse Way, Suite 204, Providence, RI 02908
☐ 80 Washington Street, Suite 301, Poughkeepsie, NY
☐ Other

2.6 °w/c +IP

CHAIN-OF-CUSTODY RECORD 38422

Turnaround
☐ 24-Hour* ☐ 72-Hour* ☐ Other ____ (days)
☐ 48-Hour* ☒ Standard (____ days) *Surcharge Applies

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER	LABORATORY
CT DOT HIGGANUM MAINTENANCE FACILITY	HIGGANUM, CT	20160476.A20	PHOENIX

REPORT TO: STEFANIE WIERSZCHALEK (FTO) + DAN TAHNE (FTL)

INVOICE TO: ↓

P.O. NO.:

Sampler's Signature: [signature] Date: 11/16/17

Source Codes:
MW=Monitoring Well PW=Potable Water T=Treatment Facility S=Soil B=Sediment
SW=Surface Water ST=Stormwater W=Waste A=Air C=Concrete
X=Other

Analysis Request / Containers

Item No.	Transfer Check 1	2	3	4	Sample Number	Source Code	Date Sampled	Time Sampled	PAHs	ETPH	VOCs	RCRA 8 METALS	PCBs			Soil VOA Vial, ☒ methanol	Soil VOA Vial, ☒ water	Glass Soil Container (8) oz ☐ Na₂(SO₄)₂	Other	Other	Water VOA Vial, ☐ As is ☐ HCl	Glass Amber ( ) ml, ☐ As is ☐ H₂SO₄	Plastic - As is, ☐ 250 ml ☐ 500 ☐ 1000 ml	Plastic - H₂SO₄, ☐ 250 ml ☐ 500 ml	Plastic - HNO₃, 250 ml ☐ Filtered ☐ 0.45μ ☐ 10μ	Plastic - NaOH, 250 ml	Comments
11					130577116-24	C	11/16/17	1300					X					1									43558
12					-25	S		1310	X	X	X	X	X			1	2	2									43559
13					-26	S		1320	X	X	X	X	X			1	2	2			43560						NO CHARGE
14					-27	S		1400	X	X	X	X				1	2	2									43561
15					-28	S		1430	X	X	X	X	X			1	2	1			43562						RUN PCBs IF ENOUGH VOL
16					-29	S		1455	X	X	X	X	X			1	2	1			43563						↓
17					-30	S		1525	X	X	X	X				1	2	1			43564						

Transfer Number	Relinquished By	Accepted By	Date	Time
1	[signature]	[signature]	11/16/17	1821
2				
3				
4				

Charge Exceptions: ☒ CT Tax Exempt ☒ QA/QC ☐ Other ______
1 Duplicates ____ Blanks (Item Nos:)

Reporting and Detection Limit Requirements: ☒ RCP Deliverables ☐ MCP CAM Cert.
GAPMC, RES DEC

Additional Comments:

PHOENIX
Environmental Laboratories, Inc.

Wednesday, December 06, 2017

Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Sample ID#s: BZ46415 - BZ46429

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

SDG Comments

December 06, 2017

SDG I.D.: GBZ46415

Volatile 8260 analysis:
The reporting level for Acrylonitrile is above the GWP criteria.
1,2-Dibromoethane and 1,2-Dibromo-3-chloropropane do not meet GWP criteria, this compound is analyzed by GC/ECD to achieve this criteria.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	8:00
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46415

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-01

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	93		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	103		%	1	11/26/17	MH	70 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Toluene-d8	101		%	1	11/26/17	MH	70 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

TRIP BLANK INCLUDED.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	9:22
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46416

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-02

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Arsenic	< 0.004	0.004	mg/L	1	11/28/17	MA	SW6010C/E200.7
Barium	0.016	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Cadmium	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chromium	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Mercury	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470/245.1
Sodium	25.2	0.10	mg/L	1	11/28/17	MA	SW6010C/E200.7
Lead	< 0.002	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Selenium	< 0.010	0.010	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chloride	40.3	3.0	mg/L	1	11/22/17	MI	SM4500CLE-97,-11
Mercury Digestion	Completed				11/27/17	W/W	SW7470/245.1
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C
Total Metals Digestion	Completed				11/27/17	AG	
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-02

Phoenix I.D.: BZ46416

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	101		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	93		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	99		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	100		%	1	11/26/17	MH	70 - 130 %

Semivolatiles by SIM

2-Methylnaphthalene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluorene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Naphthalene	ND	0.09	ug/L	1	11/29/17	DD	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	79		%	1	11/29/17	DD	30 - 130 %
% Nitrobenzene-d5	83		%	1	11/29/17	DD	30 - 130 %
% Terphenyl-d14	103		%	1	11/29/17	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	10:51
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46417

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-03

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Arsenic (10um)	< 0.004	0.004	mg/L	1	11/28/17	MA	SW6010C/E200.7
Barium (10um)	0.020	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Cadmium (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chromium (10um)	0.002	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Mercury (10um)	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470A/E245.1-3.0
Sodium (10um)	74.6	1.0	mg/L	10	11/28/17	EK	SW6010C/E200.7
Lead (10um)	0.008	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Selenium (10um)	< 0.010	0.010	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chloride	88.9	3.0	mg/L	1	11/22/17	MI	SM4500CLE-97,-11
Mercury Digestion	Completed				11/27/17	W/W	SW7471B/E245.1-3.0
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C
Total Metals Digestion	Completed				11/27/17	AG	
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-03

Phoenix I.D.: BZ46417

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	103		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	93		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	98		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	99		%	1	11/26/17	MH	70 - 130 %

Semivolatiles by SIM

2-Methylnaphthalene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluorene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Naphthalene	ND	0.10	ug/L	1	11/29/17	DD	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	76		%	1	11/29/17	DD	30 - 130 %
% Nitrobenzene-d5	75		%	1	11/29/17	DD	30 - 130 %
% Terphenyl-d14	98		%	1	11/29/17	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	10:10
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46418

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-04

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Arsenic	< 0.004	0.004	mg/L	1	11/28/17	MA	SW6010C/E200.7
Barium	0.009	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Cadmium	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chromium	0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Mercury	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470/245.1
Sodium	9.29	0.10	mg/L	1	11/28/17	MA	SW6010C/E200.7
Lead	0.003	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Selenium	< 0.010	0.010	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chloride	8.5	3.0	mg/L	1	11/22/17	MI	SM4500CLE-97,-11
Mercury Digestion	Completed				11/27/17	W/W	SW7470/245.1
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C
Total Metals Digestion	Completed				11/27/17	AG	
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-04

Phoenix I.D.: BZ46418

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	104		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	92		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	105		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	100		%	1	11/26/17	MH	70 - 130 %

Semivolatiles by SIM

2-Methylnaphthalene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluorene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Naphthalene	ND	0.09	ug/L	1	11/29/17	DD	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	70		%	1	11/29/17	DD	30 - 130 %
% Nitrobenzene-d5	75		%	1	11/29/17	DD	30 - 130 %
% Terphenyl-d14	101		%	1	11/29/17	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	12:13
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46419

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-05

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Arsenic (10um)	< 0.004	0.004	mg/L	1	11/28/17	MA	SW6010C/E200.7
Barium (10um)	0.019	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Cadmium (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chromium (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Mercury (10um)	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470A/E245.1-3.0
Sodium (10um)	97.7	1.0	mg/L	10	11/28/17	EK	SW6010C/E200.7
Lead (10um)	0.004	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Selenium (10um)	< 0.010	0.010	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chloride	157	3.0	mg/L	1	11/22/17	MI	SM4500CLE-97,-11
Mercury Digestion	Completed				11/27/17	W/W	SW7471B/E245.1-3.0
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C
Total Metals Digestion	Completed				11/27/17	AG	
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-05

Phoenix I.D.: BZ46419

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	101		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	93		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	107		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	99		%	1	11/26/17	MH	70 - 130 %

Semivolatiles by SIM

2-Methylnaphthalene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	0.09	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	0.06	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	0.07	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	0.06	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	0.05	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	0.02	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluorene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Naphthalene	ND	0.10	ug/L	1	11/29/17	DD	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	76		%	1	11/29/17	DD	30 - 130 %
% Nitrobenzene-d5	72		%	1	11/29/17	DD	30 - 130 %
% Terphenyl-d14	101		%	1	11/29/17	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	11:18
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46420

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-06

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Arsenic	< 0.004	0.004	mg/L	1	11/28/17	MA	SW6010C/E200.7
Barium	0.037	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Cadmium	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chromium	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Mercury	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470/245.1
Sodium	82.8	1.0	mg/L	10	11/28/17	EK	SW6010C/E200.7
Lead	0.004	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Selenium	< 0.010	0.010	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chloride	136	3.0	mg/L	1	11/22/17	MI	SM4500CLE-97,-11
Mercury Digestion	Completed				11/27/17	W/W	SW7470/245.1
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C
Total Metals Digestion	Completed				11/27/17	AG	

Volatiles

1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-06

Phoenix I.D.: BZ46420

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	93		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	100		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	101		%	1	11/26/17	MH	70 - 130 %

Semivolatiles by SIM

2-Methylnaphthalene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluorene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Naphthalene	ND	0.09	ug/L	1	11/29/17	DD	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	75		%	1	11/29/17	DD	30 - 130 %
% Nitrobenzene-d5	75		%	1	11/29/17	DD	30 - 130 %
% Terphenyl-d14	109		%	1	11/29/17	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	13:47
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46421

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-07

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Arsenic	< 0.004	0.004	mg/L	1	11/28/17	MA	SW6010C/E200.7
Barium	0.018	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Cadmium	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chromium	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Mercury	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470/245.1
Sodium	55.1	1.0	mg/L	10	11/28/17	EK	SW6010C/E200.7
Lead	0.004	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Selenium	< 0.010	0.010	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chloride	80.8	3.0	mg/L	1	11/22/17	MI	SM4500CLE-97,-11
Mercury Digestion	Completed				11/27/17	W/W	SW7470/245.1
PCB Extraction	Completed				11/27/17	NT	SW3510C
Extraction for Pest (2 Liter)	Completed				11/27/17	NT	SW3510C
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C
Total Metals Digestion	Completed				11/27/17	AG	
Polychlorinated Biphenyls							
PCB-1016	ND	0.10	ug/L	1	11/28/17	AW	SW8082A
PCB-1221	ND	0.10	ug/L	1	11/28/17	AW	SW8082A
PCB-1232	ND	0.10	ug/L	1	11/28/17	AW	SW8082A
PCB-1242	ND	0.10	ug/L	1	11/28/17	AW	SW8082A
PCB-1248	ND	0.10	ug/L	1	11/28/17	AW	SW8082A
PCB-1254	ND	0.10	ug/L	1	11/28/17	AW	SW8082A
PCB-1260	ND	0.10	ug/L	1	11/28/17	AW	SW8082A
PCB-1262	ND	0.10	ug/L	1	11/28/17	AW	SW8082A
PCB-1268	ND	0.10	ug/L	1	11/28/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	94		%	1	11/28/17	AW	30 - 150 %

Ver 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% TCMX	88		%	1	11/28/17	AW	30 - 150 %
Pesticides							
4,4' -DDD	ND	0.052	ug/L	1	11/28/17	CW	SW8081B
4,4' -DDE	ND	0.052	ug/L	1	11/28/17	CW	SW8081B
4,4' -DDT	ND	0.052	ug/L	1	11/28/17	CW	SW8081B
a-BHC	ND	0.026	ug/L	1	11/28/17	CW	SW8081B
Alachlor	ND	0.078	ug/L	1	11/28/17	CW	SW8081B
Aldrin	ND	0.002	ug/L	1	11/28/17	CW	SW8081B
b-BHC	ND	0.005	ug/L	1	11/28/17	CW	SW8081B
Chlordane	ND	0.3	ug/L	1	11/28/17	CW	SW8081B
d-BHC	ND	0.026	ug/L	1	11/28/17	CW	SW8081B
Dieldrin	ND	0.002	ug/L	1	11/28/17	CW	SW8081B
Endosulfan I	ND	0.052	ug/L	1	11/28/17	CW	SW8081B
Endosulfan II	ND	0.052	ug/L	1	11/28/17	CW	SW8081B
Endosulfan Sulfate	ND	0.052	ug/L	1	11/28/17	CW	SW8081B
Endrin	ND	0.052	ug/L	1	11/28/17	CW	SW8081B
Endrin Aldehyde	ND	0.052	ug/L	1	11/28/17	CW	SW8081B
Endrin ketone	ND	0.052	ug/L	1	11/28/17	CW	SW8081B
g-BHC (Lindane)	ND	0.026	ug/L	1	11/28/17	CW	SW8081B
Heptachlor	ND	0.026	ug/L	1	11/28/17	CW	SW8081B
Heptachlor epoxide	ND	0.026	ug/L	1	11/28/17	CW	SW8081B
Methoxychlor	ND	0.10	ug/L	1	11/28/17	CW	SW8081B
Toxaphene	ND	1.0	ug/L	1	11/28/17	CW	SW8081B
QA/QC Surrogates							
%DCBP (Surrogate Rec)	109		%	1	11/28/17	CW	30 - 150 %
%TCMX (Surrogate Rec)	108		%	1	11/28/17	CW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-07

Phoenix I.D.: BZ46421

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	93		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	102		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	102		%	1	11/26/17	MH	70 - 130 %

Semivolatiles by SIM

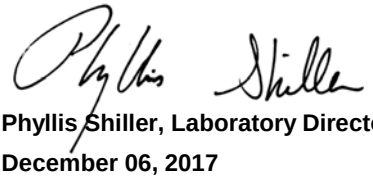
2-Methylnaphthalene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	0.01	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluorene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Naphthalene	ND	0.10	ug/L	1	11/29/17	DD	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	70		%	1	11/29/17	DD	30 - 130 %
% Nitrobenzene-d5	69		%	1	11/29/17	DD	30 - 130 %
% Terphenyl-d14	96		%	1	11/29/17	DD	30 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	12:32
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46422

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-08

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Arsenic (10um)	< 0.004	0.004	mg/L	1	11/28/17	MA	SW6010C/E200.7
Barium (10um)	0.023	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Cadmium (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chromium (10um)	0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Mercury (10um)	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470A/E245.1-3.0
Sodium (10um)	75.5	1.0	mg/L	10	11/28/17	EK	SW6010C/E200.7
Lead (10um)	< 0.002	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Selenium (10um)	< 0.010	0.010	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chloride	70.9	3.0	mg/L	1	11/22/17	MI	SM4500CLE-97,-11
Mercury Digestion	Completed				11/27/17	W/W	SW7471B/E245.1-3.0
PCB Extraction	Completed				11/27/17	NT	SW3510C
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C
Total Metals Digestion	Completed				11/27/17	AG	
Polychlorinated Biphenyls							
PCB-1016	ND	0.47	ug/L	1	11/28/17	AW	SW8082A
PCB-1221	ND	0.47	ug/L	1	11/28/17	AW	SW8082A
PCB-1232	ND	0.47	ug/L	1	11/28/17	AW	SW8082A
PCB-1242	ND	0.47	ug/L	1	11/28/17	AW	SW8082A
PCB-1248	ND	0.47	ug/L	1	11/28/17	AW	SW8082A
PCB-1254	ND	0.47	ug/L	1	11/28/17	AW	SW8082A
PCB-1260	ND	0.47	ug/L	1	11/28/17	AW	SW8082A
PCB-1262	ND	0.47	ug/L	1	11/28/17	AW	SW8082A
PCB-1268	ND	0.47	ug/L	1	11/28/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	108		%	1	11/28/17	AW	30 - 150 %
% TCMX	118		%	1	11/28/17	AW	30 - 150 %

Ver 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	100		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	94		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	102		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	101		%	1	11/26/17	MH	70 - 130 %

Semivolatiles by SIM

2-Methylnaphthalene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	0.06	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluorene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Naphthalene	ND	0.09	ug/L	1	11/29/17	DD	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	50		%	1	11/29/17	DD	30 - 130 %
% Nitrobenzene-d5	64		%	1	11/29/17	DD	30 - 130 %

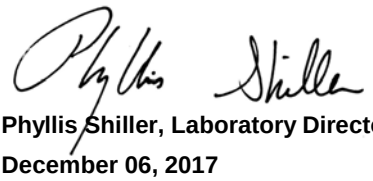
Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Terphenyl-d14	66		%	1	11/29/17	DD	30 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	15:59
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46423

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-09

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Arsenic (10um)	< 0.004	0.004	mg/L	1	11/28/17	MA	SW6010C/E200.7
Barium (10um)	0.016	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Cadmium (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chromium (10um)	0.004	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Mercury (10um)	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470A/E245.1-3.0
Sodium (10um)	107	1.0	mg/L	10	11/28/17	EK	SW6010C/E200.7
Lead (10um)	0.009	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Selenium (10um)	< 0.010	0.010	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chloride	98.6	3.0	mg/L	1	11/22/17	MI	SM4500CLE-97,-11
Mercury Digestion	Completed				11/27/17	W/W	SW7471B/E245.1-3.0
PCB Extraction	Completed				11/27/17	NT	SW3510C
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C
Total Metals Digestion	Completed				11/27/17	AG	
Polychlorinated Biphenyls							
PCB-1016	ND	0.50	ug/L	1	11/28/17	AW	SW8082A
PCB-1221	ND	0.50	ug/L	1	11/28/17	AW	SW8082A
PCB-1232	ND	0.50	ug/L	1	11/28/17	AW	SW8082A
PCB-1242	ND	0.50	ug/L	1	11/28/17	AW	SW8082A
PCB-1248	ND	0.50	ug/L	1	11/28/17	AW	SW8082A
PCB-1254	ND	0.50	ug/L	1	11/28/17	AW	SW8082A
PCB-1260	ND	0.50	ug/L	1	11/28/17	AW	SW8082A
PCB-1262	ND	0.50	ug/L	1	11/28/17	AW	SW8082A
PCB-1268	ND	0.50	ug/L	1	11/28/17	AW	SW8082A
QA/QC Surrogates							
% DCBP	86		%	1	11/28/17	AW	30 - 150 %
% TCMX	92		%	1	11/28/17	AW	30 - 150 %

Ver 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	100		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	94		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	106		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	99		%	1	11/26/17	MH	70 - 130 %

Semivolatiles by SIM

2-Methylnaphthalene	0.33	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	0.10	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	1.8	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	0.86	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	3.0	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	4.3	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	4.6	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	3.6	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	3.1	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Chrysene	3.1	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	1.3	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluoranthene	4.3	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluorene	0.28	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	3.5	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Naphthalene	0.39	0.09	ug/L	1	11/29/17	DD	SW8270D (SIM)
Phenanthrene	1.0	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Pyrene	5.2	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	60		%	1	11/29/17	DD	30 - 130 %
% Nitrobenzene-d5	77		%	1	11/29/17	DD	30 - 130 %

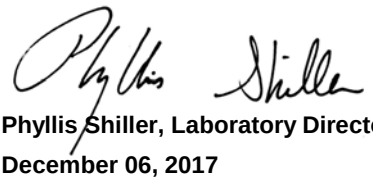
Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Terphenyl-d14	37		%	1	11/29/17	DD	30 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	14:04
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46424

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-10

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Arsenic (10um)	< 0.004	0.004	mg/L	1	11/28/17	MA	SW6010C/E200.7
Barium (10um)	0.015	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Cadmium (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chromium (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Mercury (10um)	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470A/E245.1-3.0
Sodium (10um)	30.5	0.1	mg/L	1	11/28/17	EK	SW6010C/E200.7
Lead (10um)	0.003	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Selenium (10um)	< 0.010	0.010	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chloride	57.2	3.0	mg/L	1	11/22/17	MI	SM4500CLE-97,-11
Mercury Digestion	Completed				11/27/17	W/W	SW7471B/E245.1-3.0
Extraction for Pest (2 Liter)	Completed				11/27/17	NT	SW3510C
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C
Total Metals Digestion	Completed				11/27/17	AG	
Pesticides							
4,4' -DDD	ND	0.047	ug/L	1	11/28/17	CW	SW8081B
4,4' -DDE	ND	0.047	ug/L	1	11/28/17	CW	SW8081B
4,4' -DDT	ND	0.047	ug/L	1	11/28/17	CW	SW8081B
a-BHC	ND	0.024	ug/L	1	11/28/17	CW	SW8081B
Alachlor	ND	0.070	ug/L	1	11/28/17	CW	SW8081B
Aldrin	ND	0.001	ug/L	1	11/28/17	CW	SW8081B
b-BHC	ND	0.005	ug/L	1	11/28/17	CW	SW8081B
Chlordane	ND	0.28	ug/L	1	11/28/17	CW	SW8081B
d-BHC	ND	0.024	ug/L	1	11/28/17	CW	SW8081B
Dieldrin	ND	0.001	ug/L	1	11/28/17	CW	SW8081B
Endosulfan I	ND	0.047	ug/L	1	11/28/17	CW	SW8081B
Endosulfan II	ND	0.047	ug/L	1	11/28/17	CW	SW8081B

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Endosulfan Sulfate	ND	0.047	ug/L	1	11/28/17	CW	SW8081B
Endrin	ND	0.047	ug/L	1	11/28/17	CW	SW8081B
Endrin Aldehyde	ND	0.047	ug/L	1	11/28/17	CW	SW8081B
Endrin ketone	ND	0.047	ug/L	1	11/28/17	CW	SW8081B
g-BHC (Lindane)	ND	0.024	ug/L	1	11/28/17	CW	SW8081B
Heptachlor	ND	0.024	ug/L	1	11/28/17	CW	SW8081B
Heptachlor epoxide	ND	0.024	ug/L	1	11/28/17	CW	SW8081B
Methoxychlor	ND	0.094	ug/L	1	11/28/17	CW	SW8081B
Toxaphene	ND	0.94	ug/L	1	11/28/17	CW	SW8081B
QA/QC Surrogates							
%DCBP (Surrogate Rec)	52		%	1	11/28/17	CW	30 - 150 %
%TCMX (Surrogate Rec)	118		%	1	11/28/17	CW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	103		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	92		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	103		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	101		%	1	11/26/17	MH	70 - 130 %

Semivolatiles by SIM

2-Methylnaphthalene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Benzo(k)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluorene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Naphthalene	ND	0.09	ug/L	1	11/29/17	DD	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	61		%	1	11/29/17	DD	30 - 130 %
% Nitrobenzene-d5	79		%	1	11/29/17	DD	30 - 130 %
% Terphenyl-d14	69		%	1	11/29/17	DD	30 - 130 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	15:37
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46425

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-11

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Arsenic (10um)	< 0.004	0.004	mg/L	1	11/28/17	MA	SW6010C/E200.7
Barium (10um)	0.146	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Cadmium (10um)	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chromium (10um)	0.064	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Mercury (10um)	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470A/E245.1-3.0
Sodium (10um)	36.7	0.1	mg/L	1	11/28/17	EK	SW6010C/E200.7
Lead (10um)	0.054	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Selenium (10um)	< 0.010	0.010	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chloride	14.4	3.0	mg/L	1	11/22/17	MI	SM4500CLE-97,-11
Mercury Digestion	Completed				11/27/17	W/W	SW7471B/E245.1-3.0
Extraction for Pest (2 Liter)	Completed				11/27/17	NT	SW3510C
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C
Total Metals Digestion	Completed				11/27/17	AG	
Pesticides							
4,4' -DDD	ND	2.6	ug/L	50	11/28/17	CW	SW8081B
4,4' -DDE	0.78	0.26	ug/L	50	11/28/17	CW	SW8081B
4,4' -DDT	3.0	2.6	ug/L	50	11/28/17	CW	SW8081B
a-BHC	ND	0.13	ug/L	50	11/28/17	CW	SW8081B
Alachlor	ND	0.13	ug/L	50	11/28/17	CW	SW8081B
Aldrin	ND	0.13	ug/L	50	11/28/17	CW	SW8081B
b-BHC	ND	0.13	ug/L	50	11/28/17	CW	SW8081B
Chlordane	ND	15	ug/L	50	11/28/17	CW	SW8081B
d-BHC	ND	0.13	ug/L	50	11/28/17	CW	SW8081B
Dieldrin	ND	0.13	ug/L	50	11/28/17	CW	SW8081B
Endosulfan I	ND	2.6	ug/L	50	11/28/17	CW	SW8081B
Endosulfan II	ND	2.6	ug/L	50	11/28/17	CW	SW8081B

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Endosulfan Sulfate	ND	2.6	ug/L	50	11/28/17	CW	SW8081B
Endrin	ND	0.13	ug/L	50	11/28/17	CW	SW8081B
Endrin Aldehyde	ND	0.13	ug/L	50	11/28/17	CW	SW8081B
Endrin ketone	ND	0.13	ug/L	50	11/28/17	CW	SW8081B
g-BHC (Lindane)	ND	0.13	ug/L	50	11/28/17	CW	SW8081B
Heptachlor	ND	0.13	ug/L	50	11/28/17	CW	SW8081B
Heptachlor epoxide	ND	0.13	ug/L	50	11/28/17	CW	SW8081B
Methoxychlor	ND	5.1	ug/L	50	11/28/17	CW	SW8081B
Toxaphene	ND	51	ug/L	50	11/28/17	CW	SW8081B
QA/QC Surrogates							
%DCBP (Surrogate Rec)	Diluted Out		%	50	11/28/17	CW	30 - 150 %
%TCMX (Surrogate Rec)	Diluted Out		%	50	11/28/17	CW	30 - 150 %

Volatiles

1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	80		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	98		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	100		%	1	11/26/17	MH	70 - 130 %
Semivolatiles by SIM							
2-Methylnaphthalene	0.35	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	0.05	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	2.7	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	1.1	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	1.3	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	3.7	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	3.3	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	3.5	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-11

Phoenix I.D.: BZ46425

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Benzo(k)fluoranthene	3.3	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)	
Chrysene	1.5	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)	
Dibenz(a,h)anthracene	1.5	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)	
Fluoranthene	1.6	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)	
Fluorene	0.23	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)	
Indeno(1,2,3-cd)pyrene	3.4	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)	
Naphthalene	0.35	0.10	ug/L	1	11/29/17	DD	SW8270D (SIM)	
Phenanthrene	0.34	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)	
Pyrene	2.5	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)	
QA/QC Surrogates								
% 2-Fluorobiphenyl	46		%	1	11/29/17	DD	30 - 130 %	
% Nitrobenzene-d5	62		%	1	11/29/17	DD	30 - 130 %	
% Terphenyl-d14	<10		%	1	11/29/17	DD	30 - 130 %	3

3 = This parameter exceeds laboratory specified limits.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

Semi-Volatile Comment:
Poor surrogate recovery was observed for one acid and/or one base surrogate. The other surrogates associated with this sample were within QA/QC criteria. No significant bias suspected.

Pesticide Comment:
Due to the presence of large quantities of target pesticides in the sample, a dilution was required that caused an elevated RL. Not all requested criteria was achieved.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	15:06
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46426

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-12

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Arsenic	< 0.004	0.004	mg/L	1	11/28/17	MA	SW6010C/E200.7
Barium	0.007	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Cadmium	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chromium	< 0.001	0.001	mg/L	1	11/28/17	MA	SW6010C/E200.7
Mercury	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470/245.1
Sodium	84.0	1.0	mg/L	10	11/28/17	EK	SW6010C/E200.7
Lead	0.005	0.002	mg/L	1	11/28/17	MA	SW6010C/E200.7
Selenium	< 0.010	0.010	mg/L	1	11/28/17	MA	SW6010C/E200.7
Chloride	73.3	3.0	mg/L	1	11/22/17	MI	SM4500CLE-97,-11
Mercury Digestion	Completed				11/27/17	W/W	SW7470/245.1
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C
Total Metals Digestion	Completed				11/27/17	AG	

Volatiles

1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-12

Phoenix I.D.: BZ46426

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	103		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	80		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	104		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	100		%	1	11/26/17	MH	70 - 130 %

Semivolatiles by SIM

2-Methylnaphthalene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluorene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Naphthalene	ND	0.09	ug/L	1	11/29/17	DD	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	62		%	1	11/29/17	DD	30 - 130 %
% Nitrobenzene-d5	80		%	1	11/29/17	DD	30 - 130 %
% Terphenyl-d14	75		%	1	11/29/17	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	16:41
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46427

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-13

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver (10um)	< 0.001	0.001	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Arsenic (10um)	< 0.004	0.004	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Barium (10um)	< 0.002	0.002	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Cadmium (10um)	< 0.001	0.001	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Chromium (10um)	< 0.001	0.001	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Mercury (10um)	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470A/E245.1-3.0	
Sodium (10um)	11.4	0.1	mg/L	1	11/29/17	EK	SW6010C/E200.7	B
Lead (10um)	0.004	0.002	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Selenium (10um)	< 0.010	0.010	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Chloride	41.1	3.0	mg/L	1	11/22/17	MI	SM4500CLE-97,-11	
Mercury Digestion	Completed				11/27/17	W/W	SW7471B/E245.1-3.0	
Extraction for Pest (2 Liter)	Completed				11/27/17	NT	SW3510C	
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C	
Total Metals Digestion	Completed				11/28/17	AG		
Pesticides								
4,4' -DDD	ND	0.051	ug/L	1	11/28/17	CW	SW8081B	
4,4' -DDE	ND	0.051	ug/L	1	11/28/17	CW	SW8081B	
4,4' -DDT	ND	0.051	ug/L	1	11/28/17	CW	SW8081B	
a-BHC	ND	0.025	ug/L	1	11/28/17	CW	SW8081B	
Alachlor	ND	0.076	ug/L	1	11/28/17	CW	SW8081B	
Aldrin	ND	0.050	ug/L	1	11/28/17	CW	SW8081B	
b-BHC	ND	0.005	ug/L	1	11/28/17	CW	SW8081B	
Chlordane	ND	0.30	ug/L	1	11/28/17	CW	SW8081B	
d-BHC	ND	0.025	ug/L	1	11/28/17	CW	SW8081B	
Dieldrin	ND	0.002	ug/L	1	11/28/17	CW	SW8081B	
Endosulfan I	ND	0.051	ug/L	1	11/28/17	CW	SW8081B	
Endosulfan II	ND	0.051	ug/L	1	11/28/17	CW	SW8081B	

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Endosulfan Sulfate	ND	0.051	ug/L	1	11/28/17	CW	SW8081B
Endrin	ND	0.051	ug/L	1	11/28/17	CW	SW8081B
Endrin Aldehyde	ND	0.051	ug/L	1	11/28/17	CW	SW8081B
Endrin ketone	ND	0.051	ug/L	1	11/28/17	CW	SW8081B
g-BHC (Lindane)	ND	0.025	ug/L	1	11/28/17	CW	SW8081B
Heptachlor	ND	0.025	ug/L	1	11/28/17	CW	SW8081B
Heptachlor epoxide	ND	0.025	ug/L	1	11/28/17	CW	SW8081B
Methoxychlor	ND	0.10	ug/L	1	11/28/17	CW	SW8081B
Toxaphene	ND	1.0	ug/L	1	11/28/17	CW	SW8081B
QA/QC Surrogates							
%DCBP (Surrogate Rec)	114		%	1	11/28/17	CW	30 - 150 %
%TCMX (Surrogate Rec)	98		%	1	11/28/17	CW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	101		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	93		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	104		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	102		%	1	11/26/17	MH	70 - 130 %
Semivolatiles by SIM							
2-Methylnaphthalene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-13

Phoenix I.D.: BZ46427

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Benzo(k)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluorene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Naphthalene	ND	0.10	ug/L	1	11/29/17	DD	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	57		%	1	11/29/17	DD	30 - 130 %
% Nitrobenzene-d5	72		%	1	11/29/17	DD	30 - 130 %
% Terphenyl-d14	70		%	1	11/29/17	DD	30 - 130 %

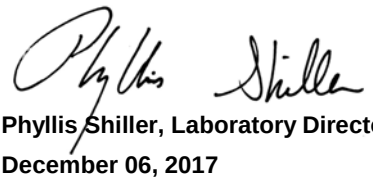
B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	16:06
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46428

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-14

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.001	0.001	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Arsenic	< 0.004	0.004	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Barium	0.010	0.002	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Cadmium	< 0.001	0.001	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Chromium	< 0.001	0.001	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Mercury	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470/245.1	
Sodium	75.2	1.0	mg/L	10	11/29/17	EK	SW6010C/E200.7	B
Lead	< 0.002	0.002	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Selenium	< 0.010	0.010	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Chloride	91.0	3.0	mg/L	1	11/22/17	MI	SM4500CLE-97,-11	
Mercury Digestion	Completed				11/27/17	W/W	SW7470/245.1	
PCB Extraction	Completed				11/27/17	NT	SW3510C	
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C	
Total Metals Digestion	Completed				11/28/17	AG		
Polychlorinated Biphenyls								
PCB-1016	ND	0.47	ug/L	1	11/28/17	AW	SW8082A	
PCB-1221	ND	0.47	ug/L	1	11/28/17	AW	SW8082A	
PCB-1232	ND	0.47	ug/L	1	11/28/17	AW	SW8082A	
PCB-1242	ND	0.47	ug/L	1	11/28/17	AW	SW8082A	
PCB-1248	ND	0.47	ug/L	1	11/28/17	AW	SW8082A	
PCB-1254	ND	0.47	ug/L	1	11/28/17	AW	SW8082A	
PCB-1260	ND	0.47	ug/L	1	11/28/17	AW	SW8082A	
PCB-1262	ND	0.47	ug/L	1	11/28/17	AW	SW8082A	
PCB-1268	ND	0.47	ug/L	1	11/28/17	AW	SW8082A	
QA/QC Surrogates								
% DCBP	98		%	1	11/28/17	AW	30 - 150 %	
% TCMX	121		%	1	11/28/17	AW	30 - 150 %	

Ver 1

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-14

Phoenix I.D.: BZ46428

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	78		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	109		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	102		%	1	11/26/17	MH	70 - 130 %

Semivolatiles by SIM

2-Methylnaphthalene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluorene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Naphthalene	ND	0.09	ug/L	1	11/29/17	DD	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	52		%	1	11/29/17	DD	30 - 130 %
% Nitrobenzene-d5	66		%	1	11/29/17	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
% Terphenyl-d14	28		%	1	11/29/17	DD	30 - 130 %	3

3 = This parameter exceeds laboratory specified limits.
B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

Semi-Volatile Comment:
Poor surrogate recovery was observed for one acid and/or one base surrogate. The other surrogates associated with this sample were within QA/QC criteria. No significant bias suspected.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 06, 2017

FOR: Attn: Stefanie Wierszchalek
Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		11/22/17	17:18
Location Code:	F&O-DAS	Received by:	DL	11/22/17	19:16
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20160476.A20				

Laboratory Data

SDG ID: GBZ46415
Phoenix ID: BZ46429

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-16

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
Silver (10um)	< 0.001	0.001	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Arsenic (10um)	< 0.004	0.004	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Barium (10um)	0.072	0.002	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Cadmium (10um)	< 0.001	0.001	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Chromium (10um)	< 0.001	0.001	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Mercury (10um)	< 0.0002	0.0002	mg/L	1	11/27/17	RS	SW7470A/E245.1-3.0	
Sodium (10um)	169	10	mg/L	100	11/29/17	EK	SW6010C/E200.7	B
Lead (10um)	< 0.002	0.002	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Selenium (10um)	< 0.010	0.010	mg/L	1	11/29/17	MA	SW6010C/E200.7	
Chloride	268	6.0	mg/L	2	11/22/17	MI	SM4500CLE-97,-11	
Mercury Digestion	Completed				11/27/17	W/W	SW7471B/E245.1-3.0	
Semi-Volatile Extraction	Completed				11/27/17	JJ/I	SW3520C	
Total Metals Digestion	Completed				11/28/17	AG		
Volatiles								
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260	
1,1,1-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260	
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260	
1,1,2-Trichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260	
1,1-Dichloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260	
1,1-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260	
1,1-Dichloropropene	ND	1.0	ug/L	1	11/26/17	MH	SW8260	
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260	
1,2,3-Trichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260	
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260	
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260	
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L	1	11/26/17	MH	SW8260	
1,2-Dibromoethane	ND	0.25	ug/L	1	11/26/17	MH	SW8260	

Project ID: CT DOT HIGGANUM MAINTENANCE/REPAIR
Client ID: 1305171122-16

Phoenix I.D.: BZ46429

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloroethane	ND	0.60	ug/L	1	11/26/17	MH	SW8260
1,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,3-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
1,4-Dichlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2,2-Dichloropropane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
2-Hexanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
2-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Chlorotoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
4-Methyl-2-pentanone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Acetone	ND	25	ug/L	1	11/26/17	MH	SW8260
Acrylonitrile	ND	2.5	ug/L	1	11/26/17	MH	SW8260
Benzene	ND	0.70	ug/L	1	11/26/17	MH	SW8260
Bromobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromochloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromodichloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Bromoform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Bromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Carbon Disulfide	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Carbon tetrachloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chlorobenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloroform	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Chloromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Dibromochloromethane	ND	0.50	ug/L	1	11/26/17	MH	SW8260
Dibromomethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Dichlorodifluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Ethylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Hexachlorobutadiene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
Isopropylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
m&p-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methyl ethyl ketone	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Methylene chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Naphthalene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
n-Propylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
o-Xylene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
p-Isopropyltoluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
sec-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Styrene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
tert-Butylbenzene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrachloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	11/26/17	MH	SW8260

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Toluene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Total Xylenes	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	11/26/17	MH	SW8260
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	11/26/17	MH	SW8260
Trichloroethene	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorofluoromethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Trichlorotrifluoroethane	ND	1.0	ug/L	1	11/26/17	MH	SW8260
Vinyl chloride	ND	1.0	ug/L	1	11/26/17	MH	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	104		%	1	11/26/17	MH	70 - 130 %
% Bromofluorobenzene	93		%	1	11/26/17	MH	70 - 130 %
% Dibromofluoromethane	104		%	1	11/26/17	MH	70 - 130 %
% Toluene-d8	102		%	1	11/26/17	MH	70 - 130 %

Semivolatiles by SIM

2-Methylnaphthalene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benz(a)anthracene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(a)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.01	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluoranthene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Fluorene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Naphthalene	ND	0.09	ug/L	1	11/29/17	DD	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
Pyrene	ND	0.05	ug/L	1	11/29/17	DD	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	61		%	1	11/29/17	DD	30 - 130 %
% Nitrobenzene-d5	80		%	1	11/29/17	DD	30 - 130 %
% Terphenyl-d14	71		%	1	11/29/17	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

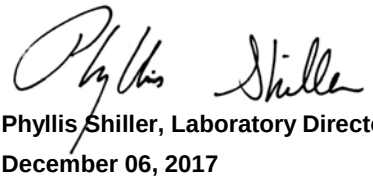
B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
December 06, 2017
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
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QA/QC Report

December 06, 2017

QA/QC Data

SDG I.D.: GBZ46415

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 410761 (mg/L), QC Sample No: BZ45176 (BZ46416)													
Mercury - Water	BRL	0.0002	<0.0002	<0.0002	NC	87.9			94.2			80 - 120	20
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.													
QA/QC Batch 410850 (mg/L), QC Sample No: BZ46245 (BZ46416, BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425, BZ46426)													
ICP Metals - Aqueous													
Arsenic	BRL	0.004	<0.004	<0.004	NC	97.2			99.6			75 - 125	20
Barium	BRL	0.002	0.020	0.020	0	100			102			75 - 125	20
Cadmium	BRL	0.001	<0.001	<0.001	NC	97.3			97.4			75 - 125	20
Chromium	BRL	0.001	0.003	0.003	NC	98.6			101			75 - 125	20
Lead	BRL	0.002	0.017	0.017	0	97.3			97.7			75 - 125	20
Selenium	BRL	0.010	<0.010	<0.010	NC	93.3			93.6			75 - 125	20
Silver	BRL	0.001	<0.001	<0.001	NC	95.4			97.1			75 - 125	20
Sodium	BRL	0.10	3.05	3.05	0	104			109			75 - 125	20
QA/QC Batch 410983 (mg/L), QC Sample No: BZ46334 (BZ46427, BZ46428, BZ46429)													
ICP Metals - Aqueous													
Arsenic	BRL	0.004	0.005	0.005	NC	94.9			99.0			75 - 125	20
Barium	BRL	0.002	0.043	0.042	2.40	97.9			98.3			75 - 125	20
Cadmium	BRL	0.001	<0.001	<0.001	NC	96.7			95.5			75 - 125	20
Chromium	BRL	0.001	<0.001	<0.001	NC	96.5			96.8			75 - 125	20
Lead	BRL	0.002	<0.002	<0.002	NC	96.7			96.9			75 - 125	20
Selenium	BRL	0.010	<0.010	<0.010	NC	92.5			94.8			75 - 125	20
Silver	BRL	0.001	<0.001	<0.001	NC	89.8			92.2			75 - 125	20
Sodium	0.11	0.10	24.5	24.0	2.10	107			NC			75 - 125	20
QA/QC Batch 410763 (mg/L), QC Sample No: BZ46418 (BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425, BZ46426, BZ46427, BZ46428, BZ46429)													
Mercury - Water	BRL	0.0002	<0.0002	<0.0002	NC	95.4			94.4			80 - 120	20
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.													

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

December 06, 2017

QA/QC Data

SDG I.D.: GBZ46415

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 410728 (mg/L), QC Sample No: BZ45367 (BZ46416)													
Chloride	BRL	3.0	50.3	50.4	0.20	101			106			90 - 110	20
QA/QC Batch 410729 (mg/L), QC Sample No: BZ46418 (BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425, BZ46426, BZ46427, BZ46428, BZ46429)													
Chloride	BRL	3.0	8.5	8.5	NC	102			103			90 - 110	20

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QA/QC Report

December 06, 2017

QA/QC Data

SDG I.D.: GBZ46415

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 410834 (ug/L), QC Sample No: BZ46249 (BZ46416, BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425)										
Semivolatiles by SIM - Water										
2-Methylnaphthalene	ND	0.05	55	59	7.0				30 - 130	20
Acenaphthene	ND	0.05	77	78	1.3				30 - 130	20
Acenaphthylene	ND	0.04	87	86	1.2				30 - 130	20
Anthracene	ND	0.02	99	97	2.0				30 - 130	20
Benz(a)anthracene	ND	0.02	92	90	2.2				30 - 130	20
Benzo(a)pyrene	ND	0.02	100	94	6.2				30 - 130	20
Benzo(b)fluoranthene	ND	0.02	99	102	3.0				30 - 130	20
Benzo(ghi)perylene	ND	0.02	89	77	14.5				30 - 130	20
Benzo(k)fluoranthene	ND	0.02	104	99	4.9				30 - 130	20
Chrysene	ND	0.02	82	81	1.2				30 - 130	20
Dibenz(a,h)anthracene	ND	0.01	108	94	13.9				30 - 130	20
Fluoranthene	ND	0.04	97	95	2.1				30 - 130	20
Fluorene	ND	0.05	87	85	2.3				30 - 130	20
Indeno(1,2,3-cd)pyrene	ND	0.02	100	88	12.8				30 - 130	20
Naphthalene	ND	0.05	43	48	11.0				30 - 130	20
Phenanthrene	ND	0.05	83	83	0.0				30 - 130	20
Pyrene	ND	0.02	101	98	3.0				30 - 130	20
% 2-Fluorobiphenyl	69	%	65	71	8.8				30 - 130	20
% Nitrobenzene-d5	69	%	46	48	4.3				30 - 130	20
% Terphenyl-d14	106	%	100	96	4.1				30 - 130	20

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

QA/QC Batch 410853 (ug/L), QC Sample No: BZ46276 (BZ46421, BZ46424, BZ46425, BZ46427)

Pesticides - Water

4,4' -DDD	ND	0.003	104	98	5.9				40 - 140	20
4,4' -DDE	ND	0.003	113	103	9.3				40 - 140	20
4,4' -DDT	ND	0.003	104	101	2.9				40 - 140	20
a-BHC	ND	0.002	102	98	4.0				40 - 140	20
Alachlor	ND	0.005	NA	NA	NC				40 - 140	20
Aldrin	ND	0.002	88	82	7.1				40 - 140	20
b-BHC	ND	0.002	131	122	7.1				40 - 140	20
Chlordane	ND	0.050	104	96	8.0				40 - 140	20
d-BHC	ND	0.005	119	110	7.9				40 - 140	20
Dieldrin	ND	0.002	104	95	9.0				40 - 140	20
Endosulfan I	ND	0.005	100	96	4.1				40 - 140	20
Endosulfan II	ND	0.005	107	102	4.8				40 - 140	20
Endosulfan sulfate	ND	0.005	117	109	7.1				40 - 140	20

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Endrin	ND	0.005	98	93	5.2				40 - 140	20
Endrin aldehyde	ND	0.005	116	107	8.1				40 - 140	20
Endrin ketone	ND	0.005	110	105	4.7				40 - 140	20
g-BHC	ND	0.002	99	95	4.1				40 - 140	20
Heptachlor	ND	0.005	100	89	11.6				40 - 140	20
Heptachlor epoxide	ND	0.005	103	97	6.0				40 - 140	20
Methoxychlor	ND	0.005	113	114	0.9				40 - 140	20
Toxaphene	ND	0.20	NA	NA	NC				40 - 140	20
% DCBP	90	%	109	104	4.7				30 - 150	20
% TCMX	80	%	101	98	3.0				30 - 150	20

Comment:

A LCS and LCS duplicate were performed instead of a MS and MSD. Alpha and gamma chlordane were spiked and analyzed instead of technical chlordane. Gamma chlordane recovery is reported as chlordane in the LCS and LCSD

QA/QC Batch 410854 (ug/L), QC Sample No: BZ46276 (BZ46421, BZ46422, BZ46423, BZ46428)

Polychlorinated Biphenyls - Water

PCB-1016	ND	0.050	115	95	19.0				40 - 140	20
PCB-1221	ND	0.050							40 - 140	20
PCB-1232	ND	0.050							40 - 140	20
PCB-1242	ND	0.050							40 - 140	20
PCB-1248	ND	0.050							40 - 140	20
PCB-1254	ND	0.050							40 - 140	20
PCB-1260	ND	0.050	132	114	14.6				40 - 140	20
PCB-1262	ND	0.050							40 - 140	20
PCB-1268	ND	0.050							40 - 140	20
% DCBP (Surrogate Rec)	87	%	135	113	17.7				30 - 150	20
% TCMX (Surrogate Rec)	78	%	116	98	16.8				30 - 150	20

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

QA/QC Batch 410881 (ug/L), QC Sample No: BZ46415 (BZ46415, BZ46416, BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425, BZ46426, BZ46427, BZ46428, BZ46429)

Volatiles - Water

1,1,1,2-Tetrachloroethane	ND	1.0	109	106	2.8				70 - 130	30
1,1,1-Trichloroethane	ND	1.0	109	106	2.8				70 - 130	30
1,1,2,2-Tetrachloroethane	ND	0.50	105	104	1.0				70 - 130	30
1,1,2-Trichloroethane	ND	1.0	102	103	1.0				70 - 130	30
1,1-Dichloroethane	ND	1.0	106	101	4.8				70 - 130	30
1,1-Dichloroethene	ND	1.0	106	100	5.8				70 - 130	30
1,1-Dichloropropene	ND	1.0	108	103	4.7				70 - 130	30
1,2,3-Trichlorobenzene	ND	1.0	97	98	1.0				70 - 130	30
1,2,3-Trichloropropane	ND	1.0	98	92	6.3				70 - 130	30
1,2,4-Trichlorobenzene	ND	1.0	96	94	2.1				70 - 130	30
1,2,4-Trimethylbenzene	ND	1.0	99	92	7.3				70 - 130	30
1,2-Dibromo-3-chloropropane	ND	1.0	105	107	1.9				70 - 130	30
1,2-Dibromoethane	ND	1.0	103	101	2.0				70 - 130	30
1,2-Dichlorobenzene	ND	1.0	99	97	2.0				70 - 130	30
1,2-Dichloroethane	ND	1.0	104	98	5.9				70 - 130	30
1,2-Dichloropropane	ND	1.0	100	96	4.1				70 - 130	30
1,3,5-Trimethylbenzene	ND	1.0	100	97	3.0				70 - 130	30
1,3-Dichlorobenzene	ND	1.0	99	97	2.0				70 - 130	30
1,3-Dichloropropane	ND	1.0	100	100	0.0				70 - 130	30
1,4-Dichlorobenzene	ND	1.0	98	95	3.1				70 - 130	30
2,2-Dichloropropane	ND	1.0	112	105	6.5				70 - 130	30

QA/QC Data

SDG I.D.: GBZ46415

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
2-Chlorotoluene	ND	1.0	100	97	3.0				70 - 130	30
2-Hexanone	ND	5.0	93	98	5.2				70 - 130	30
2-Isopropyltoluene	ND	1.0	101	98	3.0				70 - 130	30
4-Chlorotoluene	ND	1.0	98	95	3.1				70 - 130	30
4-Methyl-2-pentanone	ND	5.0	104	103	1.0				70 - 130	30
Acetone	ND	5.0	95	107	11.9				70 - 130	30
Acrylonitrile	ND	5.0	96	107	10.8				70 - 130	30
Benzene	ND	0.70	102	98	4.0				70 - 130	30
Bromobenzene	ND	1.0	100	98	2.0				70 - 130	30
Bromochloromethane	ND	1.0	101	101	0.0				70 - 130	30
Bromodichloromethane	ND	0.50	107	105	1.9				70 - 130	30
Bromoform	ND	1.0	116	117	0.9				70 - 130	30
Bromomethane	ND	1.0	107	99	7.8				70 - 130	30
Carbon Disulfide	ND	1.0	115	110	4.4				70 - 130	30
Carbon tetrachloride	ND	1.0	110	107	2.8				70 - 130	30
Chlorobenzene	ND	1.0	102	99	3.0				70 - 130	30
Chloroethane	ND	1.0	97	92	5.3				70 - 130	30
Chloroform	ND	1.0	105	103	1.9				70 - 130	30
Chloromethane	ND	1.0	91	89	2.2				70 - 130	30
cis-1,2-Dichloroethene	ND	1.0	107	102	4.8				70 - 130	30
cis-1,3-Dichloropropene	ND	0.40	109	103	5.7				70 - 130	30
Dibromochloromethane	ND	0.50	112	112	0.0				70 - 130	30
Dibromomethane	ND	1.0	102	102	0.0				70 - 130	30
Dichlorodifluoromethane	ND	1.0	91	86	5.6				70 - 130	30
Ethylbenzene	ND	1.0	102	98	4.0				70 - 130	30
Hexachlorobutadiene	ND	0.40	100	99	1.0				70 - 130	30
Isopropylbenzene	ND	1.0	102	99	3.0				70 - 130	30
m&p-Xylene	ND	1.0	101	100	1.0				70 - 130	30
Methyl ethyl ketone	ND	5.0	105	119	12.5				70 - 130	30
Methyl t-butyl ether (MTBE)	ND	1.0	101	99	2.0				70 - 130	30
Methylene chloride	ND	1.0	102	96	6.1				70 - 130	30
Naphthalene	ND	1.0	97	99	2.0				70 - 130	30
n-Butylbenzene	ND	1.0	103	101	2.0				70 - 130	30
n-Propylbenzene	ND	1.0	100	95	5.1				70 - 130	30
o-Xylene	ND	1.0	101	98	3.0				70 - 130	30
p-Isopropyltoluene	ND	1.0	101	98	3.0				70 - 130	30
sec-Butylbenzene	ND	1.0	109	103	5.7				70 - 130	30
Styrene	ND	1.0	102	100	2.0				70 - 130	30
tert-Butylbenzene	ND	1.0	103	93	10.2				70 - 130	30
Tetrachloroethene	ND	1.0	104	100	3.9				70 - 130	30
Tetrahydrofuran (THF)	ND	2.5	99	104	4.9				70 - 130	30
Toluene	ND	1.0	100	98	2.0				70 - 130	30
trans-1,2-Dichloroethene	ND	1.0	107	100	6.8				70 - 130	30
trans-1,3-Dichloropropene	ND	0.40	104	101	2.9				70 - 130	30
trans-1,4-dichloro-2-butene	ND	5.0	94	112	17.5				70 - 130	30
Trichloroethene	ND	1.0	103	99	4.0				70 - 130	30
Trichlorofluoromethane	ND	1.0	110	104	5.6				70 - 130	30
Trichlorotrifluoroethane	ND	1.0	109	101	7.6				70 - 130	30
Vinyl chloride	ND	1.0	97	93	4.2				70 - 130	30
% 1,2-dichlorobenzene-d4	99	%	102	101	1.0				70 - 130	30
% Bromofluorobenzene	95	%	101	103	2.0				70 - 130	30
% Dibromofluoromethane	97	%	99	100	1.0				70 - 130	30
% Toluene-d8	100	%	102	100	2.0				70 - 130	30

QA/QC Data

SDG I.D.: GBZ46415

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

QA/QC Batch 410871 (ug/L), QC Sample No: BZ46667 (BZ46426, BZ46427, BZ46428, BZ46429)

Semivolatiles by SIM - Water

2-Methylnaphthalene	ND	0.05	62	61	1.6				30 - 130	20
Acenaphthene	ND	0.05	85	85	0.0				30 - 130	20
Acenaphthylene	ND	0.04	92	96	4.3				30 - 130	20
Anthracene	ND	0.02	96	97	1.0				30 - 130	20
Benz(a)anthracene	ND	0.02	89	91	2.2				30 - 130	20
Benzo(a)pyrene	ND	0.02	100	103	3.0				30 - 130	20
Benzo(b)fluoranthene	ND	0.02	98	99	1.0				30 - 130	20
Benzo(ghi)perylene	ND	0.02	81	82	1.2				30 - 130	20
Benzo(k)fluoranthene	ND	0.02	97	95	2.1				30 - 130	20
Chrysene	ND	0.02	79	82	3.7				30 - 130	20
Dibenz(a,h)anthracene	ND	0.01	96	97	1.0				30 - 130	20
Fluoranthene	ND	0.04	94	95	1.1				30 - 130	20
Fluorene	ND	0.05	90	91	1.1				30 - 130	20
Indeno(1,2,3-cd)pyrene	ND	0.02	91	92	1.1				30 - 130	20
Naphthalene	ND	0.05	51	52	1.9				30 - 130	20
Phenanthrene	ND	0.05	81	83	2.4				30 - 130	20
Pyrene	ND	0.02	97	98	1.0				30 - 130	20
% 2-Fluorobiphenyl	54	%	75	80	6.5				30 - 130	20
% Nitrobenzene-d5	69	%	58	61	5.0				30 - 130	20
% Terphenyl-d14	76	%	98	99	1.0				30 - 130	20

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
December 06, 2017

Wednesday, December 06, 2017

Criteria: CT: GWP, RV

State: CT

Sample Criteria Exceedances Report

GBZ46415 - FO-DAS

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
BZ46415	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46415	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46415	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46416	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46416	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46416	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46417	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46417	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46417	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46418	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46418	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46418	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46419	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46419	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46419	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46420	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46420	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46420	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46421	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46421	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46421	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46422	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46422	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46422	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46423	$8100CTSIMR	Benzo(ghi)perylene	CT / RSR GWPC (ug/l) / APS Organics	3.6	0.05	0.48	0.48	ug/L
BZ46423	$8100CTSIMR	Indeno(1,2,3-cd)pyrene	CT / RSR GWPC (ug/l) / APS Organics	3.5	0.05	0.1	0.1	ug/L
BZ46423	$8100CTSIMR	Dibenz(a,h)anthracene	CT / RSR GWPC (ug/l) / APS Organics	1.3	0.01	0.1	0.1	ug/L
BZ46423	$8100CTSIMR	Benzo(k)fluoranthene	CT / RSR GWPC (ug/l) / Semivolatiles	3.1	0.05	0.5	0.5	ug/L
BZ46423	$8100CTSIMR	Benzo(a)pyrene	CT / RSR GWPC (ug/l) / Semivolatiles	4.3	0.05	0.2	0.2	ug/L
BZ46423	$8100CTSIMR	Benz(a)anthracene	CT / RSR GWPC (ug/l) / Semivolatiles	3.0	0.05	0.06	0.06	ug/L
BZ46423	$8100CTSIMR	Benzo(b)fluoranthene	CT / RSR GWPC (ug/l) / Semivolatiles	4.6	0.05	0.08	0.08	ug/L
BZ46423	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46423	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46423	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46424	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L

Wednesday, December 06, 2017

Criteria: CT: GWP, RV

State: CT

Sample Criteria Exceedances Report

GBZ46415 - FO-DAS

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
BZ46424	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46424	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46425	$8100CTSIMR	Dibenz(a,h)anthracene	CT / RSR GWPC (ug/l) / APS Organics	1.5	0.01	0.1	0.1	ug/L
BZ46425	$8100CTSIMR	Indeno(1,2,3-cd)pyrene	CT / RSR GWPC (ug/l) / APS Organics	3.4	0.05	0.1	0.1	ug/L
BZ46425	$8100CTSIMR	Benzo(ghi)perylene	CT / RSR GWPC (ug/l) / APS Organics	3.5	0.05	0.48	0.48	ug/L
BZ46425	$8100CTSIMR	Benzo(b)fluoranthene	CT / RSR GWPC (ug/l) / Semivolatiles	3.3	0.05	0.08	0.08	ug/L
BZ46425	$8100CTSIMR	Benzo(k)fluoranthene	CT / RSR GWPC (ug/l) / Semivolatiles	3.3	0.05	0.5	0.5	ug/L
BZ46425	$8100CTSIMR	Benzo(a)pyrene	CT / RSR GWPC (ug/l) / Semivolatiles	3.7	0.05	0.2	0.2	ug/L
BZ46425	$8100CTSIMR	Benz(a)anthracene	CT / RSR GWPC (ug/l) / Semivolatiles	1.3	0.05	0.06	0.06	ug/L
BZ46425	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46425	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46425	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46425	$PEST_GAWR	Aldrin	CT / RSR GWPC (ug/l) / APS Organics	ND	0.13	0.05	0.05	ug/L
BZ46425	$PEST_GAWR	a-BHC	CT / RSR GWPC (ug/l) / APS Organics	ND	0.13	0.05	0.05	ug/L
BZ46425	$PEST_GAWR	b-BHC	CT / RSR GWPC (ug/l) / APS Organics	ND	0.13	0.05	0.05	ug/L
BZ46425	$PEST_GAWR	d-BHC	CT / RSR GWPC (ug/l) / APS Organics	ND	0.13	0.05	0.05	ug/L
BZ46425	$PEST_GAWR	Chlordane	CT / RSR GWPC (ug/l) / APS Organics	ND	15	0.3	0.3	ug/L
BZ46425	$PEST_GAWR	Chlordane	CT / RSR GWPC (ug/l) / Pest/PCB/TPH	ND	15	0.3	0.3	ug/L
BZ46425	$PEST_GAWR	4,4' -DDT	CT / RSR GWPC (ug/l) / APS Organics	3.0	2.6	0.1	0.1	ug/L
BZ46425	$PEST_GAWR	Dieldrin	CT / RSR GWPC (ug/l) / Pest/PCB/TPH	ND	0.13	0.002	0.002	ug/L
BZ46425	$PEST_GAWR	Toxaphene	CT / RSR GWPC (ug/l) / Pest/PCB/TPH	ND	51	3	3	ug/L
BZ46425	CR-WM10	Chromium (10um)	CT / RSR GWPC (ug/l) / Inorganics	0.064	0.001	0.05	0.05	mg/L
BZ46425	PB-WM10	Lead (10um)	CT / RSR GWPC (ug/l) / Inorganics	0.054	0.002	0.015	0.015	mg/L
BZ46426	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46426	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46426	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46427	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46427	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46427	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46428	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46428	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L
BZ46428	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46429	$8260GWR	1,2-Dibromo-3-chloropropane	CT / RSR GWPC (ug/l) / APS Organics	ND	0.50	0.2	0.2	ug/L
BZ46429	$8260GWR	Acrylonitrile	CT / RSR GWPC (ug/l) / Volatiles	ND	2.5	0.5	0.5	ug/L
BZ46429	$8260GWR	1,2-Dibromoethane	CT / RSR GWPC (ug/l) / Volatiles	ND	0.25	0.05	0.05	ug/L

Wednesday, December 06, 2017

Criteria: CT: GWP, RV

State: CT

Sample Criteria Exceedances Report

GBZ46415 - FO-DAS

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

REASONABLE CONFIDENCE PROTOCOL
LABORATORY ANALYSIS QA/QC CERTIFICATION FORM

Laboratory Name: Phoenix Environmental Labs, Inc. ***Client:*** Fuss & O'Neill, Inc.

Project Location: CT DOT HIGGANUM MAINTENANCE ***Project Number:***

Laboratory Sample ID(s): BZ46415-BZ46429 ***Sampling Date(s):*** 11/22/2017

List RCP Methods Used (e.g., 8260, 8270, et cetera) 6010, 7470/7471, 8081, 8082, 8260, 8270

1	**For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?**	☑ Yes ☐ No
1A	**Were the method specified preservation and holding time requirements met?**	☑ Yes ☐ No
1B	***VPH and EPH methods only:*** **Was the VPH or EPH method conducted without significant modifications (see section 11.3 of respective RCP methods)**	☐ Yes ☐ No ☑ NA
2	**Were all samples received by the laboratory in a condition consistent with that described on the associated Chain-of-Custody document(s)?**	☑ Yes ☐ No
3	**Were samples received at an appropriate temperature (< 6 Degrees C)?**	☑ Yes ☐ No ☐ NA
4	**Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents acheived? See Section: ICP Narration.**	☐ Yes ☑ No
5	**a) Were reporting limits specified or referenced on the chain-of-custody?** **b) Were these reporting limits met?**	☑ Yes ☐ No ☐ Yes ☑ No
6	**For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?**	☐ Yes ☑ No
7	**Are project-specific matrix spikes and laboratory duplicates included in the data set?**	☑ Yes ☐ No

Notes: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A or 1B is "No", the data package does not meet the requirements for "Reasonable Confidence". This form may not be altered and all questions must be answered.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete.

Authorized Signature: Ethan Lee **Position:** Project Manager

Printed Name: Ethan Lee **Date:** Wednesday, December 06, 2017

Name of Laboratory Phoenix Environmental Labs, Inc.

This certification form is to be used for RCP methods only.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

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RCP Certification Report

December 06, 2017

SDG I.D.: GBZ46415

SDG Comments

Metals Analysis:
The client requested a shorter list of elements than the 6010 RCP list. Only the RCRA 8 Metals are reported as requested on the chain of custody.

8270 Semi-volatile Organics:
The client requested a short list for 8270 RCP Semivolatile. Only the PAH constituents are reported as requested on the chain-of-custody.

BZ46425 - Sample(s) required a dilution for Pesticides due to the presence of large quantities of target pesticides in the sample. This resulted in elevated reporting limits that exceed the requested criteria for one or more analytes.

Mercury Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

MERLIN 11/27/17 08:15 Rick Schweitzer, Chemist 11/27/17

BZ46416, BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425, BZ46426, BZ46427, BZ46428, BZ46429

The method preparation blank contains all of the acids and reagents as the samples; the instrument blanks do not.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 410761 (BZ45176)

BZ46416

All LCS recoveries were within 80 - 120 with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.

QC (Site Specific):

Batch 410763 (BZ46418)

BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425, BZ46426, BZ46427, BZ46428, BZ46429

All LCS recoveries were within 80 - 120 with the following exceptions: None.
All MS recoveries were within 75 - 125 with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.

ICP Metals Narration

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December 06, 2017

SDG I.D.: GBZ46415

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? No.

QC Batch 410983 (Samples: BZ46427, BZ46428, BZ46429): -----

A trace amount of an analyte was found in blank. Due to the concentration in the blank relative to the samples, no bias is suspected. (Aqueous- Sodium(BZ46427, BZ46428, BZ46429))

Instrument:

BLUE 11/27/17 06:33 Emily Kolominskaya, Mike Arsenault, Chemist 11/27/17

BZ46416, BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425, BZ46426

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

BLUE 11/28/17 07:32 Emily Kolominskaya, Mike Arsenault, Chemist 11/28/17

BZ46417, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425, BZ46426, BZ46427, BZ46428, BZ46429

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

BLUE 11/29/17 07:20 Emily Kolominskaya, Mike Arsenault, Chemist 11/29/17

BZ46427, BZ46428, BZ46429

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 410850 (BZ46245)

BZ46416, BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425, BZ46426

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NY # 11301

Certification Report

December 06, 2017

SDG I.D.: GBZ46415

ICP Metals Narration

All LCS recoveries were within 75 - 125 with the following exceptions: None.

Batch 410983 (BZ46334)

BZ46427, BZ46428, BZ46429

All LCS recoveries were within 75 - 125 with the following exceptions: None.

LACHAT

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

LACHAT 11/22/17-2 Michael Tran, Chemist 11/22/17

BZ46416, BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425, BZ46426, BZ46427, BZ46428, BZ46429

The initial calibration met all criteria including a standard run at the reporting level.
All method verification standards and blanks met criteria.

QC (Batch Specific):

Batch 410728 (BZ45367)

BZ46416

All LCS recoveries were within 90 - 110 with the following exceptions: None.

QC (Site Specific):

Batch 410729 (BZ46418)

BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425, BZ46426, BZ46427, BZ46428, BZ46429

All LCS recoveries were within 90 - 110 with the following exceptions: None.
All MS recoveries were within 90 - 110 with the following exceptions: None.

PCB Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

AU-ECD5 11/28/17-1 Adam Werner, Chemist 11/28/17

BZ46421, BZ46422, BZ46423, BZ46428

The initial calibration (PC1110AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PC1110BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 410854 (BZ46276)

BZ46421, BZ46422, BZ46423, BZ46428

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.

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RCP Certification Report

December 06, 2017

SDG I.D.: GBZ46415

PCB Narration

All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

PEST Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

AU-ECD7 11/28/17-1 Carol Wohlmuth, Chemist 11/28/17

BZ46421, BZ46424, BZ46425, BZ46427

The initial calibration (PSN27AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PSN27BI) RSD for the compound list was less than 20% except for the following compounds: None.
The Endrin and DDT breakdown does not exceed 15% except for the following compounds:None.
The Endrin and DDT breakdown does not exceed the maximum of 20% except for the following compounds:None.
The continuing calibration %D for the compound list was less than 20% except for the following compounds:None.

QC (Batch Specific):

Batch 410853 (BZ46276)

BZ46421, BZ46424, BZ46425, BZ46427

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
A LCS and LCS duplicate were performed instead of a MS and MSD. Alpha and gamma chlordane were spiked and analyzed instead of technical chlordane. Gamma chlordane recovery is reported as chlordane in the LCS and LCSD

SVOASIM Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

CHEM04 11/29/17-1 Damien Drobinski, Chemist 11/29/17

BZ46422, BZ46423, BZ46424, BZ46425, BZ46426, BZ46427, BZ46428, BZ46429

The DDT breakdown and pentachlorophenol & benzidine peak tailing were evaluated in the DFTPP tune and were found to be in control.

In the event that lower detection levels were requested, the samples may have been analyzed by selective ion monitoring (SIM) mode.

Initial Calibration Verification (CHEM04/SIM_1113):
94% of target compounds met criteria.
The following compounds had %RSDs >20%: Chrysene 23% (20%)
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM04/1129_02-SIM_1113):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
92% of target compounds met criteria.

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RCP Certification Report

December 06, 2017

SDG I.D.: GBZ46415

SVOASIM Narration

The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM07 11/28/17-2 Damien Drobinski, Chemist 11/28/17

BZ46416, BZ46417, BZ46418, BZ46419, BZ46420, BZ46421

Initial Calibration Verification (CHEM07/SIM_1127):
94% of target compounds met criteria.
The following compounds had %RSDs >20%: Chrysene 30% (20%)
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM07/1128_18-SIM_1127):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
98% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 410834 (BZ46249)

BZ46416, BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425

All LCS recoveries were within 30 - 130 with the following exceptions: None.
All LCSD recoveries were within 30 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

Batch 410871 (BZ46667)

BZ46426, BZ46427, BZ46428, BZ46429

All LCS recoveries were within 30 - 130 with the following exceptions: None.
All LCSD recoveries were within 30 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)
Additional 8270 criteria:20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

VOA Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

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NY # 11301

RCP Certification Report

December 06, 2017

SDG I.D.: GBZ46415

VOA Narration

CHEM23 11/26/17-1 Michael Hahn, Chemist 11/26/17

BZ46415, BZ46416, BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425, BZ46426, BZ46427, BZ46428, BZ46429

Initial Calibration Verification (CHEM23/VOA23_1120):
98% of target compounds met criteria.
The following compounds had %RSDs >20%: Chloroethane 23% (20%)
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM23/1126_03-VOA23_1120):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 410881 (BZ46415)

BZ46415, BZ46416, BZ46417, BZ46418, BZ46419, BZ46420, BZ46421, BZ46422, BZ46423, BZ46424, BZ46425, BZ46426, BZ46427, BZ46428, BZ46429

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

Temperature Narration

The samples in this delivery group were received at 1.2°C.
(Note acceptance criteria is above freezing up to 6°C)

1.2 °C ICE

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X 146 Hartford Road, Manchester, CT 06040
☐ 56 Quarry Road, Trumbull, CT 06611
☐ 1419 Richland Street, Columbia, SC 29201
☐ 78 Interstate Drive, West Springfield, MA 01089
☐ 317 Iron Horse Way, Suite 204, Providence, RI 02908
☐ 80 Washington Street, Suite 301, Poughkeepsie, NY
☐ Other ______

CHAIN-OF-CUSTODY RECORD 38417

Turnaround
☐ 24 Hour* ☐ 72 Hour* ☐ Other ___ days
☐ 48 Hour* X Standard (___ days) *Surcharge Applies

PROJECT NAME: CT DOT HIGGANUM MAINTENANCE/REPAIR FACILITY
PROJECT LOCATION: HIGGANUM, CT
PROJECT NUMBER: 20160476.A2C
LABORATORY: PHOENIX

REPORT TO: STEFANIE WIERSZCHALEK (F&O) + DAN JAHNE (F&O)
INVOICE TO: ↓
P.O. NO.:

Sampler's Signature: [signature] Date: 11/22/17

Source Codes:
MW - Monitoring Well PW - Potable Water T - Treatment Facility S - Soil B - Sediment
SW - Surface Water ST - Stormwater W - Waste A - Air C - Concrete
X - Other: TRIP BLANK

Analysis Request: VOCs; PAHs; METALS; SODIUM + CHLORIDE; PCBs (SOXHLET); PESTICIDES

Containers: Soil VOA Vial ☐ methanol; Soil VOA Vial ☐ water; Glass Soil Container ☐ 4oz ☐ 8oz; Other; Other; Water VOA Vial ☐ HCl X HCl; Glass Amber ☐ 1000ml X 1L; Plastic ☐ H2SO4 ☐ 250ml ☐ 500ml; Plastic - HNO3 ☐ 250ml ☐ 500ml X filtered; Plastic - HNO3 250ml X unfiltered 125 mL HNO3

Item No.	Transfer Check 1 2 3 4	Sample Number	Source Code	Date Sampled	Time Sampled	VOCs	PAHs	Metals	Sodium + Chloride	PCBs (Soxhlet)	Pesticides	Lab No.	Water VOA Vial	Glass Amber	Plastic	Plastic (filtered)	Plastic (unfiltered)	Comments
01		130571122-01	X	11/22/17	0800	X						46415	2					
02		-02	MW	↓	0922	↓	X	X	X			46416	3	2	1		1	
03		-03	↓	↓	1051	↓	↓	↓	↓			46417	↓	2	↓	1		METALS ONLY FILTERED
04		-04	↓	↓	1010	↓	↓	↓	↓			46418	↓	2	↓		1	
05		-05	↓	↓	1213	↓	↓	↓	↓			46419	↓	2	↓	1		ONLY METALS FILTERED
06		-06	↓	↓	1118	↓	↓	↓	↓			46420	↓	2	↓		1	
07		-07	↓	↓	1347	↓	↓	↓	↓	X	X	46421	↓	4	↓		1	
08		-08	↓	↓	1232	↓	↓	↓	↓	X		46422	↓	3	↓	1		ONLY METALS FILTERED
09		-09	↓	↓	1559	↓	↓	↓	↓	X		46423	↓	3	↓	1		↓
10		-10	↓	↓	1404	↓	↓	↓	↓		X	46424	↓	3	↓	1		↓

Transfer Number	Relinquished By	Accepted By	Date	Time
1	[signature]	[signature]	11/22/17	1916
2				
3				
4				

Charge Exceptions: X CT Tax Exempt ☐ QA/QC ☐ Other ______
Duplicates 1 Blanks Item Nos 01
Reporting and Detection Limit Requirements: X RCP Deliverables ☐ MCP CAM Cert.
GA, GWPC, RESVC
Additional Comments:

1.2 [illegible] 16

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(860) 646-2469 • www.FandO.com

- ☒ 146 Hartford Road, Manchester, CT 06040
- ☐ 56 Quarry Road, Trumbull, CT 06611
- ☐ 1419 Richland Street, Columbia, SC 29201
- ☐ 78 Interstate Drive, West Springfield, MA 01089
- ☐ 317 Iron Horse Way, Suite 204, Providence, RI 02908
- ☐ 80 Washington Street, Suite 301, Poughkeepsie, NY
- ☐ Other ____________

CHAIN-OF-CUSTODY RECORD 38416

Turnaround
☐ 24 Hour* ☐ 72 Hour* ☐ Other ____ (days)
☐ 48 Hour* ☒ Standard (____ days) *Surcharge Applies

PROJECT NAME: CT DOT HIGGANUM MAINTENANCE | REPAIR FACILITY
PROJECT LOCATION: HIGGANUM, CT
PROJECT NUMBER: 20160476.A20
LABORATORY: PHOENIX

REPORT TO: STEFANIE WIERSZCHALEK (F&O) + DAN JAHNE (F&O)
INVOICE TO: ↓
P.O. No.:

Sampler's Signature: [signature] Date: 11/22/17

Source Codes:
MW - Monitoring Well; PW - Potable Water; T - Treatment Facility; S - Soil; B - Sediment
SW - Surface Water; ST - Stormwater; W - Waste; A - Air; C - Concrete
X - Other ________

Analysis Request / Containers

Item No.	Transfer Check 1 2 3 4	Sample Number	Source Code	Date Sampled	Time Sampled	VOCs	PAHs	METALS	SODIUM + CHLORIDE	PCBs (SOXHLET)	PESTICIDES	Soil VOA Vial / Glass Soil Container / Other	Water VOA Vial	Glass Amber 1000 ml	Plastic 1L	Plastic H2SO4	Plastic HNO3 250 ml	Plastic 250 ml (120 ml)	Comments
11		1305171122-11	MW	11/22/17	1537	X	X	X	X		X	464425	3	3	1		1		ONLY METALS FILTERED
12		-12	MW	↓	1506	X	X	X	X			464426	3	2	1			1	
13		-13	PW	↓	1641	X	X	X	X		X	464427	3	3	1		1		ONLY METALS FILTERED
14		-14	MW	↓	1606	X	X	X	X	X		464428	3	3	1			1	
15		-16	MW	↓	1718	X	X	X	X			464429	3	2	1		1		ONLY METALS FILTERED

Transfer Number	Relinquished By	Accepted By	Date	Time
1	[signature]	[signature]	11/22/17	19:16
2				
3				
4				

Charge Exceptions: ☒ CT Tax Exempt ☐ QA/QC Duplicates ☐ Blanks Item Nos: ☐ Other ____
Reporting and Detection Limit Requirements: ☒ RCP Deliverables ☐ MCP CAM Cert
GA GWPC, RES VC

Additional Comments:
NO SAMPLE -15

GB2 46415

Shannon Wilhelm

From: Stefanie Wierszchalek <SWierszchalek@fando.com>
Sent: Monday, November 27, 2017 08:00 AM
To: Deb Lawrie; Dan Jahne
Cc: Shannon Wilhelm
Subject: RE: CT DOT Higganum Maintenance received 11/22

Good morning Deb,

These should be RCRA 8 Metals. Please let me know if you have any other questions or need additional information.

Thanks,

Stefanie Wierszchalek
Senior Hydrogeologist
Fuss & O'Neill, Inc | 146 Hartford Road | Manchester, CT 06040
860.646.2469 x5503 | swierszchalek@fando.com | cell: 860.670.4385
www.fando.com | twitter | facebook | blog

From: Deb Lawrie [mailto:deb@phoenixlabs.com]
Sent: Wednesday, November 22, 2017 8:15 PM
To: Dan Jahne; Stefanie Wierszchalek
Cc: Shannon Wilhelm
Subject: CT DOT Higganum Maintenance received 11/22

Good Morning,

Please let us know what metals need to be analyzed for the attached chains.

Thanks,

Deb Lawrie
Client Services – Project Manager
Phoenix Environmental Laboratories
587 East Middle Turnpike
Manchester, CT 06040
Ph: 1-860-645-1102
Cell: 1-860-331-6364