

## MEMORANDUM

**TO:** MVP Action Grant Committee, South Hadley, MA

**FROM:** Julianne Busa, PhD; Matthew Kissane, MSc  
Fuss & O'Neill, Inc.  
1550 Main Street, Suite 400  
Springfield, MA 01103

**DATE:** February 28, 2023

**RE:** **Queensville Dam and Buttery Brook Restoration**  
Sediment Quality and Depth Assessment  
FY 23 MVP Action Grant – Town of South Hadley

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### 1 Introduction

A sediment analysis was conducted for the Queensville Dam/Titus Pond and Buttery Brook restoration located in South Hadley, Massachusetts. This sediment quality investigation was performed to evaluate quality of the impounded sediments that would potentially be mobilized as a result of dam outlet control structure removal, as well as to obtain background data relating to the quality of sediment both upstream, and downstream, of the impoundment (Titus Pond).

The Massachusetts Water Quality Standards, administered by the Massachusetts Department of Environmental Protection (MassDEP), pursuant to *314 CMR 9.00*, apply to water quality certification for the discharge of dredged or fill material, dredging, and dredged material disposal in Waters of the United States within the Commonwealth. Upland disposal of dredged material is managed per MassDEP *Interim Policy COMM-94-007*, and dredged sediment can be managed for reuse upland on-site or sent for disposal at lined landfills within the Commonwealth. Given the information above, sediment management alternatives were evaluated for the project.

### 2 October 2021 Field Investigation

This investigation focused on Titus Pond located southeast of the intersection of Lyman Street and Route 116/Newton Street in South Hadley, Massachusetts. Queensville Dam, located at the southwestern portion of the impoundment, outflows into Buttery Brook that runs southwest from Titus Pond. A site location map is included in *Figure 1*. Titus Pond is surrounded by a mix of commercial, residential, and open space use.

A field investigation of the pond sediment was conducted on October 12, 2021, during which the sediment was measured, sampled, and observed within the context of the site. One (1) transect location (Transect #1) was designated through the center of Titus Pond. The location for Transect #1 was selected to provide a representative assessment of sediment quality as sediment in the pond could become mobilized as a result of increased flow velocity following dam removal.

At Transect #1 three sediment borings (i.e. north, south, and center) were advanced by TG&B Marine Services, Inc. Borings were advanced using a slide hammer method under the supervision of Fuss & O'Neill. A site plan is included in *Figure 2*.

Generally, the sediment cores were advanced through the presumed ponded sediment until the native substrate was identified by TG&B Marine Services based on material resistance. Fuss & O'Neill personnel logged sediment conditions, including recovery amount, texture, moisture content, color, odors, and observations of anthropogenic material. Samples at one (1) foot intervals were field-screened for total organic vapors (TOV) using a photoionization detector (PID). Refer to sediment boring logs in *Appendix A* and site photos in *Appendix B*.

At the transect location, the three cores of recovered pond sediment were composited into one sample. A total of one (1) composite sediment sample was submitted to Pace Analytical Laboratory (Pace) in East Longmeadow, Massachusetts, and Thielsch Engineering in Braintree, Massachusetts, for the following parameters:

- Extractable petroleum hydrocarbons (EPHs) with Target Polycyclic Aromatic Hydrocarbons (PAHs) via MassDEP Method EPH rev 2.1,
- Total metals (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, and Zinc) via United States Environmental Protection Agency (USEPA) Method 6010D/7471B<sup>1</sup>,
- Polychlorinated biphenyls (PCBs) via USEPA Method 8082A,
- Herbicides via USEPA Method 8151A,
- Pesticides via USEPA Method 8081B,
- Volatile organic compounds (VOCs) via USEPA Method 8260C,
- Polycyclic aromatic hydrocarbons (PAHs) by the USEPA semi volatile organic compound (SVOC) method, USEPA Method 8270 D-E,
- Total organic carbon (TOC) via USEPA Method 9060A, and
- Toxicity Characteristic Leaching Procedure (TCLP) for lead via USEPA Method 6010D; if the total lead result exceeded 20 times rule
- Particle size distribution report via sieve analysis (gradation test).
- A trip blank was collected to detect and identify any VOC contamination between samples during travel to and from the laboratory.

A summary of the soil samples submitted for laboratory analysis is included below in *Table 1a*.

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<sup>1</sup> Metals list includes metals applicable to the 314 CMR 9: 401 WQC

**Table 1a**  
**Summary of Soil Samples**

<b>Location</b>	<b>Sample Date</b>	<b>Soil Sample Number</b>	<b>Composite Sample Depth Range (fbws)*</b>	<b>TOV Result (ppmv)</b>	<b>Analysis</b>
Transect #1	10/12/21	1012-04	1.9-7.5	ND	EPH, Total Metals, PCB, Herbicides, Pesticides, VOC, SVOC-PAH only, TOC, Sieve

**Notes:** Only the last six digits of the sample identification number are listed.

ppmv: parts per million by volume

fbws: feet below water surface

ND: Below equipment detection limits

\*Composite Sample Depth Range is from top of sediment surface to bottom of sediment.

The general subsurface conditions as observed in the borings included organic silt which was observed to be underlain by a native horizon consisting of sandy silt and/or fine sands. The borings observed at Transect #1, located in the central portion of Titus Pond, consisted of a shallow horizon of sediment of approximately a foot in thickness. More detailed information regarding water and sediment depth can be found in the sediment boring logs in *Appendix A*. All TOV readings were below the instrument detection limit (0.1 ppmv). No visible sheen or petroleum odor were observed at the transect location, however, the water surface was covered with green algae at the time of investigation.

Additionally, in support of scour analysis of the BATTERY Brook system downstream of Titus Pond, an additional six (6) sediment samples were collected on October 22, 2022, and submitted to Thielsch Engineering for particle size distribution report via sieve analysis (gradation test).

### **3 September 2022 Field Investigation**

In order to complete the sediment dataset necessary to proceed with a 401 WQC, on September 30, 2022, Fuss & O'Neill returned to the Site to conduct additional sediment sampling in the BATTERY Brook both upstream, and downstream, of Titus Pond.

A field investigation of the upstream and downstream sediment was conducted, during which the sediment was measured, sampled, and observed within the context of the Site. Two (2) transect locations, Transect #2 and Transect #3, were designated upstream and downstream of Titus Pond, respectively. The locations for Transects #2 and Transect #3 were selected to provide a representative assessment of sediment quality both upstream and downstream of Titus Pond to better evaluate the impact that impounded sediment release may have on the existing environmental conditions of the BATTERY Brook system.

At Transect #2 three grab locations (i.e. SD-01, SD-02, and SD-03) were collected by a Fuss & O'Neill field technician via a clean gloved-hand. At Transect #3 three grab locations (i.e. SD-04, SD-05, and SD-06) were collected by a Fuss & O'Neill field technician via a clean gloved-hand. Sediment was gathered

at each grab location down to the sediment-native material interface based on visual observations of material gradation. The location of Transect #2 and Transect #3 are included in *Figure 2*.

Fuss & O'Neill personnel logged sediment conditions, texture, moisture content, color, odors, and observations of anthropogenic material. Individual grab samples, and composited samples, were field-screened for TOV using a PID. Refer to sediment sampling field data forms in *Appendix A*.

At each transect location, the three grab samples of recovered sediment were composited into one sample. A total of two (2) composite sediment samples were submitted to Pace Analytical Laboratory (Pace) in East Longmeadow, Massachusetts, and Thielsch Engineering in Braintree, Massachusetts, for the following parameters:

- Extractable petroleum hydrocarbons (EPHs) with Target Polycyclic Aromatic Hydrocarbons (PAHs) via MassDEP Method EPH rev 2.1,
- Total metals (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, and Zinc) via United States Environmental Protection Agency (USEPA) Method 6010D/7471B<sup>2</sup>,
- Polychlorinated biphenyls (PCBs) via USEPA Method 8082A,
- Volatile organic compounds (VOCs) via USEPA Method 8260C,
- Polycyclic aromatic hydrocarbons (PAHs) by the USEPA semi volatile organic compound (SVOC) method, USEPA Method 8270 D-E,
- Total organic carbon (TOC) via USEPA Method 9060A, and
- Toxicity Characteristic Leaching Procedure (TCLP) for lead via USEPA Method 6010D; if a total metal result exceeded 20 times rule

A summary of the soil samples submitted for laboratory analysis is included below in *Table 1b*.

**Table 1b**  
**Summary of Soil Samples**

Location	Sample Date	Soil Sample Number	Composite Sample Depth Range (fbws)*	TOV Result (ppmv)	Analysis
Transect #2	9/30/22	0930-01	0.5-0.8	1.2	EPH, Total Metals, PCB, VOC, SVOC-PAH only, TOC
Transect #3	9/30/22	0930-02	0.5-0.7	0.1	EPH, Total Metals, PCB, VOC, SVOC-PAH only, TOC

**Notes:** Only the last six digits of the sample identification number are listed.

ppmv: parts per million by volume

fbws: feet below water surface

\*Composite Sample Depth Range is from top of sediment surface to bottom of sediment.

<sup>2</sup> Metals list includes metals applicable to the 314 CMR 9: 401 WQC

The general subsurface conditions as observed in the grab samples included organic silt with trace sand and gravel. More detailed information regarding sediment depth can be found in the sediment sampling field data sheets in *Appendix A*. TOV readings ranged from below the instrument detection limit (0.1 ppmv to 1.2 ppmv). No visible sheen or petroleum odor were observed at the transect locations.

#### 4 Sediment Analytical Results and Data Analysis

The following is a summary of the sediment conditions based on the October 12, 2021, October 22, 2021, and September 30, 2022, sampling events (note that a detection above a laboratory reporting limit does not necessarily indicate the exceedance of applicable regulatory criteria, which are discussed later in this section):

- A total of six (6) metals (chromium, copper, lead, mercury, nickel, and zinc) were detected above the laboratory reporting limits in one or more of the three transects. None of the results exceeded applicable sediment standards for reuse at lined landfills.
- EPH Ranges were detected in all three transect composite sample above laboratory reporting limits. The maximum total EPH (C19-C36 aliphatics, and C11-C22 aromatics) was collected from Transect #3 with a result of 260 mg/kg. Five petroleum hydrocarbon compounds (benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, chrysene, and indeno(1,2,3-cd)pyrene) were detected in the Transect #1 composite sample above laboratory limits.
- TOC content was detected above laboratory reporting limits in all three sediment composite samples with the result of 17,000 mg/kg.
- Total PCBs, VOCs, and PAHs were not detected above laboratory limits in the all three transect composite samples.
- Pesticides and herbicides were not detected in the Transect #1 composite sample.
- All results for the Trip Blank collected on October 12, 2021 were below the laboratory detection limits.
- Sieve analysis of the impounded sediment returned a result of 20% fines (dark brown silty sand) and sieve analysis of sediment in the downstream reach of the butter brook ranged from 6.0% fines (brown poorly graded sand with silt) to 52.5% fines (brown sandy silt with gravel).

The sediment analytical results were compared to the MassDEP Maximum Allowable Contaminant Levels (MACLs) for Sediment Reuse at Lined Landfills (*Comm 94-007*) and the “Consensus-Based Probability Effect Concentration (PEC). While not a regulatory criteria, the PEC are “intended to identify contaminant concentrations above which harmful effects on sediment-dwelling organisms were expected to occur frequently”<sup>3</sup>. For reference, the sediment analytical results were also compared to the MassDEP RCS-1 Method 1 Reportable Concentrations. The following summarizes the exceedances when compared to the applicable sediment standards:

- All analytical data was below applicable PECs, MACLs, and RCS-1 concentrations.

The Pace and Thielsch laboratory analytical reports are included in *Appendix C*. Sediment analytical data is summarized in *Table 2*.

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<sup>3</sup> MacDonald et al., *Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems*, 2000.

## 5 Conclusions

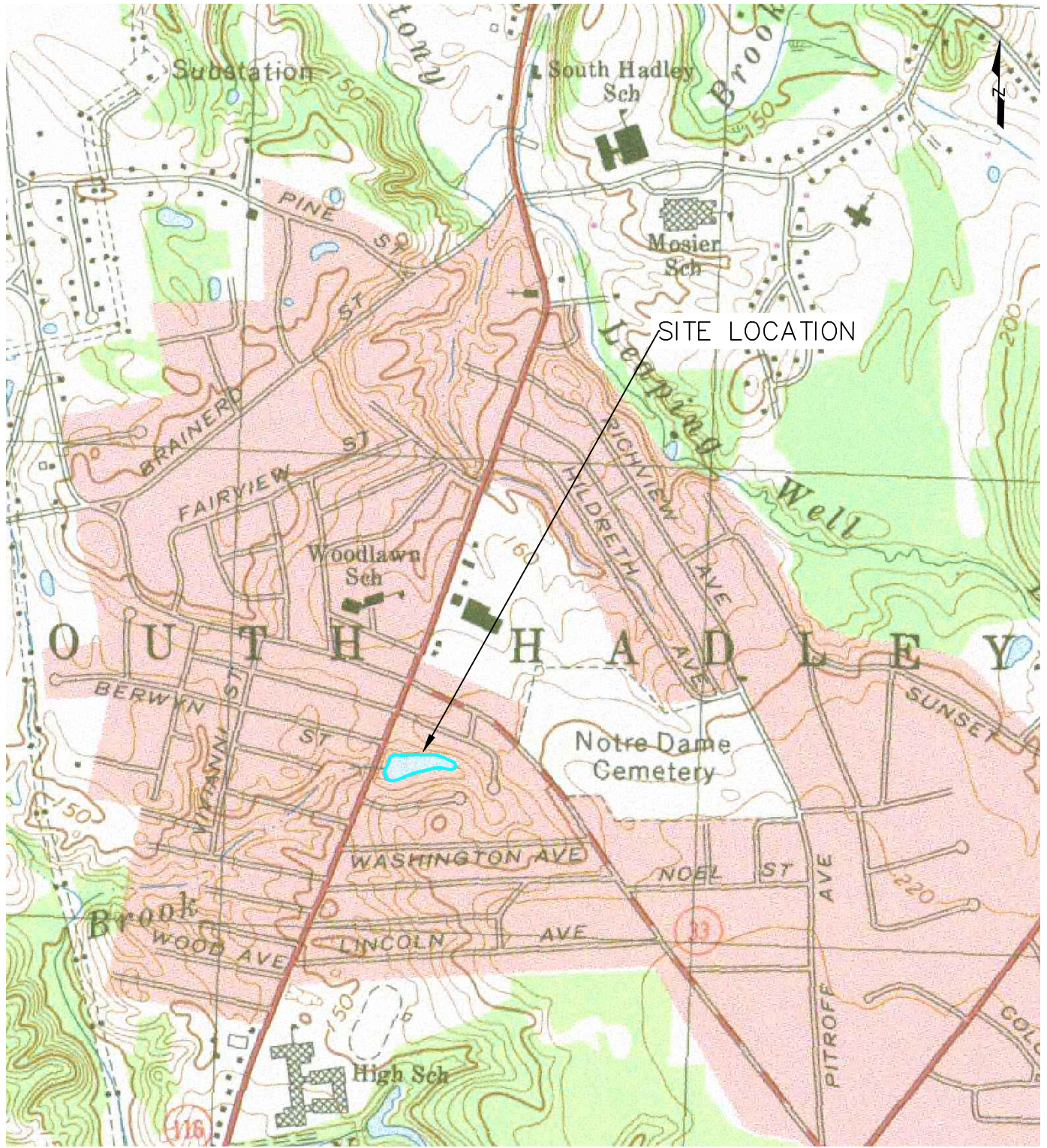
On October 12, 2021 and September 30, 2022, Fuss & O'Neill performed a sediment quality analysis for the site located at Titus Pond in South Hadley, MA. Fuss & O'Neill developed the following conclusions in regards to the sediment conditions:

- Sediment accumulation was observed at a shallow horizon of approximately a foot in thickness within the impoundment.
- The total concentrations of detected analytes were below applicable MACLs for reuse at a lined landfill.
- The total concentrations of detected analytes were below applicable PECs.
- The total concentrations of detected analytes were below applicable RCS-1 concentrations.

## 6 Sediment Management Recommendations

The conclusions developed from this sediment analysis are intended to further assist with the decision-making process for sediment management alternatives and satisfy the requirements for the project under the 401 WQC. Sediment did not exceed any applicable regulatory or guidance criteria/standards and excavated or dredged sediment should be suitable to remain on-site and be reused as fill in an appropriate portion of the Site. Although no downstream redistribution of sediment is currently planned, if required, and with MassDEP approval, some or all sediment may be allowed to redistribute downstream within Buttery Brook.

## Figure



**MAP REFERENCE**

THIS MAP WAS PREPARED FROM USGS TOPOGRAPHIC QUADRANGLE IMAGES

SOURCE: OFFICE OF GEOGRAPHIC AND ENVIRONMENTAL INFORMATION (MASSGIS), COMMONWEALTH OF MASSACHUSETTS  
 EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

SCALE:	
HORZ.:	1" = 1,000'
VERT.:	
DATUM:	
HORZ.:	
VERT.:	
GRAPHIC SCALE	



**FUSS & O'NEILL**

1550 MAIN STREET, SUITE 400  
 SPRINGFIELD, MA 01103  
 413.452.0445  
 www.fando.com

TOWN OF SOUTH HADLEY

SITE LOCATION MAP

QUEENSVILLE DAM REMOVAL

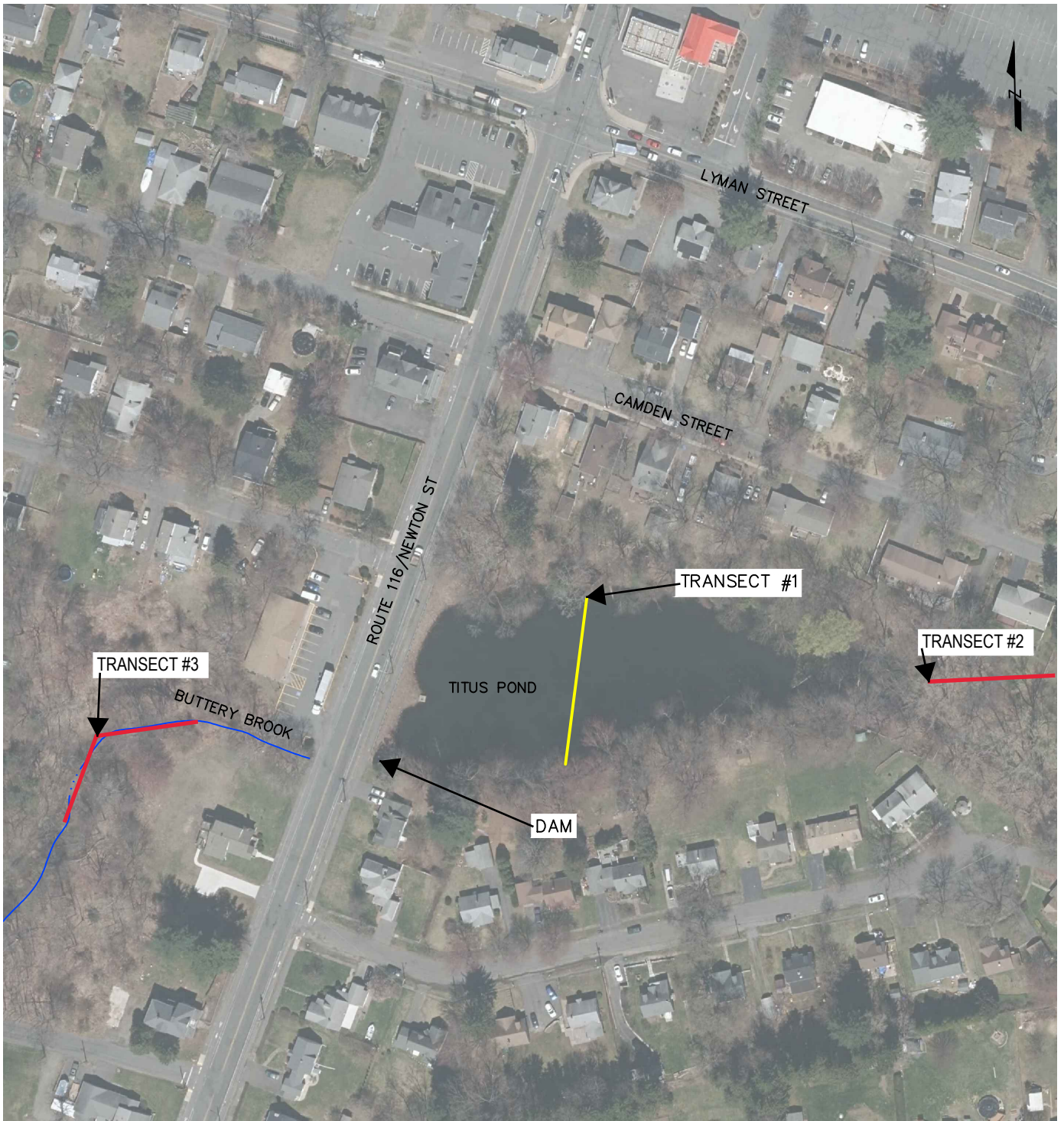
SOUTH HADLEY

MASSACHUSETTS

PROJ. No.: 20170390.V50  
 DATE: FEBRUARY 2023

**FIGURE 1**

File Path: J:\DWG\IP2017\03090\030\Environmental\201703090\_V30\_STP.dwg Layout: OVERALL Plotted: Tue, October 26, 2021 - 10:15 AM User: sdevincen  
 Plotter: DWG TO PDF.PC3 CTB File: FO.STB  
 LAYER STATE:



**MAP REFERENCE**

THIS MAP WAS PREPARED FROM USGS COLOR ORTHO IMAGERY (2019)  
 SOURCE: OFFICE OF GEOGRAPHIC AND ENVIRONMENTAL INFORMATION (MASSGIS), COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

**LEGEND**

- TRANSECT (OCT 2021)
- TRANSECT (SEPT 2022)

<b>SCALE:</b>	
HORZ.:	1" = 150'
VERT.:	
<b>DATUM:</b>	
HORZ.:	
VERT.:	
<b>GRAPHIC SCALE</b>	



**FUSS & O'NEILL**

1550 MAIN STREET, SUITE 400  
 SPRINGFIELD, MA 01103  
 413.452.0445  
 www.fando.com

TOWN OF SOUTH HADLEY

SITE PLAN

QUEENSVILLE DAM

SOUTH HADLEY

MASSACHUSETTS

PROJ. No.: 20170390.V50  
 DATE: FEBRUARY 2023

**FIGURE 2**

## Table

**Table 2**  
Summary of Sediment Analytical Data and Objectives

Environmental Site Assessment  
Queenstown Dam Removal  
South Hadley, Massachusetts  
February 9, 2023

	Sample Type	Composite			MassDEP Reportable Concentrations	Sediment Standards <sup>1</sup>		
		Transect #1 - Impoundment	Transect #2 - Upstream	Transect #3 - Downstream		RCS-1	Maximum Allowable Contaminant Levels for Sediment Reuse at Lined Landfills <sup>2</sup>	Consensus-Based PEC <sup>3</sup>
	Sample Location							
	Sample Number	1012-04	0930-01	0930-02				
	Sample Depth (fbws)	1.9-7.5	0.5-0.8	0.5-0.7				
	Headspace (ppmv)	0.0	1.2	0.1				
	Sample Date	10/12/2021	9/30/2022	9/30/2022				
<b>Total Metals (USEPA Methods 6010/7471)</b>								
	Arsenic	mg/kg	ND<5.5	ND<4.9	ND<3.9	20	40	33
	Cadmium	mg/kg	ND<0.55	ND<0.49	ND<0.39	70	80	4.98
	Chromium	mg/kg	12	8.9	6.6	100	1,000	111
	Copper	mg/kg	18	11	27	1000	---	---
	Lead	mg/kg	22	14	6.9	200	2,000	128
	Nickel	mg/kg	NA	5.4	6.3	600	---	---
	Mercury	mg/kg	0.048	ND<0.038	ND<0.030	20	10	1.06
	Zinc	mf/kg	45	36	45	1000	---	459
<b>PCBs (USEPA Method 8082A)</b>								
	Total PCBs	mg/kg	ND<0.14	ND<0.12	ND<0.095	1	<2.0	0.676
<b>VOGs (USEPA Method 8260C)</b>								
	Total VOGs	mg/kg	ND<Various	ND<Various	ND<Various	100	10	---
<b>SVOCs - PAHs Only (USEPA Method 8270D-E)</b>								
	Benzo(a)anthracene	mg/kg	ND<0.30	0.68	ND<0.81	7	--	1.05
	Benzo(a)pyrene	mg/kg	ND<0.30	0.68	ND<0.81	2	--	1.45
	Benzo(b)fluoranthene	mg/kg	ND<0.30	1.1	0.86	7	--	--
	Benzo(k)fluoranthene	mg/kg	ND<0.30	0.5	ND<0.81	70	--	--
	Chrysene	mg/kg	ND<0.30	0.71	ND<0.81	70	--	1.29
	Fluoranthene	mg/kg	ND<0.30	1.6	1.3	1000	--	2.23
	Phenanthrene	mg/kg	ND<0.30	0.87	ND<0.81	10	--	1.17
	Pyrene	mg/kg	ND<0.30	1.4	1.1	1000	--	1.52
	Total PAHs	mg/kg	ND<0.30	7.54	3.26	1000	100	23
<b>EPH (MassDEP Method EPH rev 2.1)</b>								
	C19-C36 Aliphatics	mg/kg	23	48	140	3000	---	---
	C11-C12 Aromatics	mg/kg	19	52	120	1,000	---	---
	Benzo(a)anthracene	mg/kg	0.99	NA	NA	7	---	1.05
	Benzo(a)pyrene	mg/kg	1.1	NA	NA	2.0	---	1.45
	Benzo(g,h,i)perylene	mg/kg	0.22	NA	NA	1000	---	---
	Chrysene	mg/kg	0.27	NA	NA	70	---	1.29
	Indeno(1,2,3-cd)pyrene	mg/kg	0.19	NA	NA	7.00	---	---
<b>Herbicides (USEPA Method 8151A)</b>								
	Various	mg/kg	ND<Various	NA	NA	--	---	---
<b>Pesticides (USEPA Method 8081B)</b>								
	Various	mg/kg	ND<Various	NA	NA	200	---	---
<b>Total Organic Carbon (USEPA Method 9060A)</b>								
		mg/kg	17,000	16,000	4,100	--	---	---

Created By: MK

**Notes:**

MassDEP: Massachusetts Department of Environmental Protection  
 USEPA: United States Environmental Protection Agency  
 EPH: Extractable Petroleum Hydrocarbon  
 PAH: Polycyclic Aromatic Hydrocarbon  
 PCB: Polychlorinated Biphenyl  
 VOC: Volatile Organic Compound  
 SVOC: Semivolatile Organic Compound  
 ppmv: parts per million by volume  
 fbws: feet below water surface  
 mg/kg: milligrams per kilogram

---: Criteria not defined in applicable regulations  
 NA: Not analyzed  
 ND<X: Not detected above the lab reporting limits shown.  
 Shaded and bolded values exceed the levels for sediment reuse at lined landfills  
 Italicized and bolded values exceed the PEC  
 Only analytes at concentrations greater than the reporting limits are listed.

<sup>1</sup>: Parameters required by 314 CMR 9.00 in accordance with the approved sampling plan  
<sup>2</sup>: Interim Policy COMM-94-007: Dredged Sediment Reuse or Disposal *Table 1*  
<sup>3</sup>: PEC = Probably Effect Concentration, MacDonald et. al, 2000

## **Appendix A**

### Sediment Boring Logs & Field Data Sheets

**Logo** Fuss & O'Neill

**PROJECT NUMBER** 20170390.V30 **DATE STARTED** 10/12/21  
**PROJECT NAME** MVP Action Grant FY22 **DATE COMPLETED** 10/12/21  
**LOCATION** South Hadley, MA **CASING TYPE/DIAMETER** ----  
**DRILLING METHOD** Slide Hammer **SCREEN TYPE/SLOT/INTERVAL** ----  
**HAMMER WEIGHT/FALL** -- **GRAVEL PACK TYPE** ----  
**ELEVATION (FT)** ---- **GROUT TYPE/QUANTITY** ----  
**TOP OF CASING** ---- **DEPTH TO WATER (FT)** 0.0  
**LOGGED BY** S. DeVincentis **GROUND WATER ELEVATION** ---  
**REMARKS** Sample I.D. Prefix: 1543211012-

LOG A EVNN01 - ESDAT\_LOG1.GDT - 10/13/21 13:49 - F:\P20170390\30\DELIVERABLES\SEDIMENT QUALITY INVESTIGATION\MEMO\APP A -BORINGS\20170390.V30\_T1.GPJ

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH
0.0		24	-04		5			Titus Pond	▼
0.0						ML		Dark brown, fine SAND and SILT, some Organics, wet, no odor ( <b>ORGANIC SILT</b> )	
						SP		Brown, fine SAND, little Silt, wet	
								Bottom of borehole at 8.5 feet.	

**Logo** Fuss & O'Neill

**PROJECT NUMBER** 20170390.V30 **DATE STARTED** 10/12/21  
**PROJECT NAME** MVP Action Grant FY22 **DATE COMPLETED** 10/12/21  
**LOCATION** South Hadley, MA **CASING TYPE/DIAMETER** ----  
**DRILLING METHOD** Slide Hammer **SCREEN TYPE/SLOT/INTERVAL** ----  
**HAMMER WEIGHT/FALL** -- **GRAVEL PACK TYPE** ----  
**ELEVATION (FT)** ---- **GROUT TYPE/QUANTITY** ----  
**TOP OF CASING** ---- **DEPTH TO WATER (FT)** 0.0  
**LOGGED BY** S. DeVincentis **GROUND WATER ELEVATION** ---  
**REMARKS** Sample I.D. Prefix: 1543211012-

LOG A EVNN01 - ESDAT\_LOG1.GDT - 10/13/21 13:49 - F:\P20170390\30\DELIVERABLES\SEDIMENT QUALITY INVESTIGATION\MEMO\APP A - BORINGS\20170390.V30\_T1.GPJ

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH
		30						Titus Pond	
0.0			-04		5	ML		Brown, fine SAND and SILT, some Organics, wet, no odor ( <b>ORGANIC SILT</b> )	
0.0			-04			SP		Brown, fine SAND, trace Silt, wet	
						ML		Brown, fine SAND and SILT, some Organics, wet, no odor ( <b>ORGANIC SILT</b> )	
						ML		Dark brown to black, fine SAND and SILT, some Organics, wet, no odor ( <b>ORGANIC SILT</b> )	
Bottom of borehole at 6.4 feet.									


**Logo** Fuss & O'Neill

**PROJECT NUMBER** 20170390.V30 **DATE STARTED** 10/12/21  
**PROJECT NAME** MVP Action Grant FY22 **DATE COMPLETED** 10/12/21  
**LOCATION** South Hadley, MA **CASING TYPE/DIAMETER** ----  
**DRILLING METHOD** Slide Hammer **SCREEN TYPE/SLOT/INTERVAL** ----  
**HAMMER WEIGHT/FALL** -- **GRAVEL PACK TYPE** ----  
**ELEVATION (FT)** ---- **GROUT TYPE/QUANTITY** ----  
**TOP OF CASING** ---- **DEPTH TO WATER (FT)** 0.0  
**LOGGED BY** S. DeVincentis **GROUND WATER ELEVATION** ---  
**REMARKS** Sample I.D. Prefix: 1543211012-

LOG A EVNN01 - ESDAT\_LOG1.GDT - 10/13/21 13:50 - F:\P20170390\30\DELIVERABLES\SEDIMENT QUALITY INVESTIGATION\MEMO\APP A -BORINGS\20170390.V30\_T1.GPJ

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH
0.0		16.8	-04					Titus Pond	▼
0.0						SM		Brown, fine SAND and SILT, little Organics, wet, no odor	
						SP		Brown, fine to medium SAND, trace Silt, wet, no odor	
								Bottom of borehole at 3.3 feet.	


# Sediment Sampling Field Data

Client/Project Name: <u>Titus pond</u> Project Location: <u>South Hadley, MA</u> Date: <u>9/30/22</u> Weather: <u>partly cloudy ~65°F</u> Sampler(s): <u>CO</u>	<b>PROJECT #:</b> <u>20170390.V50</u>	 <b>FUSS &amp; O'NEILL</b>
---	--	---

Sample #: <u>1701220930 - 01</u> Sample Location ID: <u>SD-01</u> Time: <u>1115</u> GPS Coord. _____ N _____ W   Photo #: <u>1</u> Sample Depth: <u>0 - 0.2</u> Feet Sample Description: <u>Brown organic SILT, <sup>little</sup> SAND (F-M), wet, organics</u> Sampling Device: Core Sampler - Type: _____ Dredge - Type: Ponar / Ekman / Other: <u>gloved hands</u> Field Decon: Yes / No / <u>Dedicated</u> Type of Sample: Grab / <u>Composite</u> / Other _____ <hr/> Water Quality Parameters      Surface      Bottom Temperature (C)      _____      _____ Conductivity (uS/cm)      _____      _____ pH / ORP (mV)      _____ / _____      _____ / _____ DO (mg/L / %)      _____ / _____      _____ / _____	Container	Quantity	Preservative
<b>NOTES &amp; COMMENTS</b> <div style="display: flex; justify-content: space-between;"> <span><u>Composited w/ SD-02 &amp; SD-03</u></span> <span><u>PID of composite = 0.8</u></span> </div>			

Sample #: <u>1701220930 - 01</u> Sample Location ID: <u>SD-02</u> Time: <u>1115</u> GPS Coord. _____ N _____ W   Photo #: <u>2</u> Sample Depth: <u>0 - 0.2</u> Feet Sample Description: <u>SAA (same as SD-01)</u> Sampling Device: Core Sampler - Type: _____ Dredge - Type: Ponar / Ekman / Other: <u>gloved hands</u> Field Decon: Yes / No / <u>Dedicated</u> Type of Sample: Grab / <u>Composite</u> / Other _____ <hr/> Water Quality Parameters      Surface      Bottom Temperature (C)      _____      _____ Conductivity (uS/cm)      _____      _____ pH / ORP (mV)      _____ / _____      _____ / _____ DO (mg/L / %)      _____ / _____      _____ / _____	Container	Quantity	Preservative
<b>NOTES &amp; COMMENTS</b> <div style="display: flex; justify-content: space-between;"> <span><u>Composited w/ SD-01 &amp; SD-03</u></span> <span><u>PID of composite = 0.8</u></span> </div>			


# Sediment Sampling Field Data

Client/Project Name: <u>Titus pond</u> Project Location: <u>South Hadley, MA</u> Date: <u>9/30/22</u> Weather: <u>partly cloudy</u> ~65°F Sampler(s): <u>CO</u>	<b>PROJECT #:</b> <u>20170390:V50</u>	 <b>FUSS &amp; O'NEILL</b>
---	--	---

Sample #: <u>1701220930-01</u> Sample Location ID: <u>SD-03</u> Time: <u>1115</u> GPS Coord. _____ N _____ W   Photo #: <u>3</u> Sample Depth: <u>0-0.3</u> Feet Sample Description: <u>Dark brown, organic SILT, trace F sand, wet, organics</u> Sampling Device: Core Sampler - Type: _____ Dredge - Type: Ponar / Ekman / Other: <u>gloved hands</u> Field Decon: Yes / No / <u>Dedicated</u> Type of Sample: <u>Grab</u> / <u>Composite</u> / Other _____ Water Quality Parameters      Surface      Bottom Temperature (C) _____ Conductivity (uS/cm) _____ pH / ORP (mV)      /      / DO (mg/L / %)      /      /	Container	Quantity	Preservative
<b>NOTES &amp; COMMENTS</b> <u>Composited w/ SD-01 &amp; SD-02</u> <u>PID of composite = 0.8</u> <u>Additional grab sample collected for VOCs</u> <u>PID of grab = 12</u>			

Sample #: <u>1701220930-02</u> Sample Location ID: <u>SD-04</u> Time: <u>1150</u> GPS Coord. _____ N _____ W   Photo #: _____ Sample Depth: <u>0-0.2</u> Feet Sample Description: <u>Brown organic SILT, trace F-C Sand, wet</u> Sampling Device: Core Sampler - Type: _____ Dredge - Type: Ponar / Ekman / Other: <u>gloved hands</u> Field Decon: Yes / No / <u>Dedicated</u> Type of Sample: Grab / <u>Composite</u> / Other _____ Water Quality Parameters      Surface      Bottom Temperature (C) _____ Conductivity (uS/cm) _____ pH / ORP (mV)      /      / DO (mg/L / %)      /      /	Container	Quantity	Preservative
<b>NOTES &amp; COMMENTS</b> <u>Composited w/ SD-05 and SD-06</u> <u>PID of composite = 0.0</u>			

# Sediment Sampling Field Data

Client/Project Name: <u>Titus pond</u> Project Location: <u>South Hadley, MA</u> Date: <u>9/30/22</u> Weather: <u>partly cloudy</u> Sampler(s): <u>CO</u> <span style="margin-left: 100px;"><u>~6.5%</u></span>	<b>PROJECT #:</b> <u>20170390, V50</u>	 <b>FUSS &amp; O'NEILL</b>
--	---	---

Sample #: <u>1701220930-02</u> Sample Location ID: <u>SD-05</u> Time: <u>1150</u> GPS Coord. _____ N _____ W   Photo #: _____ Sample Depth: <u>0-0.1</u> Feet Sample Description: <u>Brown organic SILT, <del>and</del> F-C SAND, trace gravel, wet, organics</u> Sampling Device: Core Sampler - Type: _____ Dredge - Type: Ponar / Ekman / Other: <u>glued hands</u> Field Decon: Yes / No / <u>Dedicated</u> Type of Sample: Grab / <u>Composite</u> / Other _____ Water Quality Parameters      Surface      Bottom Temperature (C)      _____      _____ Conductivity (uS/cm)      _____      _____ pH / ORP (mV)      _____ / _____      _____ / _____ DO (mg/L / %)      _____ / _____      _____ / _____			
<b>NOTES &amp; COMMENTS</b> <u>Composited w/ SD-04 and SD-06</u>	PID of Composite = 0.0		

Sample #: <u>1701220930-02</u> Sample Location ID: <u>SD-06</u> Time: <u>1150</u> GPS Coord. _____ N _____ W   Photo #: _____ Sample Depth: <u>0-0.1</u> Feet Sample Description: <u>SAA (same as SD-05)</u> Sampling Device: Core Sampler - Type: _____ Dredge - Type: Ponar / Ekman / Other: <u>glued hands</u> Field Decon: Yes / No / <u>Dedicated</u> Type of Sample: <u>Grab</u> / <u>Composite</u> / Other _____ Water Quality Parameters      Surface      Bottom Temperature (C)      _____      _____ Conductivity (uS/cm)      _____      _____ pH / ORP (mV)      _____ / _____      _____ / _____ DO (mg/L / %)      _____ / _____      _____ / _____			
<b>NOTES &amp; COMMENTS</b> <u>Composited w/ SD-04 and SD-05</u> <u>Additionally, grab sample collected for VCCS</u>	PID of composite = 0.0 PID of grab = 0.1		

## **Appendix B**

### Site Photos



Titus Pond, facing east.



View of southern sediment core located at Transect 1.



View of center sediment core located at Transect 1.



View of northern sediment core located at Transect 1.

## **Appendix C**

### Laboratory Analytical Reports

October 21, 2021

Matt Kissane  
Fuss & O'Neill EnviroScience, LLC - MA  
108 Myrtle St,  
Quincy, MA 02171

Project Location: Hadley, MA  
Client Job Number:  
Project Number: 20170390.V30  
Laboratory Work Order Number: 21J0808

Enclosed are results of analyses for samples as received by the laboratory on October 14, 2021. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jessica L. Hoffman  
Project Manager

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39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Fuss & O'Neill EnviroScience, LLC - MA  
108 Myrtle St,  
Quincy, MA 02171  
ATTN: Matt Kissane

REPORT DATE: 10/21/2021

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 20170390.V30

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 21J0808

The results of analyses performed on the following samples submitted to CON-TEST, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: Hadley, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
1543211012-04	21J0808-01	Soil		MADEP EPH rev 2.1 SM 2540G SW 846 9060A SW-846 6010D SW-846 7471B SW-846 8081B SW-846 8082A SW-846 8151A SW-846 8260D SW-846 8270E	

**CASE NARRATIVE SUMMARY**

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 8151 samples were derivatized on 10/19/21

For method 8151 samples analysis bracketed by LCS to monitor esterification. All recoveries in the bracketing LCS met method criteria.

For method 8270E, only PAHs were requested and reported.

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

SW-846 8081B

**Qualifications:****DL-03**

Elevated reporting limit due to matrix interference.

**Analyte & Samples(s) Qualified:**

21J0808-01[1543211012-04]

SW-846 8082A

**Qualifications:****O-32**

A dilution was performed as part of the standard analytical procedure.

**Analyte & Samples(s) Qualified:**

21J0808-01[1543211012-04]

SW-846 8151A

**Qualifications:****L-04**

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

**Analyte & Samples(s) Qualified:****Dalapon**

21J0808-01[1543211012-04], B292484-BLK1, B292484-BS1, B292484-BSD1

**Dalapon [2C]**

21J0808-01[1543211012-04], B292484-BLK1, B292484-BS1, B292484-BSD1

**L-07A**

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.

**Analyte & Samples(s) Qualified:****2,4-DB**

B292484-BSD1

**2,4-DB [2C]**

B292484-BSD1

**O-32**

A dilution was performed as part of the standard analytical procedure.

**Analyte & Samples(s) Qualified:**

21J0808-01[1543211012-04]

**R-05**

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

**Analyte & Samples(s) Qualified:****2,4-DB**

21J0808-01[1543211012-04], B292484-BLK1, B292484-BS1

**2,4-DB [2C]**

21J0808-01[1543211012-04], B292484-BLK1, B292484-BS1

**Dinoseb**

B292484-BLK1, B292484-BS1, B292484-BSD1

**Dinoseb [2C]**

B292484-BLK1, B292484-BS1, B292484-BSD1

**MCPP**

21J0808-01[1543211012-04], B292484-BLK1, B292484-BS1, B292484-BSD1

**MCPP [2C]**

21J0808-01[1543211012-04], B292484-BLK1, B292484-BS1, B292484-BSD1

**S-02**

The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

**Analyte & Samples(s) Qualified:**

**2,4-Dichlorophenylacetic acid [2C]**  
21J0808-01[1543211012-04]

**SW-846 8260D**

**Qualifications:**

**L-04**

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

**Analyte & Samples(s) Qualified:**

**tert-Amyl Methyl Ether (TAME)**  
21J0808-01[1543211012-04], B292542-BLK1, B292542-BS1, B292542-BSD1

**V-05**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

**Analyte & Samples(s) Qualified:**

**Methyl tert-Butyl Ether (MTBE)**  
21J0808-01[1543211012-04], B292542-BLK1, B292542-BS1, B292542-BSD1, S064327-CCV1

**Naphthalene**  
21J0808-01[1543211012-04], B292542-BLK1, B292542-BS1, B292542-BSD1, S064327-CCV1

**tert-Amyl Methyl Ether (TAME)**  
21J0808-01[1543211012-04], B292542-BLK1, B292542-BS1, B292542-BSD1, S064327-CCV1

**tert-Butyl Ethyl Ether (TBEE)**  
21J0808-01[1543211012-04], B292542-BLK1, B292542-BS1, B292542-BSD1, S064327-CCV1

**V-16**

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

**Analyte & Samples(s) Qualified:**

**1,4-Dioxane**  
S064327-CCV1

**V-20**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

**Analyte & Samples(s) Qualified:**

**Dichlorodifluoromethane (Freon 12)**  
B292542-BS1, B292542-BSD1, S064327-CCV1

**V-34**

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

**Analyte & Samples(s) Qualified:**

**Bromomethane**  
21J0808-01[1543211012-04], B292542-BLK1, B292542-BS1, B292542-BSD1, S064327-CCV1

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington  
Technical Representative

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Project Location: Hadley, MA

Sample Description:

Work Order: 21J0808

Date Received: 10/14/2021

Field Sample #: 1543211012-04

Sampled: 10/12/2021 13:50

Sample ID: 21J0808-01

Sample Matrix: Soil

## Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.10	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg dry	1	L-04, V-05	SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Benzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Bromobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Bromochloromethane	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Bromodichloromethane	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Bromoform	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Bromomethane	ND	0.010	mg/Kg dry	1	V-34	SW-846 8260D	10/15/21	10/15/21 7:49	MFF
2-Butanone (MEK)	ND	0.040	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
n-Butylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
sec-Butylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
tert-Butylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg dry	1	V-05	SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Carbon Disulfide	ND	0.010	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Carbon Tetrachloride	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Chlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Chlorodibromomethane	ND	0.0010	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Chloroethane	ND	0.020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Chloroform	ND	0.0040	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Chloromethane	ND	0.010	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
2-Chlorotoluene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
4-Chlorotoluene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0040	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Dibromomethane	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,2-Dichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,3-Dichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,4-Dichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,1-Dichloroethane	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,2-Dichloroethane	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,1-Dichloroethylene	ND	0.0040	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,2-Dichloropropane	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,3-Dichloropropane	ND	0.0010	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
2,2-Dichloropropane	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,1-Dichloropropene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Diethyl Ether	ND	0.020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,4-Dioxane	ND	0.10	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Ethylbenzene	ND	0.0040	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Project Location: Hadley, MA

Sample Description:

Work Order: 21J0808

Date Received: 10/14/2021

Field Sample #: 1543211012-04

Sampled: 10/12/2021 13:50

Sample ID: 21J0808-01

Sample Matrix: Soil

## Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
2-Hexanone (MBK)	ND	0.020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg dry	1	V-05	SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Methylene Chloride	ND	0.020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Naphthalene	ND	0.0040	mg/Kg dry	1	V-05	SW-846 8260D	10/15/21	10/15/21 7:49	MFF
n-Propylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Styrene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Tetrachloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Tetrahydrofuran	ND	0.010	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Toluene	ND	0.0040	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,1,1-Trichloroethane	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,1,2-Trichloroethane	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Trichloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,2,3-Trichloropropane	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
Vinyl Chloride	ND	0.010	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
m+p Xylene	ND	0.0080	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF
o-Xylene	ND	0.0040	mg/Kg dry	1		SW-846 8260D	10/15/21	10/15/21 7:49	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	93.6	70-130	10/15/21 7:49
Toluene-d8	101	70-130	10/15/21 7:49
4-Bromofluorobenzene	94.5	70-130	10/15/21 7:49

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Project Location: Hadley, MA

Sample Description:

Work Order: 21J0808

Date Received: 10/14/2021

Field Sample #: 1543211012-04

Sampled: 10/12/2021 13:50

Sample ID: 21J0808-01

Sample Matrix: Soil

## Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Acenaphthylene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Anthracene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Benzo(a)anthracene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Benzo(a)pyrene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Benzo(b)fluoranthene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Benzo(g,h,i)perylene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Benzo(k)fluoranthene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Chrysene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Dibenz(a,h)anthracene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Fluoranthene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Fluorene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Indeno(1,2,3-cd)pyrene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
2-Methylnaphthalene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Naphthalene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Phenanthrene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Pyrene	ND	0.30	mg/Kg dry	1		SW-846 8270E	10/18/21	10/20/21 15:14	BGL
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Nitrobenzene-d5		48.5	30-130					10/20/21 15:14	
2-Fluorobiphenyl		52.7	30-130					10/20/21 15:14	
p-Terphenyl-d14		55.2	30-130					10/20/21 15:14	

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Project Location: Hadley, MA

Sample Description:

Work Order: 21J0808

Date Received: 10/14/2021

Field Sample #: 1543211012-04

Sampled: 10/12/2021 13:50

Sample ID: 21J0808-01

Sample Matrix: Soil

Sample Flags: DL-03

**Organochloride Pesticides by GC/ECD**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aldrin [1]	ND	0.17	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
alpha-BHC [1]	ND	0.17	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
beta-BHC [1]	ND	0.17	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
delta-BHC [1]	ND	0.17	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
gamma-BHC (Lindane) [1]	ND	0.070	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
Chlordane [1]	ND	0.70	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
4,4'-DDD [1]	ND	0.14	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
4,4'-DDE [1]	ND	0.14	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
4,4'-DDT [1]	ND	0.14	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
Dieldrin [1]	ND	0.14	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
Endosulfan I [1]	ND	0.17	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
Endosulfan II [1]	ND	0.28	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
Endosulfan sulfate [1]	ND	0.28	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
Endrin [1]	ND	0.28	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
Endrin ketone [1]	ND	0.28	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
Heptachlor [1]	ND	0.17	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
Heptachlor epoxide [1]	ND	0.17	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
Hexachlorobenzene [1]	ND	0.21	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG
Methoxychlor [1]	ND	1.7	mg/Kg dry	20		SW-846 8081B	10/19/21	10/21/21 1:15	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Decachlorobiphenyl [1]	90.7	30-150	10/21/21 1:15
Decachlorobiphenyl [2]	86.7	30-150	10/21/21 1:15
Tetrachloro-m-xylene [1]	74.6	30-150	10/21/21 1:15
Tetrachloro-m-xylene [2]	80.3	30-150	10/21/21 1:15

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Project Location: Hadley, MA

Sample Description:

Work Order: 21J0808

Date Received: 10/14/2021

Field Sample #: 1543211012-04

Sampled: 10/12/2021 13:50

Sample ID: 21J0808-01

Sample Matrix: Soil

Sample Flags: O-32

**Polychlorinated Biphenyls By GC/ECD**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.14	mg/Kg dry	4		SW-846 8082A	10/19/21	10/21/21 13:09	TG
Aroclor-1221 [1]	ND	0.14	mg/Kg dry	4		SW-846 8082A	10/19/21	10/21/21 13:09	TG
Aroclor-1232 [1]	ND	0.14	mg/Kg dry	4		SW-846 8082A	10/19/21	10/21/21 13:09	TG
Aroclor-1242 [1]	ND	0.14	mg/Kg dry	4		SW-846 8082A	10/19/21	10/21/21 13:09	TG
Aroclor-1248 [1]	ND	0.14	mg/Kg dry	4		SW-846 8082A	10/19/21	10/21/21 13:09	TG
Aroclor-1254 [1]	ND	0.14	mg/Kg dry	4		SW-846 8082A	10/19/21	10/21/21 13:09	TG
Aroclor-1260 [1]	ND	0.14	mg/Kg dry	4		SW-846 8082A	10/19/21	10/21/21 13:09	TG
Aroclor-1262 [1]	ND	0.14	mg/Kg dry	4		SW-846 8082A	10/19/21	10/21/21 13:09	TG
Aroclor-1268 [1]	ND	0.14	mg/Kg dry	4		SW-846 8082A	10/19/21	10/21/21 13:09	TG
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		102	30-150					10/21/21 13:09	
Decachlorobiphenyl [2]		109	30-150					10/21/21 13:09	
Tetrachloro-m-xylene [1]		90.7	30-150					10/21/21 13:09	
Tetrachloro-m-xylene [2]		80.7	30-150					10/21/21 13:09	

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Project Location: Hadley, MA

Sample Description:

Work Order: 21J0808

Date Received: 10/14/2021

Field Sample #: 1543211012-04

Sampled: 10/12/2021 13:50

Sample ID: 21J0808-01

Sample Matrix: Soil

Sample Flags: O-32

**Herbicides by GC/ECD**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	170	µg/kg dry	4		SW-846 8151A	10/14/21	10/20/21 15:15	TG
2,4-DB [1]	ND	170	µg/kg dry	4	R-05	SW-846 8151A	10/14/21	10/20/21 15:15	TG
2,4,5-TP (Silvex) [1]	ND	17	µg/kg dry	4		SW-846 8151A	10/14/21	10/20/21 15:15	TG
2,4,5-T [1]	ND	17	µg/kg dry	4		SW-846 8151A	10/14/21	10/20/21 15:15	TG
Dalalpon [1]	ND	430	µg/kg dry	4	L-04	SW-846 8151A	10/14/21	10/20/21 15:15	TG
Dicamba [1]	ND	17	µg/kg dry	4		SW-846 8151A	10/14/21	10/20/21 15:15	TG
Dichloroprop [1]	ND	170	µg/kg dry	4		SW-846 8151A	10/14/21	10/20/21 15:15	TG
Dinoseb [1]	ND	87	µg/kg dry	4		SW-846 8151A	10/14/21	10/20/21 15:15	TG
MCPA [1]	ND	17000	µg/kg dry	4		SW-846 8151A	10/14/21	10/20/21 15:15	TG
MCPA [1]	ND	17000	µg/kg dry	4	R-05	SW-846 8151A	10/14/21	10/20/21 15:15	TG
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
2,4-Dichlorophenylacetic acid [1]	109		30-150					10/20/21 15:15	
<b>2,4-Dichlorophenylacetic acid [2]</b>	<b>821 *</b>		30-150		S-02			10/20/21 15:15	

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Project Location: Hadley, MA

Sample Description:

Work Order: 21J0808

Date Received: 10/14/2021

Field Sample #: 1543211012-04

Sampled: 10/12/2021 13:50

Sample ID: 21J0808-01

Sample Matrix: Soil

**Petroleum Hydrocarbons Analyses - EPH**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
C19-C36 Aliphatics	23	17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Unadjusted C11-C22 Aromatics	22	17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
C11-C22 Aromatics	19	17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Acenaphthene	ND	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Acenaphthylene	ND	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Anthracene	ND	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Benzo(a)anthracene	0.99	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Benzo(a)pyrene	1.1	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Benzo(b)fluoranthene	ND	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Benzo(g,h,i)perylene	0.22	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Benzo(k)fluoranthene	ND	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Chrysene	0.27	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Dibenz(a,h)anthracene	ND	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Fluoranthene	ND	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Fluorene	ND	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Indeno(1,2,3-cd)pyrene	0.19	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
2-Methylnaphthalene	ND	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Naphthalene	ND	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Phenanthrene	ND	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
Pyrene	ND	0.17	mg/Kg dry	1		MADEP EPH rev 2.1	10/19/21	10/21/21 11:33	CJM
<b>Surrogates</b>		<b>% Recovery</b>	<b>Recovery Limits</b>		<b>Flag/Qual</b>				
Chlorooctadecane (COD)		50.4	40-140					10/21/21 11:33	
o-Terphenyl (OTP)		58.0	40-140					10/21/21 11:33	
2-Bromonaphthalene		107	40-140					10/21/21 11:33	
2-Fluorobiphenyl		105	40-140					10/21/21 11:33	

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Project Location: Hadley, MA

Sample Description:

Work Order: 21J0808

Date Received: 10/14/2021

Field Sample #: 1543211012-04

Sampled: 10/12/2021 13:50

Sample ID: 21J0808-01

Sample Matrix: Soil

**Metals Analyses (Total)**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	ND	5.5	mg/Kg dry	1		SW-846 6010D	10/15/21	10/16/21 21:33	MJH
Cadmium	ND	0.55	mg/Kg dry	1		SW-846 6010D	10/15/21	10/17/21 22:08	TBC
Chromium	12	1.1	mg/Kg dry	1		SW-846 6010D	10/15/21	10/16/21 21:33	MJH
Copper	18	1.1	mg/Kg dry	1		SW-846 6010D	10/15/21	10/16/21 21:33	MJH
Lead	22	0.82	mg/Kg dry	1		SW-846 6010D	10/15/21	10/16/21 21:33	MJH
Mercury	0.048	0.043	mg/Kg dry	1		SW-846 7471B	10/15/21	10/19/21 9:05	DRL
Zinc	45	1.1	mg/Kg dry	1		SW-846 6010D	10/15/21	10/16/21 21:33	MJH

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Project Location: Hadley, MA

Sample Description:

Work Order: 21J0808

Date Received: 10/14/2021

**Field Sample #: 1543211012-04**

Sampled: 10/12/2021 13:50

**Sample ID: 21J0808-01**

Sample Matrix: Soil

**Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	57.5		% Wt	1		SM 2540G	10/15/21	10/18/21 14:05	BMB
Total Organic Carbon	17000	100	mg/Kg	1		SW 846 9060A	10/19/21	10/19/21 22:07	DJM

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**Sample Extraction Data**
**Prep Method: SW-846 3546 Analytical Method: MADEP EPH rev 2.1**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
21J0808-01 [1543211012-04]	B292780	20.0	2.00	10/19/21

**Prep Method: % Solids Analytical Method: SM 2540G**

Lab Number [Field ID]	Batch	Date
21J0808-01 [1543211012-04]	B292573	10/15/21

**SW 846 9060A**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
21J0808-01 [1543211012-04]	B292564	1.00	1.00	10/19/21

**Prep Method: SW-846 3050B Analytical Method: SW-846 6010D**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
21J0808-01 [1543211012-04]	B292553	1.59	50.0	10/15/21

**Prep Method: SW-846 7471 Analytical Method: SW-846 7471B**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
21J0808-01 [1543211012-04]	B292557	0.611	50.0	10/15/21

**Prep Method: SW-846 3546 Analytical Method: SW-846 8081B**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
21J0808-01 [1543211012-04]	B292766	10.0	10.0	10/19/21

**Prep Method: SW-846 3546 Analytical Method: SW-846 8082A**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
21J0808-01 [1543211012-04]	B292768	10.0	10.0	10/19/21

**Prep Method: SW-846 8151 Analytical Method: SW-846 8151A**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
21J0808-01 [1543211012-04]	B292484	20.0	5.00	10/14/21

**Prep Method: SW-846 5035 Analytical Method: SW-846 8260D**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
21J0808-01 [1543211012-04]	B292542	8.71	10.0	10/15/21

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### Sample Extraction Data

Prep Method: SW-846 3546    Analytical Method: SW-846 8270E

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
21J0808-01 [1543211012-04]	B292689	30.0	1.00	10/18/21

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**QUALITY CONTROL**
**Volatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292542 - SW-846 5035</b>										
<b>Blank (B292542-BLK1)</b>										
Prepared & Analyzed: 10/15/21										
Acetone	ND	0.10	mg/Kg wet							
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							L-04, V-05
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							V-34
2-Butanone (MEK)	ND	0.040	mg/Kg wet							
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							V-05
Carbon Disulfide	ND	0.010	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.020	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.020	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.020	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							V-05
Methylene Chloride	ND	0.020	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							
Naphthalene	ND	0.0040	mg/Kg wet							V-05

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**QUALITY CONTROL**
**Volatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292542 - SW-846 5035</b>										
<b>Blank (B292542-BLK1)</b>										
Prepared & Analyzed: 10/15/21										
n-Propylbenzene	ND	0.0020	mg/Kg wet							
Styrene	ND	0.0020	mg/Kg wet							
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet							
Tetrachloroethylene	ND	0.0020	mg/Kg wet							
Tetrahydrofuran	ND	0.010	mg/Kg wet							
Toluene	ND	0.0020	mg/Kg wet							
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet							
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet							
Trichloroethylene	ND	0.0020	mg/Kg wet							
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet							
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet							
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet							
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet							
Vinyl Chloride	ND	0.010	mg/Kg wet							
m+p Xylene	ND	0.0040	mg/Kg wet							
o-Xylene	ND	0.0020	mg/Kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0457		mg/Kg wet	0.0500		91.3	70-130			
Surrogate: Toluene-d8	0.0495		mg/Kg wet	0.0500		99.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.0486		mg/Kg wet	0.0500		97.3	70-130			
<b>LCS (B292542-BS1)</b>										
Prepared & Analyzed: 10/15/21										
Acetone	0.175	0.10	mg/Kg wet	0.200		87.4	40-160			†
tert-Amyl Methyl Ether (TAME)	0.0133	0.0010	mg/Kg wet	0.0200		66.3 *	70-130			L-04, V-05
Benzene	0.0161	0.0020	mg/Kg wet	0.0200		80.4	70-130			
Bromobenzene	0.0183	0.0020	mg/Kg wet	0.0200		91.6	70-130			
Bromochloromethane	0.0173	0.0020	mg/Kg wet	0.0200		86.3	70-130			
Bromodichloromethane	0.0186	0.0020	mg/Kg wet	0.0200		93.2	70-130			
Bromoform	0.0201	0.0020	mg/Kg wet	0.0200		101	70-130			
Bromomethane	0.0209	0.010	mg/Kg wet	0.0200		105	40-160			V-34 †
2-Butanone (MEK)	0.160	0.040	mg/Kg wet	0.200		80.1	40-160			†
n-Butylbenzene	0.0174	0.0020	mg/Kg wet	0.0200		87.1	70-130			
sec-Butylbenzene	0.0176	0.0020	mg/Kg wet	0.0200		87.8	70-130			
tert-Butylbenzene	0.0186	0.0020	mg/Kg wet	0.0200		92.8	70-130			
tert-Butyl Ethyl Ether (TBEE)	0.0146	0.0010	mg/Kg wet	0.0200		73.2	70-130			V-05
Carbon Disulfide	0.187	0.010	mg/Kg wet	0.200		93.7	70-130			
Carbon Tetrachloride	0.0181	0.0020	mg/Kg wet	0.0200		90.6	70-130			
Chlorobenzene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130			
Chlorodibromomethane	0.0194	0.0010	mg/Kg wet	0.0200		96.8	70-130			
Chloroethane	0.0196	0.020	mg/Kg wet	0.0200		97.9	70-130			
Chloroform	0.0159	0.0040	mg/Kg wet	0.0200		79.3	70-130			
Chloromethane	0.0224	0.010	mg/Kg wet	0.0200		112	40-160			†
2-Chlorotoluene	0.0199	0.0020	mg/Kg wet	0.0200		99.4	70-130			
4-Chlorotoluene	0.0198	0.0020	mg/Kg wet	0.0200		99.1	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	0.0158	0.0020	mg/Kg wet	0.0200		78.9	70-130			
1,2-Dibromoethane (EDB)	0.0183	0.0010	mg/Kg wet	0.0200		91.5	70-130			
Dibromomethane	0.0191	0.0020	mg/Kg wet	0.0200		95.3	70-130			
1,2-Dichlorobenzene	0.0182	0.0020	mg/Kg wet	0.0200		91.2	70-130			
1,3-Dichlorobenzene	0.0187	0.0020	mg/Kg wet	0.0200		93.7	70-130			
1,4-Dichlorobenzene	0.0182	0.0020	mg/Kg wet	0.0200		91.2	70-130			

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**QUALITY CONTROL**
**Volatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292542 - SW-846 5035</b>										
<b>LCS (B292542-BS1)</b>										
Prepared & Analyzed: 10/15/21										
Dichlorodifluoromethane (Freon 12)	0.0247	0.020	mg/Kg wet	0.0200		124	40-160			V-20 †
1,1-Dichloroethane	0.0169	0.0020	mg/Kg wet	0.0200		84.6	70-130			
1,2-Dichloroethane	0.0196	0.0020	mg/Kg wet	0.0200		97.8	70-130			
1,1-Dichloroethylene	0.0197	0.0040	mg/Kg wet	0.0200		98.3	70-130			
cis-1,2-Dichloroethylene	0.0173	0.0020	mg/Kg wet	0.0200		86.5	70-130			
trans-1,2-Dichloroethylene	0.0175	0.0020	mg/Kg wet	0.0200		87.5	70-130			
1,2-Dichloropropane	0.0180	0.0020	mg/Kg wet	0.0200		90.1	70-130			
1,3-Dichloropropane	0.0182	0.0010	mg/Kg wet	0.0200		90.9	70-130			
2,2-Dichloropropane	0.0173	0.0020	mg/Kg wet	0.0200		86.6	70-130			
1,1-Dichloropropene	0.0162	0.0020	mg/Kg wet	0.0200		81.0	70-130			
cis-1,3-Dichloropropene	0.0172	0.0010	mg/Kg wet	0.0200		86.0	70-130			
trans-1,3-Dichloropropene	0.0168	0.0010	mg/Kg wet	0.0200		84.1	70-130			
Diethyl Ether	0.0170	0.020	mg/Kg wet	0.0200		85.2	70-130			
Diisopropyl Ether (DIPE)	0.0164	0.0010	mg/Kg wet	0.0200		82.0	70-130			
1,4-Dioxane	0.176	0.10	mg/Kg wet	0.200		88.0	40-160			†
Ethylbenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.7	70-130			
Hexachlorobutadiene	0.0197	0.0020	mg/Kg wet	0.0200		98.5	70-130			
2-Hexanone (MBK)	0.176	0.020	mg/Kg wet	0.200		88.0	40-160			†
Isopropylbenzene (Cumene)	0.0201	0.0020	mg/Kg wet	0.0200		101	70-130			
p-Isopropyltoluene (p-Cymene)	0.0184	0.0020	mg/Kg wet	0.0200		92.2	70-130			
Methyl tert-Butyl Ether (MTBE)	0.0141	0.0040	mg/Kg wet	0.0200		70.5	70-130			V-05
Methylene Chloride	0.0177	0.020	mg/Kg wet	0.0200		88.4	70-130			
4-Methyl-2-pentanone (MIBK)	0.183	0.020	mg/Kg wet	0.200		91.7	40-160			†
Naphthalene	0.0157	0.0040	mg/Kg wet	0.0200		78.4	70-130			V-05
n-Propylbenzene	0.0200	0.0020	mg/Kg wet	0.0200		99.9	70-130			
Styrene	0.0193	0.0020	mg/Kg wet	0.0200		96.6	70-130			
1,1,1,2-Tetrachloroethane	0.0200	0.0020	mg/Kg wet	0.0200		100	70-130			
1,1,1,2,2-Tetrachloroethane	0.0183	0.0010	mg/Kg wet	0.0200		91.4	70-130			
Tetrachloroethylene	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130			
Tetrahydrofuran	0.0141	0.010	mg/Kg wet	0.0200		70.6	70-130			
Toluene	0.0192	0.0020	mg/Kg wet	0.0200		96.0	70-130			
1,2,3-Trichlorobenzene	0.0186	0.0020	mg/Kg wet	0.0200		92.8	70-130			
1,2,4-Trichlorobenzene	0.0188	0.0020	mg/Kg wet	0.0200		94.1	70-130			
1,1,1-Trichloroethane	0.0162	0.0020	mg/Kg wet	0.0200		80.8	70-130			
1,1,2-Trichloroethane	0.0176	0.0020	mg/Kg wet	0.0200		87.8	70-130			
Trichloroethylene	0.0183	0.0020	mg/Kg wet	0.0200		91.4	70-130			
Trichlorofluoromethane (Freon 11)	0.0219	0.010	mg/Kg wet	0.0200		109	70-130			
1,2,3-Trichloropropane	0.0183	0.0020	mg/Kg wet	0.0200		91.5	70-130			
1,2,4-Trimethylbenzene	0.0176	0.0020	mg/Kg wet	0.0200		88.2	70-130			
1,3,5-Trimethylbenzene	0.0199	0.0020	mg/Kg wet	0.0200		99.5	70-130			
Vinyl Chloride	0.0231	0.010	mg/Kg wet	0.0200		116	70-130			
m+p Xylene	0.0360	0.0040	mg/Kg wet	0.0400		90.1	70-130			
o-Xylene	0.0190	0.0020	mg/Kg wet	0.0200		95.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0436		mg/Kg wet	0.0500		87.1	70-130			
Surrogate: Toluene-d8	0.0511		mg/Kg wet	0.0500		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.0497		mg/Kg wet	0.0500		99.3	70-130			

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**QUALITY CONTROL**
**Volatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292542 - SW-846 5035</b>										
<b>LCS Dup (B292542-BSD1)</b>										
Prepared & Analyzed: 10/15/21										
Acetone	0.177	0.10	mg/Kg wet	0.200		88.5	40-160	1.28	20	†
tert-Amyl Methyl Ether (TAME)	0.0139	0.0010	mg/Kg wet	0.0200		<b>69.4</b> *	70-130	4.58	20	L-04, V-05
Benzene	0.0165	0.0020	mg/Kg wet	0.0200		82.3	70-130	2.32	20	
Bromobenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.4	70-130	4.15	20	
Bromochloromethane	0.0182	0.0020	mg/Kg wet	0.0200		90.8	70-130	5.00	20	
Bromodichloromethane	0.0183	0.0020	mg/Kg wet	0.0200		91.3	70-130	2.06	20	
Bromoform	0.0207	0.0020	mg/Kg wet	0.0200		103	70-130	2.79	20	
Bromomethane	0.0221	0.010	mg/Kg wet	0.0200		110	40-160	5.29	20	V-34 †
2-Butanone (MEK)	0.169	0.040	mg/Kg wet	0.200		84.5	40-160	5.33	20	†
n-Butylbenzene	0.0178	0.0020	mg/Kg wet	0.0200		89.0	70-130	2.15	20	
sec-Butylbenzene	0.0181	0.0020	mg/Kg wet	0.0200		90.3	70-130	2.72	20	
tert-Butylbenzene	0.0188	0.0020	mg/Kg wet	0.0200		93.8	70-130	1.14	20	
tert-Butyl Ethyl Ether (TBEE)	0.0148	0.0010	mg/Kg wet	0.0200		74.2	70-130	1.37	20	V-05
Carbon Disulfide	0.189	0.010	mg/Kg wet	0.200		94.5	70-130	0.846	20	
Carbon Tetrachloride	0.0182	0.0020	mg/Kg wet	0.0200		91.2	70-130	0.605	20	
Chlorobenzene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130	3.12	20	
Chlorodibromomethane	0.0208	0.0010	mg/Kg wet	0.0200		104	70-130	7.24	20	
Chloroethane	0.0197	0.020	mg/Kg wet	0.0200		98.7	70-130	0.854	20	
Chloroform	0.0164	0.0040	mg/Kg wet	0.0200		82.1	70-130	3.44	20	
Chloromethane	0.0224	0.010	mg/Kg wet	0.0200		112	40-160	0.330	20	†
2-Chlorotoluene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	1.59	20	
4-Chlorotoluene	0.0200	0.0020	mg/Kg wet	0.0200		99.9	70-130	0.814	20	
1,2-Dibromo-3-chloropropane (DBCP)	0.0153	0.0020	mg/Kg wet	0.0200		76.4	70-130	3.13	20	
1,2-Dibromoethane (EDB)	0.0185	0.0010	mg/Kg wet	0.0200		92.3	70-130	0.903	20	
Dibromomethane	0.0195	0.0020	mg/Kg wet	0.0200		97.6	70-130	2.46	20	
1,2-Dichlorobenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.6	70-130	3.69	20	
1,3-Dichlorobenzene	0.0190	0.0020	mg/Kg wet	0.0200		95.1	70-130	1.45	20	
1,4-Dichlorobenzene	0.0190	0.0020	mg/Kg wet	0.0200		95.0	70-130	4.03	20	
Dichlorodifluoromethane (Freon 12)	0.0247	0.020	mg/Kg wet	0.0200		123	40-160	0.356	20	V-20 †
1,1-Dichloroethane	0.0175	0.0020	mg/Kg wet	0.0200		87.7	70-130	3.64	20	
1,2-Dichloroethane	0.0194	0.0020	mg/Kg wet	0.0200		97.2	70-130	0.677	20	
1,1-Dichloroethylene	0.0202	0.0040	mg/Kg wet	0.0200		101	70-130	2.68	20	
cis-1,2-Dichloroethylene	0.0177	0.0020	mg/Kg wet	0.0200		88.7	70-130	2.50	20	
trans-1,2-Dichloroethylene	0.0176	0.0020	mg/Kg wet	0.0200		88.1	70-130	0.706	20	
1,2-Dichloropropane	0.0187	0.0020	mg/Kg wet	0.0200		93.5	70-130	3.68	20	
1,3-Dichloropropane	0.0185	0.0010	mg/Kg wet	0.0200		92.5	70-130	1.79	20	
2,2-Dichloropropane	0.0175	0.0020	mg/Kg wet	0.0200		87.5	70-130	0.977	20	
1,1-Dichloropropene	0.0160	0.0020	mg/Kg wet	0.0200		79.8	70-130	1.48	20	
cis-1,3-Dichloropropene	0.0177	0.0010	mg/Kg wet	0.0200		88.7	70-130	2.99	20	
trans-1,3-Dichloropropene	0.0169	0.0010	mg/Kg wet	0.0200		84.7	70-130	0.794	20	
Diethyl Ether	0.0178	0.020	mg/Kg wet	0.0200		89.1	70-130	4.56	20	
Diisopropyl Ether (DIPE)	0.0166	0.0010	mg/Kg wet	0.0200		82.9	70-130	1.09	20	
1,4-Dioxane	0.192	0.10	mg/Kg wet	0.200		96.2	40-160	8.96	20	†
Ethylbenzene	0.0199	0.0020	mg/Kg wet	0.0200		99.4	70-130	0.716	20	
Hexachlorobutadiene	0.0198	0.0020	mg/Kg wet	0.0200		99.2	70-130	0.708	20	
2-Hexanone (MBK)	0.186	0.020	mg/Kg wet	0.200		93.0	40-160	5.58	20	†
Isopropylbenzene (Cumene)	0.0207	0.0020	mg/Kg wet	0.0200		104	70-130	3.15	20	
p-Isopropyltoluene (p-Cymene)	0.0188	0.0020	mg/Kg wet	0.0200		94.1	70-130	2.09	20	
Methyl tert-Butyl Ether (MTBE)	0.0146	0.0040	mg/Kg wet	0.0200		73.2	70-130	3.65	20	V-05
Methylene Chloride	0.0179	0.020	mg/Kg wet	0.0200		89.4	70-130	1.01	20	
4-Methyl-2-pentanone (MIBK)	0.187	0.020	mg/Kg wet	0.200		93.7	40-160	2.06	20	†
Naphthalene	0.0165	0.0040	mg/Kg wet	0.0200		82.3	70-130	4.88	20	V-05

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**QUALITY CONTROL**
**Volatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292542 - SW-846 5035</b>										
<b>LCS Dup (B292542-BSD1)</b>										
Prepared & Analyzed: 10/15/21										
n-Propylbenzene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130	1.90	20	
Styrene	0.0200	0.0020	mg/Kg wet	0.0200		99.8	70-130	3.32	20	
1,1,1,2-Tetrachloroethane	0.0205	0.0020	mg/Kg wet	0.0200		103	70-130	2.41	20	
1,1,2,2-Tetrachloroethane	0.0191	0.0010	mg/Kg wet	0.0200		95.7	70-130	4.65	20	
Tetrachloroethylene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	1.16	20	
Tetrahydrofuran	0.0156	0.010	mg/Kg wet	0.0200		78.2	70-130	10.2	20	
Toluene	0.0190	0.0020	mg/Kg wet	0.0200		95.2	70-130	0.805	20	
1,2,3-Trichlorobenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.7	70-130	1.97	20	
1,2,4-Trichlorobenzene	0.0194	0.0020	mg/Kg wet	0.0200		96.9	70-130	2.89	20	
1,1,1-Trichloroethane	0.0165	0.0020	mg/Kg wet	0.0200		82.5	70-130	2.11	20	
1,1,2-Trichloroethane	0.0185	0.0020	mg/Kg wet	0.0200		92.3	70-130	5.00	20	
Trichloroethylene	0.0185	0.0020	mg/Kg wet	0.0200		92.5	70-130	1.19	20	
Trichlorofluoromethane (Freon 11)	0.0219	0.010	mg/Kg wet	0.0200		110	70-130	0.320	20	
1,2,3-Trichloropropane	0.0180	0.0020	mg/Kg wet	0.0200		89.8	70-130	1.83	20	
1,2,4-Trimethylbenzene	0.0173	0.0020	mg/Kg wet	0.0200		86.3	70-130	2.14	20	
1,3,5-Trimethylbenzene	0.0201	0.0020	mg/Kg wet	0.0200		101	70-130	1.06	20	
Vinyl Chloride	0.0230	0.010	mg/Kg wet	0.0200		115	70-130	0.564	20	
m+p Xylene	0.0361	0.0040	mg/Kg wet	0.0400		90.2	70-130	0.0832	20	
o-Xylene	0.0194	0.0020	mg/Kg wet	0.0200		97.2	70-130	2.22	20	
Surrogate: 1,2-Dichloroethane-d4	0.0448		mg/Kg wet	0.0500		89.6	70-130			
Surrogate: Toluene-d8	0.0508		mg/Kg wet	0.0500		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.0495		mg/Kg wet	0.0500		99.0	70-130			

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**QUALITY CONTROL**
**Semivolatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292689 - SW-846 3546</b>										
<b>Blank (B292689-BLK1)</b>										
Prepared: 10/18/21 Analyzed: 10/19/21										
Acenaphthene	ND	0.17	mg/Kg wet							
Acenaphthylene	ND	0.17	mg/Kg wet							
Anthracene	ND	0.17	mg/Kg wet							
Benzo(a)anthracene	ND	0.17	mg/Kg wet							
Benzo(a)pyrene	ND	0.17	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.17	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.17	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.17	mg/Kg wet							
Chrysene	ND	0.17	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.17	mg/Kg wet							
Fluoranthene	ND	0.17	mg/Kg wet							
Fluorene	ND	0.17	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.17	mg/Kg wet							
2-Methylnaphthalene	ND	0.17	mg/Kg wet							
Naphthalene	ND	0.17	mg/Kg wet							
Phenanthrene	ND	0.17	mg/Kg wet							
Pyrene	ND	0.17	mg/Kg wet							
Surrogate: Nitrobenzene-d5	2.01		mg/Kg wet	3.33		60.2	30-130			
Surrogate: 2-Fluorobiphenyl	2.46		mg/Kg wet	3.33		73.7	30-130			
Surrogate: p-Terphenyl-d14	2.96		mg/Kg wet	3.33		88.8	30-130			
<b>LCS (B292689-BS1)</b>										
Prepared: 10/18/21 Analyzed: 10/19/21										
Acenaphthene	1.17	0.17	mg/Kg wet	1.67		70.1	40-140			
Acenaphthylene	1.34	0.17	mg/Kg wet	1.67		80.5	40-140			
Anthracene	1.35	0.17	mg/Kg wet	1.67		81.1	40-140			
Benzo(a)anthracene	1.30	0.17	mg/Kg wet	1.67		78.2	40-140			
Benzo(a)pyrene	1.42	0.17	mg/Kg wet	1.67		85.5	40-140			
Benzo(b)fluoranthene	1.34	0.17	mg/Kg wet	1.67		80.1	40-140			
Benzo(g,h,i)perylene	1.37	0.17	mg/Kg wet	1.67		82.3	40-140			
Benzo(k)fluoranthene	1.48	0.17	mg/Kg wet	1.67		88.5	40-140			
Chrysene	1.36	0.17	mg/Kg wet	1.67		81.4	40-140			
Dibenz(a,h)anthracene	1.33	0.17	mg/Kg wet	1.67		80.1	40-140			
Fluoranthene	1.22	0.17	mg/Kg wet	1.67		73.4	40-140			
Fluorene	1.30	0.17	mg/Kg wet	1.67		78.0	40-140			
Indeno(1,2,3-cd)pyrene	1.39	0.17	mg/Kg wet	1.67		83.5	40-140			
2-Methylnaphthalene	1.31	0.17	mg/Kg wet	1.67		78.8	40-140			
Naphthalene	1.15	0.17	mg/Kg wet	1.67		69.2	40-140			
Phenanthrene	1.36	0.17	mg/Kg wet	1.67		81.6	40-140			
Pyrene	1.33	0.17	mg/Kg wet	1.67		79.9	40-140			
Surrogate: Nitrobenzene-d5	2.18		mg/Kg wet	3.33		65.5	30-130			
Surrogate: 2-Fluorobiphenyl	2.70		mg/Kg wet	3.33		80.9	30-130			
Surrogate: p-Terphenyl-d14	2.97		mg/Kg wet	3.33		89.2	30-130			

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**QUALITY CONTROL**
**Semivolatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292689 - SW-846 3546</b>										
<b>LCS Dup (B292689-BSD1)</b>										
					Prepared: 10/18/21 Analyzed: 10/19/21					
Acenaphthene	1.02	0.17	mg/Kg wet	1.67		61.1	40-140	13.6	30	
Acenaphthylene	1.16	0.17	mg/Kg wet	1.67		69.7	40-140	14.3	30	
Anthracene	1.17	0.17	mg/Kg wet	1.67		70.1	40-140	14.6	30	
Benzo(a)anthracene	1.16	0.17	mg/Kg wet	1.67		69.5	40-140	11.8	30	
Benzo(a)pyrene	1.26	0.17	mg/Kg wet	1.67		75.7	40-140	12.1	30	
Benzo(b)fluoranthene	1.20	0.17	mg/Kg wet	1.67		72.0	40-140	10.6	30	
Benzo(g,h,i)perylene	1.24	0.17	mg/Kg wet	1.67		74.3	40-140	10.1	30	
Benzo(k)fluoranthene	1.30	0.17	mg/Kg wet	1.67		77.8	40-140	12.9	30	
Chrysene	1.20	0.17	mg/Kg wet	1.67		72.3	40-140	11.8	30	
Dibenz(a,h)anthracene	1.19	0.17	mg/Kg wet	1.67		71.2	40-140	11.7	30	
Fluoranthene	1.07	0.17	mg/Kg wet	1.67		64.0	40-140	13.8	30	
Fluorene	1.13	0.17	mg/Kg wet	1.67		67.7	40-140	14.2	30	
Indeno(1,2,3-cd)pyrene	1.22	0.17	mg/Kg wet	1.67		73.4	40-140	12.9	30	
2-Methylnaphthalene	1.15	0.17	mg/Kg wet	1.67		68.9	40-140	13.3	30	
Naphthalene	1.00	0.17	mg/Kg wet	1.67		60.0	40-140	14.2	30	
Phenanthrene	1.19	0.17	mg/Kg wet	1.67		71.4	40-140	13.3	30	
Pyrene	1.18	0.17	mg/Kg wet	1.67		70.5	40-140	12.4	30	
Surrogate: Nitrobenzene-d5	1.91		mg/Kg wet	3.33		57.3	30-130			
Surrogate: 2-Fluorobiphenyl	2.34		mg/Kg wet	3.33		70.1	30-130			
Surrogate: p-Terphenyl-d14	2.68		mg/Kg wet	3.33		80.5	30-130			

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**QUALITY CONTROL**
**Organochloride Pesticides by GC/ECD - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292766 - SW-846 3546</b>										
<b>Blank (B292766-BLK1)</b>										
Prepared: 10/19/21 Analyzed: 10/20/21										
Aldrin	ND	0.0050	mg/Kg wet							
Aldrin [2C]	ND	0.0050	mg/Kg wet							
alpha-BHC	ND	0.0050	mg/Kg wet							
alpha-BHC [2C]	ND	0.0050	mg/Kg wet							
beta-BHC	ND	0.0050	mg/Kg wet							
beta-BHC [2C]	ND	0.0050	mg/Kg wet							
delta-BHC	ND	0.0050	mg/Kg wet							
delta-BHC [2C]	ND	0.0050	mg/Kg wet							
gamma-BHC (Lindane)	ND	0.0020	mg/Kg wet							
gamma-BHC (Lindane) [2C]	ND	0.0020	mg/Kg wet							
Chlordane	ND	0.020	mg/Kg wet							
Chlordane [2C]	ND	0.020	mg/Kg wet							
4,4'-DDD	ND	0.0040	mg/Kg wet							
4,4'-DDD [2C]	ND	0.0040	mg/Kg wet							
4,4'-DDE	ND	0.0040	mg/Kg wet							
4,4'-DDE [2C]	ND	0.0040	mg/Kg wet							
4,4'-DDT	ND	0.0040	mg/Kg wet							
4,4'-DDT [2C]	ND	0.0040	mg/Kg wet							
Dieldrin	ND	0.0040	mg/Kg wet							
Dieldrin [2C]	ND	0.0040	mg/Kg wet							
Endosulfan I	ND	0.0050	mg/Kg wet							
Endosulfan I [2C]	ND	0.0050	mg/Kg wet							
Endosulfan II	ND	0.0080	mg/Kg wet							
Endosulfan II [2C]	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate [2C]	ND	0.0080	mg/Kg wet							
Endrin	ND	0.0080	mg/Kg wet							
Endrin [2C]	ND	0.0080	mg/Kg wet							
Endrin Aldehyde	ND	0.0080	mg/Kg wet							
Endrin Aldehyde [2C]	ND	0.0080	mg/Kg wet							
Endrin Ketone	ND	0.0080	mg/Kg wet							
Endrin Ketone [2C]	ND	0.0080	mg/Kg wet							
Heptachlor	ND	0.0050	mg/Kg wet							
Heptachlor [2C]	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide [2C]	ND	0.0050	mg/Kg wet							
Hexachlorobenzene	ND	0.0060	mg/Kg wet							
Hexachlorobenzene [2C]	ND	0.0060	mg/Kg wet							
Methoxychlor	ND	0.050	mg/Kg wet							
Methoxychlor [2C]	ND	0.050	mg/Kg wet							
Toxaphene	ND	0.10	mg/Kg wet							
Toxaphene [2C]	ND	0.10	mg/Kg wet							
Surrogate: Decachlorobiphenyl	0.174		mg/Kg wet	0.200		86.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.177		mg/Kg wet	0.200		88.7	30-150			
Surrogate: Tetrachloro-m-xylene	0.157		mg/Kg wet	0.200		78.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.169		mg/Kg wet	0.200		84.4	30-150			

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**QUALITY CONTROL**
**Organochloride Pesticides by GC/ECD - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B292766 - SW-846 3546**
**LCS (B292766-BS1)**

Prepared: 10/19/21 Analyzed: 10/20/21

Aldrin	0.092	0.0050	mg/Kg wet	0.100		91.8	40-140			
Aldrin [2C]	0.095	0.0050	mg/Kg wet	0.100		95.2	40-140			
alpha-BHC	0.084	0.0050	mg/Kg wet	0.100		83.7	40-140			
alpha-BHC [2C]	0.093	0.0050	mg/Kg wet	0.100		92.8	40-140			
beta-BHC	0.085	0.0050	mg/Kg wet	0.100		85.5	40-140			
beta-BHC [2C]	0.089	0.0050	mg/Kg wet	0.100		88.8	40-140			
delta-BHC	0.085	0.0050	mg/Kg wet	0.100		84.7	40-140			
delta-BHC [2C]	0.091	0.0050	mg/Kg wet	0.100		91.0	40-140			
gamma-BHC (Lindane)	0.085	0.0020	mg/Kg wet	0.100		85.0	40-140			
gamma-BHC (Lindane) [2C]	0.093	0.0020	mg/Kg wet	0.100		93.1	40-140			
4,4'-DDD	0.10	0.0040	mg/Kg wet	0.100		102	40-140			
4,4'-DDD [2C]	0.10	0.0040	mg/Kg wet	0.100		103	40-140			
4,4'-DDE	0.098	0.0040	mg/Kg wet	0.100		98.4	40-140			
4,4'-DDE [2C]	0.097	0.0040	mg/Kg wet	0.100		96.9	40-140			
4,4'-DDT	0.10	0.0040	mg/Kg wet	0.100		101	40-140			
4,4'-DDT [2C]	0.10	0.0040	mg/Kg wet	0.100		104	40-140			
Dieldrin	0.097	0.0040	mg/Kg wet	0.100		97.2	40-140			
Dieldrin [2C]	0.097	0.0040	mg/Kg wet	0.100		96.5	40-140			
Endosulfan I	0.092	0.0050	mg/Kg wet	0.100		91.9	40-140			
Endosulfan I [2C]	0.091	0.0050	mg/Kg wet	0.100		90.6	40-140			
Endosulfan II	0.092	0.0080	mg/Kg wet	0.100		91.8	40-140			
Endosulfan II [2C]	0.093	0.0080	mg/Kg wet	0.100		93.5	40-140			
Endosulfan Sulfate	0.091	0.0080	mg/Kg wet	0.100		91.5	40-140			
Endosulfan Sulfate [2C]	0.097	0.0080	mg/Kg wet	0.100		96.7	40-140			
Endrin	0.097	0.0080	mg/Kg wet	0.100		96.8	40-140			
Endrin [2C]	0.10	0.0080	mg/Kg wet	0.100		99.6	40-140			
Endrin Ketone	0.099	0.0080	mg/Kg wet	0.100		98.8	40-140			
Endrin Ketone [2C]	0.099	0.0080	mg/Kg wet	0.100		98.6	40-140			
Heptachlor	0.091	0.0050	mg/Kg wet	0.100		90.7	40-140			
Heptachlor [2C]	0.098	0.0050	mg/Kg wet	0.100		98.1	40-140			
Heptachlor Epoxide	0.090	0.0050	mg/Kg wet	0.100		90.2	40-140			
Heptachlor Epoxide [2C]	0.093	0.0050	mg/Kg wet	0.100		92.9	40-140			
Hexachlorobenzene	0.081	0.0060	mg/Kg wet	0.100		81.1	40-140			
Hexachlorobenzene [2C]	0.086	0.0060	mg/Kg wet	0.100		85.8	40-140			
Methoxychlor	0.098	0.050	mg/Kg wet	0.100		98.2	40-140			
Methoxychlor [2C]	0.10	0.050	mg/Kg wet	0.100		104	40-140			
Surrogate: Decachlorobiphenyl	0.171		mg/Kg wet	0.200		85.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.174		mg/Kg wet	0.200		86.9	30-150			
Surrogate: Tetrachloro-m-xylene	0.151		mg/Kg wet	0.200		75.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.167		mg/Kg wet	0.200		83.6	30-150			

**LCS Dup (B292766-BS1)**

Prepared: 10/19/21 Analyzed: 10/20/21

Aldrin	0.095	0.0050	mg/Kg wet	0.100		94.6	40-140	2.94	30	
Aldrin [2C]	0.097	0.0050	mg/Kg wet	0.100		97.4	40-140	2.29	30	
alpha-BHC	0.082	0.0050	mg/Kg wet	0.100		82.2	40-140	1.79	30	
alpha-BHC [2C]	0.090	0.0050	mg/Kg wet	0.100		90.2	40-140	2.85	30	
beta-BHC	0.085	0.0050	mg/Kg wet	0.100		84.7	40-140	0.871	30	
beta-BHC [2C]	0.087	0.0050	mg/Kg wet	0.100		87.2	40-140	1.85	30	
delta-BHC	0.085	0.0050	mg/Kg wet	0.100		85.1	40-140	0.385	30	
delta-BHC [2C]	0.091	0.0050	mg/Kg wet	0.100		90.5	40-140	0.520	30	
gamma-BHC (Lindane)	0.084	0.0020	mg/Kg wet	0.100		84.3	40-140	0.852	30	
gamma-BHC (Lindane) [2C]	0.091	0.0020	mg/Kg wet	0.100		90.8	40-140	2.56	30	

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**QUALITY CONTROL**
**Organochloride Pesticides by GC/ECD - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292766 - SW-846 3546</b>										
<b>LCS Dup (B292766-BSD1)</b>										
					Prepared: 10/19/21 Analyzed: 10/20/21					
4,4'-DDD	0.11	0.0040	mg/Kg wet	0.100		106	40-140	4.07	30	
4,4'-DDD [2C]	0.11	0.0040	mg/Kg wet	0.100		107	40-140	4.11	30	
4,4'-DDE	0.10	0.0040	mg/Kg wet	0.100		103	40-140	4.69	30	
4,4'-DDE [2C]	0.10	0.0040	mg/Kg wet	0.100		102	40-140	4.91	30	
4,4'-DDT	0.11	0.0040	mg/Kg wet	0.100		105	40-140	4.05	30	
4,4'-DDT [2C]	0.11	0.0040	mg/Kg wet	0.100		109	40-140	4.15	30	
Dieldrin	0.10	0.0040	mg/Kg wet	0.100		101	40-140	3.94	30	
Dieldrin [2C]	0.10	0.0040	mg/Kg wet	0.100		100	40-140	3.58	30	
Endosulfan I	0.096	0.0050	mg/Kg wet	0.100		95.5	40-140	3.82	30	
Endosulfan I [2C]	0.094	0.0050	mg/Kg wet	0.100		93.9	40-140	3.55	30	
Endosulfan II	0.095	0.0080	mg/Kg wet	0.100		95.1	40-140	3.52	30	
Endosulfan II [2C]	0.097	0.0080	mg/Kg wet	0.100		96.6	40-140	3.33	30	
Endosulfan Sulfate	0.094	0.0080	mg/Kg wet	0.100		94.4	40-140	3.14	30	
Endosulfan Sulfate [2C]	0.10	0.0080	mg/Kg wet	0.100		100	40-140	3.60	30	
Endrin	0.10	0.0080	mg/Kg wet	0.100		101	40-140	4.03	30	
Endrin [2C]	0.10	0.0080	mg/Kg wet	0.100		104	40-140	4.16	30	
Endrin Ketone	0.10	0.0080	mg/Kg wet	0.100		103	40-140	3.88	30	
Endrin Ketone [2C]	0.10	0.0080	mg/Kg wet	0.100		103	40-140	4.13	30	
Heptachlor	0.092	0.0050	mg/Kg wet	0.100		92.2	40-140	1.67	30	
Heptachlor [2C]	0.099	0.0050	mg/Kg wet	0.100		98.6	40-140	0.548	30	
Heptachlor Epoxide	0.093	0.0050	mg/Kg wet	0.100		93.2	40-140	3.28	30	
Heptachlor Epoxide [2C]	0.096	0.0050	mg/Kg wet	0.100		95.6	40-140	2.94	30	
Hexachlorobenzene	0.085	0.0060	mg/Kg wet	0.100		85.0	40-140	4.70	30	
Hexachlorobenzene [2C]	0.089	0.0060	mg/Kg wet	0.100		89.1	40-140	3.75	30	
Methoxychlor	0.10	0.050	mg/Kg wet	0.100		102	40-140	4.07	30	
Methoxychlor [2C]	0.11	0.050	mg/Kg wet	0.100		109	40-140	5.14	30	
Surrogate: Decachlorobiphenyl	0.180		mg/Kg wet	0.200		90.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.186		mg/Kg wet	0.200		93.0	30-150			
Surrogate: Tetrachloro-m-xylene	0.161		mg/Kg wet	0.200		80.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.175		mg/Kg wet	0.200		87.4	30-150			
<b>Matrix Spike (B292766-MS1)</b>										
		<b>Source: 21J0808-01</b>			Prepared: 10/19/21 Analyzed: 10/21/21					
Aldrin	0.15	0.17	mg/Kg dry	0.174	ND	83.7	30-150			
Aldrin [2C]	0.15	0.17	mg/Kg dry	0.174	ND	86.4	30-150			
alpha-BHC	0.13	0.17	mg/Kg dry	0.174	ND	73.1	30-150			
alpha-BHC [2C]	0.14	0.17	mg/Kg dry	0.174	ND	79.9	30-150			
beta-BHC	0.15	0.17	mg/Kg dry	0.174	ND	83.6	30-150			
beta-BHC [2C]	0.15	0.17	mg/Kg dry	0.174	ND	87.0	30-150			
delta-BHC	0.12	0.17	mg/Kg dry	0.174	ND	71.8	30-150			
delta-BHC [2C]	0.13	0.17	mg/Kg dry	0.174	ND	75.9	30-150			
gamma-BHC (Lindane)	0.13	0.070	mg/Kg dry	0.174	ND	75.2	30-150			
gamma-BHC (Lindane) [2C]	0.14	0.070	mg/Kg dry	0.174	ND	80.3	30-150			
4,4'-DDD	0.17	0.14	mg/Kg dry	0.174	ND	95.0	30-150			
4,4'-DDD [2C]	0.17	0.14	mg/Kg dry	0.174	ND	95.6	30-150			
4,4'-DDE	0.15	0.14	mg/Kg dry	0.174	ND	88.7	30-150			
4,4'-DDE [2C]	0.15	0.14	mg/Kg dry	0.174	ND	86.6	30-150			
4,4'-DDT	0.14	0.14	mg/Kg dry	0.174	ND	81.1	30-150			
4,4'-DDT [2C]	0.15	0.14	mg/Kg dry	0.174	ND	84.2	30-150			
Dieldrin	0.15	0.14	mg/Kg dry	0.174	ND	87.7	30-150			
Dieldrin [2C]	0.15	0.14	mg/Kg dry	0.174	ND	87.1	30-150			
Endosulfan I	0.15	0.17	mg/Kg dry	0.174	ND	86.8	30-150			
Endosulfan I [2C]	0.15	0.17	mg/Kg dry	0.174	ND	88.4	30-150			

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**QUALITY CONTROL**
**Organochloride Pesticides by GC/ECD - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292766 - SW-846 3546</b>										
<b>Matrix Spike (B292766-MS1)</b>	<b>Source: 21J0808-01</b>			<b>Prepared: 10/19/21 Analyzed: 10/21/21</b>						
Endosulfan II	0.15	0.28	mg/Kg dry	0.174	ND	84.4	30-150			
Endosulfan II [2C]	0.15	0.28	mg/Kg dry	0.174	ND	86.9	30-150			
Endosulfan Sulfate	0.15	0.28	mg/Kg dry	0.174	ND	87.8	30-150			
Endosulfan Sulfate [2C]	0.15	0.28	mg/Kg dry	0.174	ND	87.5	30-150			
Endrin	0.15	0.28	mg/Kg dry	0.174	ND	86.7	30-150			
Endrin [2C]	0.16	0.28	mg/Kg dry	0.174	ND	89.5	30-150			
Endrin Ketone	0.16	0.28	mg/Kg dry	0.174	ND	92.7	30-150			
Endrin Ketone [2C]	0.16	0.28	mg/Kg dry	0.174	ND	90.8	30-150			
Heptachlor	0.15	0.17	mg/Kg dry	0.174	ND	84.4	30-150			
Heptachlor [2C]	0.15	0.17	mg/Kg dry	0.174	ND	88.5	30-150			
Heptachlor Epoxide	0.15	0.17	mg/Kg dry	0.174	ND	86.4	30-150			
Heptachlor Epoxide [2C]	0.15	0.17	mg/Kg dry	0.174	ND	87.0	30-150			
Hexachlorobenzene	0.15	0.21	mg/Kg dry	0.174	ND	85.4	30-150			
Hexachlorobenzene [2C]	0.15	0.21	mg/Kg dry	0.174	ND	86.2	30-150			
Methoxychlor	0.16	1.7	mg/Kg dry	0.174	ND	92.8	30-150			
Methoxychlor [2C]	0.17	1.7	mg/Kg dry	0.174	ND	97.0	30-150			
Surrogate: Decachlorobiphenyl	0.320		mg/Kg dry	0.348		91.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.305		mg/Kg dry	0.348		87.8	30-150			
Surrogate: Tetrachloro-m-xylene	0.259		mg/Kg dry	0.348		74.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.275		mg/Kg dry	0.348		79.1	30-150			
<b>Matrix Spike Dup (B292766-MSD1)</b>	<b>Source: 21J0808-01</b>			<b>Prepared: 10/19/21 Analyzed: 10/21/21</b>						
Aldrin	0.14	0.17	mg/Kg dry	0.174	ND	81.8	30-150	2.32	30	
Aldrin [2C]	0.15	0.17	mg/Kg dry	0.174	ND	84.2	30-150	2.53	30	
alpha-BHC	0.13	0.17	mg/Kg dry	0.174	ND	72.6	30-150	0.686	30	
alpha-BHC [2C]	0.14	0.17	mg/Kg dry	0.174	ND	78.8	30-150	1.36	30	
beta-BHC	0.14	0.17	mg/Kg dry	0.174	ND	78.5	30-150	6.32	30	
beta-BHC [2C]	0.15	0.17	mg/Kg dry	0.174	ND	85.8	30-150	1.34	30	
delta-BHC	0.12	0.17	mg/Kg dry	0.174	ND	69.7	30-150		30	
delta-BHC [2C]	0.13	0.17	mg/Kg dry	0.174	ND	74.1	30-150		30	
gamma-BHC (Lindane)	0.13	0.070	mg/Kg dry	0.174	ND	73.5	30-150	2.37	30	
gamma-BHC (Lindane) [2C]	0.14	0.070	mg/Kg dry	0.174	ND	79.2	30-150	1.38	30	
4,4'-DDD	0.16	0.14	mg/Kg dry	0.174	ND	92.9	30-150	2.21	30	
4,4'-DDD [2C]	0.16	0.14	mg/Kg dry	0.174	ND	92.2	30-150	3.68	30	
4,4'-DDE	0.15	0.14	mg/Kg dry	0.174	ND	87.0	30-150	1.87	30	
4,4'-DDE [2C]	0.15	0.14	mg/Kg dry	0.174	ND	86.7	30-150	0.0923	30	
4,4'-DDT	0.14	0.14	mg/Kg dry	0.174	ND	79.4	30-150	2.09	30	
4,4'-DDT [2C]	0.14	0.14	mg/Kg dry	0.174	ND	82.3	30-150	2.33	30	
Dieldrin	0.15	0.14	mg/Kg dry	0.174	ND	85.2	30-150	2.87	30	
Dieldrin [2C]	0.15	0.14	mg/Kg dry	0.174	ND	85.3	30-150	2.14	30	
Endosulfan I	0.15	0.17	mg/Kg dry	0.174	ND	85.3	30-150	1.77	30	
Endosulfan I [2C]	0.15	0.17	mg/Kg dry	0.174	ND	87.0	30-150	1.64	30	
Endosulfan II	0.14	0.28	mg/Kg dry	0.174	ND	82.7	30-150	2.04	30	
Endosulfan II [2C]	0.15	0.28	mg/Kg dry	0.174	ND	83.9	30-150	3.49	30	
Endosulfan Sulfate	0.15	0.28	mg/Kg dry	0.174	ND	86.6	30-150	1.47	30	
Endosulfan Sulfate [2C]	0.15	0.28	mg/Kg dry	0.174	ND	86.4	30-150	1.29	30	
Endrin	0.15	0.28	mg/Kg dry	0.174	ND	83.8	30-150	3.40	30	
Endrin [2C]	0.15	0.28	mg/Kg dry	0.174	ND	86.2	30-150	3.73	30	
Endrin Ketone	0.16	0.28	mg/Kg dry	0.174	ND	91.8	30-150	0.975	30	
Endrin Ketone [2C]	0.16	0.28	mg/Kg dry	0.174	ND	89.7	30-150	1.20	30	
Heptachlor	0.14	0.17	mg/Kg dry	0.174	ND	82.2	30-150	2.64	30	
Heptachlor [2C]	0.15	0.17	mg/Kg dry	0.174	ND	86.5	30-150	2.28	30	

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**QUALITY CONTROL**
**Organochloride Pesticides by GC/ECD - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292766 - SW-846 3546</b>										
<b>Matrix Spike Dup (B292766-MSD1)</b>										
		<b>Source: 21J0808-01</b>			Prepared: 10/19/21 Analyzed: 10/21/21					
Heptachlor Epoxide	0.15	0.17	mg/Kg dry	0.174	ND	84.4	30-150	2.37	30	
Heptachlor Epoxide [2C]	0.15	0.17	mg/Kg dry	0.174	ND	85.3	30-150	1.88	30	
Hexachlorobenzene	0.14	0.21	mg/Kg dry	0.174	ND	81.7	30-150	4.52	30	
Hexachlorobenzene [2C]	0.15	0.21	mg/Kg dry	0.174	ND	83.6	30-150	3.11	30	
Methoxychlor	0.15	1.7	mg/Kg dry	0.174	ND	88.5	30-150		30	
Methoxychlor [2C]	0.16	1.7	mg/Kg dry	0.174	ND	94.3	30-150		30	
Surrogate: Decachlorobiphenyl	0.311		mg/Kg dry	0.348		89.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.299		mg/Kg dry	0.348		86.0	30-150			
Surrogate: Tetrachloro-m-xylene	0.254		mg/Kg dry	0.348		73.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.273		mg/Kg dry	0.348		78.6	30-150			

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**QUALITY CONTROL**
**Polychlorinated Biphenyls By GC/ECD - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292768 - SW-846 3546</b>										
<b>Blank (B292768-BLK1)</b>										
Prepared: 10/19/21 Analyzed: 10/21/21										
Aroclor-1016	ND	0.020	mg/Kg wet							
Aroclor-1016 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1221	ND	0.020	mg/Kg wet							
Aroclor-1221 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1232	ND	0.020	mg/Kg wet							
Aroclor-1232 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1242	ND	0.020	mg/Kg wet							
Aroclor-1242 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1248	ND	0.020	mg/Kg wet							
Aroclor-1248 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1254	ND	0.020	mg/Kg wet							
Aroclor-1254 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1260	ND	0.020	mg/Kg wet							
Aroclor-1260 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1262	ND	0.020	mg/Kg wet							
Aroclor-1262 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1268	ND	0.020	mg/Kg wet							
Aroclor-1268 [2C]	ND	0.020	mg/Kg wet							
Surrogate: Decachlorobiphenyl	0.219		mg/Kg wet	0.200		109	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.225		mg/Kg wet	0.200		112	30-150			
Surrogate: Tetrachloro-m-xylene	0.188		mg/Kg wet	0.200		94.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.145		mg/Kg wet	0.200		72.4	30-150			
<b>LCS (B292768-BS1)</b>										
Prepared: 10/19/21 Analyzed: 10/21/21										
Aroclor-1016	0.16	0.020	mg/Kg wet	0.200		80.2	40-140			
Aroclor-1016 [2C]	0.14	0.020	mg/Kg wet	0.200		72.1	40-140			
Aroclor-1260	0.18	0.020	mg/Kg wet	0.200		90.2	40-140			
Aroclor-1260 [2C]	0.19	0.020	mg/Kg wet	0.200		94.8	40-140			
Surrogate: Decachlorobiphenyl	0.227		mg/Kg wet	0.200		114	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.228		mg/Kg wet	0.200		114	30-150			
Surrogate: Tetrachloro-m-xylene	0.198		mg/Kg wet	0.200		99.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.152		mg/Kg wet	0.200		76.0	30-150			
<b>LCS Dup (B292768-BSD1)</b>										
Prepared: 10/19/21 Analyzed: 10/21/21										
Aroclor-1016	0.16	0.020	mg/Kg wet	0.200		81.6	40-140	1.73	30	
Aroclor-1016 [2C]	0.15	0.020	mg/Kg wet	0.200		74.2	40-140	2.93	30	
Aroclor-1260	0.18	0.020	mg/Kg wet	0.200		89.3	40-140	1.05	30	
Aroclor-1260 [2C]	0.18	0.020	mg/Kg wet	0.200		90.5	40-140	4.62	30	
Surrogate: Decachlorobiphenyl	0.214		mg/Kg wet	0.200		107	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.221		mg/Kg wet	0.200		110	30-150			
Surrogate: Tetrachloro-m-xylene	0.193		mg/Kg wet	0.200		96.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.151		mg/Kg wet	0.200		75.3	30-150			

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**QUALITY CONTROL**
**Polychlorinated Biphenyls By GC/ECD - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292768 - SW-846 3546</b>										
<b>Matrix Spike (B292768-MS1)</b>	<b>Source: 21J0808-01</b>			Prepared: 10/19/21 Analyzed: 10/21/21						
Aroclor-1016	0.30	0.14	mg/Kg dry	0.348	ND	85.4	40-140			
Aroclor-1016 [2C]	0.26	0.14	mg/Kg dry	0.348	ND	74.8	40-140			
Aroclor-1260	0.29	0.14	mg/Kg dry	0.348	ND	82.4	40-140			
Aroclor-1260 [2C]	0.27	0.14	mg/Kg dry	0.348	ND	78.2	40-140			
Surrogate: Decachlorobiphenyl	0.317		mg/Kg dry	0.348		91.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.320		mg/Kg dry	0.348		92.0	30-150			
Surrogate: Tetrachloro-m-xylene	0.309		mg/Kg dry	0.348		88.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.270		mg/Kg dry	0.348		77.7	30-150			
<b>Matrix Spike Dup (B292768-MSD1)</b>	<b>Source: 21J0808-01</b>			Prepared: 10/19/21 Analyzed: 10/21/21						
Aroclor-1016	0.28	0.14	mg/Kg dry	0.348	ND	80.5	40-140	5.90	30	
Aroclor-1016 [2C]	0.26	0.14	mg/Kg dry	0.348	ND	75.4	40-140	0.860	30	
Aroclor-1260	0.29	0.14	mg/Kg dry	0.348	ND	84.1	40-140	2.05	30	
Aroclor-1260 [2C]	0.27	0.14	mg/Kg dry	0.348	ND	77.1	40-140	1.48	30	
Surrogate: Decachlorobiphenyl	0.296		mg/Kg dry	0.348		85.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.302		mg/Kg dry	0.348		87.0	30-150			
Surrogate: Tetrachloro-m-xylene	0.286		mg/Kg dry	0.348		82.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.254		mg/Kg dry	0.348		73.2	30-150			

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**QUALITY CONTROL**
**Herbicides by GC/ECD - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292484 - SW-846 8151</b>										
<b>Blank (B292484-BLK1)</b>										
Prepared: 10/14/21 Analyzed: 10/16/21										
2,4-D	ND	24	µg/kg wet							
2,4-D [2C]	ND	24	µg/kg wet							
2,4-DB	ND	24	µg/kg wet							R-05
2,4-DB [2C]	ND	24	µg/kg wet							R-05
2,4,5-TP (Silvex)	ND	2.4	µg/kg wet							
2,4,5-TP (Silvex) [2C]	ND	2.4	µg/kg wet							
2,4,5-T	ND	2.4	µg/kg wet							
2,4,5-T [2C]	ND	2.4	µg/kg wet							
Dalapon	ND	60	µg/kg wet							L-04
Dalapon [2C]	ND	60	µg/kg wet							L-04
Dicamba	ND	2.4	µg/kg wet							
Dicamba [2C]	ND	2.4	µg/kg wet							
Dichloroprop	ND	24	µg/kg wet							
Dichloroprop [2C]	ND	24	µg/kg wet							
Dinoseb	ND	12	µg/kg wet							R-05
Dinoseb [2C]	ND	12	µg/kg wet							R-05
MCPA	ND	2400	µg/kg wet							
MCPA [2C]	ND	2400	µg/kg wet							
MCPP	ND	2400	µg/kg wet							R-05
MCPP [2C]	ND	2400	µg/kg wet							R-05
Surrogate: 2,4-Dichlorophenylacetic acid	50.5		µg/kg wet	95.2		53.0	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	50.0		µg/kg wet	95.2		52.5	30-150			
<b>LCS (B292484-BS1)</b>										
Prepared: 10/14/21 Analyzed: 10/16/21										
2,4-D	81.8	25	µg/kg wet	125		65.5	40-140			
2,4-D [2C]	89.1	25	µg/kg wet	125		71.3	40-140			
2,4-DB	66.6	25	µg/kg wet	125		53.3	40-140			R-05
2,4-DB [2C]	62.8	25	µg/kg wet	125		50.3	40-140			R-05
2,4,5-TP (Silvex)	8.79	2.5	µg/kg wet	12.5		70.3	40-140			
2,4,5-TP (Silvex) [2C]	9.15	2.5	µg/kg wet	12.5		73.2	40-140			
2,4,5-T	8.23	2.5	µg/kg wet	12.5		65.8	40-140			
2,4,5-T [2C]	8.12	2.5	µg/kg wet	12.5		64.9	40-140			
<b>Dalapon</b>	109	62	µg/kg wet	312		<b>35.0 *</b>	40-140			L-04
<b>Dalapon [2C]</b>	100	62	µg/kg wet	312		<b>32.0 *</b>	40-140			L-04
Dicamba	8.22	2.5	µg/kg wet	12.5		65.7	40-140			
Dicamba [2C]	8.62	2.5	µg/kg wet	12.5		69.0	40-140			
Dichloroprop	87.3	25	µg/kg wet	125		69.8	40-140			
Dichloroprop [2C]	89.7	25	µg/kg wet	125		71.7	40-140			
Dinoseb	8.98	12	µg/kg wet	62.5		14.4	2.28-30.2			R-05
Dinoseb [2C]	10.2	12	µg/kg wet	62.5		16.3	2.56-33.2			R-05
MCPA	8460	2500	µg/kg wet	12500		67.6	40-140			
MCPA [2C]	8390	2500	µg/kg wet	12500		67.1	40-140			
MCPP	9550	2500	µg/kg wet	12500		76.4	40-140			R-05
MCPP [2C]	9060	2500	µg/kg wet	12500		72.5	40-140			R-05
Surrogate: 2,4-Dichlorophenylacetic acid	61.5		µg/kg wet	100		61.5	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	62.4		µg/kg wet	100		62.4	30-150			

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**QUALITY CONTROL**
**Herbicides by GC/ECD - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292484 - SW-846 8151</b>										
<b>LCS Dup (B292484-BSD1)</b>										
					Prepared: 10/14/21 Analyzed: 10/16/21					
2,4-D	63.7	25	µg/kg wet	125		51.0	40-140	24.9	30	
2,4-D [2C]	67.0	25	µg/kg wet	125		53.6	40-140	28.3	30	
<b>2,4-DB</b>	38.8	25	µg/kg wet	125		<b>31.0</b> *	40-140	<b>52.9</b> *	30	L-07A
<b>2,4-DB [2C]</b>	38.7	25	µg/kg wet	125		<b>31.0</b> *	40-140	<b>47.5</b> *	30	L-07A
2,4,5-TP (Silvex)	6.81	2.5	µg/kg wet	12.5		54.4	40-140	25.5	30	
2,4,5-TP (Silvex) [2C]	7.01	2.5	µg/kg wet	12.5		56.1	40-140	26.5	30	
2,4,5-T	6.29	2.5	µg/kg wet	12.5		50.3	40-140	26.7	30	
2,4,5-T [2C]	6.81	2.5	µg/kg wet	12.5		54.5	40-140	17.5	30	
<b>Dalapon</b>	66.2	62	µg/kg wet	312		<b>21.2</b> *	40-140	<b>49.2</b> *	30	L-04
<b>Dalapon [2C]</b>	60.9	62	µg/kg wet	312		<b>19.5</b> *	40-140	<b>48.6</b> *	30	L-04
Dicamba	6.64	2.5	µg/kg wet	12.5		53.2	40-140	21.2	30	
Dicamba [2C]	6.71	2.5	µg/kg wet	12.5		53.7	40-140	24.9	30	
Dichloroprop	69.3	25	µg/kg wet	125		55.5	40-140	22.9	30	
Dichloroprop [2C]	70.1	25	µg/kg wet	125		56.1	40-140	24.5	30	
Dinoseb	5.98	12	µg/kg wet	62.5		9.57	2.28-30.2	<b>40.1</b> *	30	R-05
Dinoseb [2C]	7.03	12	µg/kg wet	62.5		11.2	2.56-33.2	<b>36.8</b> *	30	R-05
MCPA	6360	2500	µg/kg wet	12500		50.9	40-140	28.3	30	
MCPA [2C]	6310	2500	µg/kg wet	12500		50.5	40-140	28.3	30	
MCPP	6900	2500	µg/kg wet	12500		55.2	40-140	<b>32.2</b> *	30	R-05
MCPP [2C]	6490	2500	µg/kg wet	12500		51.9	40-140	<b>33.0</b> *	30	R-05
Surrogate: 2,4-Dichlorophenylacetic acid	43.4		µg/kg wet	100		43.4	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	43.5		µg/kg wet	100		43.5	30-150			

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**QUALITY CONTROL**
**Petroleum Hydrocarbons Analyses - EPH - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B292780 - SW-846 3546**
**Blank (B292780-BLK1)**

Prepared: 10/19/21 Analyzed: 10/21/21

C9-C18 Aliphatics	ND	10	mg/Kg wet							
C19-C36 Aliphatics	ND	10	mg/Kg wet							
Unadjusted C11-C22 Aromatics	ND	10	mg/Kg wet							
C11-C22 Aromatics	ND	10	mg/Kg wet							
Acenaphthene	ND	0.10	mg/Kg wet							
Acenaphthylene	ND	0.10	mg/Kg wet							
Anthracene	ND	0.10	mg/Kg wet							
Benzo(a)anthracene	ND	0.10	mg/Kg wet							
Benzo(a)pyrene	ND	0.10	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.10	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.10	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.10	mg/Kg wet							
Chrysene	ND	0.10	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.10	mg/Kg wet							
Fluoranthene	ND	0.10	mg/Kg wet							
Fluorene	ND	0.10	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.10	mg/Kg wet							
2-Methylnaphthalene	ND	0.10	mg/Kg wet							
Naphthalene	ND	0.10	mg/Kg wet							
Phenanthrene	ND	0.10	mg/Kg wet							
Pyrene	ND	0.10	mg/Kg wet							
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet							
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet							
Surrogate: Chlorooctadecane (COD)	3.43		mg/Kg wet	5.00		68.6	40-140			
Surrogate: o-Terphenyl (OTP)	3.75		mg/Kg wet	5.00		75.1	40-140			
Surrogate: 2-Bromonaphthalene	4.98		mg/Kg wet	5.00		99.6	40-140			
Surrogate: 2-Fluorobiphenyl	4.89		mg/Kg wet	5.00		97.7	40-140			

**LCS (B292780-BS1)**

Prepared: 10/19/21 Analyzed: 10/21/21

C9-C18 Aliphatics	24.5	10	mg/Kg wet	30.0		81.7	40-140			
C19-C36 Aliphatics	39.7	10	mg/Kg wet	40.0		99.2	40-140			
Unadjusted C11-C22 Aromatics	83.0	10	mg/Kg wet	85.0		97.6	40-140			
Acenaphthene	4.30	0.10	mg/Kg wet	5.00		86.0	40-140			
Acenaphthylene	4.06	0.10	mg/Kg wet	5.00		81.2	40-140			
Anthracene	4.64	0.10	mg/Kg wet	5.00		92.7	40-140			
Benzo(a)anthracene	4.78	0.10	mg/Kg wet	5.00		95.6	40-140			
Benzo(a)pyrene	4.63	0.10	mg/Kg wet	5.00		92.5	40-140			
Benzo(b)fluoranthene	5.03	0.10	mg/Kg wet	5.00		101	40-140			
Benzo(g,h,i)perylene	4.23	0.10	mg/Kg wet	5.00		84.5	40-140			
Benzo(k)fluoranthene	3.78	0.10	mg/Kg wet	5.00		75.6	40-140			
Chrysene	4.47	0.10	mg/Kg wet	5.00		89.4	40-140			
Dibenz(a,h)anthracene	4.50	0.10	mg/Kg wet	5.00		89.9	40-140			
Fluoranthene	4.54	0.10	mg/Kg wet	5.00		90.8	40-140			
Fluorene	4.41	0.10	mg/Kg wet	5.00		88.2	40-140			
Indeno(1,2,3-cd)pyrene	4.21	0.10	mg/Kg wet	5.00		84.2	40-140			
2-Methylnaphthalene	4.04	0.10	mg/Kg wet	5.00		80.8	40-140			
Naphthalene	3.82	0.10	mg/Kg wet	5.00		76.5	40-140			
Phenanthrene	4.65	0.10	mg/Kg wet	5.00		93.0	40-140			
Pyrene	4.63	0.10	mg/Kg wet	5.00		92.5	40-140			
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
Surrogate: Chlorooctadecane (COD)	3.98		mg/Kg wet	5.00		79.6	40-140			

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**QUALITY CONTROL**
**Petroleum Hydrocarbons Analyses - EPH - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292780 - SW-846 3546</b>										
<b>LCS (B292780-BS1)</b>					Prepared: 10/19/21 Analyzed: 10/21/21					
Surrogate: o-Terphenyl (OTP)	4.25		mg/Kg wet	5.00		84.9	40-140			
Surrogate: 2-Bromonaphthalene	5.80		mg/Kg wet	5.00		116	40-140			
Surrogate: 2-Fluorobiphenyl	5.78		mg/Kg wet	5.00		116	40-140			
<b>LCS Dup (B292780-BSD1)</b>					Prepared: 10/19/21 Analyzed: 10/21/21					
C9-C18 Aliphatics	23.8	10	mg/Kg wet	30.0		79.2	40-140	3.13	25	
C19-C36 Aliphatics	37.4	10	mg/Kg wet	40.0		93.4	40-140	6.01	25	
Unadjusted C11-C22 Aromatics	78.3	10	mg/Kg wet	85.0		92.1	40-140	5.79	25	
Acenaphthene	4.03	0.10	mg/Kg wet	5.00		80.6	40-140	6.52	25	
Acenaphthylene	3.83	0.10	mg/Kg wet	5.00		76.7	40-140	5.71	25	
Anthracene	4.26	0.10	mg/Kg wet	5.00		85.3	40-140	8.38	25	
Benzo(a)anthracene	4.43	0.10	mg/Kg wet	5.00		88.5	40-140	7.72	25	
Benzo(a)pyrene	4.31	0.10	mg/Kg wet	5.00		86.2	40-140	7.05	25	
Benzo(b)fluoranthene	4.67	0.10	mg/Kg wet	5.00		93.5	40-140	7.39	25	
Benzo(g,h,i)perylene	3.92	0.10	mg/Kg wet	5.00		78.4	40-140	7.52	25	
Benzo(k)fluoranthene	3.51	0.10	mg/Kg wet	5.00		70.2	40-140	7.29	25	
Chrysene	4.15	0.10	mg/Kg wet	5.00		83.0	40-140	7.51	25	
Dibenz(a,h)anthracene	4.19	0.10	mg/Kg wet	5.00		83.8	40-140	7.01	25	
Fluoranthene	4.16	0.10	mg/Kg wet	5.00		83.1	40-140	8.85	25	
Fluorene	4.09	0.10	mg/Kg wet	5.00		81.8	40-140	7.45	25	
Indeno(1,2,3-cd)pyrene	3.92	0.10	mg/Kg wet	5.00		78.3	40-140	7.26	25	
2-Methylnaphthalene	3.89	0.10	mg/Kg wet	5.00		77.9	40-140	3.63	25	
Naphthalene	3.76	0.10	mg/Kg wet	5.00		75.3	40-140	1.58	25	
Phenanthrene	4.27	0.10	mg/Kg wet	5.00		85.4	40-140	8.57	25	
Pyrene	4.25	0.10	mg/Kg wet	5.00		85.0	40-140	8.53	25	
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
Surrogate: Chlorooctadecane (COD)	3.74		mg/Kg wet	5.00		74.8	40-140			
Surrogate: o-Terphenyl (OTP)	3.85		mg/Kg wet	5.00		77.0	40-140			
Surrogate: 2-Bromonaphthalene	5.37		mg/Kg wet	5.00		107	40-140			
Surrogate: 2-Fluorobiphenyl	5.35		mg/Kg wet	5.00		107	40-140			

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**QUALITY CONTROL**
**Metals Analyses (Total) - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292553 - SW-846 3050B</b>									
<b>Blank (B292553-BLK1)</b>					Prepared: 10/15/21 Analyzed: 10/16/21				
Arsenic	ND	3.3	mg/Kg wet						
Cadmium	ND	0.33	mg/Kg wet						
Chromium	ND	0.65	mg/Kg wet						
Copper	ND	0.65	mg/Kg wet						
Lead	ND	0.49	mg/Kg wet						
Zinc	ND	0.65	mg/Kg wet						
<b>LCS (B292553-BS1)</b>					Prepared: 10/15/21 Analyzed: 10/16/21				
Arsenic	156	9.8	mg/Kg wet	170		91.7	82.9-117.6		
Cadmium	90.2	0.98	mg/Kg wet	89.5		101	82.8-117.3		
Chromium	98.1	2.0	mg/Kg wet	101		97.1	82.1-117.8		
Copper	151	2.0	mg/Kg wet	149		101	83.9-116.1		
Lead	133	1.5	mg/Kg wet	140		95.0	82.9-117.1		
Zinc	216	2.0	mg/Kg wet	228		94.7	80.7-118.9		
<b>LCS Dup (B292553-BSD1)</b>					Prepared: 10/15/21 Analyzed: 10/16/21				
Arsenic	167	9.8	mg/Kg wet	170		98.2	82.9-117.6	6.78	30
Cadmium	91.6	0.98	mg/Kg wet	89.5		102	82.8-117.3	1.55	20
Chromium	107	2.0	mg/Kg wet	101		106	82.1-117.8	8.96	30
Copper	163	2.0	mg/Kg wet	149		109	83.9-116.1	7.48	30
Lead	141	1.5	mg/Kg wet	140		101	82.9-117.1	5.76	30
Zinc	233	2.0	mg/Kg wet	228		102	80.7-118.9	7.73	30
<b>Reference (B292553-SRM1) MRL CHECK</b>					Prepared: 10/15/21 Analyzed: 10/16/21				
Lead	0.498	0.49	mg/Kg wet	0.493		101	80-120		
<b>Batch B292557 - SW-846 7471</b>									
<b>Blank (B292557-BLK1)</b>					Prepared: 10/15/21 Analyzed: 10/19/21				
Mercury	ND	0.026	mg/Kg wet						
<b>LCS (B292557-BS1)</b>					Prepared: 10/15/21 Analyzed: 10/19/21				
Mercury	18.9	0.75	mg/Kg wet	15.6		121	59.3-140.4		
<b>LCS Dup (B292557-BSD1)</b>					Prepared: 10/15/21 Analyzed: 10/19/21				
Mercury	20.6	0.75	mg/Kg wet	15.6		132	59.3-140.4	8.60	20

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**QUALITY CONTROL**
**Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B292564 - SW 846 9060A</b>										
<b>Blank (B292564-BLK1)</b>				Prepared & Analyzed: 10/19/21						
Total Organic Carbon	ND	100	mg/Kg							
<b>LCS (B292564-BS1)</b>				Prepared & Analyzed: 10/19/21						
Total Organic Carbon	784	100	mg/Kg	750		105	64.9-118			
<b>LCS Dup (B292564-BSD1)</b>				Prepared & Analyzed: 10/19/21						
Total Organic Carbon	726	100	mg/Kg	750		96.8	64.9-118	7.64	16.9	

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## BREAKDOWN REPORT

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**Lab Sample ID:** S064496-PEM1 **Analyzed:** 10/20/2021

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**Column Number:** 1  

Analyte	% Breakdown
4,4'-DDT [1]	1.42
Endrin [1]	3.07

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Analyte	% Breakdown
4,4'-DDT [2]	1.39
Endrin [2]	3.38

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## BREAKDOWN REPORT

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**Lab Sample ID:** S064496-PEM2 **Analyzed:** 10/21/2021

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**Column Number:** 1  

Analyte	% Breakdown
4,4'-DDT [1]	1.80
Endrin [1]	2.53

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Analyte	% Breakdown
4,4'-DDT [2]	1.70
Endrin [2]	2.91

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## IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

LCS

*SW-846 8151A*

Lab Sample ID:           B292484-BS1                Date(s) Analyzed:           10/16/2021                     10/16/2021            
 Instrument ID (1):           ECD 8                Instrument ID (2):           ECD 8            
 GC Column (1):                      ID:                      (mm)      GC Column (2):                      ID:                      (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	16.757	0.000	0.000	8.23	
	2	16.738	0.000	0.000	8.12	1.0
2,4,5-TP (Silvex)	1	16.242	0.000	0.000	8.79	
	2	15.978	0.000	0.000	9.15	3.9
2,4-D	1	14.359	0.000	0.000	81.8	
	2	14.196	0.000	0.000	89.1	8.3
2,4-DB	1	17.232	0.000	0.000	66.6	
	2	17.184	0.000	0.000	62.8	6.5
Dalapon	1	4.937	0.000	0.000	109	
	2	4.561	0.000	0.000	100	9.5
Dicamba	1	12.187	0.000	0.000	8.22	
	2	11.928	0.000	0.000	8.62	5.0
Dichloroprop	1	13.843	0.000	0.000	87.3	
	2	13.500	0.000	0.000	89.7	3.1
Dinoseb	1	17.813	0.000	0.000	8.98	
	2	17.374	0.000	0.000	10.2	12.5
MCPA	1	13.030	0.000	0.000	8460	
	2	12.782	0.000	0.000	8390	1.3
MCPD	1	12.689	0.000	0.000	9550	
	2	12.267	0.000	0.000	9060	5.8

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## IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

LCS Dup

*SW-846 8151A*

 Lab Sample ID:                     B292484-BSD1                          Date(s) Analyzed:           10/16/2021                     10/16/2021          

 Instrument ID (1):                     ECD 8                          Instrument ID (2):                     ECD 8                    

GC Column (1):                                    ID:                                    (mm)      GC Column (2):                                    ID:                                    (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	16.759	0.000	0.000	6.29	
	2	16.739	0.000	0.000	6.81	7.8
2,4,5-TP (Silvex)	1	16.245	0.000	0.000	6.81	
	2	15.979	0.000	0.000	7.01	3.0
2,4-D	1	14.364	0.000	0.000	63.7	
	2	14.197	0.000	0.000	67.0	4.6
2,4-DB	1	17.232	0.000	0.000	38.8	
	2	17.185	0.000	0.000	38.7	0.8
Dalapon	1	4.936	0.000	0.000	66.2	
	2	4.559	0.000	0.000	60.9	8.0
Dicamba	1	12.191	0.000	0.000	6.64	
	2	11.928	0.000	0.000	6.71	1.7
Dichloroprop	1	13.845	0.000	0.000	69.3	
	2	13.501	0.000	0.000	70.1	1.6
Dinoseb	1	17.813	0.000	0.000	5.98	
	2	17.374	0.000	0.000	7.03	15.8
MCPA	1	13.027	0.000	0.000	6360	
	2	12.777	0.000	0.000	6310	1.4
MCPD	1	12.687	0.000	0.000	6900	
	2	12.263	0.000	0.000	6490	6.1

## IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

LCS

*SW-846 8081B*

Lab Sample ID:                     B292766-BS1                          Date(s) Analyzed:           10/20/2021                     10/20/2021          

Instrument ID (1):                     ECD2                          Instrument ID (2):                     ECD2                    

GC Column (1):                                    ID:                                    (mm)      GC Column (2):                                    ID:                                    (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	7.739	0.000	0.000	0.10	
	2	7.709	0.000	0.000	0.10	0.0
4,4'-DDE	1	7.274	0.000	0.000	0.098	
	2	7.260	0.000	0.000	0.097	1.0
4,4'-DDT	1	7.955	0.000	0.000	0.10	
	2	7.955	0.000	0.000	0.10	0.0
Aldrin	1	6.584	0.000	0.000	0.092	
	2	6.471	0.000	0.000	0.095	3.2
alpha-BHC	1	5.806	0.000	0.000	0.084	
	2	5.702	0.000	0.000	0.093	10.2
beta-BHC	1	6.083	0.000	0.000	0.085	
	2	5.991	0.000	0.000	0.089	3.4
delta-BHC	1	6.212	0.000	0.000	0.085	
	2	6.194	0.000	0.000	0.091	6.8
Dieldrin	1	7.519	0.000	0.000	0.097	
	2	7.388	0.000	0.000	0.097	0.0
Endosulfan I	1	7.336	0.000	0.000	0.092	
	2	7.179	0.000	0.000	0.091	1.1
Endosulfan II	1	7.878	0.000	0.000	0.092	
	2	7.790	0.000	0.000	0.093	1.1
Endosulfan Sulfate	1	8.474	0.000	0.000	0.091	
	2	8.241	0.000	0.000	0.097	5.3
Endrin	1	7.702	0.000	0.000	0.097	
	2	7.625	0.000	0.000	0.10	3.1
Endrin Ketone	1	8.649	0.000	0.000	0.099	
	2	8.583	0.000	0.000	0.099	0.0
gamma-BHC (Lindane)	1	6.026	0.000	0.000	0.085	
	2	5.938	0.000	0.000	0.093	9.0
Heptachlor	1	6.363	0.000	0.000	0.091	
	2	6.242	0.000	0.000	0.098	7.4
Heptachlor Epoxide	1	7.033	0.000	0.000	0.090	

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## IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

LCS

*SW-846 8081B*

 Lab Sample ID:                     B292766-BS1                                          Date(s) Analyzed:           10/20/2021                     10/20/2021          

 Instrument ID (1):                     ECD2                                          Instrument ID (2):                     ECD2                    

GC Column (1):                      ID:                      (mm)                      GC Column (2):                      ID:                      (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	6.885	0.000	0.000	0.093	3.3
Hexachlorobenzene	1	5.690	0.000	0.000	0.081	
	2	5.611	0.000	0.000	0.086	6.0
Methoxychlor	1	8.291	0.000	0.000	0.098	
	2	8.430	0.000	0.000	0.10	2.0

## IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

LCS Dup

*SW-846 8081B*

Lab Sample ID:                     B292766-BSD1                          Date(s) Analyzed:           10/20/2021                     10/20/2021          

Instrument ID (1):                     ECD2                          Instrument ID (2):                     ECD2                    

GC Column (1):                            ID:                            (mm)      GC Column (2):                            ID:                            (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	7.738	0.000	0.000	0.11	
	2	7.709	0.000	0.000	0.11	0.0
4,4'-DDE	1	7.273	0.000	0.000	0.10	
	2	7.261	0.000	0.000	0.10	0.0
4,4'-DDT	1	7.955	0.000	0.000	0.11	
	2	7.954	0.000	0.000	0.11	0.0
Aldrin	1	6.584	0.000	0.000	0.095	
	2	6.472	0.000	0.000	0.097	2.1
alpha-BHC	1	5.806	0.000	0.000	0.082	
	2	5.703	0.000	0.000	0.090	9.3
beta-BHC	1	6.083	0.000	0.000	0.085	
	2	5.992	0.000	0.000	0.087	2.3
delta-BHC	1	6.212	0.000	0.000	0.085	
	2	6.195	0.000	0.000	0.091	6.8
Dieldrin	1	7.519	0.000	0.000	0.10	
	2	7.389	0.000	0.000	0.10	0.0
Endosulfan I	1	7.335	0.000	0.000	0.096	
	2	7.180	0.000	0.000	0.094	2.1
Endosulfan II	1	7.876	0.000	0.000	0.095	
	2	7.790	0.000	0.000	0.097	2.1
Endosulfan Sulfate	1	8.473	0.000	0.000	0.094	
	2	8.240	0.000	0.000	0.10	6.2
Endrin	1	7.701	0.000	0.000	0.10	
	2	7.625	0.000	0.000	0.10	0.0
Endrin Ketone	1	8.648	0.000	0.000	0.10	
	2	8.583	0.000	0.000	0.10	0.0
gamma-BHC (Lindane)	1	6.026	0.000	0.000	0.084	
	2	5.939	0.000	0.000	0.091	8.0
Heptachlor	1	6.363	0.000	0.000	0.092	
	2	6.243	0.000	0.000	0.099	7.3
Heptachlor Epoxide	1	7.032	0.000	0.000	0.093	

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## IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

LCS Dup

*SW-846 8081B*

 Lab Sample ID:                     B292766-BSD1                          Date(s) Analyzed:           10/20/2021                     10/20/2021          

 Instrument ID (1):                     ECD2                          Instrument ID (2):                     ECD2                    

GC Column (1):                                    ID:                                    (mm)      GC Column (2):                                    ID:                                    (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	6.886	0.000	0.000	0.096	3.2
Hexachlorobenzene	1	5.689	0.000	0.000	0.085	
	2	5.611	0.000	0.000	0.089	4.6
Methoxychlor	1	8.291	0.000	0.000	0.10	
	2	8.429	0.000	0.000	0.11	9.5

**IDENTIFICATION SUMMARY  
 FOR SINGLE COMPONENT ANALYTES**

<b>Matrix Spike</b>
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*SW-846 8081B*

 Lab Sample ID:                     B292766-MS1                          Date(s) Analyzed:           10/21/2021                     10/21/2021          

 Instrument ID (1):                     ECD2                          Instrument ID (2):                     ECD2                    

GC Column (1):                                    ID:                                    (mm)      GC Column (2):                                    ID:                                    (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	7.737	0.000	0.000	0.17	
	2	7.708	0.000	0.000	0.17	0.0
4,4'-DDE	1	7.273	0.000	0.000	0.15	
	2	7.259	0.000	0.000	0.15	0.0
4,4'-DDT	1	7.953	0.000	0.000	0.14	
	2	7.953	0.000	0.000	0.15	6.9
Aldrin	1	6.582	0.000	0.000	0.15	
	2	6.470	0.000	0.000	0.15	0.0
alpha-BHC	1	5.805	0.000	0.000	0.13	
	2	5.702	0.000	0.000	0.14	7.4
beta-BHC	1	6.082	0.000	0.000	0.15	
	2	5.991	0.000	0.000	0.15	0.0
delta-BHC	1	6.210	0.000	0.000	0.12	
	2	6.194	0.000	0.000	0.13	0.0
Dieldrin	1	7.517	0.000	0.000	0.15	
	2	7.387	0.000	0.000	0.15	0.0
Endosulfan I	1	7.334	0.000	0.000	0.15	
	2	7.179	0.000	0.000	0.15	0.0
Endosulfan II	1	7.875	0.000	0.000	0.15	
	2	7.788	0.000	0.000	0.15	0.0
Endosulfan Sulfate	1	8.472	0.000	0.000	0.15	
	2	8.239	0.000	0.000	0.15	0.0
Endrin	1	7.701	0.000	0.000	0.15	
	2	7.624	0.000	0.000	0.16	6.5
Endrin Ketone	1	8.646	0.000	0.000	0.16	
	2	8.581	0.000	0.000	0.16	0.0
gamma-BHC (Lindane)	1	6.025	0.000	0.000	0.13	
	2	5.938	0.000	0.000	0.14	7.4
Heptachlor	1	6.361	0.000	0.000	0.15	
	2	6.241	0.000	0.000	0.15	0.0
Heptachlor Epoxide	1	7.032	0.000	0.000	0.15	

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## IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

**Matrix Spike**

*SW-846 8081B*

 Lab Sample ID:                     B292766-MS1                                          Date(s) Analyzed:           10/21/2021                     10/21/2021          

 Instrument ID (1):                     ECD2                                          Instrument ID (2):                     ECD2                    

GC Column (1):                      ID:                      (mm)                      GC Column (2):                      ID:                      (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	6.885	0.000	0.000	0.15	0.0
Hexachlorobenzene	1	5.688	0.000	0.000	0.15	
	2	5.610	0.000	0.000	0.15	0.0
Methoxychlor	1	8.290	0.000	0.000	0.16	
	2	8.427	0.000	0.000	0.17	6.1

## IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

**Matrix Spike Dup**
*SW-846 8081B*

Lab Sample ID:                     B292766-MSD1                          Date(s) Analyzed:           10/21/2021                     10/21/2021          

Instrument ID (1):                     ECD2                          Instrument ID (2):                     ECD2                    

GC Column (1):                                    ID:                                    (mm)      GC Column (2):                                    ID:                                    (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	7.736	0.000	0.000	0.16	
	2	7.708	0.000	0.000	0.16	0.0
4,4'-DDE	1	7.271	0.000	0.000	0.15	
	2	7.259	0.000	0.000	0.15	0.0
4,4'-DDT	1	7.954	0.000	0.000	0.14	
	2	7.952	0.000	0.000	0.14	0.0
Aldrin	1	6.582	0.000	0.000	0.14	
	2	6.471	0.000	0.000	0.15	6.9
alpha-BHC	1	5.805	0.000	0.000	0.13	
	2	5.702	0.000	0.000	0.14	7.4
beta-BHC	1	6.082	0.000	0.000	0.14	
	2	5.991	0.000	0.000	0.15	6.9
delta-BHC	1	6.211	0.000	0.000	0.12	
	2	6.194	0.000	0.000	0.13	8.0
Dieldrin	1	7.517	0.000	0.000	0.15	
	2	7.387	0.000	0.000	0.15	0.0
Endosulfan I	1	7.333	0.000	0.000	0.15	
	2	7.179	0.000	0.000	0.15	0.0
Endosulfan II	1	7.875	0.000	0.000	0.14	
	2	7.788	0.000	0.000	0.15	6.9
Endosulfan Sulfate	1	8.472	0.000	0.000	0.15	
	2	8.239	0.000	0.000	0.15	0.0
Endrin	1	7.700	0.000	0.000	0.15	
	2	7.624	0.000	0.000	0.15	0.0
Endrin Ketone	1	8.647	0.000	0.000	0.16	
	2	8.582	0.000	0.000	0.16	0.0
gamma-BHC (Lindane)	1	6.025	0.000	0.000	0.13	
	2	5.938	0.000	0.000	0.14	7.4
Heptachlor	1	6.362	0.000	0.000	0.14	
	2	6.242	0.000	0.000	0.15	6.9
Heptachlor Epoxide	1	7.031	0.000	0.000	0.15	

**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES**

**Matrix Spike Dup**

*SW-846 8081B*

Lab Sample ID: B292766-MSD1 Date(s) Analyzed: 10/21/2021 10/21/2021

Instrument ID (1): ECD2 Instrument ID (2): ECD2

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	6.885	0.000	0.000	0.15	0.0
Hexachlorobenzene	1	5.688	0.000	0.000	0.14	
	2	5.610	0.000	0.000	0.15	6.9
Methoxychlor	1	8.289	0.000	0.000	0.15	
	2	8.428	0.000	0.000	0.16	6.5

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## IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

**LCS**

*SW-846 8082A*

 Lab Sample ID:                   B292768-BS1                                        Date(s) Analyzed:           10/21/2021                     10/21/2021          

 Instrument ID (1):                   ECD 9                                        Instrument ID (2):                   ECD 9                  

GC Column (1):                      ID:                      (mm)                      GC Column (2):                      ID:                      (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.16	
	2	0.000	0.000	0.000	0.14	13.3
Aroclor-1260	1	0.000	0.000	0.000	0.18	
	2	0.000	0.000	0.000	0.19	5.4

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**IDENTIFICATION SUMMARY  
 FOR SINGLE COMPONENT ANALYTES**
**LCS Dup**
*SW-846 8082A*

 Lab Sample ID: B292768-BSD1 Date(s) Analyzed: 10/21/2021 10/21/2021

 Instrument ID (1): ECD 9 Instrument ID (2): ECD 9

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.16	
	2	0.000	0.000	0.000	0.15	6.5
Aroclor-1260	1	0.000	0.000	0.000	0.18	
	2	0.000	0.000	0.000	0.18	0.0



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## IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

*SW-846 8082A*

<b>Matrix Spike Dup</b>
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Lab Sample ID:           B292768-MSD1                Date(s) Analyzed:   10/21/2021     10/21/2021    
 Instrument ID (1):           ECD 9                Instrument ID (2):           ECD 9            
 GC Column (1):                    ID:                    (mm)      GC Column (2):                    ID:                    (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.28	
	2	0.000	0.000	0.000	0.26	7.4
Aroclor-1260	1	0.000	0.000	0.000	0.29	
	2	0.000	0.000	0.000	0.27	7.1

**FLAG/QUALIFIER SUMMARY**

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
DL-03	Elevated reporting limit due to matrix interference.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
L-07A	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.
O-32	A dilution was performed as part of the standard analytical procedure.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

**CERTIFICATIONS**
**Certified Analyses included in this Report**

Analyte	Certifications
<b>MADEP EPH rev 2.1 in Soil</b>	
C9-C18 Aliphatics	CT,NC,ME,NH-P
C19-C36 Aliphatics	CT,NC,ME,NH-P
Unadjusted C11-C22 Aromatics	CT,NC,ME,NH-P
C11-C22 Aromatics	CT,NC,ME,NH-P
Acenaphthene	CT,NC,ME,NH-P
Acenaphthylene	CT,NC,ME,NH-P
Anthracene	CT,NC,ME,NH-P
Benzo(a)anthracene	CT,NC,ME,NH-P
Benzo(a)pyrene	CT,NC,ME,NH-P
Benzo(b)fluoranthene	CT,NC,ME,NH-P
Benzo(g,h,i)perylene	CT,NC,ME,NH-P
Benzo(k)fluoranthene	CT,NC,ME,NH-P
Chrysene	CT,NC,ME,NH-P
Dibenz(a,h)anthracene	CT,NC,ME,NH-P
Fluoranthene	CT,NC,ME,NH-P
Fluorene	CT,NC,ME
Indeno(1,2,3-cd)pyrene	CT,NC,ME,NH-P
2-Methylnaphthalene	CT,NC
Naphthalene	CT,NC,ME,NH-P
Phenanthrene	CT,NC,ME,NH-P
Pyrene	CT,NC,ME,NH-P
<b>MADEP EPH rev 2.1 in Water</b>	
C9-C18 Aliphatics	CT,NC,ME,NH-P
C19-C36 Aliphatics	CT,NC,ME,NH-P
Unadjusted C11-C22 Aromatics	CT,NC,ME,NH-P
C11-C22 Aromatics	CT,NC,ME,NH-P
Acenaphthene	CT,NC,ME,NH-P
Acenaphthylene	CT,NC,ME,NH-P
Anthracene	CT,NC,ME,NH-P
Benzo(a)anthracene	CT,NC,ME,NH-P
Benzo(a)pyrene	CT,NC,ME,NH-P
Benzo(b)fluoranthene	CT,NC,ME,NH-P
Benzo(g,h,i)perylene	CT,NC,ME,NH-P
Benzo(k)fluoranthene	CT,NC,ME,NH-P
Chrysene	CT,NC,ME,NH-P
Dibenz(a,h)anthracene	CT,NC,ME,NH-P
Fluoranthene	CT,NC,ME,NH-P
Fluorene	CT,NC,ME
Indeno(1,2,3-cd)pyrene	CT,NC,ME,NH-P
2-Methylnaphthalene	CT,NC
Naphthalene	CT,NC,ME,NH-P
Phenanthrene	CT,NC,ME,NH-P
Pyrene	CT,NC,ME,NH-P
<b>SW 846 9060A in Soil</b>	
Total Organic Carbon	NY,CT,ME,VA,NH
<b>SW-846 6010D in Soil</b>	

**CERTIFICATIONS**
**Certified Analyses included in this Report**

Analyte	Certifications
<b><i>SW-846 6010D in Soil</i></b>	
Arsenic	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Copper	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
<b><i>SW-846 7471B in Soil</i></b>	
Mercury	CT,NH,NY,NC,ME,VA
<b><i>SW-846 8081B in Soil</i></b>	
Aldrin	CT,NC,NH,NY,ME,VA
Aldrin [2C]	CT,NC,NH,NY,ME,VA
alpha-BHC	CT,NC,NH,NY,ME,VA
alpha-BHC [2C]	CT,NC,NH,NY,ME,VA
beta-BHC	CT,NC,NH,NY,ME,VA
beta-BHC [2C]	CT,NC,NH,NY,ME,VA
delta-BHC	CT,NC,NH,NY,ME,VA
delta-BHC [2C]	CT,NC,NH,NY,ME,VA
gamma-BHC (Lindane)	CT,NC,NH,NY,ME,VA
gamma-BHC (Lindane) [2C]	CT,NC,NH,NY,ME,VA
Chlordane	CT,NC,NH,NY,ME,VA
Chlordane [2C]	CT,NC,NH,NY,ME,VA
4,4'-DDD	CT,NC,NH,NY,ME,VA
4,4'-DDD [2C]	CT,NC,NH,NY,ME,VA
4,4'-DDE	CT,NC,NH,NY,ME,VA
4,4'-DDE [2C]	CT,NC,NH,NY,ME,VA
4,4'-DDT	CT,NC,NH,NY,ME,VA
4,4'-DDT [2C]	CT,NC,NH,NY,ME,VA
Dieldrin	CT,NC,NH,NY,ME,VA
Dieldrin [2C]	CT,NC,NH,NY,ME,VA
Endosulfan I	CT,NC,NH,NY,ME,VA
Endosulfan I [2C]	CT,NC,NH,NY,ME,VA
Endosulfan II	CT,NC,NH,NY,ME,VA
Endosulfan II [2C]	CT,NC,NH,NY,ME,VA
Endosulfan Sulfate	CT,NC,NH,NY,ME,VA
Endosulfan Sulfate [2C]	CT,NC,NH,NY,ME,VA
Endrin	CT,NC,NH,NY,ME,VA
Endrin [2C]	CT,NC,NH,NY,ME,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NC,NH,NY,ME,VA
Heptachlor [2C]	CT,NC,NH,NY,ME,VA
Heptachlor Epoxide	CT,NC,NH,NY,ME,VA
Heptachlor Epoxide [2C]	CT,NC,NH,NY,ME,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NC,NH,NY,ME,VA

**CERTIFICATIONS**
**Certified Analyses included in this Report**

Analyte	Certifications
<b>SW-846 8081B in Soil</b>	
Methoxychlor [2C]	CT,NC,NH,NY,ME,VA
<b>SW-846 8081B in Water</b>	
Aldrin	CT,NC,NH,NY,ME,VA
Aldrin [2C]	CT,NC,NH,NY,ME,VA
alpha-BHC	CT,NC,NH,NY,ME,VA
alpha-BHC [2C]	CT,NC,NH,NY,ME,VA
beta-BHC	CT,NC,NH,NY,ME,VA
beta-BHC [2C]	CT,NC,NH,NY,ME,VA
delta-BHC	CT,NC,NH,NY,ME,VA
delta-BHC [2C]	CT,NC,NH,NY,ME,VA
gamma-BHC (Lindane)	CT,NC,NH,NY,ME,VA
gamma-BHC (Lindane) [2C]	CT,NC,NH,NY,ME,VA
Chlordane	CT,NC,NH,NY,ME,VA
Chlordane [2C]	CT,NC,NH,NY,ME,VA
4,4'-DDD	CT,NC,NH,NY,ME,VA
4,4'-DDD [2C]	CT,NC,NH,NY,ME,VA
4,4'-DDE	CT,NC,NH,NY,ME,VA
4,4'-DDE [2C]	CT,NC,NH,NY,ME,VA
4,4'-DDT	CT,NC,NH,NY,ME,VA
4,4'-DDT [2C]	CT,NC,NH,NY,ME,VA
Dieldrin	CT,NC,NH,NY,ME,VA
Dieldrin [2C]	CT,NC,NH,NY,ME,VA
Endosulfan I	CT,NC,NH,NY,ME,VA
Endosulfan I [2C]	CT,NC,NH,NY,ME,VA
Endosulfan II	CT,NC,NH,NY,ME,VA
Endosulfan II [2C]	CT,NC,NH,NY,ME,VA
Endosulfan Sulfate	CT,NC,NH,NY,ME,VA
Endosulfan Sulfate [2C]	CT,NC,NH,NY,ME,VA
Endrin	CT,NC,NH,NY,ME,VA
Endrin [2C]	CT,NC,NH,NY,ME,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NC,NH,NY,ME,VA
Heptachlor [2C]	CT,NC,NH,NY,ME,VA
Heptachlor Epoxide	CT,NC,NH,NY,ME,VA
Heptachlor Epoxide [2C]	CT,NC,NH,NY,ME,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NC,NH,NY,ME,VA
Methoxychlor [2C]	CT,NC,NH,NY,ME,VA
<b>SW-846 8082A in Soil</b>	
Aroclor-1016	CT,NH,NY,NC,ME,VA,PA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232	CT,NH,NY,NC,ME,VA,PA

**CERTIFICATIONS**
**Certified Analyses included in this Report**

Analyte	Certifications
<b><i>SW-846 8082A in Soil</i></b>	
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1262	NH,NY,NC,ME,VA,PA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA,PA
Aroclor-1268	NH,NY,NC,ME,VA,PA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA,PA
<b><i>SW-846 8082A in Water</i></b>	
Aroclor-1016	CT,NH,NY,NC,ME,VA,PA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1262	NH,NY,NC,ME,VA,PA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA,PA
Aroclor-1268	NH,NY,NC,ME,VA,PA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA,PA
<b><i>SW-846 8151A in Soil</i></b>	
2,4-D	NY,ME,NC,NH,VA,CT
2,4-D [2C]	NY,ME,NC,NH,VA,CT
2,4-DB	NY,ME,NC,NH,VA,CT
2,4-DB [2C]	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex)	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex) [2C]	NY,ME,NC,NH,VA,CT
2,4,5-T	NY,ME,NC,NH,VA,CT
2,4,5-T [2C]	NY,ME,NC,NH,VA,CT
Dalapon	NY,ME,NC,NH,VA,CT
Dalapon [2C]	NY,ME,NC,NH,VA,CT
Dicamba	NY,ME,NC,NH,VA,CT
Dicamba [2C]	NY,ME,NC,NH,VA,CT
Dichloroprop	NY,ME,NC,NH,VA,CT

**CERTIFICATIONS**
**Certified Analyses included in this Report**

Analyte	Certifications
<b><i>SW-846 8151A in Soil</i></b>	
Dichloroprop [2C]	NY,ME,NC,NH,VA,CT
Dinoseb	NY,ME,NC,NH,VA,CT
Dinoseb [2C]	NY,ME,NC,NH,VA,CT
MCPA	NY,ME,NC,NH,VA,CT
MCPA [2C]	NY,ME,NC,NH,VA,CT
MCPP	NY,ME,NC,NH,VA,CT
MCPP [2C]	NY,ME,NC,NH,VA,CT
<b><i>SW-846 8151A in Water</i></b>	
2,4-D	ME,NC,NH,CT,NY,VA
2,4-D [2C]	ME,NC,NH,CT,NY,VA
2,4-DB	ME,NC,NH,CT,NY,VA
2,4-DB [2C]	ME,NC,NH,CT,NY,VA
2,4,5-TP (Silvex)	ME,NC,NH,CT,NY,VA
2,4,5-TP (Silvex) [2C]	ME,NC,NH,CT,NY,VA
2,4,5-T	ME,NC,NH,CT,NY,VA
2,4,5-T [2C]	ME,NC,NH,CT,NY,VA
Dalapon	ME,NC,NH,CT,NY,VA
Dalapon [2C]	ME,NC,NH,CT,NY,VA
Dicamba	ME,NC,NH,CT,NY,VA
Dicamba [2C]	ME,NC,NH,CT,NY,VA
Dichloroprop	ME,NC,NH,CT,NY,VA
Dichloroprop [2C]	ME,NC,NH,CT,NY,VA
Dinoseb	ME,NC,NH,CT,NY,VA
Dinoseb [2C]	ME,NC,NH,CT,NY,VA
MCPA	NC,CT
MCPA [2C]	NC,CT
MCPP	NC,CT
MCPP [2C]	NC,CT
<b><i>SW-846 8260D in Soil</i></b>	
Acetone	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME

**CERTIFICATIONS**
**Certified Analyses included in this Report**

Analyte	Certifications
<i>SW-846 8260D in Soil</i>	
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
1,2-Dibromo-3-chloropropane (DBCP)	NY
1,2-Dibromoethane (EDB)	NY
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
1,4-Dioxane	NY
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NH,NY
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
Naphthalene	NH,NY,ME
n-Propylbenzene	NH,NY
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NY
1,2,4-Trichlorobenzene	NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME

**CERTIFICATIONS**
**Certified Analyses included in this Report**

Analyte	Certifications
<b><i>SW-846 8260D in Soil</i></b>	
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
<b><i>SW-846 8270E in Soil</i></b>	
Acenaphthene	CT,NY,NH,ME,NC,VA
Acenaphthylene	CT,NY,NH,ME,NC,VA
Anthracene	CT,NY,NH,ME,NC,VA
Benzo(a)anthracene	CT,NY,NH,ME,NC,VA
Benzo(a)pyrene	CT,NY,NH,ME,NC,VA
Benzo(b)fluoranthene	CT,NY,NH,ME,NC,VA
Benzo(g,h,i)perylene	CT,NY,NH,ME,NC,VA
Benzo(k)fluoranthene	CT,NY,NH,ME,NC,VA
Chrysene	CT,NY,NH,ME,NC,VA
Dibenz(a,h)anthracene	CT,NY,NH,ME,NC,VA
Fluoranthene	CT,NY,NH,ME,NC,VA
Fluorene	CT,NY,NH,ME,NC,VA
Indeno(1,2,3-cd)pyrene	CT,NY,NH,ME,NC,VA
2-Methylnaphthalene	CT,NY,NH,ME,NC,VA
Naphthalene	CT,NY,NH,ME,NC,VA
Phenanthrene	CT,NY,NH,ME,NC,VA
Pyrene	CT,NY,NH,ME,NC,VA
<b><i>SW-846 8270E in Water</i></b>	
Acenaphthene	CT,NY,NH,ME,NC,VA
Acenaphthylene	CT,NY,NH,ME,NC,VA
Anthracene	CT,NY,NH,ME,NC,VA
Benzo(a)anthracene	CT,NY,NH,ME,NC,VA
Benzo(a)pyrene	CT,NY,NH,ME,NC,VA
Benzo(b)fluoranthene	CT,NY,NH,ME,NC,VA
Benzo(g,h,i)perylene	CT,NY,NH,ME,NC,VA
Benzo(k)fluoranthene	CT,NY,NH,ME,NC,VA
Chrysene	CT,NY,NH,ME,NC,VA
Dibenz(a,h)anthracene	CT,NY,NH,ME,NC,VA
Fluoranthene	CT,NY,NH,ME,NC,VA
Fluorene	CT,NY,NH,ME,NC,VA
Indeno(1,2,3-cd)pyrene	CT,NY,NH,ME,NC,VA
2-Methylnaphthalene	CT,NY,NH,ME,NC,VA
Naphthalene	CT,NY,NH,ME,NC,VA
Phenanthrene	CT,NY,NH,ME,NC,VA
Pyrene	CT,NY,NH,ME,NC,VA

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Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Public Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2022
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2022
RI	Rhode Island Department of Health	LAO00112	12/30/2021
NC	North Carolina Div. of Water Quality	652	12/31/2021
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2021
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2022



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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
- 98 Myrtle Street, #502, North Quincy, MA 02171
- 317 Iron Horse Way, Suite 204, Providence, RI 02908

80 Washington Street, Suite 301, Poughkeepsie, NY

# CHAIN-OF-CUSTODY RECORD

41960

2150808

Turnaround

- 24-Hour\*  72-Hour\*  Other \_\_\_\_\_ (days)
- 48-Hour\*  Standard (\_\_\_\_ days) \*Surcharge Applies

PROJECT NAME

PROJECT LOCATION

PROJECT NUMBER

LABORATORY

MVP Grant  
 20170390, V30

1614/12

LABORATORY

REPORT TO: Matt Hissone (mkh@scaredbeds.com) Analysis Request

INVOICE TO:

P.O. No.: 20170390, V30

Sampler's Signature:

Date: 10/14/12

Source Codes:  
 MW=Monitoring Well  
 SW=Surface Water

PT=Potable Water  
 ST=Stormwater

T=Treatment Facility  
 W=Waste A=Air

S=Soil B=Sediment  
 C=Concrete

X=Other \_\_\_\_\_

Item No.	Transfer Check				Sample Number	Source Code	Date Sampled	Time Sampled
	1	2	3	4				
1	X				1543211012-04 B	B	10/14/12	13:20
2								
3								
4								

Soil VOA Val, □ water (Na2SO4)  
 Soil VOA Val, □ methanol  
 Glass Soil Container (□) or  
 Other: 6/16/12  
 Water: VOA Val, □ Asis  
 Glass Amber ( ) ml, □ Asis  
 Plastic - Asis, □ 250 ml □ 500 ml □ 1000 ml  
 Plastic - H2SO4, □ 250 ml □ 500 ml □ 1000 ml  
 Plastic - HNO3, 250 ml □ filtered □ 0.45u □ 10u  
 Plastic - NaOH, 250 ml

Transfer number	Relinquished By	Accepted By	Date	Time
1			10/14/12	13:20
2	A. Fraser		10/14/12	13:20
3	A. Fraser		10/14/12	16:40
4			10-14-12	16:40

Charge Exceptions:  CT Tax Exempt  QA/QC  Other \_\_\_\_\_  
 \_\_\_\_\_ Duplicates \_\_\_\_\_ Blanks (Item Nos: \_\_\_\_\_)

Reporting and Detection Limit Requirements:  RCP Deliverables  MCP CAM Cert.  
 Additional Comments: *Asis, Cd, Cr, Pb, Hg, Zn, Cu & Pb & TCE*

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples \_\_\_\_\_



**con-test**  
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

**Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False**

Client Fuss + O'Neill

Received By UR Date 10-14-21 Time 1640

How were the samples received? In Cooler T No Cooler \_\_\_\_\_ On Ice T No Ice \_\_\_\_\_  
Direct from Sampling \_\_\_\_\_ Ambient \_\_\_\_\_ Melted Ice \_\_\_\_\_

Were samples within Temperature? 2-6°C T By Gun # 5 Actual Temp - 2.4  
By Blank # \_\_\_\_\_ Actual Temp - \_\_\_\_\_

Was Custody Seal Intact? NA Were Samples Tampered with? NA  
Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent information? Client T Analysis T Sampler Name T  
Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F

Are there Rushes? F

Are there Short Holds? F

Is there enough Volume? T

Is there Headspace where applicable? NA

Proper Media/Containers Used? T

Were trip blanks received? F

Do all samples have the proper pH? NA

Who was notified? \_\_\_\_\_

Who was notified? \_\_\_\_\_

Who was notified? \_\_\_\_\_

MS/MSD? F

Is splitting samples required? F

On COC? F

Acid \_\_\_\_\_ Base \_\_\_\_\_

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-	1	250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-	2	Flashpoint		Col./Bacteria		2oz Amb/Clear
DI-		Other Glass		Other Plastic		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

**Unused Media**

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Comments:

## MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test, a Pace Analytical Laboratory	Project #: 21J0808
Project Location: Hadley, MA	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

21J0808-01

Matrices: Soil

**CAM Protocol (check all that below)**

8260 VOC CAM II A ( )	7470/7471 Hg CAM IIIB (X)	MassDEP VPH CAM IV A ( )	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ( )	6860 Perchlorate CAM VIII B ( )
8270 SVOC CAM II B ( )	7010 Metals CAM III C ( )	MassDEP VPH CAM IV C ( )	8081 Pesticides CAM V B (X)	7196 Hex Cr CAM VI B ( )	MassDEP APH CAM IX A ( )
6010 Metals CAM III A (X)	6020 Metals CAM III D ( )	MassDEP EPH CAM IV B (X)	8151 Herbicides CAM V C (X)	8330 Explosives CAM VIII A ( )	TO-15 VOC CAM IX B ( )

**Affirmative response to Questions A through F is required for "Presumptive Certainty" status**

<b>A</b>	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <sup>1</sup>
<b>B</b>	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <sup>1</sup>
<b>C</b>	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <sup>1</sup>
<b>D</b>	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <sup>1</sup>
<b>E a</b>	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <sup>1</sup>
<b>E b</b>	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input type="checkbox"/> Yes <input type="checkbox"/> No <sup>1</sup>
<b>F</b>	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <sup>1</sup>

**A response to questions G, H and I below is required for "Presumptive Certainty" status**

<b>G</b>	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <sup>1</sup>
----------	---	--

**Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**

<b>H</b>	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <sup>1</sup>
<b>I</b>	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <sup>1</sup>

<sup>1</sup>All Negative responses must be addressed in an attached Environmental Laboratory case narrative.

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

Signature: Lisa Worthington Position: Technical Representative  
 Printed Name: Lisa A. Worthington Date: 10/21/21

October 23, 2022

Matthew Kissane  
Fuss & O'Neill - Springfield  
1550 Main Street, Suite 400  
Springfield, MA 01103

Project Location: Titus Pond, South Hadley  
Client Job Number:  
Project Number: 20170390.V50  
Laboratory Work Order Number: 22J0144

Enclosed are results of analyses for samples as received by the laboratory on October 3, 2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jessica L. Hoffman  
Project Manager

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Fuss & O'Neill - Springfield  
 1550 Main Street, Suite 400  
 Springfield, MA 01103  
 ATTN: Matthew Kissane

REPORT DATE: 10/23/2022

PURCHASE ORDER NUMBER: 170120170390.V50

PROJECT NUMBER: 20170390.V50

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 22J0144

The results of analyses performed on the following samples submitted to CON-TEST, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: Titus Pond, South Hadley

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
1701220930-01	22J0144-01	Soil		MADEP EPH rev 2.1 SM 2540G SW 846 9060A SW-846 6010D SW-846 7471B SW-846 8082A SW-846 8260D SW-846 8270E	
1701220930-02	22J0144-02	Soil		MADEP EPH rev 2.1 SM 2540G SW 846 9060A SW-846 6010D SW-846 7471B SW-846 8082A SW-846 8260D SW-846 8270E	

**CASE NARRATIVE SUMMARY**

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method MA EPH, only hydrocarbon ranges were requested and reported.

For method 8270E, only PAHs were requested and reported.

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SW 846 9060A

**Qualifications:****MS-07**

Matrix spike recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possibility of sample matrix effects that lead to low bias for reported result or non-homogeneous sample aliquot cannot be eliminated.

**Analyte & Samples(s) Qualified:****Total Organic Carbon**

22J0144-01[1701220930-01], B318951-MS1

SW-846 6010D

**Qualifications:****L-07**

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

**Analyte & Samples(s) Qualified:****Copper**

B318778-BS1

SW-846 8082A

**Qualifications:****O-32**

A dilution was performed as part of the standard analytical procedure.

**Analyte & Samples(s) Qualified:**

22J0144-01[1701220930-01], 22J0144-02[1701220930-02]

SW-846 8260D

**Qualifications:****L-04**

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

**Analyte & Samples(s) Qualified:****Chloroethane**

22J0144-01[1701220930-01], 22J0144-02[1701220930-02], B318760-BLK1, B318760-BS1, B318760-BSD1

**Vinyl Chloride**

22J0144-01[1701220930-01], 22J0144-02[1701220930-02], B318760-BLK1, B318760-BS1, B318760-BSD1

**V-05**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

**Analyte & Samples(s) Qualified:****Chloroethane**

22J0144-01[1701220930-01], 22J0144-02[1701220930-02], B318760-BLK1, B318760-BS1, B318760-BSD1, S077408-CCV1

**Dichlorodifluoromethane (Freon 12)**

22J0144-01[1701220930-01], 22J0144-02[1701220930-02], B318760-BLK1, B318760-BS1, B318760-BSD1, S077408-CCV1

**Methylene Chloride**

22J0144-01[1701220930-01], 22J0144-02[1701220930-02], B318760-BLK1, B318760-BS1, B318760-BSD1, S077408-CCV1

**tert-Butyl Ethyl Ether (TBEE)**

22J0144-01[1701220930-01], 22J0144-02[1701220930-02], B318760-BLK1, B318760-BS1, B318760-BSD1, S077408-CCV1

**Tetrahydrofuran**

22J0144-01[1701220930-01], 22J0144-02[1701220930-02], B318760-BLK1, B318760-BS1, B318760-BSD1, S077408-CCV1

**Vinyl Chloride**

22J0144-01[1701220930-01], 22J0144-02[1701220930-02], B318760-BLK1, B318760-BS1, B318760-BSD1, S077408-CCV1

**V-16**

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

**Analyte & Samples(s) Qualified:****1,4-Dioxane**

S077408-CCV1

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**V-20**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

**Analyte & Samples(s) Qualified:**

**Hexachlorobutadiene**

B318760-BS1, B318760-BSD1, S077408-CCV1

**V-34**

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

**Analyte & Samples(s) Qualified:**

**Bromomethane**

22J0144-01[1701220930-01], 22J0144-02[1701220930-02], B318760-BLK1, B318760-BS1, B318760-BSD1, S077408-CCV1

**V-35**

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side for this compound. Reported result is estimated.

**Analyte & Samples(s) Qualified:**

**2-Butanone (MEK)**

B318760-BS1, B318760-BSD1, S077408-CCV1

**2-Hexanone (MBK)**

B318760-BS1, B318760-BSD1, S077408-CCV1

**Acetone**

B318760-BS1, B318760-BSD1, S077408-CCV1

SW-846 8270E

**Qualifications:**

**RL-12**

Elevated reporting limit due to matrix interference.

**Analyte & Samples(s) Qualified:**

22J0144-01[1701220930-01], 22J0144-02[1701220930-02]

**V-05**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

**Analyte & Samples(s) Qualified:**

**Benzo(g,h,i)perylene**

22J0144-01[1701220930-01], 22J0144-02[1701220930-02], S077822-CCV1

**Indeno(1,2,3-cd)pyrene**

22J0144-01[1701220930-01], S077822-CCV1

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington  
Technical Representative

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Project Location: Titus Pond, South Hadley

Sample Description:

Work Order: 22J0144

Date Received: 10/3/2022

Field Sample #: 1701220930-01

Sampled: 9/30/2022 11:15

Sample ID: 22J0144-01

Sample Matrix: Soil

## Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Dichlorodifluoromethane (Freon 12) (Freon 12)	ND	0.018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Isopropylbenzene (Cumene) (Cumene)	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Trichlorofluoromethane (Freon 11) (Freon 11)	ND	0.0090	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Acetone	ND	0.090	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00090	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Benzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Bromobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Bromochloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Bromodichloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Bromoform	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Bromomethane	ND	0.0090	mg/Kg dry	1	V-34	SW-846 8260D	10/4/22	10/4/22 9:43	MFF
2-Butanone (MEK)	ND	0.036	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
n-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
sec-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
tert-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00090	mg/Kg dry	1	V-05	SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Carbon Disulfide	ND	0.0090	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Carbon Tetrachloride	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Chlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Chlorodibromomethane	ND	0.00090	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Chloroethane	ND	0.018	mg/Kg dry	1	L-04, V-05	SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Chloroform	ND	0.0036	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Chloromethane	ND	0.0090	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
2-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
4-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,2-Dibromoethane (EDB)	ND	0.00090	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Dibromomethane	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,2-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,3-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,4-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.018	mg/Kg dry	1	V-05	SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,1-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,2-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,1-Dichloroethylene	ND	0.0036	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
cis-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
trans-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,2-Dichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,3-Dichloropropane	ND	0.00090	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
2,2-Dichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,1-Dichloropropene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
cis-1,3-Dichloropropene	ND	0.00090	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
trans-1,3-Dichloropropene	ND	0.0036	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF

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Project Location: Titus Pond, South Hadley

Sample Description:

Work Order: 22J0144

Date Received: 10/3/2022

Field Sample #: 1701220930-01

Sampled: 9/30/2022 11:15

Sample ID: 22J0144-01

Sample Matrix: Soil

## Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diethyl Ether	ND	0.018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Diisopropyl Ether (DIPE)	ND	0.00090	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,4-Dioxane	ND	0.090	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Ethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Hexachlorobutadiene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
2-Hexanone (MBK)	ND	0.018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Isopropylbenzene (Cumene)	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0036	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Methylene Chloride	ND	0.018	mg/Kg dry	1	V-05	SW-846 8260D	10/4/22	10/4/22 9:43	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Naphthalene	ND	0.0036	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
n-Propylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Styrene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,1,1,2-Tetrachloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,1,2,2-Tetrachloroethane	ND	0.00090	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Tetrachloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Tetrahydrofuran	ND	0.0090	mg/Kg dry	1	V-05	SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Toluene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,2,3-Trichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,2,4-Trichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,1,1-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,1,2-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Trichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0090	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,2,3-Trichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,2,4-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
1,3,5-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
Vinyl Chloride	ND	0.0090	mg/Kg dry	1	L-04, V-05	SW-846 8260D	10/4/22	10/4/22 9:43	MFF
m+p Xylene	ND	0.0036	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF
o-Xylene	ND	0.0018	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 9:43	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	90.8	70-130	10/4/22 9:43
Toluene-d8	96.7	70-130	10/4/22 9:43
4-Bromofluorobenzene	93.0	70-130	10/4/22 9:43

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Project Location: Titus Pond, South Hadley

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Field Sample #: 1701220930-01

Sampled: 9/30/2022 11:15

Sample ID: 22J0144-01

Sample Matrix: Soil

Sample Flags: RL-12

**Semivolatile Organic Compounds by GC/MS**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Acenaphthylene	ND	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Anthracene	ND	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Benzo(a)anthracene	0.68	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Benzo(a)pyrene	0.68	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Benzo(b)fluoranthene	1.1	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Benzo(g,h,i)perylene	ND	0.50	mg/Kg dry	2	V-05	SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Benzo(k)fluoranthene	0.50	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Chrysene	0.71	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Dibenz(a,h)anthracene	ND	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Fluoranthene	1.6	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Fluorene	ND	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Indeno(1,2,3-cd)pyrene	ND	0.50	mg/Kg dry	2	V-05	SW-846 8270E	10/5/22	10/11/22 0:25	BGL
2-Methylnaphthalene	ND	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Naphthalene	ND	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Phenanthrene	0.87	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Pyrene	1.4	0.50	mg/Kg dry	2		SW-846 8270E	10/5/22	10/11/22 0:25	BGL
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Nitrobenzene-d5		69.7	30-130					10/11/22 0:25	
2-Fluorobiphenyl		62.4	30-130					10/11/22 0:25	
p-Terphenyl-d14		67.5	30-130					10/11/22 0:25	

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Sample Matrix: Soil

Sample Flags: O-32

**Polychlorinated Biphenyls By GC/ECD**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.12	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:15	JEA
Aroclor-1221 [1]	ND	0.12	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:15	JEA
Aroclor-1232 [1]	ND	0.12	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:15	JEA
Aroclor-1242 [1]	ND	0.12	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:15	JEA
Aroclor-1248 [1]	ND	0.12	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:15	JEA
Aroclor-1254 [1]	ND	0.12	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:15	JEA
Aroclor-1260 [1]	ND	0.12	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:15	JEA
Aroclor-1262 [1]	ND	0.12	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:15	JEA
Aroclor-1268 [1]	ND	0.12	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:15	JEA
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		84.0	30-150					10/8/22 18:15	
Decachlorobiphenyl [2]		80.3	30-150					10/8/22 18:15	
Tetrachloro-m-xylene [1]		74.9	30-150					10/8/22 18:15	
Tetrachloro-m-xylene [2]		73.5	30-150					10/8/22 18:15	

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Sample ID: 22J0144-01

Sample Matrix: Soil

**Petroleum Hydrocarbons Analyses - EPH**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	15	mg/Kg dry	1		MADEP EPH rev 2.1	10/5/22	10/8/22 14:27	AYH
C19-C36 Aliphatics	48	15	mg/Kg dry	1		MADEP EPH rev 2.1	10/5/22	10/8/22 14:27	AYH
Unadjusted C11-C22 Aromatics	63	15	mg/Kg dry	1		MADEP EPH rev 2.1	10/5/22	10/8/22 14:27	AYH
C11-C22 Aromatics	52	15	mg/Kg dry	1		MADEP EPH rev 2.1	10/5/22	10/8/22 14:27	AYH
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)	78.3		40-140				10/8/22 14:27		
o-Terphenyl (OTP)	85.9		40-140				10/8/22 14:27		
2-Bromonaphthalene	101		40-140				10/8/22 14:27		
2-Fluorobiphenyl	102		40-140				10/8/22 14:27		

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Project Location: Titus Pond, South Hadley

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Field Sample #: 1701220930-01

Sampled: 9/30/2022 11:15

Sample ID: 22J0144-01

Sample Matrix: Soil

**Metals Analyses (Total)**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	ND	4.9	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:39	QNW
Cadmium	ND	0.49	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:39	QNW
Chromium	8.9	0.98	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:39	QNW
Copper	11	0.98	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:39	QNW
Lead	14	0.74	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:39	QNW
Mercury	ND	0.038	mg/Kg dry	1		SW-846 7471B	10/7/22	10/12/22 12:52	ATP
Nickel	5.4	0.98	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:39	QNW
Zinc	36	0.98	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:39	QNW

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Project Location: Titus Pond, South Hadley

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Sample Matrix: Soil

**Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	67.4		% Wt	1		SM 2540G	10/4/22	10/4/22 15:08	WDC
Total Organic Carbon	16000	150	mg/Kg dry	1	MS-07	SW 846 9060A	10/6/22	10/6/22 8:57	IS

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Project Location: Titus Pond, South Hadley

Sample Description:

Work Order: 22J0144

Date Received: 10/3/2022

Field Sample #: 1701220930-02

Sampled: 9/30/2022 11:50

Sample ID: 22J0144-02

Sample Matrix: Soil

## Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Dichlorodifluoromethane (Freon 12) (Freon 12)	ND	0.016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Isopropylbenzene (Cumene) (Cumene)	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Trichlorofluoromethane (Freon 11) (Freon 11)	ND	0.0079	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Acetone	ND	0.079	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00079	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Benzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Bromobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Bromochloromethane	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Bromodichloromethane	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Bromoform	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Bromomethane	ND	0.0079	mg/Kg dry	1	V-34	SW-846 8260D	10/4/22	10/4/22 10:09	MFF
2-Butanone (MEK)	ND	0.032	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
n-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
sec-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
tert-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00079	mg/Kg dry	1	V-05	SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Carbon Disulfide	ND	0.0079	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Carbon Tetrachloride	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Chlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Chlorodibromomethane	ND	0.00079	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Chloroethane	ND	0.016	mg/Kg dry	1	L-04, V-05	SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Chloroform	ND	0.0032	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Chloromethane	ND	0.0079	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
2-Chlorotoluene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
4-Chlorotoluene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,2-Dibromoethane (EDB)	ND	0.00079	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Dibromomethane	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,2-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,3-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,4-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.016	mg/Kg dry	1	V-05	SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,1-Dichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,2-Dichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,1-Dichloroethylene	ND	0.0032	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
cis-1,2-Dichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
trans-1,2-Dichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,2-Dichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,3-Dichloropropane	ND	0.00079	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
2,2-Dichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,1-Dichloropropene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
cis-1,3-Dichloropropene	ND	0.00079	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
trans-1,3-Dichloropropene	ND	0.0032	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF

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Project Location: Titus Pond, South Hadley

Sample Description:

Work Order: 22J0144

Date Received: 10/3/2022

Field Sample #: 1701220930-02

Sampled: 9/30/2022 11:50

Sample ID: 22J0144-02

Sample Matrix: Soil

## Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diethyl Ether	ND	0.016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Diisopropyl Ether (DIPE)	ND	0.00079	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,4-Dioxane	ND	0.079	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Ethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Hexachlorobutadiene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
2-Hexanone (MBK)	ND	0.016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Isopropylbenzene (Cumene)	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0032	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Methylene Chloride	ND	0.016	mg/Kg dry	1	V-05	SW-846 8260D	10/4/22	10/4/22 10:09	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Naphthalene	ND	0.0032	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
n-Propylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Styrene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,1,1,2-Tetrachloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,1,2,2-Tetrachloroethane	ND	0.00079	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Tetrachloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Tetrahydrofuran	ND	0.0079	mg/Kg dry	1	V-05	SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Toluene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,2,3-Trichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,2,4-Trichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,1,1-Trichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,1,2-Trichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Trichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0079	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,2,3-Trichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,2,4-Trimethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
1,3,5-Trimethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
Vinyl Chloride	ND	0.0079	mg/Kg dry	1	L-04, V-05	SW-846 8260D	10/4/22	10/4/22 10:09	MFF
m+p Xylene	ND	0.0032	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF
o-Xylene	ND	0.0016	mg/Kg dry	1		SW-846 8260D	10/4/22	10/4/22 10:09	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	93.1	70-130	10/4/22 10:09
Toluene-d8	94.2	70-130	10/4/22 10:09
4-Bromofluorobenzene	95.6	70-130	10/4/22 10:09

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Project Location: Titus Pond, South Hadley

Sample Description:

Work Order: 22J0144

Date Received: 10/3/2022

Field Sample #: 1701220930-02

Sampled: 9/30/2022 11:50

Sample ID: 22J0144-02

Sample Matrix: Soil

Sample Flags: RL-12

**Semivolatile Organic Compounds by GC/MS**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Acenaphthylene	ND	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Anthracene	ND	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Benzo(a)anthracene	ND	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Benzo(a)pyrene	ND	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Benzo(b)fluoranthene	0.86	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Benzo(g,h,i)perylene	ND	0.81	mg/Kg dry	4	V-05	SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Benzo(k)fluoranthene	ND	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Chrysene	ND	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Dibenz(a,h)anthracene	ND	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Fluoranthene	1.3	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Fluorene	ND	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Indeno(1,2,3-cd)pyrene	ND	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
2-Methylnaphthalene	ND	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Naphthalene	ND	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Phenanthrene	ND	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Pyrene	1.1	0.81	mg/Kg dry	4		SW-846 8270E	10/5/22	10/11/22 10:41	BGL
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Nitrobenzene-d5		70.6	30-130					10/11/22 10:41	
2-Fluorobiphenyl		63.5	30-130					10/11/22 10:41	
p-Terphenyl-d14		62.1	30-130					10/11/22 10:41	

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Project Location: Titus Pond, South Hadley

Sample Description:

Work Order: 22J0144

Date Received: 10/3/2022

Field Sample #: 1701220930-02

Sampled: 9/30/2022 11:50

Sample ID: 22J0144-02

Sample Matrix: Soil

Sample Flags: O-32

**Polychlorinated Biphenyls By GC/ECD**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:32	JEA
Aroclor-1221 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:32	JEA
Aroclor-1232 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:32	JEA
Aroclor-1242 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:32	JEA
Aroclor-1248 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:32	JEA
Aroclor-1254 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:32	JEA
Aroclor-1260 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:32	JEA
Aroclor-1262 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:32	JEA
Aroclor-1268 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/22	10/8/22 18:32	JEA
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		86.3	30-150					10/8/22 18:32	
Decachlorobiphenyl [2]		82.3	30-150					10/8/22 18:32	
Tetrachloro-m-xylene [1]		79.3	30-150					10/8/22 18:32	
Tetrachloro-m-xylene [2]		76.6	30-150					10/8/22 18:32	

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Project Location: Titus Pond, South Hadley

Sample Description:

Work Order: 22J0144

Date Received: 10/3/2022

Field Sample #: 1701220930-02

Sampled: 9/30/2022 11:50

Sample ID: 22J0144-02

Sample Matrix: Soil

**Petroleum Hydrocarbons Analyses - EPH**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	12	mg/Kg dry	1		MADEP EPH rev 2.1	10/5/22	10/8/22 14:46	AYH
C19-C36 Aliphatics	140	12	mg/Kg dry	1		MADEP EPH rev 2.1	10/5/22	10/8/22 14:46	AYH
Unadjusted C11-C22 Aromatics	130	12	mg/Kg dry	1		MADEP EPH rev 2.1	10/5/22	10/8/22 14:46	AYH
C11-C22 Aromatics	120	12	mg/Kg dry	1		MADEP EPH rev 2.1	10/5/22	10/8/22 14:46	AYH
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)	73.5		40-140				10/8/22 14:46		
o-Terphenyl (OTP)	77.9		40-140				10/8/22 14:46		
2-Bromonaphthalene	96.7		40-140				10/8/22 14:46		
2-Fluorobiphenyl	98.3		40-140				10/8/22 14:46		

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Project Location: Titus Pond, South Hadley

Sample Description:

Work Order: 22J0144

Date Received: 10/3/2022

Field Sample #: 1701220930-02

Sampled: 9/30/2022 11:50

Sample ID: 22J0144-02

Sample Matrix: Soil

**Metals Analyses (Total)**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	ND	3.9	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:46	QNW
Cadmium	ND	0.39	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:46	QNW
Chromium	6.6	0.78	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:46	QNW
Copper	27	0.78	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:46	QNW
Lead	6.9	0.59	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:46	QNW
Mercury	ND	0.030	mg/Kg dry	1		SW-846 7471B	10/7/22	10/12/22 12:53	ATP
Nickel	6.3	0.78	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:46	QNW
Zinc	45	0.78	mg/Kg dry	1		SW-846 6010D	10/4/22	10/5/22 18:46	QNW

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Project Location: Titus Pond, South Hadley

Sample Description:

Work Order: 22J0144

Date Received: 10/3/2022

Field Sample #: 1701220930-02

Sampled: 9/30/2022 11:50

Sample ID: 22J0144-02

Sample Matrix: Soil

**Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	83.8		% Wt	1		SM 2540G	10/4/22	10/4/22 15:08	WDC
Total Organic Carbon	4100	120	mg/Kg dry	1		SW 846 9060A	10/6/22	10/6/22 11:12	IS

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**Sample Extraction Data**
**Prep Method: SW-846 3546 Analytical Method: MADEP EPH rev 2.1**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22J0144-01 [1701220930-01]	B318897	20.0	2.00	10/05/22
22J0144-02 [1701220930-02]	B318897	20.1	2.00	10/05/22

**Prep Method: % Solids Analytical Method: SM 2540G**

Lab Number [Field ID]	Batch	Date
22J0144-01 [1701220930-01]	B318737	10/04/22
22J0144-02 [1701220930-02]	B318737	10/04/22

**SW 846 9060A**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22J0144-01 [1701220930-01]	B318951	1.00	1.00	10/06/22
22J0144-02 [1701220930-02]	B318951	1.00	1.00	10/06/22

**Prep Method: SW-846 3050B Analytical Method: SW-846 6010D**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22J0144-01 [1701220930-01]	B318778	1.51	50.0	10/04/22
22J0144-02 [1701220930-02]	B318778	1.53	50.0	10/04/22

**Prep Method: SW-846 7471 Analytical Method: SW-846 7471B**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22J0144-01 [1701220930-01]	B319132	0.582	50.0	10/07/22
22J0144-02 [1701220930-02]	B319132	0.602	50.0	10/07/22

**Prep Method: SW-846 3546 Analytical Method: SW-846 8082A**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22J0144-01 [1701220930-01]	B318911	10.0	10.0	10/05/22
22J0144-02 [1701220930-02]	B318911	10.0	10.0	10/05/22

**Prep Method: SW-846 5035 Analytical Method: SW-846 8260D**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22J0144-01 [1701220930-01]	B318760	8.28	10.0	10/04/22
22J0144-02 [1701220930-02]	B318760	7.57	10.0	10/04/22

**Prep Method: SW-846 3546 Analytical Method: SW-846 8270E**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22J0144-01 [1701220930-01]	B318913	30.0	1.00	10/05/22
22J0144-02 [1701220930-02]	B318913	30.0	1.00	10/05/22

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**QUALITY CONTROL**
**Volatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B318760 - SW-846 5035</b>										
<b>Blank (B318760-BLK1)</b>										
Prepared & Analyzed: 10/04/22										
Dichlorodifluoromethane (Freon 12) (Freon 12)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene) (Cumene)	ND	0.0020	mg/Kg wet							
Trichlorofluoromethane (Freon 11) (Freon 11)	ND	0.010	mg/Kg wet							
Acetone	ND	0.10	mg/Kg wet							
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							V-34
2-Butanone (MEK)	ND	0.040	mg/Kg wet							
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							V-05
Carbon Disulfide	ND	0.010	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.020	mg/Kg wet							L-04, V-05
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.020	mg/Kg wet							V-05
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0040	mg/Kg wet							
Diethyl Ether	ND	0.020	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							

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**QUALITY CONTROL**
**Volatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B318760 - SW-846 5035</b>										
<b>Blank (B318760-BLK1)</b>										
Prepared & Analyzed: 10/04/22										
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							
Methylene Chloride	ND	0.020	mg/Kg wet							V-05
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							
Naphthalene	ND	0.0040	mg/Kg wet							
n-Propylbenzene	ND	0.0020	mg/Kg wet							
Styrene	ND	0.0020	mg/Kg wet							
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet							
Tetrachloroethylene	ND	0.0020	mg/Kg wet							
Tetrahydrofuran	ND	0.010	mg/Kg wet							V-05
Toluene	ND	0.0020	mg/Kg wet							
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet							
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet							
Trichloroethylene	ND	0.0020	mg/Kg wet							
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet							
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet							
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet							
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet							
Vinyl Chloride	ND	0.010	mg/Kg wet							L-04, V-05
m+p Xylene	ND	0.0040	mg/Kg wet							
o-Xylene	ND	0.0020	mg/Kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0447		mg/Kg wet	0.0500		89.4	70-130			
Surrogate: Toluene-d8	0.0481		mg/Kg wet	0.0500		96.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.0487		mg/Kg wet	0.0500		97.5	70-130			
<b>LCS (B318760-BS1)</b>										
Prepared & Analyzed: 10/04/22										
Acetone	0.204	0.10	mg/Kg wet	0.200		102	40-160			V-35 †
tert-Amyl Methyl Ether (TAME)	0.0196	0.0010	mg/Kg wet	0.0200		98.1	70-130			
Benzene	0.0186	0.0020	mg/Kg wet	0.0200		92.9	70-130			
Bromobenzene	0.0212	0.0020	mg/Kg wet	0.0200		106	70-130			
Bromochloromethane	0.0165	0.0020	mg/Kg wet	0.0200		82.6	70-130			
Bromodichloromethane	0.0216	0.0020	mg/Kg wet	0.0200		108	70-130			
Bromoform	0.0234	0.0020	mg/Kg wet	0.0200		117	70-130			
Bromomethane	0.0224	0.010	mg/Kg wet	0.0200		112	40-160			V-34 †
2-Butanone (MEK)	0.201	0.040	mg/Kg wet	0.200		100	40-160			V-35 †
n-Butylbenzene	0.0212	0.0020	mg/Kg wet	0.0200		106	70-130			
sec-Butylbenzene	0.0218	0.0020	mg/Kg wet	0.0200		109	70-130			
tert-Butylbenzene	0.0223	0.0020	mg/Kg wet	0.0200		112	70-130			
tert-Butyl Ethyl Ether (TBEE)	0.0155	0.0010	mg/Kg wet	0.0200		77.7	70-130			V-05
Carbon Disulfide	0.202	0.010	mg/Kg wet	0.200		101	70-130			
Carbon Tetrachloride	0.0201	0.0020	mg/Kg wet	0.0200		101	70-130			
Chlorobenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.3	70-130			
Chlorodibromomethane	0.0226	0.0010	mg/Kg wet	0.0200		113	70-130			
<b>Chloroethane</b>	0.0129	0.020	mg/Kg wet	0.0200		<b>64.7</b> *	70-130			L-04, V-05
Chloroform	0.0194	0.0040	mg/Kg wet	0.0200		96.8	70-130			
Chloromethane	0.0136	0.010	mg/Kg wet	0.0200		68.2	40-160			L-14 †
2-Chlorotoluene	0.0222	0.0020	mg/Kg wet	0.0200		111	70-130			
4-Chlorotoluene	0.0217	0.0020	mg/Kg wet	0.0200		108	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	0.0228	0.0020	mg/Kg wet	0.0200		114	70-130			
1,2-Dibromoethane (EDB)	0.0223	0.0010	mg/Kg wet	0.0200		111	70-130			

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**QUALITY CONTROL**
**Volatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B318760 - SW-846 5035</b>										
<b>LCS (B318760-BS1)</b>										
Prepared & Analyzed: 10/04/22										
Dibromomethane	0.0211	0.0020	mg/Kg wet	0.0200		105	70-130			
1,2-Dichlorobenzene	0.0213	0.0020	mg/Kg wet	0.0200		107	70-130			
1,3-Dichlorobenzene	0.0219	0.0020	mg/Kg wet	0.0200		110	70-130			
1,4-Dichlorobenzene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130			
Dichlorodifluoromethane (Freon 12)	0.0146	0.020	mg/Kg wet	0.0200		72.8	40-160			V-05 †
1,1-Dichloroethane	0.0173	0.0020	mg/Kg wet	0.0200		86.6	70-130			
1,2-Dichloroethane	0.0192	0.0020	mg/Kg wet	0.0200		96.0	70-130			
1,1-Dichloroethylene	0.0169	0.0040	mg/Kg wet	0.0200		84.4	70-130			
cis-1,2-Dichloroethylene	0.0174	0.0020	mg/Kg wet	0.0200		87.2	70-130			
trans-1,2-Dichloroethylene	0.0179	0.0020	mg/Kg wet	0.0200		89.6	70-130			
1,2-Dichloropropane	0.0203	0.0020	mg/Kg wet	0.0200		101	70-130			
1,3-Dichloropropane	0.0210	0.0010	mg/Kg wet	0.0200		105	70-130			
2,2-Dichloropropane	0.0180	0.0020	mg/Kg wet	0.0200		90.2	70-130			
1,1-Dichloropropene	0.0184	0.0020	mg/Kg wet	0.0200		92.0	70-130			
cis-1,3-Dichloropropene	0.0202	0.0010	mg/Kg wet	0.0200		101	70-130			
trans-1,3-Dichloropropene	0.0184	0.0040	mg/Kg wet	0.0200		91.9	70-130			
Diethyl Ether	0.0192	0.020	mg/Kg wet	0.0200		96.1	70-130			
Diisopropyl Ether (DIPE)	0.0160	0.0010	mg/Kg wet	0.0200		80.0	70-130			
1,4-Dioxane	0.234	0.10	mg/Kg wet	0.200		117	40-160			†
Ethylbenzene	0.0211	0.0020	mg/Kg wet	0.0200		105	70-130			
Hexachlorobutadiene	0.0253	0.0020	mg/Kg wet	0.0200		127	70-130			V-20
2-Hexanone (MBK)	0.200	0.020	mg/Kg wet	0.200		99.9	40-160			V-35 †
Isopropylbenzene (Cumene)	0.0215	0.0020	mg/Kg wet	0.0200		107	70-130			
p-Isopropyltoluene (p-Cymene)	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130			
Methyl tert-Butyl Ether (MTBE)	0.0185	0.0040	mg/Kg wet	0.0200		92.6	70-130			
Methylene Chloride	0.0147	0.020	mg/Kg wet	0.0200		73.6	70-130			V-05
4-Methyl-2-pentanone (MIBK)	0.184	0.020	mg/Kg wet	0.200		91.8	40-160			†
Naphthalene	0.0214	0.0040	mg/Kg wet	0.0200		107	70-130			
n-Propylbenzene	0.0214	0.0020	mg/Kg wet	0.0200		107	70-130			
Styrene	0.0221	0.0020	mg/Kg wet	0.0200		110	70-130			
1,1,1,2-Tetrachloroethane	0.0224	0.0020	mg/Kg wet	0.0200		112	70-130			
1,1,2,2-Tetrachloroethane	0.0218	0.0010	mg/Kg wet	0.0200		109	70-130			
Tetrachloroethylene	0.0225	0.0020	mg/Kg wet	0.0200		112	70-130			
Tetrahydrofuran	0.0162	0.010	mg/Kg wet	0.0200		80.9	70-130			V-05
Toluene	0.0200	0.0020	mg/Kg wet	0.0200		100	70-130			
1,2,3-Trichlorobenzene	0.0209	0.0020	mg/Kg wet	0.0200		105	70-130			
1,2,4-Trichlorobenzene	0.0190	0.0020	mg/Kg wet	0.0200		94.9	70-130			
1,1,1-Trichloroethane	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130			
1,1,2-Trichloroethane	0.0225	0.0020	mg/Kg wet	0.0200		112	70-130			
Trichloroethylene	0.0213	0.0020	mg/Kg wet	0.0200		106	70-130			
Trichlorofluoromethane (Freon 11)	0.0194	0.010	mg/Kg wet	0.0200		97.1	70-130			
1,2,3-Trichloropropane	0.0226	0.0020	mg/Kg wet	0.0200		113	70-130			
1,2,4-Trimethylbenzene	0.0225	0.0020	mg/Kg wet	0.0200		112	70-130			
1,3,5-Trimethylbenzene	0.0228	0.0020	mg/Kg wet	0.0200		114	70-130			
<b>Vinyl Chloride</b>	0.0132	0.010	mg/Kg wet	0.0200		<b>66.0</b>	* 70-130			L-04, V-05
m+p Xylene	0.0443	0.0040	mg/Kg wet	0.0400		111	70-130			
o-Xylene	0.0209	0.0020	mg/Kg wet	0.0200		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0422		mg/Kg wet	0.0500		84.4	70-130			
Surrogate: Toluene-d8	0.0496		mg/Kg wet	0.0500		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.0513		mg/Kg wet	0.0500		103	70-130			

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**QUALITY CONTROL**
**Volatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B318760 - SW-846 5035</b>										
<b>LCS Dup (B318760-BSD1)</b>										
Prepared & Analyzed: 10/04/22										
Acetone	0.208	0.10	mg/Kg wet	0.200		104	40-160	1.73	20	V-35 †
tert-Amyl Methyl Ether (TAME)	0.0204	0.0010	mg/Kg wet	0.0200		102	70-130	4.00	20	
Benzene	0.0191	0.0020	mg/Kg wet	0.0200		95.3	70-130	2.55	20	
Bromobenzene	0.0211	0.0020	mg/Kg wet	0.0200		106	70-130	0.378	20	
Bromochloromethane	0.0169	0.0020	mg/Kg wet	0.0200		84.6	70-130	2.39	20	
Bromodichloromethane	0.0218	0.0020	mg/Kg wet	0.0200		109	70-130	0.831	20	
Bromoform	0.0234	0.0020	mg/Kg wet	0.0200		117	70-130	0.171	20	
Bromomethane	0.0240	0.010	mg/Kg wet	0.0200		120	40-160	7.06	20	V-34 †
2-Butanone (MEK)	0.204	0.040	mg/Kg wet	0.200		102	40-160	1.77	20	V-35 †
n-Butylbenzene	0.0209	0.0020	mg/Kg wet	0.0200		104	70-130	1.33	20	
sec-Butylbenzene	0.0221	0.0020	mg/Kg wet	0.0200		110	70-130	1.28	20	
tert-Butylbenzene	0.0217	0.0020	mg/Kg wet	0.0200		109	70-130	2.63	20	
tert-Butyl Ethyl Ether (TBEE)	0.0161	0.0010	mg/Kg wet	0.0200		80.7	70-130	3.79	20	V-05
Carbon Disulfide	0.205	0.010	mg/Kg wet	0.200		102	70-130	1.40	20	
Carbon Tetrachloride	0.0205	0.0020	mg/Kg wet	0.0200		103	70-130	1.97	20	
Chlorobenzene	0.0196	0.0020	mg/Kg wet	0.0200		98.1	70-130	0.204	20	
Chlorodibromomethane	0.0230	0.0010	mg/Kg wet	0.0200		115	70-130	1.93	20	
<b>Chloroethane</b>	0.0134	0.020	mg/Kg wet	0.0200		<b>67.2</b> *	70-130	3.79	20	L-04, V-05
Chloroform	0.0197	0.0040	mg/Kg wet	0.0200		98.5	70-130	1.74	20	
Chloromethane	0.0134	0.010	mg/Kg wet	0.0200		66.8	40-160	2.07	20	L-14 †
2-Chlorotoluene	0.0222	0.0020	mg/Kg wet	0.0200		111	70-130	0.0900	20	
4-Chlorotoluene	0.0216	0.0020	mg/Kg wet	0.0200		108	70-130	0.462	20	
1,2-Dibromo-3-chloropropane (DBCP)	0.0230	0.0020	mg/Kg wet	0.0200		115	70-130	0.786	20	
1,2-Dibromoethane (EDB)	0.0227	0.0010	mg/Kg wet	0.0200		113	70-130	1.87	20	
Dibromomethane	0.0214	0.0020	mg/Kg wet	0.0200		107	70-130	1.41	20	
1,2-Dichlorobenzene	0.0213	0.0020	mg/Kg wet	0.0200		107	70-130	0.0938	20	
1,3-Dichlorobenzene	0.0220	0.0020	mg/Kg wet	0.0200		110	70-130	0.274	20	
1,4-Dichlorobenzene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130	0.294	20	
Dichlorodifluoromethane (Freon 12)	0.0143	0.020	mg/Kg wet	0.0200		71.4	40-160	1.94	20	V-05 †
1,1-Dichloroethane	0.0176	0.0020	mg/Kg wet	0.0200		88.1	70-130	1.72	20	
1,2-Dichloroethane	0.0192	0.0020	mg/Kg wet	0.0200		95.8	70-130	0.209	20	
1,1-Dichloroethylene	0.0171	0.0040	mg/Kg wet	0.0200		85.4	70-130	1.18	20	
cis-1,2-Dichloroethylene	0.0179	0.0020	mg/Kg wet	0.0200		89.6	70-130	2.71	20	
trans-1,2-Dichloroethylene	0.0181	0.0020	mg/Kg wet	0.0200		90.5	70-130	0.999	20	
1,2-Dichloropropane	0.0207	0.0020	mg/Kg wet	0.0200		103	70-130	1.86	20	
1,3-Dichloropropane	0.0212	0.0010	mg/Kg wet	0.0200		106	70-130	0.946	20	
2,2-Dichloropropane	0.0185	0.0020	mg/Kg wet	0.0200		92.5	70-130	2.52	20	
1,1-Dichloropropene	0.0187	0.0020	mg/Kg wet	0.0200		93.7	70-130	1.83	20	
cis-1,3-Dichloropropene	0.0205	0.0010	mg/Kg wet	0.0200		102	70-130	1.28	20	
trans-1,3-Dichloropropene	0.0188	0.0040	mg/Kg wet	0.0200		93.9	70-130	2.15	20	
Diethyl Ether	0.0197	0.020	mg/Kg wet	0.0200		98.6	70-130	2.57	20	
Diisopropyl Ether (DIPE)	0.0166	0.0010	mg/Kg wet	0.0200		82.8	70-130	3.44	20	
1,4-Dioxane	0.244	0.10	mg/Kg wet	0.200		122	40-160	4.17	20	†
Ethylbenzene	0.0209	0.0020	mg/Kg wet	0.0200		104	70-130	0.953	20	
Hexachlorobutadiene	0.0251	0.0020	mg/Kg wet	0.0200		126	70-130	0.872	20	V-20
2-Hexanone (MBK)	0.202	0.020	mg/Kg wet	0.200		101	40-160	1.31	20	V-35 †
Isopropylbenzene (Cumene)	0.0215	0.0020	mg/Kg wet	0.0200		108	70-130	0.372	20	
p-Isopropyltoluene (p-Cymene)	0.0211	0.0020	mg/Kg wet	0.0200		106	70-130	0.285	20	
Methyl tert-Butyl Ether (MTBE)	0.0191	0.0040	mg/Kg wet	0.0200		95.7	70-130	3.29	20	
Methylene Chloride	0.0149	0.020	mg/Kg wet	0.0200		74.4	70-130	1.08	20	V-05
4-Methyl-2-pentanone (MIBK)	0.186	0.020	mg/Kg wet	0.200		93.1	40-160	1.36	20	†
Naphthalene	0.0216	0.0040	mg/Kg wet	0.0200		108	70-130	0.745	20	

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**QUALITY CONTROL**
**Volatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B318760 - SW-846 5035</b>										
<b>LCS Dup (B318760-BSD1)</b>										
Prepared & Analyzed: 10/04/22										
n-Propylbenzene	0.0215	0.0020	mg/Kg wet	0.0200		108	70-130	0.559	20	
Styrene	0.0220	0.0020	mg/Kg wet	0.0200		110	70-130	0.545	20	
1,1,1,2-Tetrachloroethane	0.0225	0.0020	mg/Kg wet	0.0200		112	70-130	0.445	20	
1,1,2,2-Tetrachloroethane	0.0221	0.0010	mg/Kg wet	0.0200		111	70-130	1.37	20	
Tetrachloroethylene	0.0228	0.0020	mg/Kg wet	0.0200		114	70-130	1.32	20	
Tetrahydrofuran	0.0161	0.010	mg/Kg wet	0.0200		80.4	70-130	0.620	20	V-05
Toluene	0.0199	0.0020	mg/Kg wet	0.0200		99.5	70-130	0.501	20	
1,2,3-Trichlorobenzene	0.0206	0.0020	mg/Kg wet	0.0200		103	70-130	1.64	20	
1,2,4-Trichlorobenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.7	70-130	0.839	20	
1,1,1-Trichloroethane	0.0211	0.0020	mg/Kg wet	0.0200		105	70-130	1.43	20	
1,1,2-Trichloroethane	0.0224	0.0020	mg/Kg wet	0.0200		112	70-130	0.445	20	
Trichloroethylene	0.0216	0.0020	mg/Kg wet	0.0200		108	70-130	1.49	20	
Trichlorofluoromethane (Freon 11)	0.0196	0.010	mg/Kg wet	0.0200		98.2	70-130	1.13	20	
1,2,3-Trichloropropane	0.0226	0.0020	mg/Kg wet	0.0200		113	70-130	0.177	20	
1,2,4-Trimethylbenzene	0.0224	0.0020	mg/Kg wet	0.0200		112	70-130	0.446	20	
1,3,5-Trimethylbenzene	0.0229	0.0020	mg/Kg wet	0.0200		114	70-130	0.350	20	
<b>Vinyl Chloride</b>	0.0133	0.010	mg/Kg wet	0.0200		<b>66.6</b> *	70-130	0.905	20	L-04, V-05
m+p Xylene	0.0440	0.0040	mg/Kg wet	0.0400		110	70-130	0.498	20	
o-Xylene	0.0209	0.0020	mg/Kg wet	0.0200		104	70-130	0.00	20	
Surrogate: 1,2-Dichloroethane-d4	0.0433		mg/Kg wet	0.0500		86.5	70-130			
Surrogate: Toluene-d8	0.0500		mg/Kg wet	0.0500		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.0511		mg/Kg wet	0.0500		102	70-130			

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**QUALITY CONTROL**
**Semivolatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B318913 - SW-846 3546</b>										
<b>Blank (B318913-BLK1)</b>										
Prepared: 10/05/22 Analyzed: 10/07/22										
Acenaphthene	ND	0.085	mg/Kg wet							
Acenaphthylene	ND	0.085	mg/Kg wet							
Anthracene	ND	0.085	mg/Kg wet							
Benzo(a)anthracene	ND	0.085	mg/Kg wet							
Benzo(a)pyrene	ND	0.085	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.085	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.085	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.085	mg/Kg wet							
Chrysene	ND	0.085	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.085	mg/Kg wet							
Fluoranthene	ND	0.085	mg/Kg wet							
Fluorene	ND	0.085	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.085	mg/Kg wet							
2-Methylnaphthalene	ND	0.085	mg/Kg wet							
Naphthalene	ND	0.085	mg/Kg wet							
Phenanthrene	ND	0.085	mg/Kg wet							
Pyrene	ND	0.085	mg/Kg wet							
Surrogate: Nitrobenzene-d5	2.56		mg/Kg wet	3.33		76.7	30-130			
Surrogate: 2-Fluorobiphenyl	2.45		mg/Kg wet	3.33		73.6	30-130			
Surrogate: p-Terphenyl-d14	2.88		mg/Kg wet	3.33		86.3	30-130			
<b>LCS (B318913-BS1)</b>										
Prepared: 10/05/22 Analyzed: 10/07/22										
Acenaphthene	1.18	0.17	mg/Kg wet	1.67		70.5	40-140			
Acenaphthylene	1.29	0.17	mg/Kg wet	1.67		77.3	40-140			
Anthracene	1.28	0.17	mg/Kg wet	1.67		76.7	40-140			
Benzo(a)anthracene	1.22	0.17	mg/Kg wet	1.67		73.3	40-140			
Benzo(a)pyrene	1.14	0.17	mg/Kg wet	1.67		68.5	40-140			
Benzo(b)fluoranthene	1.03	0.17	mg/Kg wet	1.67		61.9	40-140			
Benzo(g,h,i)perylene	1.36	0.17	mg/Kg wet	1.67		81.7	40-140			
Benzo(k)fluoranthene	1.22	0.17	mg/Kg wet	1.67		73.3	40-140			
Chrysene	1.18	0.17	mg/Kg wet	1.67		70.9	40-140			
Dibenz(a,h)anthracene	1.37	0.17	mg/Kg wet	1.67		82.2	40-140			
Fluoranthene	1.42	0.17	mg/Kg wet	1.67		85.3	40-140			
Fluorene	1.35	0.17	mg/Kg wet	1.67		81.1	40-140			
Indeno(1,2,3-cd)pyrene	1.42	0.17	mg/Kg wet	1.67		85.4	40-140			
2-Methylnaphthalene	1.36	0.17	mg/Kg wet	1.67		81.6	40-140			
Naphthalene	1.28	0.17	mg/Kg wet	1.67		76.9	40-140			
Phenanthrene	1.26	0.17	mg/Kg wet	1.67		75.6	40-140			
Pyrene	1.38	0.17	mg/Kg wet	1.67		82.7	40-140			
Surrogate: Nitrobenzene-d5	2.69		mg/Kg wet	3.33		80.6	30-130			
Surrogate: 2-Fluorobiphenyl	2.72		mg/Kg wet	3.33		81.7	30-130			
Surrogate: p-Terphenyl-d14	2.95		mg/Kg wet	3.33		88.4	30-130			

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**QUALITY CONTROL**
**Semivolatile Organic Compounds by GC/MS - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B318913 - SW-846 3546</b>									
<b>LCS Dup (B318913-BSD1)</b>									
					Prepared: 10/05/22 Analyzed: 10/07/22				
Acenaphthene	1.16	0.17	mg/Kg wet	1.67		69.9 40-140	0.883	30	
Acenaphthylene	1.29	0.17	mg/Kg wet	1.67		77.3 40-140	0.0259	30	
Anthracene	1.29	0.17	mg/Kg wet	1.67		77.4 40-140	0.883	30	
Benzo(a)anthracene	1.23	0.17	mg/Kg wet	1.67		74.1 40-140	1.00	30	
Benzo(a)pyrene	1.16	0.17	mg/Kg wet	1.67		69.6 40-140	1.53	30	
Benzo(b)fluoranthene	1.16	0.17	mg/Kg wet	1.67		69.3 40-140	11.4	30	
Benzo(g,h,i)perylene	1.39	0.17	mg/Kg wet	1.67		83.4 40-140	2.13	30	
Benzo(k)fluoranthene	1.26	0.17	mg/Kg wet	1.67		75.4 40-140	2.82	30	
Chrysene	1.21	0.17	mg/Kg wet	1.67		72.3 40-140	2.04	30	
Dibenz(a,h)anthracene	1.41	0.17	mg/Kg wet	1.67		84.5 40-140	2.71	30	
Fluoranthene	1.46	0.17	mg/Kg wet	1.67		87.4 40-140	2.41	30	
Fluorene	1.35	0.17	mg/Kg wet	1.67		81.1 40-140	0.0247	30	
Indeno(1,2,3-cd)pyrene	1.30	0.17	mg/Kg wet	1.67		78.3 40-140	8.72	30	
2-Methylnaphthalene	1.38	0.17	mg/Kg wet	1.67		82.6 40-140	1.22	30	
Naphthalene	1.30	0.17	mg/Kg wet	1.67		78.1 40-140	1.55	30	
Phenanthrene	1.27	0.17	mg/Kg wet	1.67		76.4 40-140	1.11	30	
Pyrene	1.43	0.17	mg/Kg wet	1.67		85.6 40-140	3.42	30	
Surrogate: Nitrobenzene-d5	2.73		mg/Kg wet	3.33		81.8 30-130			
Surrogate: 2-Fluorobiphenyl	2.75		mg/Kg wet	3.33		82.4 30-130			
Surrogate: p-Terphenyl-d14	3.00		mg/Kg wet	3.33		90.0 30-130			

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**QUALITY CONTROL**
**Polychlorinated Biphenyls By GC/ECD - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B318911 - SW-846 3546</b>										
<b>Blank (B318911-BLK1)</b>										
Prepared: 10/05/22 Analyzed: 10/08/22										
Aroclor-1016	ND	0.020	mg/Kg wet							
Aroclor-1016 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1221	ND	0.020	mg/Kg wet							
Aroclor-1221 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1232	ND	0.020	mg/Kg wet							
Aroclor-1232 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1242	ND	0.020	mg/Kg wet							
Aroclor-1242 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1248	ND	0.020	mg/Kg wet							
Aroclor-1248 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1254	ND	0.020	mg/Kg wet							
Aroclor-1254 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1260	ND	0.020	mg/Kg wet							
Aroclor-1260 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1262	ND	0.020	mg/Kg wet							
Aroclor-1262 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1268	ND	0.020	mg/Kg wet							
Aroclor-1268 [2C]	ND	0.020	mg/Kg wet							
Surrogate: Decachlorobiphenyl	0.237		mg/Kg wet	0.200		119	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.221		mg/Kg wet	0.200		110	30-150			
Surrogate: Tetrachloro-m-xylene	0.162		mg/Kg wet	0.200		81.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.157		mg/Kg wet	0.200		78.7	30-150			
<b>LCS (B318911-BS1)</b>										
Prepared: 10/05/22 Analyzed: 10/08/22										
Aroclor-1016	0.19	0.020	mg/Kg wet	0.200		96.4	40-140			
Aroclor-1016 [2C]	0.19	0.020	mg/Kg wet	0.200		94.5	40-140			
Aroclor-1260	0.18	0.020	mg/Kg wet	0.200		91.8	40-140			
Aroclor-1260 [2C]	0.17	0.020	mg/Kg wet	0.200		86.2	40-140			
Surrogate: Decachlorobiphenyl	0.238		mg/Kg wet	0.200		119	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.221		mg/Kg wet	0.200		111	30-150			
Surrogate: Tetrachloro-m-xylene	0.181		mg/Kg wet	0.200		90.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.176		mg/Kg wet	0.200		88.1	30-150			
<b>LCS Dup (B318911-BSD1)</b>										
Prepared: 10/05/22 Analyzed: 10/08/22										
Aroclor-1016	0.19	0.020	mg/Kg wet	0.200		92.7	40-140	3.89	30	
Aroclor-1016 [2C]	0.18	0.020	mg/Kg wet	0.200		91.3	40-140	3.39	30	
Aroclor-1260	0.18	0.020	mg/Kg wet	0.200		88.0	40-140	4.20	30	
Aroclor-1260 [2C]	0.17	0.020	mg/Kg wet	0.200		82.6	40-140	4.21	30	
Surrogate: Decachlorobiphenyl	0.229		mg/Kg wet	0.200		114	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.213		mg/Kg wet	0.200		106	30-150			
Surrogate: Tetrachloro-m-xylene	0.169		mg/Kg wet	0.200		84.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.163		mg/Kg wet	0.200		81.7	30-150			

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**QUALITY CONTROL**
**Petroleum Hydrocarbons Analyses - EPH - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B318897 - SW-846 3546</b>										
<b>Blank (B318897-BLK1)</b>										
Prepared: 10/05/22 Analyzed: 10/06/22										
C9-C18 Aliphatics	ND	10	mg/Kg wet							
C19-C36 Aliphatics	ND	10	mg/Kg wet							
Unadjusted C11-C22 Aromatics	ND	10	mg/Kg wet							
C11-C22 Aromatics	ND	10	mg/Kg wet							
Acenaphthene	ND	0.10	mg/Kg wet							
Acenaphthylene	ND	0.10	mg/Kg wet							
Anthracene	ND	0.10	mg/Kg wet							
Benzo(a)anthracene	ND	0.10	mg/Kg wet							
Benzo(a)pyrene	ND	0.10	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.10	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.10	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.10	mg/Kg wet							
Chrysene	ND	0.10	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.10	mg/Kg wet							
Fluoranthene	ND	0.10	mg/Kg wet							
Fluorene	ND	0.10	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.10	mg/Kg wet							
2-Methylnaphthalene	ND	0.10	mg/Kg wet							
Naphthalene	ND	0.10	mg/Kg wet							
Phenanthrene	ND	0.10	mg/Kg wet							
Pyrene	ND	0.10	mg/Kg wet							
Surrogate: Chlorooctadecane (COD)	4.02		mg/Kg wet	4.99		80.6	40-140			
Surrogate: o-Terphenyl (OTP)	4.04		mg/Kg wet	4.99		80.9	40-140			
Surrogate: 2-Bromonaphthalene	4.53		mg/Kg wet	4.99		90.7	40-140			
Surrogate: 2-Fluorobiphenyl	4.69		mg/Kg wet	4.99		94.0	40-140			
<b>LCS (B318897-BS1)</b>										
Prepared: 10/05/22 Analyzed: 10/06/22										
C9-C18 Aliphatics	23.9	10	mg/Kg wet	29.9		79.8	40-140			
C19-C36 Aliphatics	36.5	10	mg/Kg wet	39.9		91.5	40-140			
Unadjusted C11-C22 Aromatics	79.0	10	mg/Kg wet	84.7		93.2	40-140			
Acenaphthene	4.01	0.10	mg/Kg wet	4.98		80.6	40-140			
Acenaphthylene	3.80	0.10	mg/Kg wet	4.98		76.2	40-140			
Anthracene	4.23	0.10	mg/Kg wet	4.98		84.9	40-140			
Benzo(a)anthracene	4.71	0.10	mg/Kg wet	4.98		94.6	40-140			
Benzo(a)pyrene	4.78	0.10	mg/Kg wet	4.98		95.9	40-140			
Benzo(b)fluoranthene	4.72	0.10	mg/Kg wet	4.98		94.8	40-140			
Benzo(g,h,i)perylene	4.55	0.10	mg/Kg wet	4.98		91.4	40-140			
Benzo(k)fluoranthene	4.13	0.10	mg/Kg wet	4.98		82.8	40-140			
Chrysene	4.54	0.10	mg/Kg wet	4.98		91.2	40-140			
Dibenz(a,h)anthracene	4.65	0.10	mg/Kg wet	4.98		93.4	40-140			
Fluoranthene	4.44	0.10	mg/Kg wet	4.98		89.1	40-140			
Fluorene	4.26	0.10	mg/Kg wet	4.98		85.6	40-140			
Indeno(1,2,3-cd)pyrene	4.83	0.10	mg/Kg wet	4.98		96.9	40-140			
2-Methylnaphthalene	3.93	0.10	mg/Kg wet	4.98		78.9	40-140			
Naphthalene	3.60	0.10	mg/Kg wet	4.98		72.2	40-140			
Phenanthrene	4.45	0.10	mg/Kg wet	4.98		89.3	40-140			
Pyrene	4.54	0.10	mg/Kg wet	4.98		91.1	40-140			
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	4.98			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	4.98			0-5			
Surrogate: Chlorooctadecane (COD)	4.10		mg/Kg wet	4.98		82.3	40-140			
Surrogate: o-Terphenyl (OTP)	4.27		mg/Kg wet	4.98		85.7	40-140			
Surrogate: 2-Bromonaphthalene	4.43		mg/Kg wet	4.98		88.9	40-140			

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**QUALITY CONTROL**
**Petroleum Hydrocarbons Analyses - EPH - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B318897 - SW-846 3546</b>										
<b>LCS (B318897-BS1)</b>					Prepared: 10/05/22 Analyzed: 10/06/22					
Surrogate: 2-Fluorobiphenyl	4.65		mg/Kg wet	4.98		93.4	40-140			
<b>LCS Dup (B318897-BSD1)</b>					Prepared: 10/05/22 Analyzed: 10/06/22					
C9-C18 Aliphatics	24.8	10	mg/Kg wet	29.9		82.9	40-140	3.96	25	
C19-C36 Aliphatics	39.3	10	mg/Kg wet	39.9		98.4	40-140	7.35	25	
Unadjusted C11-C22 Aromatics	81.4	10	mg/Kg wet	84.8		96.0	40-140	3.11	25	
Acenaphthene	4.08	0.10	mg/Kg wet	4.99		81.8	40-140	1.70	25	
Acenaphthylene	3.86	0.10	mg/Kg wet	4.99		77.3	40-140	1.63	25	
Anthracene	4.37	0.10	mg/Kg wet	4.99		87.6	40-140	3.32	25	
Benzo(a)anthracene	4.93	0.10	mg/Kg wet	4.99		98.7	40-140	4.41	25	
Benzo(a)pyrene	5.02	0.10	mg/Kg wet	4.99		101	40-140	4.83	25	
Benzo(b)fluoranthene	4.92	0.10	mg/Kg wet	4.99		98.6	40-140	4.04	25	
Benzo(g,h,i)perylene	4.79	0.10	mg/Kg wet	4.99		96.0	40-140	5.14	25	
Benzo(k)fluoranthene	4.32	0.10	mg/Kg wet	4.99		86.6	40-140	4.60	25	
Chrysene	4.77	0.10	mg/Kg wet	4.99		95.6	40-140	4.90	25	
Dibenz(a,h)anthracene	4.89	0.10	mg/Kg wet	4.99		97.9	40-140	4.94	25	
Fluoranthene	4.62	0.10	mg/Kg wet	4.99		92.7	40-140	4.06	25	
Fluorene	4.35	0.10	mg/Kg wet	4.99		87.2	40-140	2.02	25	
Indeno(1,2,3-cd)pyrene	5.05	0.10	mg/Kg wet	4.99		101	40-140	4.63	25	
2-Methylnaphthalene	3.98	0.10	mg/Kg wet	4.99		79.7	40-140	1.20	25	
Naphthalene	3.64	0.10	mg/Kg wet	4.99		73.0	40-140	1.30	25	
Phenanthrene	4.57	0.10	mg/Kg wet	4.99		91.5	40-140	2.62	25	
Pyrene	4.72	0.10	mg/Kg wet	4.99		94.6	40-140	3.89	25	
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	4.99			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	4.99			0-5			
Surrogate: Chlorooctadecane (COD)	4.29		mg/Kg wet	4.99		86.0	40-140			
Surrogate: o-Terphenyl (OTP)	4.28		mg/Kg wet	4.99		85.9	40-140			
Surrogate: 2-Bromonaphthalene	4.84		mg/Kg wet	4.99		96.9	40-140			
Surrogate: 2-Fluorobiphenyl	4.91		mg/Kg wet	4.99		98.4	40-140			

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**QUALITY CONTROL**
**Metals Analyses (Total) - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B318778 - SW-846 3050B</b>										
<b>Blank (B318778-BLK1)</b> Prepared: 10/04/22 Analyzed: 10/05/22										
Arsenic	ND	3.3	mg/Kg wet							
Cadmium	ND	0.33	mg/Kg wet							
Chromium	ND	0.66	mg/Kg wet							
Copper	ND	0.66	mg/Kg wet							
Lead	ND	0.49	mg/Kg wet							
Nickel	ND	0.66	mg/Kg wet							
Zinc	ND	0.66	mg/Kg wet							
<b>LCS (B318778-BS1)</b> Prepared: 10/04/22 Analyzed: 10/05/22										
Arsenic	69.9	9.9	mg/Kg wet	63.0		111	82.2-117.6			
Cadmium	72.5	0.99	mg/Kg wet	66.6		109	82-117.9			
Chromium	75.8	2.0	mg/Kg wet	69.3		109	81.7-118.3			
<b>Copper</b>	208	2.0	mg/Kg wet	175		<b>119</b> *	83.4-116.6			L-07
Lead	99.0	1.5	mg/Kg wet	85.7		115	82.6-117.9			
Nickel	80.4	2.0	mg/Kg wet	72.4		111	82.2-117.8			
Zinc	191	2.0	mg/Kg wet	174		110	80.5-119			
<b>LCS Dup (B318778-BSD1)</b> Prepared: 10/04/22 Analyzed: 10/05/22										
Arsenic	66.0	9.2	mg/Kg wet	63.0		105	82.2-117.6	5.71	30	
Cadmium	68.6	0.92	mg/Kg wet	66.6		103	82-117.9	5.54	20	
Chromium	70.8	1.8	mg/Kg wet	69.3		102	81.7-118.3	6.83	30	
Copper	194	1.8	mg/Kg wet	175		111	83.4-116.6	6.91	30	
Lead	93.9	1.4	mg/Kg wet	85.7		110	82.6-117.9	5.28	30	
Nickel	75.7	1.8	mg/Kg wet	72.4		105	82.2-117.8	6.07	30	
Zinc	181	1.8	mg/Kg wet	174		104	80.5-119	5.45	30	
<b>Reference (B318778-SRM1) MRL CHECK</b> Prepared: 10/04/22 Analyzed: 10/05/22										
Lead	0.462	0.49	mg/Kg wet	0.489		94.5	80-120			
<b>Batch B319132 - SW-846 7471</b>										
<b>Blank (B319132-BLK1)</b> Prepared: 10/07/22 Analyzed: 10/12/22										
Mercury	ND	0.025	mg/Kg wet							
<b>LCS (B319132-BS1)</b> Prepared: 10/07/22 Analyzed: 10/12/22										
Mercury	30.9	3.7	mg/Kg wet	25.6		121	67.2-132.8			
<b>LCS Dup (B319132-BSD1)</b> Prepared: 10/07/22 Analyzed: 10/12/22										
Mercury	26.5	3.7	mg/Kg wet	25.6		104	67.2-132.8	15.3	20	

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

**QUALITY CONTROL**
**Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B318951 - SW 846 9060A</b>										
<b>Blank (B318951-BLK1)</b>				Prepared & Analyzed: 10/06/22						
Total Organic Carbon	ND	100	mg/Kg wet							
<b>LCS (B318951-BS1)</b>				Prepared & Analyzed: 10/06/22						
Total Organic Carbon	699	100	mg/Kg wet	750		93.2	73.7-110			
<b>LCS Dup (B318951-BSD1)</b>				Prepared & Analyzed: 10/06/22						
Total Organic Carbon	599	100	mg/Kg wet	750		79.9	73.7-110	15.4	18.6	
<b>Duplicate (B318951-DUP1)</b>				<b>Source: 22J0144-01</b>		Prepared & Analyzed: 10/06/22				
Total Organic Carbon	14900	150	mg/Kg dry		15800			6.01	57.4	
<b>Matrix Spike (B318951-MS1)</b>				<b>Source: 22J0144-01</b>		Prepared & Analyzed: 10/06/22				
Total Organic Carbon	5450	150	mg/Kg dry	1110	15800	-932 *	85-115			MS-07





**FLAG/QUALIFIER SUMMARY**

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
L-07	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
MS-07	Matrix spike recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possibility of sample matrix effects that lead to low bias for reported result or non-homogeneous sample aliquot cannot be eliminated.
O-32	A dilution was performed as part of the standard analytical procedure.
RL-12	Elevated reporting limit due to matrix interference.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.
V-35	Initial calibration verification (ICV) did not meet method specifications and was biased on the high side for this compound. Reported result is estimated.

**CERTIFICATIONS**
**Certified Analyses included in this Report**

Analyte	Certifications
<b>MADEP EPH rev 2.1 in Soil</b>	
C9-C18 Aliphatics	CT,NC,ME,NH-P
C19-C36 Aliphatics	CT,NC,ME,NH-P
Unadjusted C11-C22 Aromatics	CT,NC,ME,NH-P
C11-C22 Aromatics	CT,NC,ME,NH-P
Acenaphthene	CT,NC,ME,NH-P
Acenaphthylene	CT,NC,ME,NH-P
Anthracene	CT,NC,ME,NH-P
Benzo(a)anthracene	CT,NC,ME,NH-P
Benzo(a)pyrene	CT,NC,ME,NH-P
Benzo(b)fluoranthene	CT,NC,ME,NH-P
Benzo(g,h,i)perylene	CT,NC,ME,NH-P
Benzo(k)fluoranthene	CT,NC,ME,NH-P
Chrysene	CT,NC,ME,NH-P
Dibenz(a,h)anthracene	CT,NC,ME,NH-P
Fluoranthene	CT,NC,ME,NH-P
Fluorene	CT,NC,ME
Indeno(1,2,3-cd)pyrene	CT,NC,ME,NH-P
2-Methylnaphthalene	CT,NC,ME
Naphthalene	CT,NC,ME,NH-P
Phenanthrene	CT,NC,ME,NH-P
Pyrene	CT,NC,ME,NH-P
<b>MADEP EPH rev 2.1 in Water</b>	
C9-C18 Aliphatics	CT,NC,ME,NH-P
C19-C36 Aliphatics	CT,NC,ME,NH-P
Unadjusted C11-C22 Aromatics	CT,NC,ME,NH-P
C11-C22 Aromatics	CT,NC,ME,NH-P
Acenaphthene	CT,NC,ME,NH-P
Acenaphthylene	CT,NC,ME,NH-P
Anthracene	CT,NC,ME,NH-P
Benzo(a)anthracene	CT,NC,ME,NH-P
Benzo(a)pyrene	CT,NC,ME,NH-P
Benzo(b)fluoranthene	CT,NC,ME,NH-P
Benzo(g,h,i)perylene	CT,NC,ME,NH-P
Benzo(k)fluoranthene	CT,NC,ME,NH-P
Chrysene	CT,NC,ME,NH-P
Dibenz(a,h)anthracene	CT,NC,ME,NH-P
Fluoranthene	CT,NC,ME,NH-P
Fluorene	CT,NC,ME
Indeno(1,2,3-cd)pyrene	CT,NC,ME,NH-P
2-Methylnaphthalene	CT,NC,ME
Naphthalene	CT,NC,ME,NH-P
Phenanthrene	CT,NC,ME,NH-P
Pyrene	CT,NC,ME,NH-P
<b>SW-846 6010D in Product/Solid</b>	
Arsenic	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC

**CERTIFICATIONS**
**Certified Analyses included in this Report**

Analyte	Certifications
<b><i>SW-846 6010D in Product/Solid</i></b>	
Chromium	CT,NH,NY,ME,VA,NC
Copper	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
<b><i>SW-846 6010D in Soil</i></b>	
Arsenic	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Copper	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
<b><i>SW-846 6010D in Water</i></b>	
Arsenic	CT,NH,NY,ME,VA,RI,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Copper	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
<b><i>SW-846 7471B in Soil</i></b>	
Mercury	CT,NH,NY,NC,ME,VA
<b><i>SW-846 8082A in Soil</i></b>	
Aroclor-1016	CT,NH,NY,NC,ME,VA,PA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1262	NH,NY,NC,ME,VA,PA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA,PA
Aroclor-1268	NH,NY,NC,ME,VA,PA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA,PA
<b><i>SW-846 8082A in Water</i></b>	
Aroclor-1016	CT,NH,NY,NC,ME,VA,PA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA,PA

**CERTIFICATIONS**
**Certified Analyses included in this Report**

Analyte	Certifications
<b><i>SW-846 8082A in Water</i></b>	
Aroclor-1221	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1262	NH,NY,NC,ME,VA,PA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA,PA
Aroclor-1268	NH,NY,NC,ME,VA,PA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA,PA
<b><i>SW-846 8260D in Soil</i></b>	
Acetone	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
1,2-Dibromo-3-chloropropane (DBCP)	NY
1,2-Dibromoethane (EDB)	NY
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME

**CERTIFICATIONS**
**Certified Analyses included in this Report**

Analyte	Certifications
<b><i>SW-846 8260D in Soil</i></b>	
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
1,4-Dioxane	NY
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NH,NY
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
Naphthalene	NH,NY,ME
n-Propylbenzene	NH,NY
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NY
1,2,4-Trichlorobenzene	NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
<b><i>SW-846 8270E in Soil</i></b>	
Acenaphthene	CT,NY,NH,ME,NC,VA
Acenaphthylene	CT,NY,NH,ME,NC,VA
Anthracene	CT,NY,NH,ME,NC,VA
Benzo(a)anthracene	CT,NY,NH,ME,NC,VA
Benzo(a)pyrene	CT,NY,NH,ME,NC,VA
Benzo(b)fluoranthene	CT,NY,NH,ME,NC,VA
Benzo(g,h,i)perylene	CT,NY,NH,ME,NC,VA
Benzo(k)fluoranthene	CT,NY,NH,ME,NC,VA

**CERTIFICATIONS**

**Certified Analyses included in this Report**

Analyte	Certifications
<b>SW-846 8270E in Soil</b>	
Chrysene	CT,NY,NH,ME,NC,VA
Dibenz(a,h)anthracene	CT,NY,NH,ME,NC,VA
Fluoranthene	CT,NY,NH,ME,NC,VA
Fluorene	CT,NY,NH,ME,NC,VA
Indeno(1,2,3-cd)pyrene	CT,NY,NH,ME,NC,VA
2-Methylnaphthalene	CT,NY,NH,ME,NC,VA
Naphthalene	CT,NY,NH,ME,NC,VA
Phenanthrene	CT,NY,NH,ME,NC,VA
Pyrene	CT,NY,NH,ME,NC,VA

<b>SW-846 8270E in Water</b>	
Acenaphthene	CT,NY,NH,ME,NC,VA
Acenaphthylene	CT,NY,NH,ME,NC,VA
Anthracene	CT,NY,NH,ME,NC,VA
Benzo(a)anthracene	CT,NY,NH,ME,NC,VA
Benzo(a)pyrene	CT,NY,NH,ME,NC,VA
Benzo(b)fluoranthene	CT,NY,NH,ME,NC,VA
Benzo(g,h,i)perylene	CT,NY,NH,ME,NC,VA
Benzo(k)fluoranthene	CT,NY,NH,ME,NC,VA
Chrysene	CT,NY,NH,ME,NC,VA
Dibenz(a,h)anthracene	CT,NY,NH,ME,NC,VA
Fluoranthene	CT,NY,NH,ME,NC,VA
Fluorene	CT,NY,NH,ME,NC,VA
Indeno(1,2,3-cd)pyrene	CT,NY,NH,ME,NC,VA
2-Methylnaphthalene	CT,NY,NH,ME,NC,VA
Naphthalene	CT,NY,NH,ME,NC,VA
Phenanthrene	CT,NY,NH,ME,NC,VA
Pyrene	CT,NY,NH,ME,NC,VA

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO 17025:2017	100033	03/1/2024
CT	Connecticut Department of Public Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2023
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2023
RI	Rhode Island Department of Health	LAO00373	12/30/2022
NC	North Carolina Div. of Water Quality	652	12/31/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2022
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2023



39 Spruce St.  
 East Longmeadow, MA. 01028  
 P: 413-525-2332  
 F: 413-525-6405  
 www.pacelabs.com



Doc# 277 Rev 6 July 2022

**Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False**

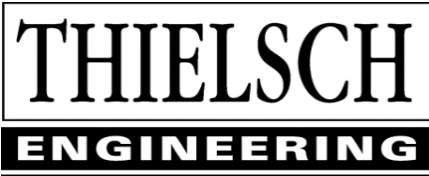
Client F + O'Neill  
 Received By VAP Date 10/3 Time 12:34  
 How were the samples received? In Cooler T No Cooler \_\_\_\_\_ On Ice T No Ice \_\_\_\_\_  
 Direct From Sample \_\_\_\_\_ Ambient \_\_\_\_\_ Melted Ice \_\_\_\_\_  
 Were samples within Temperature? Within 2-6°C T By Gun # 5 Actual Temp - 5.9  
 By Blank # \_\_\_\_\_ Actual Temp - \_\_\_\_\_  
 Was Custody Seal In tact? NA Were Samples Tampered with? NA  
 Was COC Relinquished? T Does Chain Agree With Samples? T  
 Are there broken/leaking/loose caps on any samples? F  
 Is COC in ink/ Legible? T Were samples received within holding time? T  
 Did COC include all pertinent Information? Client? T Analysis? T Sampler Name? T  
 Project? T ID's? T Collection Dates/Times? T  
 Are Sample labels filled out and legible? T  
 Are there Lab to Filters? F Who was notified? \_\_\_\_\_  
 Are there Rushes? F Who was notified? \_\_\_\_\_  
 Are there Short Holds? F Who was notified? \_\_\_\_\_  
 Samples are received within holding time? T Is there enough Volume? T  
 Is there Headspace where applicable? F MS/MSD? F  
 Proper Media/Containers Used? T splitting samples require F  
 Were trip blanks receive F On COC? F  
 Do All Samples Have the proper pH? NA Acid \_\_\_\_\_ Base \_\_\_\_\_

Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb. <u>2</u>
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear <u>2</u>
Meoh-	<u>2</u>	250 mL Amb.		250 mL Plastic	4oz Amb/Clear <u>2</u>
Bisulfate-	<u>4</u>	Col./Bacteria		Flashpoint	2oz Amb/Clear
DI-		Other Plastic		Other Glass	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

**Unused Media**

Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint	2oz Amb/Clear
DI-		Other Plastic		Other Glass	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

**Comments:**



195 Frances Avenue  
 Cranston RI, 02910  
 Phone: (401)-467-6454  
 Fax: (401)-467-2398  
[thielsch.com](http://thielsch.com)  
*Let's Build a Solid Foundation*

Client Information:  
 Fuss & O'Neill  
 North Quincy, MA  
 PM: Matt Kissane  
 Assigned By: Matt Kissane  
 Collected By: Client

Project Information:  
**South Hadley**  
**South Hadley, MA**  
 F&O Project Number: 20170390.V30  
 Summary Page: 1 of 1  
 Report Date: 10.21.2021

**LABORATORY TESTING DATA SHEET, Report No.: 7421-K-B014**

Material Source	Sample No.	Depth (Ft)	Laboratory No.	Identification Tests								Proctor / CBR / Permeability Tests							Laboratory Log and Soil Description		
				As Received Water Content %	LL %	PL %	Gravel %	Sand %	Fines %	Org. %	G <sub>s</sub>	Dry unit wt. pcf	Test Water Content %	$\gamma_d$ MAX (pcf) W <sub>opt</sub> (%)	$\gamma_d$ MAX (pcf) W <sub>opt</sub> (%) (Corr.)	Target Test Setup as % of Proctor	CBR @ 0.1"	CBR @ 0.2"		Permeability cm/sec	
				D2216	D4318		D6913			D2974	D854			D1557							
Sediment	1543211012-04	N/A	21-S-B308	64.2			0.0	80.0	20.0											Dark Brown silty sand (SM)	

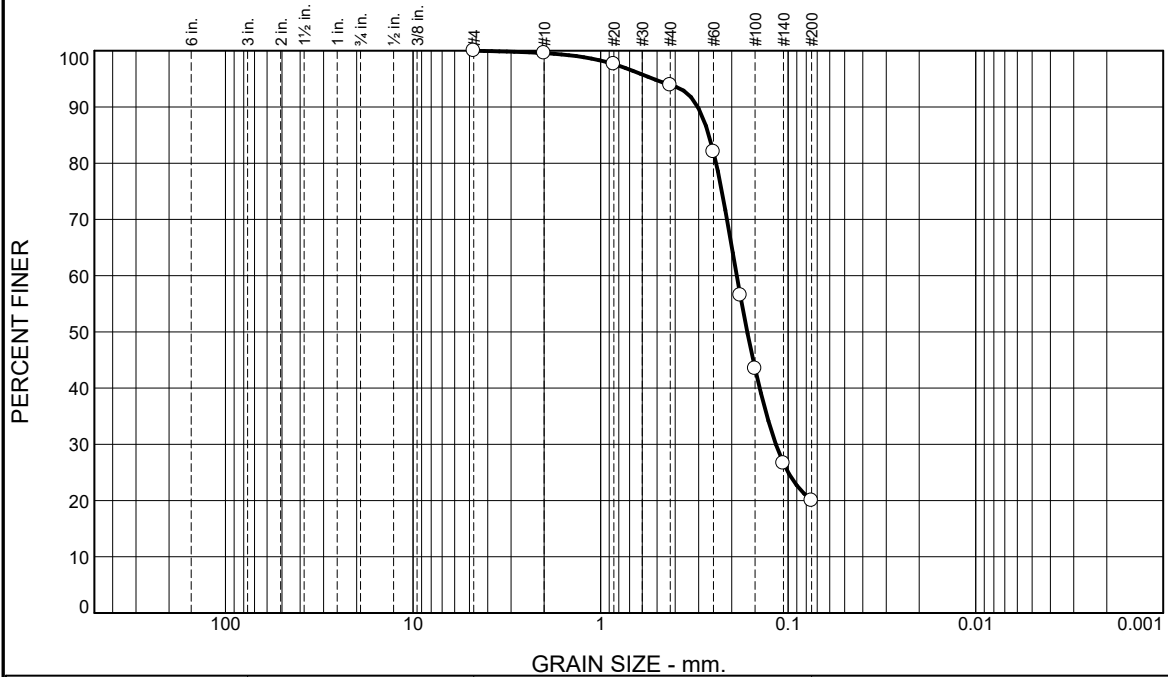
Date Received: 10.13.21

Reviewed By: *Christopher M. Cohen*

Date Reviewed: 10.21.21

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 This report shall not be reproduced, except in full, without prior written approval from the Agency, as defined in ASTM E329.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	5.7	73.9	20.0	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.6		
#20	97.6		
#40	93.9		
#60	82.0		
#80	56.5		
#100	43.5		
#140	26.7		
#200	20.0		

\* (no specification provided)

**Material Description**

Dark Brown silty sand (SM)

**Atterberg Limits (ASTM D 4318)**

PL= NP                      LL= NV                      PI= NP

**Classification**

USCS (D 2487)= SM                      AASHTO (M 145)= A-2-4(0)

**Coefficients**

D<sub>90</sub>= 0.3030                      D<sub>85</sub>= 0.2643                      D<sub>60</sub>= 0.1879  
D<sub>50</sub>= 0.1651                      D<sub>30</sub>= 0.1162                      D<sub>15</sub>=  
D<sub>10</sub>=                                      C<sub>u</sub>=                                      C<sub>c</sub>=

**Remarks**

Sample received with standing water.

Date Received: 10/13/21                      Date Tested: 10/20/21

Tested By: DN

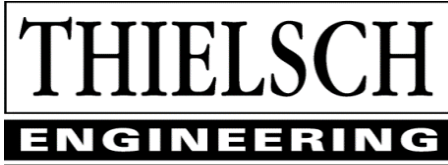
Checked By: Christina Colman

Title: Laboratory Coordinator

Source of Sample: Sediment  
Sample Number: 1543211012-04

Date Sampled:

<b>Thielsch Engineering Inc.</b>	Client: Fuss & O'Neill
<b>Cranston, RI</b>	Project: South Hadley, MA
<b>Project No: 20170390.V30</b>	<b>Figure 21-S-B308</b>



195 Frances Avenue  
 Cranston RI, 02910  
 Phone: (401)-467-6454  
 Fax: (401)-467-2398  
[thielsch.com](http://thielsch.com)  
*Let's Build a Solid Foundation*

Client Information:  
 Fuss & O'Neill  
 Springfield, MA  
 PM: Julianne Busa  
 Assigned By: Juliane Busa  
 Collected By: Michael Soares

Project Information:  
**Queensville Dam Removal Feasibility Study**  
**South Hadley, MA**  
 F&ON Project Number: 20170390.V30  
 Summary Page: 1 of 1  
 Report Date: 11.17.21

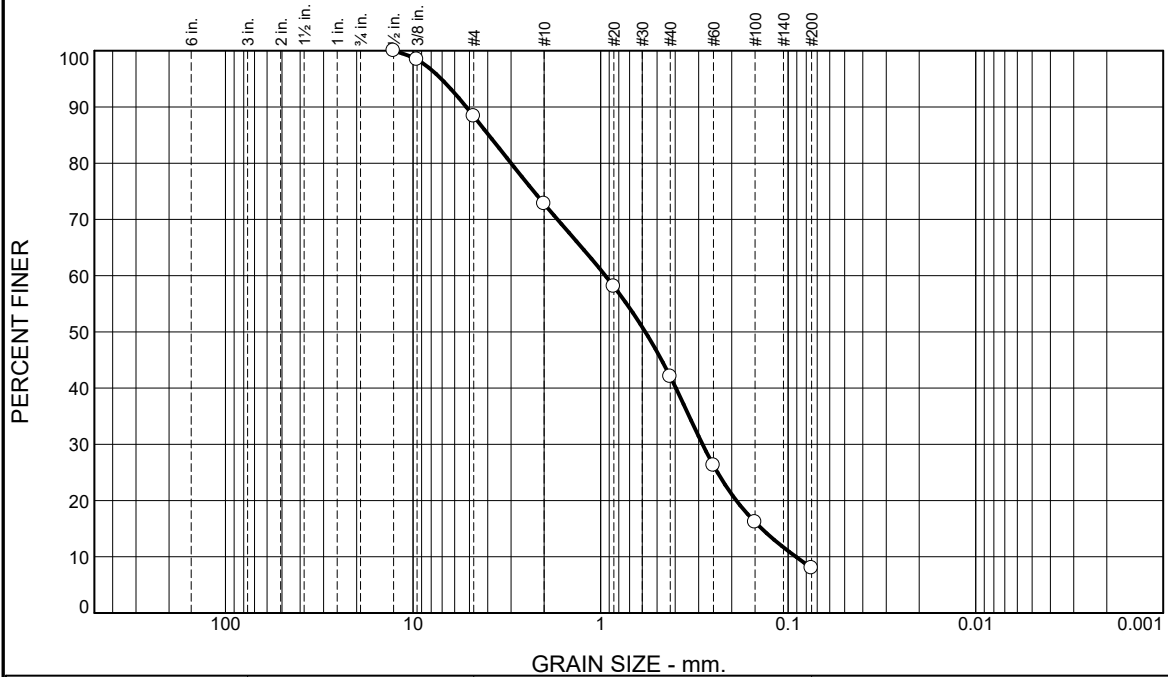
**LABORATORY TESTING DATA SHEET, Report No.: 7421-L-132**

Source	Sample No.	Depth (Ft)	Laboratory No.	Identification Tests								Proctor / CBR / Permeability Tests							Laboratory Log and Soil Description	
				As Received Moisture Content %	LL %	PL %	Gravel %	Sand %	Fines %	Org. %	G <sub>s</sub>	Dry unit wt. pcf	Test Moisture Content %	γ <sub>d</sub> MAX (pcf) W <sub>opt</sub> (%)	γ <sub>d</sub> MAX (pcf) W <sub>opt</sub> (%) (Corr.)	Target Test Setup as % of Proctor	CBR @ 0.1"	CBR @ 0.2"		Permeability cm/sec
				D2216	D4318		D6913			D2974	D854			D1557						
Sediment	20211022-E510	-	21-S-4308				11.6	80.4	8.0											Brown poorly graded sand with silt
Sediment	20211022-E552	-	21-S-4309				9.1	49.3	41.6											Brown silty sand
Sediment	20211022-F623	-	21-S-4310				0.8	88.0	11.2											Brown poorly graded sand with silt
Sediment	20211022-F642	-	21-S-4311				21.0	26.5	52.5											Brown sandy silt with gravel
Sediment	20211022-G702	-	21-S-4312				6.8	87.2	6.0											Brown poorly graded sand with silt

Date Received: 11.10.17 Reviewed By: SKW Date Reviewed: 11.17.21

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# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	11.6	15.6	30.8	34.0	8.0	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.5"	100.0		
0.375"	98.4		
#4	88.4		
#10	72.8		
#20	58.1		
#40	42.0		
#60	26.3		
#100	16.2		
#200	8.0		

\* (no specification provided)

**Material Description**

Brown poorly graded sand with silt

**Atterberg Limits (ASTM D 4318)**

PL= NP                      LL= NV                      PI= NP

**Classification**

USCS (D 2487)= SP-SM    AASHTO (M 145)= A-1-b

**Coefficients**

D <sub>90</sub> = 5.2043	D <sub>85</sub> = 3.9463	D <sub>60</sub> = 0.9437
D <sub>50</sub> = 0.5778	D <sub>30</sub> = 0.2859	D <sub>15</sub> = 0.1383
D <sub>10</sub> = 0.0909	C <sub>u</sub> = 10.38	C <sub>c</sub> = 0.95

Remarks

Date Received: 11.10.17      Date Tested: 11.17.21

Tested By: SL

Checked By: Steven Accetta

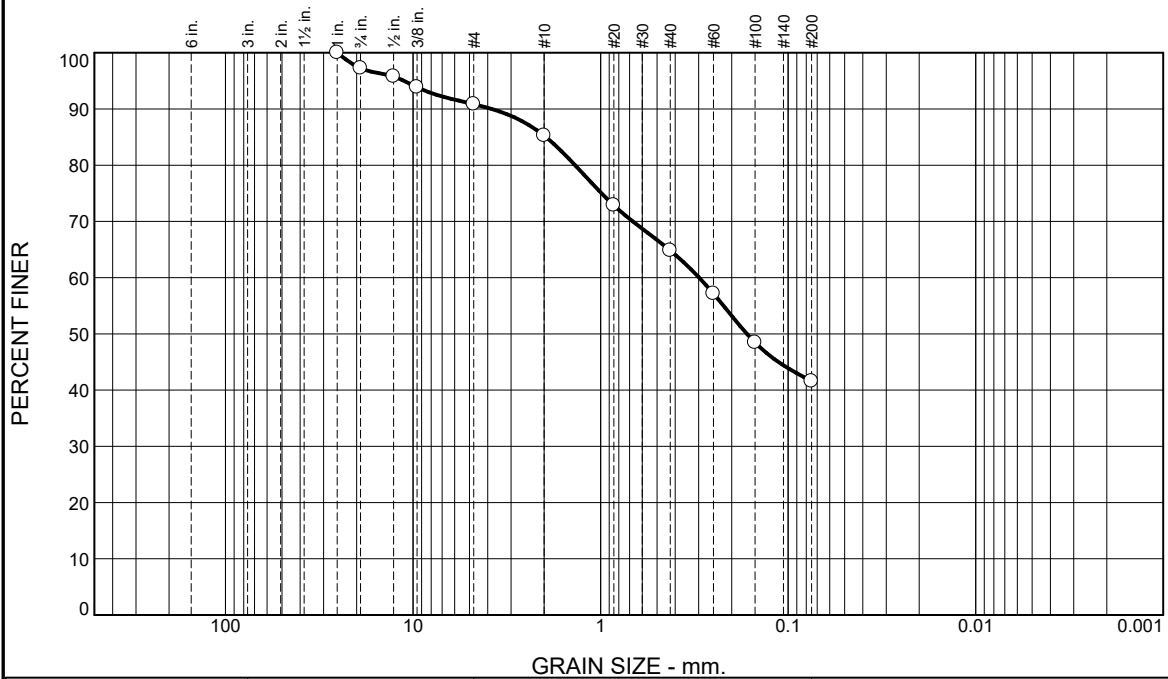
Title: Laboratory Coordinator

Source of Sample: Sediment  
 Sample Number: 20211022-E510

Date Sampled:

<p><b>Thielsch Engineering Inc.</b></p> <p style="text-align: center;"><b>Cranston, RI</b></p>	<p>Client: Fuss &amp; O'Neill</p> <p>Project: Queensville Dam Removal Feasibility Study          South Hadley, MA</p> <p>Project No: 20170390.V30</p>
<p>Figure 21-S-4308</p>	

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.8	6.3	5.6	20.5	23.2	41.6	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	97.2		
0.5"	95.8		
0.375"	93.9		
#4	90.9		
#10	85.3		
#20	72.9		
#40	64.8		
#60	57.2		
#100	48.5		
#200	41.6		

\* (no specification provided)

**Material Description**

Brown silty sand

**Atterberg Limits (ASTM D 4318)**

PL= 31                      LL= 39                      PI= 8

**Classification**

USCS (D 2487)= SM                      AASHTO (M 145)= A-4(1)

**Coefficients**

D<sub>90</sub>= 3.7992                      D<sub>85</sub>= 1.9553                      D<sub>60</sub>= 0.2982  
D<sub>50</sub>= 0.1658                      D<sub>30</sub>=                                      D<sub>15</sub>=  
D<sub>10</sub>=                                      C<sub>u</sub>=                                      C<sub>c</sub>=

**Remarks**

Sample visually classified as plastic. Sample rolled to 1/8".

Date Received: 11.10.17                      Date Tested: 11.17.21

Tested By: SL

Checked By: Steven Accetta

Title: Laboratory Coordinator

Source of Sample: Sediment  
Sample Number: 20211022-E552

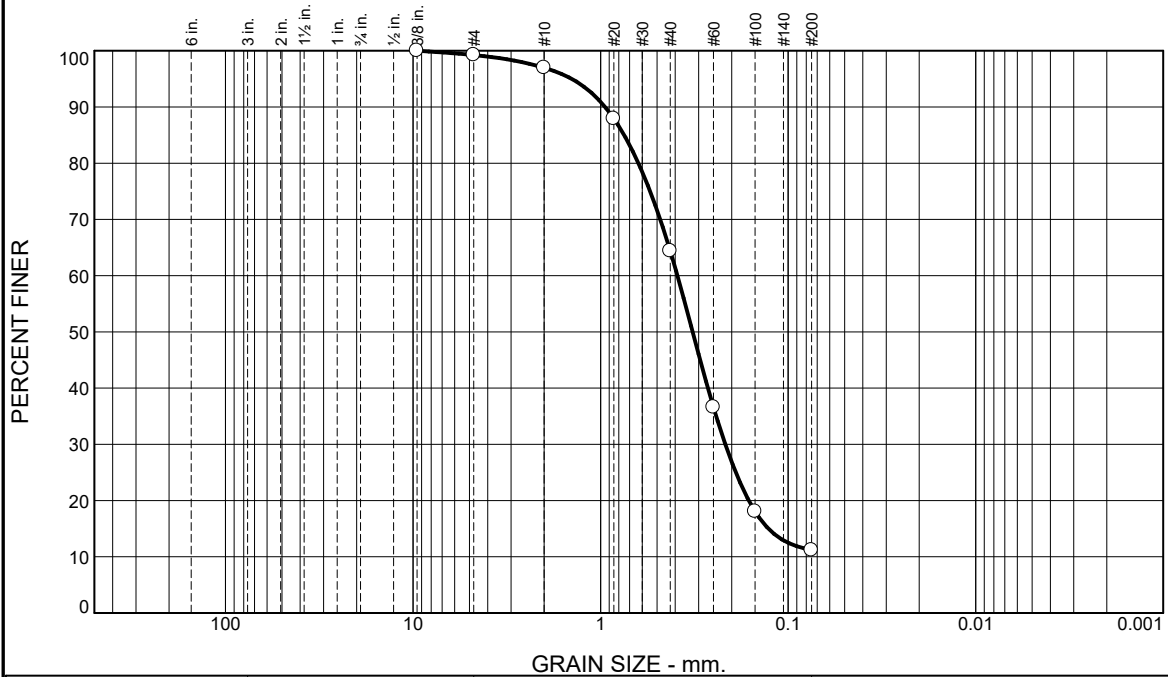
Date Sampled:

**Thielsch Engineering Inc.**  
  
**Cranston, RI**

Client: Fuss & O'Neill  
Project: Queensville Dam Removal Feasibility Study  
South Hadley, MA  
Project No: 20170390.V30

Figure 21-S-4309

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	2.2	32.6	53.2	11.2	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.375"	100.0		
#4	99.2		
#10	97.0		
#20	87.9		
#40	64.4		
#60	36.6		
#100	18.1		
#200	11.2		

\* (no specification provided)

**Material Description**

Brown poorly graded sand with silt

**Atterberg Limits (ASTM D 4318)**

PL= NP                      LL= NV                      PI= NP

**Classification**

USCS (D 2487)= SP-SM    AASHTO (M 145)= A-2-4(0)

**Coefficients**

D<sub>90</sub>= 0.9468              D<sub>85</sub>= 0.7488              D<sub>60</sub>= 0.3894  
D<sub>50</sub>= 0.3230              D<sub>30</sub>= 0.2162              D<sub>15</sub>= 0.1274  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

Remarks

Date Received: 11.10.21      Date Tested: 11.17.21

Tested By: SL

Checked By: Steven Accetta

Title: Laboratory Coordinator

Source of Sample: Sediment  
Sample Number: 20211022-F623

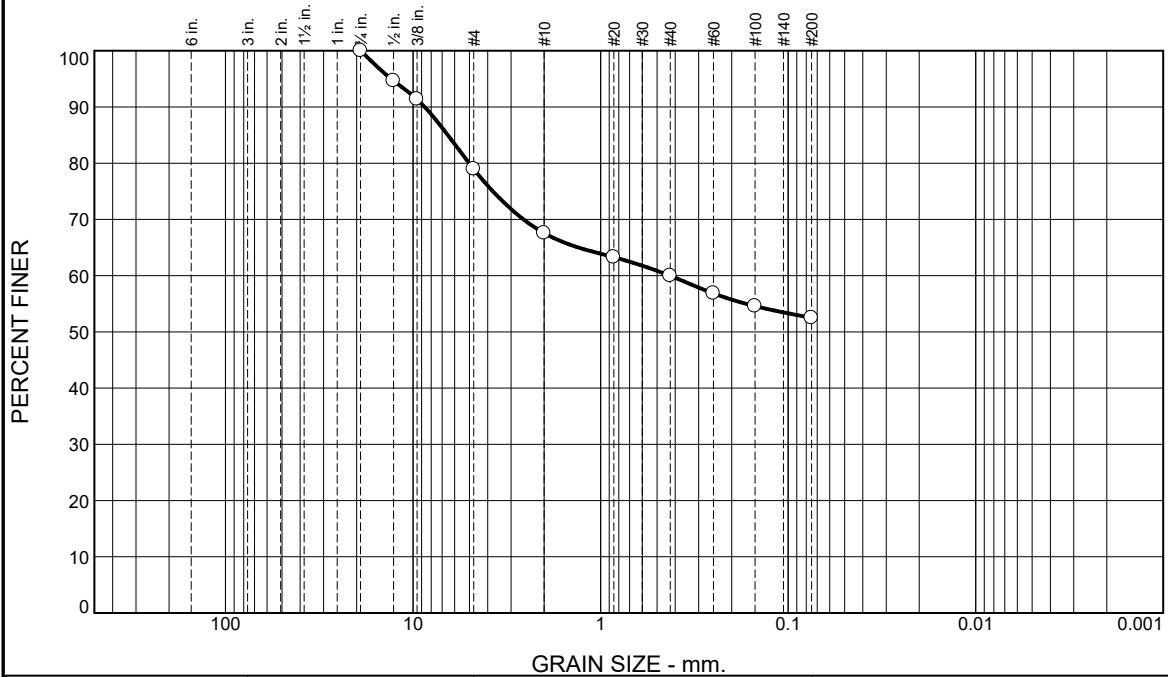
Date Sampled:

**Thielsch Engineering Inc.**  
  
**Cranston, RI**

Client: Fuss & O'Neill  
Project: Queensville Dam Removal Feasibility Study  
South Hadley, MA  
Project No: 20170390.V30

Figure 21-S-4310

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	21.0	11.4	7.6	7.5	52.5	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	94.7		
0.375"	91.4		
#4	79.0		
#10	67.6		
#20	63.3		
#40	60.0		
#60	56.8		
#100	54.6		
#200	52.5		

**Material Description**

Brown sandy silt with gravel

**Atterberg Limits (ASTM D 4318)**

PL= NP                      LL= NV                      PI= NP

**Classification**

USCS (D 2487)= ML                      AASHTO (M 145)= A-4(0)

**Coefficients**

D<sub>90</sub>= 8.6611                      D<sub>85</sub>= 6.5197                      D<sub>60</sub>= 0.4270  
D<sub>50</sub>=                                      D<sub>30</sub>=                                      D<sub>15</sub>=  
D<sub>10</sub>=                                      C<sub>u</sub>=                                      C<sub>c</sub>=

**Remarks**

Sample visually classified as non-plastic.

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Date Received: 11.10.21                      Date Tested: 11.17.21

Tested By: SL

Checked By: Steven Accetta

Title: Laboratory Coordinator

\* (no specification provided)

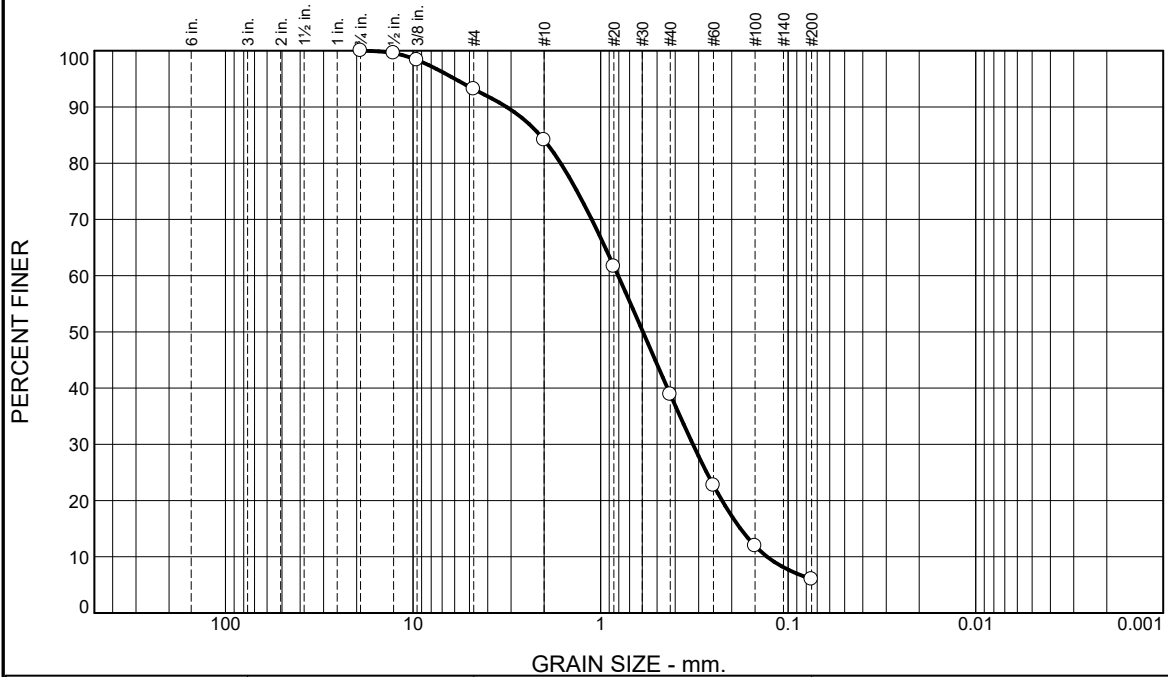
Source of Sample: Sediment  
Sample Number: 20211022-F642

Date Sampled:

<b>Thielsch Engineering Inc.</b>  <b>Cranston, RI</b>	<b>Client:</b> Fuss & O'Neill <b>Project:</b> Queensville Dam Removal Feasibility Study South Hadley, MA <b>Project No:</b> 20170390.V30
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**Figure** 21-S-4311

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.8	9.1	45.2	32.9	6.0	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	99.6		
0.375"	98.4		
#4	93.2		
#10	84.1		
#20	61.7		
#40	38.9		
#60	22.7		
#100	11.9		
#200	6.0		

\* (no specification provided)

**Material Description**

Brown poorly graded sand with silt

**Atterberg Limits (ASTM D 4318)**

PL= NP                      LL= NV                      PI= NP

**Classification**

USCS (D 2487)= SP-SM    AASHTO (M 145)= A-1-b

**Coefficients**

D <sub>90</sub> = 3.1695	D <sub>85</sub> = 2.1053	D <sub>60</sub> = 0.8071
D <sub>50</sub> = 0.5946	D <sub>30</sub> = 0.3218	D <sub>15</sub> = 0.1794
D <sub>10</sub> = 0.1293	C <sub>u</sub> = 6.24	C <sub>c</sub> = 0.99

Remarks

Date Received: 11.10.21      Date Tested: 11.17.21

Tested By: SL

Checked By: Steven Accetta

Title: Laboratory Coordinator

Source of Sample: Sediment  
Sample Number: 20211022-G702

Date Sampled:

<b>Thielsch Engineering Inc.</b>  <b>Cranston, RI</b>	<b>Client:</b> Fuss & O'Neill <b>Project:</b> Queensville Dam Removal Feasibility Study South Hadley, MA <b>Project No:</b> 20170390.V30
<b>Figure</b> 21-S-4312	