



Maura Healey, Governor
Kimberley Driscoll, Lieutenant Governor
Monica Tibbitts-Nutt, Secretary & CEO
Jonathan L. Gulliver, Highway Administrator



October 29, 2024

608930-128034

ADDENDUM NO. 1

To Prospective Bidders and Others on:

LAWRENCE
Federal Aid Project No. CMQ-003S(733)X
Lawrence Manchester Rail Corridor (LMRC) Rail Trail

PROPOSAL TO BE OPENED AND READ: TUESDAY, NOVEMBER 19, 2024 at 2:00 P.M

Transmitting changes to the Contract Documents as follows:

<u>DOCUMENT 00010:</u>	Revised page 4.
<u>DOCUMENT 00813:</u>	Deleted document in its entirety and inserted new document (4 pages).
<u>DOCUMENT A00881:</u>	Inserted new Document (438 pages).
<u>DOCUMENT A00882:</u>	Inserted new Document (14 pages).

Take note of the above, substitute revised page for original, delete document as noted, insert new documents in proper order, and acknowledge Addendum No. 1 in your Expedite Proposal file before submitting your bid.

Sincerely,

Eric M. Cardone, P.E.
Construction Contracts Engineer

HA
cc: Lawrence Cash, Project Manager

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① Addendum No. 1, October 29, 2024

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SPECIAL PROVISIONS

PRICE ADJUSTMENTS FOR STRUCTURAL STEEL AND REINFORCING STEEL

October 17, 2024

This special provision applies to all projects containing the use of structural steel and/or reinforcing steel as specified elsewhere in the Contract work. It applies to all structural steel and all reinforcing steel, as defined below, on the project. Compliance with this provision is mandatory, i.e., there are no “opt-in” or “opt-out” clauses. Price adjustments will be handled as described below and shall only apply to unfabricated reinforcing steel bars and unfabricated structural steel material, consisting of rolled shapes, plate steel, sheet piling, pipe piles, steel castings and steel forgings.

Price adjustments will be variances between Base Prices and Period Prices. Base Prices and Period Prices are defined below.

Price adjustments will only be made if the variances between Base Prices and Period Prices are 5% or more. A variance can result in the Period Price being either higher or lower than the Base Price. Once the 5% threshold has been achieved, the adjustment will apply to the full variance between the Base Price and the Period Price.

Price adjustments will be calculated by multiplying the number of pounds of unfabricated structural steel material or unfabricated reinforcing steel bars on a project by the index factor calculated as shown below under Example of a Period Price Calculation.

Price adjustments will not include guardrail panels or the costs of shop drawing preparation, handling, fabrication, coatings, transportation, storage, installation, profit, overhead, fuel costs, fuel surcharges, or other such charges not related to the cost of the unfabricated structural steel and unfabricated reinforcing steel.

The weight of steel subject to a price adjustment shall not exceed the final shipping weight of the fabricated part by more than 10%.

Base Prices and Period Prices are defined as follows:

Base Prices of unfabricated structural steel and unfabricated reinforcing steel on a project are fixed prices determined by the Department and found in the table below. While it is the intention of the Department to make this table comprehensive, some of a project’s unfabricated structural steel and/or unfabricated reinforcing steel may be inadvertently omitted. Should this occur, the Contractor shall bring the omission to the Department’s attention so that a contract alteration may be processed that adds the missing steel to the table and its price adjustments to the Contract.

The Base Price Date is the month and year of the most recent finalized period price index at the time that MassDOT opened bids for the project. The Base Price Index for this contract is the Steel PPI listed in the Notice to Contractors.

Period Prices of unfabricated structural steel and unfabricated reinforcing steel on a project are variable prices that have been calculated using the Period Price Date and an index of steel prices to adjust the Base Price.

The Period Price Date is the date the steel was delivered to the fabricator as evidenced by an official bill of lading submitted to the Department containing a description of the shipped materials, weights of the shipped materials and the date of shipment. This date is used to select the Period Price Index.

The index used for the calculation of Period Prices is the U.S. Department of Labor Bureau of Labor Statistics Producer Price Index (PPI) Series ID WPU101702 (Not Seasonally Adjusted, Group: Metals and Metal Products, Item: Semi-finished Steel Mill Products.) As this index is subject to revision for a period of up to four (4) months after its original publication, no price adjustments will be made until the index for the period is finalized, i.e., the index is no longer suffixed with a “(P)”.

Period Prices are determined as follows:

Period Price = Base Price X Index Factor

Index Factor = Period Price Index / Base Price Index

Example of a Period Price Calculation:

Calculate the Period Price for December 2009 using a Base Price from March 2009 of \$0.82/Pound for 1,000 Pounds of ASTM A709 (AASHTO M270) Grade A36 Structural Steel Plate.

The Period Price Date is December 2009. From the PPI website*, the Period Price Index = 218.0.

The Base Price Date is March 2009. From the PPI website*, the Base Price Index = 229.4.

Index Factor = Period Price Index / Base Price Index = 218.0 / 229.4 = 0.950

Period Price = Base Price X Index Factor = \$0.82/Pound X 0.950 = \$0.78/Pound

Since \$0.82 - \$0.78 = \$0.04 is less than 5% of \$0.82, no price adjustment is required.

If the \$0.04 difference shown above was greater than 5% of the Base Price, then the price adjustment would be 1,000 Pounds X \$0.04/Pound = \$40.00. Since the Period Price of \$0.78/Pound is less than the Base Price of \$0.82/Pound, indicating a drop in the price of steel between the bid and the delivery of material, a credit of \$40.00 would be owed to MassDOT. When the Period Price is higher than the Base Price, the price adjustment is owed to the Contractor.

* To access the PPI website and obtain a Base Price Index or a Period Price Index, go to

<http://data.bls.gov/cgi-bin/srgate>

End of example.

The Contractor will be paid for unfabricated structural steel and unfabricated reinforcing steel under the respective contract pay items for all components constructed of either structural steel or reinforced Portland cement concrete under their respective Contract Pay Items.

Price adjustments, as herein provided for, will be paid separately as follows:

Structural Steel

Pay Item Number 999.449 for positive (+) pay adjustments (payments to the Contractor)

Pay Item Number 999.457 for negative (-) pay adjustments (credits to MassDOT Highway Division)

Reinforcing Steel

Pay Item Number 999.466 for positive (+) pay adjustments (payments to the Contractor)

Pay Item Number 999.467 for negative (-) pay adjustments (credits to MassDOT Highway Division)

No price adjustment will be made for price changes after the Contract Completion Date, unless the MassDOT Highway Division has approved an extension of Contract Time for the Contract.

TABLE

Steel Type	Price per Pound	
1	ASTM A615/A615M Grade 60 (AASHTO M31 Grade 60 or 420) Reinforcing Steel	\$0.62
2	ASTM A27 (AASHTO M103) Steel Castings, H-Pile Points & Pipe Pile Shoes (See Note below.)	\$0.86
3	ASTM A668 / A668M (AASHTO M102) Steel Forgings	\$0.86
4	ASTM A108 (AASHTO M169) Steel Forgings for Shear Studs	\$0.89
5	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Plate	\$0.95
6	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Shapes	\$0.88
7	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Plate	\$0.95
8	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Shapes	\$0.88
9	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Plate	\$0.98
10	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Shapes	\$0.89
11	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W 345W Structural Steel Plate	\$0.98
12	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W or 345W Structural Steel Shapes	\$0.89
13	ASTM A709/A709M Grade HPS 50W / AASHTO M270M/M270 Grade HPS 50W or 345W Structural Steel Plate	\$1.02
14	ASTM A709/A709M Grade HPS 70W / AASHTO M270M/M270 Grade HPS 70W or 485W Structural Steel Plate	\$1.09
15	ASTM A514/A514M-05 Grade HPS 100W / AASHTO M270M/M270 Grade HPS 100W or 690W Structural Steel Plate	\$1.68
16	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Plate	\$0.98
17	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Shapes	\$0.89
18	ASTM A276 Type 316 Stainless Steel	\$5.02
19	ASTM A240 Type 316 Stainless Steel	\$5.02
20	ASTM A148 Grade 80/50 Steel Castings (See Note below.)	\$1.73
21	ASTM A53 Grade B Structural Steel Pipe	\$1.09
22	ASTM A500 Grades A, B, 36 & 50 Structural Steel Pipe	\$1.09
23	ASTM A252, Grades 240 (36 KSI) & 414 (60 KSI) Pipe Pile	\$0.87
24	ASTM 252, Grade 2 Permanent Steel Casing	\$0.87
25	ASTM A36 (AASHTO M183) for H-piles, steel supports and sign supports	\$0.93
26	ASTM A328 / A328M, Grade 50 (AASHTO M202) Steel Sheetpiling	\$1.65
27	ASTM A572 / A572M, Grade 50 Sheetpiling	\$1.65
28	ASTM A36/36M, Grade 50	\$0.95
29	ASTM A570, Grade 50	\$0.93
30	ASTM A572 (AASHTO M223), Grade 50 H-Piles	\$0.95
31	ASTM A1085 Grade A (50 KSI) Steel Hollow Structural Sections (HSS), heat-treated per ASTM A1085 Supplement S1	\$1.09
32	AREA 140 LB Rail and Track Accessories	\$0.57

NOTE: Steel Castings are generally used only on moveable bridges. Cast iron frames, grates and pipe are not "steel" castings and will not be considered for price adjustments.

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SUBSURFACE INVESTIGATION REPORT

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SUBSURFACE INVESTIGATION REPORT

Proposed Lawrence Rail Trail Lawrence/Methuen City Line to Merrimack Street MBTA Railroad Right-of-Way Lawrence, Massachusetts

Prepared for:

Massachusetts Department of Environmental Protection
205 Lowell Street
Wilmington, Massachusetts 01887

Prepared by:

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, Massachusetts 01854

September 2018

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Table 2: Summary of Dioxin Results for Soil Samples -- June 2018

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1.0 INTRODUCTION AND SITE BACKGROUND

TRC Environmental Corporation (TRC) was retained by the Massachusetts Department of Environmental Protection (MassDEP) to perform a characterization of soil on 6 adjacent parcels from the Manchester Street Park to the Merrimack River (the Site). A Locus Plan is provided in Figure 1 and the Site features are shown on Figure 2.

The Site consists primarily of an inactive railroad right-of-way (ROW) between Merrimack Street in Lawrence and the Lawrence/Methuen City Line. The ROW is named the Lawrence Manchester Rail Corridor (LMRC) and is currently owned by the Massachusetts Bay Transportation Authority (MBTA). The City of Lawrence is proposing to redevelop the LMRC into a rail trail. In addition to the main ROW, the Site includes a rail spur line located southwest of the Manchester Street Park. The rail spur is part of a listed disposal site located at 85 Manchester Street and identified by Release Tracking Number (RTN) 3-19158. This spur line is being considered as an access point to the proposed rail trail and was, therefore, included in these assessment activities.

From the late 1800s to the early 1900s, the LMRC was used for passenger transportation and freight service. Passenger service was discontinued in the late 1950s, but freight service was continued up until the 1990s. In 1997, the MBTA acquired the LMRC from the Boston and Maine Corporation and by 2001, all freight service was abandoned. The City of Lawrence entered two 99-year leases with the MBTA to redevelop the LMRC into a rail trail.

In addition to environmental concerns associated with the former use of the rail corridor, the study area abuts several current or historical oil or hazardous material (OHM) release sites. For example, a former fossil and refuse fuels power facility was operated by Refuse Fuels, Inc. and SBR Associates between the 1980s to June 1998 at 85 Manchester Street, located to the east of the LMRC. A Permanent Solution with an Activity and Use Limitation (AUL) was filed for the 85 Manchester Street site in 2005.

The 85 Manchester Street site was subdivided into two parcels (Parcel A & Parcel B) in 2008. After this the City of Lawrence completed additional remediation as part of a Brownfields Cleanup on Parcel B, constructed the Manchester Street Park and filed a Revised Response Action Outcome in 2009. In 2018, asbestos was detected in soil on a portion of Parcel A now owned by the City of Lawrence. MassDEP has provided remedial options to address the asbestos contamination to the City in a Recommendations for Remedial Alternatives Report, dated May 15, 2018. Soil samples were collected at several perimeter locations abutting the 85 Manchester St. site and elsewhere throughout the LMRC to assess potential impacts from abutting areas of known or suspected OHM release sites.

Illegal dumping of solid waste was also observed throughout the LMRC. A detailed summary of environmental conditions along the LMRC is provided in an Existing Condition Report dated April 2016 by CDW Consultants, Inc. Several soil samples were targeted within the LMRC to determine if a release of OHM occurred in areas of suspect waste disposal.

In summary, soil samples were collected at the Site to investigate if environmental concerns exist within the rail bed, the rail spur located southwest of the Manchester Street Park, and in areas along

the perimeter of the proposed rail trail. The LMRC is surrounded by a cemetery, industrial buildings, residential buildings, and a sports field. This will be the first subsurface investigation TRC has done on the Site.

2.0 SUMMARY OF RECENT ASSESSMENT FIELDWORK

2.1 Objectives

The primary purpose of the subsurface investigation activities was to assess current soil quality within the rail bed and in perimeter areas adjacent to potential areas of environmental concern.

2.2 Field Work Preparation

Prior to initiation of drilling activities at the site, TRC completed the following tasks:

- TRC prepared a Quality Assurance Project Plan (QAPP) which was reviewed and approved by EPA prior to initiating the work scope.
- TRC and MassDEP conducted a site walk to review the scope of work and perform reconnaissance for other potential environmental issues or spills which would be characterized during the drilling phase.
- A Site-Specific Health and Safety Plan was generated for use during site visits and drilling work.
- The proposed boring locations were marked by Dig Safe member utilities. The City of Lawrence Engineering Department confirmed that the municipal utility infrastructure would not be affected by the scope of work.

2.3 Soil Boring Program

TRC retained Geosearch Environmental Contractors (Geosearch) of Fitchburg, Massachusetts to provide drilling services utilizing a Geoprobe. MassDEP personnel were on-site each day to supervise the field work. Drilling locations are depicted on Figure 2. All soil borings were backfilled with native materials.

2.3.1 85 Manchester Street (Rail Spur)

TRC collected samples along the rail spur at 85 Manchester Street (Figure 2). Two 5-point composite samples were collected from a depth between 0 to 1 foot every 100 feet (RBS-1 and RBS-2). The samples were analyzed for dioxins via SW-846 8292A, the 8 Metals regulated under the Resource Conservation and Recovery Act (RCRA) via SW-846 6010C/6020A/7471B, extractable petroleum hydrocarbons (EPH) with polycyclic aromatic hydrocarbon (PAH) target analytes via MassDEP method, and polychlorinated biphenyls (PCBs) via SW-846 8082A with microwave extraction. In addition, two 2-point composite perimeter samples were collected from the southern end of the rail spur (PSS-1) and analyzed for the parameters listed above and asbestos. The perimeter sample was composited from samples collected from two locations, at depths of 0-1 feet and 1-3 feet.

Soil borings advanced at locations north of Manchester Street were observed by a Massachusetts Licensed Asbestos Inspector for potential asbestos containing material (ACM). No potential ACM was observed in any of the soil borings on the rail spur. The shallow and deep perimeter samples at

PSS-1 were shipped to TRC's asbestos laboratory in Windsor, Connecticut for analysis of asbestos via Polarized Light Microscopy.

2.3.2 Main Alignment and Perimeter Sampling

Samples were collected along the track alignment approximately every 100 feet to a depth of one foot. Drilling locations were confirmed via GPS. Where present, surficial stone remaining from the track was moved aside prior to boring advancement and was not counted as part of the sampling interval. Samples were prepared for analysis by compositing four borings, with each boring spaced 100 feet apart, to create a sample representing material in each 400-foot section of the track alignment.

For the two sections of rail bed on the islands south of Canal Street (between the North Canal and the Merrimack River, and the Merrimack River and the South Canal, respectively), three borings spaced 100 feet apart were advanced and three-point composite samples were collected in these two areas (Figure 2). For sample locations south of Manchester Street, analytical testing was conducted for EPH with PAH target analytes, PCBs, and RCRA 8 Metals. For locations between Manchester Street and the Lawrence/Methuen City Line, analytical testing was conducted for dioxins (via SW-846 8292A) in addition to the above parameters to evaluate the potential for impact to soils from the operation of the former fossil and refuse fuels power facility.

In addition, soil samples were collected at 20 locations identified as 'perimeter samples' which are either potential access points to the rail trail or adjacent to known oil or hazardous materials release sites. At each perimeter sample location, two soil borings were advanced to depths of three feet. Perimeter samples were collected from two locations from soil collected at depths of 0-1 feet and 1-3 feet and composited. All these perimeter samples were located south of Manchester Street, and analyzed for EPH with PAH target analytes, PCBs, and RCRA 8 metals.

Samples identified for chemical analysis were analyzed at laboratories included under the MassDEP Laboratory Support Services Contract. Samples collected for PCBs, PAHs, and RCRA 8 Metals analyses were analyzed by ConTest Analytical Laboratories of East Longmeadow, Massachusetts. Dioxin samples were shipped to Pace Laboratory of Minneapolis, Minnesota for analysis.

3.0 SUBSURFACE INVESTIGATION RESULTS

3.1 Physical Characteristics of Subsurface Materials

The soil encountered in the main track alignment was primarily a gravely sand with some silt. In some portions of the track alignment, the crushed stone from the former railroad operations was encountered and moved aside to facilitate soil sampling. The perimeter locations consisted of organic-rich sand within the top foot and gravely sand in the one to three-foot interval.

Coal ash cinders were observed at locations RB-10 and RB-18. Urban fill material was also observed at these two locations as well as RB-8, RB-13, PS-17, and PS-18.

3.2 Soil Quality Characterization

The following sections discuss the results of the sampling and analysis work described above. The results from the analysis of soil samples for PCBs, EPH with PAHs and metals are summarized in Table 1 and the results of the analysis of soil samples for dioxins are summarized in Table 2. Laboratory analytical reports are attached in Appendix A. The MassDEP guidance document *Best Management Practices for Controlling Exposure to Soil During the Development of Rail Trails* (The Rail Trail Guidance, MassDEP 2004) provides guidance in evaluating elevated contamination of soil from normal railroad operations.

3.2.1 Polychlorinated Biphenyls

Sixty-five soil samples were analyzed for PCB Aroclors with no detections of individual or total Aroclors exceeding the 1 mg/kg MCP Reportable Concentration RCS-1. There were five detections of Aroclor-1260 above the laboratory detection limit and below the RCS-1 concentration. The highest detection was 0.35 mg/kg at location RB-12.

3.2.2 Polycyclic Aromatic Hydrocarbons and EPH

Eight PAHs were detected at more than one location at concentrations above applicable reportable concentrations (i.e. acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, 2-methylnaphthalene, naphthalene, and phenanthrene). The results are included in Table 1. The Rail Trail Guidance indicates that PAHs can be present in the soil in a railroad ROW from normal operation of railroads including diesel exhaust, creosote from ties, and coal ash from engines and, in the absence of evidence of any other release, is exempt from notification pursuant to 310 CMR 40.0317(8)(b), 40.0317(9), and/or 40.0317(12).

No exceedances of reportable concentrations of the EPH fractions were identified.

3.2.3 Metals

The RCS-1 and MCP Method 1 S-1 soil standard of 20 mg/kg for arsenic was exceeded in 26 samples and two samples exceeded the 100 mg/kg threshold for the “RCRA 20 times rule”. The

RCS-1 and Method 1 S-1 standard of 200 mg/kg for lead was equaled to or exceeded in six samples and 32 samples exceeded the 100 mg/kg threshold for the “RCRA 20 times rule”. No other analyzed metals (barium, cadmium, chromium, mercury, selenium, and silver) were detected above the RCS-1 reportable concentration.

As indicated in the Rail Trail Guidance, arsenic and/or lead can be present in the soil in a railroad ROW because of the use of preservatives for railroad ties, use in pesticides, or present in fill materials used in the construction of the railroad bed. In the absence of evidence of any other release in the ROW, these metals are exempt from notification pursuant to 310 CMR 40.0317(8)(c), 40.0317(9), and/or 40.0317(12).

3.2.4 Dioxins

Table 2 summarizes the results of the dioxin in soil analysis from sampling locations that are north of Manchester Street (adjacent to the 85 Manchester Street site). Dioxins are evaluated by calculating Toxicity Equivalents (TEQs) of total polychlorinated dibenzo-p-dioxins/dibenzofurans for each sample and comparing to the Method 1 S-1 standard and RC-S1 reportable concentration for 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) (equivalents). Four of the eight samples exceeded the Method 1 S-1 soil standard and RCS-1 reportable concentration of 20 nanograms per kilogram (ng/kg) for 2,3,7,8-TCDD TEQ. All the exceedances were within the rail spur, with the highest concentrations detected on the southern portion of the rail spur.

3.2.5 Asbestos

No ACM was observed in or around soil borings advanced north of Manchester Street. Soil samples PSS-1 (0-1') and PSS-1 (1-3') were submitted to TRC's asbestos laboratory in Windsor, Connecticut for analysis of asbestos via Polarized Light Microscopy. No asbestos was detected in the soil samples. The laboratory report is attached in Appendix A.

4.0 CONCLUSIONS AND RECOMMENDATIONS

TRC advanced soil borings within the LMRC railroad ROW between the Lawrence/Methuen City Line to Merrimack Street, and within the rail spur at 85 Manchester Street to characterize soil to a depth of one foot. Additional soil samples were collected at 0-1' and 1'-3' at 21 perimeter locations within the LMRC.

Samples were analyzed for PCBs, metals, and EPH with PAHs for the entire project. In addition, dioxins were analyzed at locations north of Manchester Street and one soil sample was characterized for asbestos close to where the rail spur meets the main alignment. ACM was not observed during the field work in or around the soil boring locations. Soil from PSS-1 was submitted to an asbestos lab for analysis and no asbestos was detected.

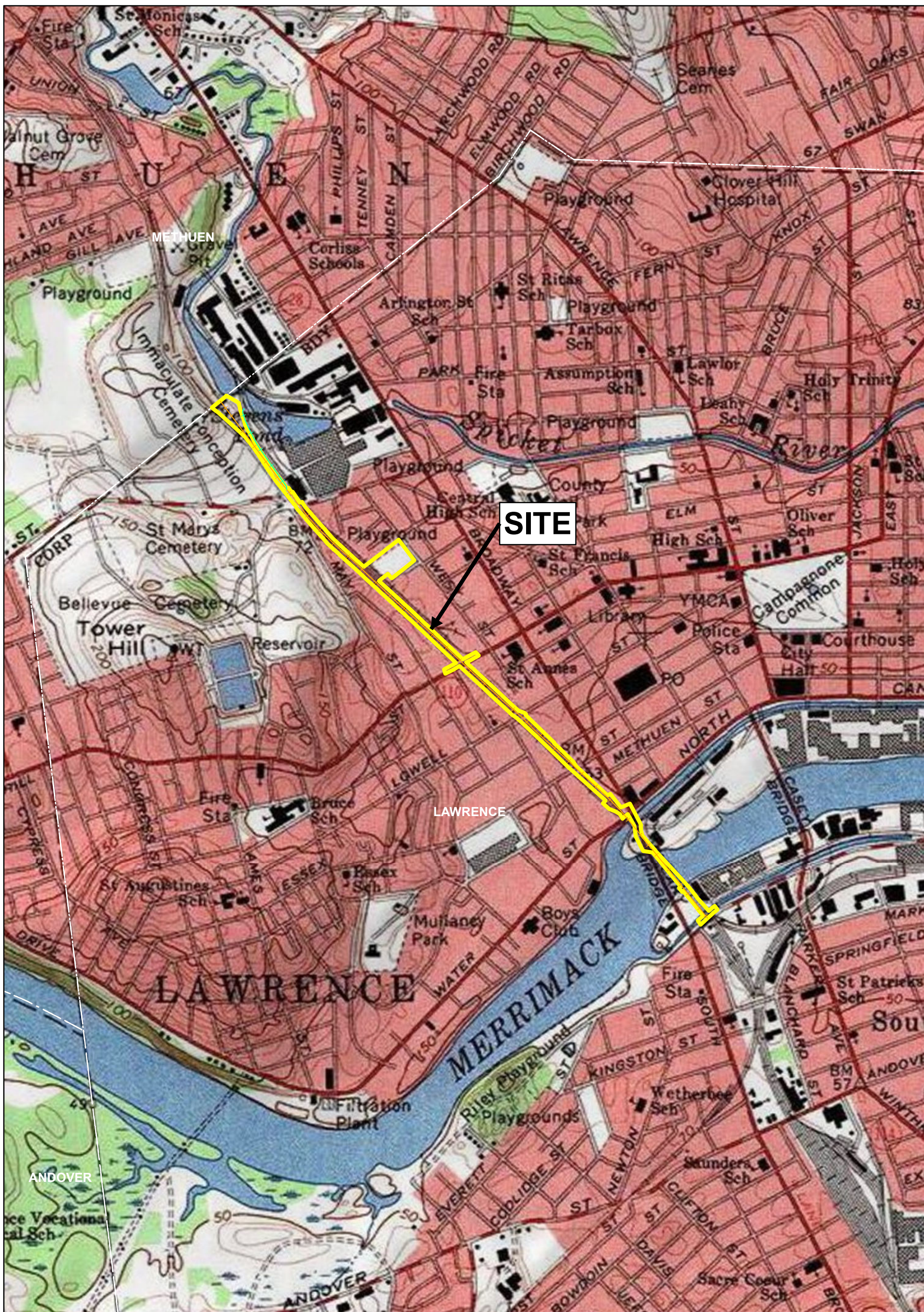
Based on the results of the investigations, the following conclusions and recommendations can be made:




- PAHs, arsenic and lead were detected at concentrations above the RCS-1 reportable concentrations and Method 1 S-1 soil standards throughout the LMRC; however, notification to MassDEP pursuant to 310 CMR 40.0300 is not required. These chemicals are commonly present in soil within railroad ROWs from normal operations including pesticide applications, treatment of railroad ties, diesel exhaust, creosote from ties, and coal ash from engines. In the absence of evidence of any other release within the ROW, the presence of these contaminants is exempt from notification pursuant to 310 CMR 40.0317(8), 40.0317(9), and/or 40.0317(12).
- Arsenic and lead were also detected at concentrations above the "RCRA 20 times rule" indicating it is possible that the sampled material could be classified as a hazardous waste under RCRA if soil is generated at the Site. If soil is excavated and generated at the Site, then an additional assessment should be conducted and soil samples with arsenic and/or lead above 100 mg/kg should be analyzed via the Toxicity Characteristic Leaching Procedure (TCLP) to confirm the material is not considered a characteristic hazardous waste for disposal options. Soil is not considered to be a hazardous waste under RCRA and 310 CMR 30.000, the Massachusetts Hazardous Waste Regulations, until the soil has been generated. Soil is considered generated when it is excavated and placed in containers, treated ex-situ, or removed from the area of contamination.
- Although PAHs and dioxins were identified at concentrations above RCS-1 reportable concentrations in samples collected from the rail spur, no new notification is required, because this area is within the boundaries of the 85 Manchester Street disposal site identified by RTN 3-19158 and these contaminants are consistent with site conditions previously reported to MassDEP. Construction of a connecting path to the rail trail, or other response actions at the 85 Manchester Street site, must be conducted in compliance with 310 CMR 40.1067 and the Activity & Use Limitation for the site.
- The Rail Trail Guidance recommends Best Management Practices (BMPs) related to preventing or minimizing exposures to OHM during and after construction as well as those relating to preventing or minimizing off-site migration of contaminants during and after construction. It is recommended that the appropriate BMPs be integrated into the project specific construction specifications and bid documents.

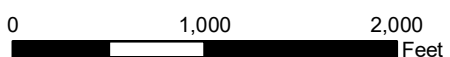
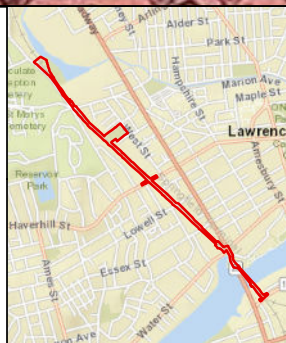
5.0 REFERENCES

MassDEP, 2004. *Best Management Practices for Controlling Exposure to Soil During the Development of Rail Trails*. Published June 2004.

FIGURES



-  Former Railroad Track
-  Former Railroad Spur
-  Project Boundary

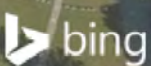
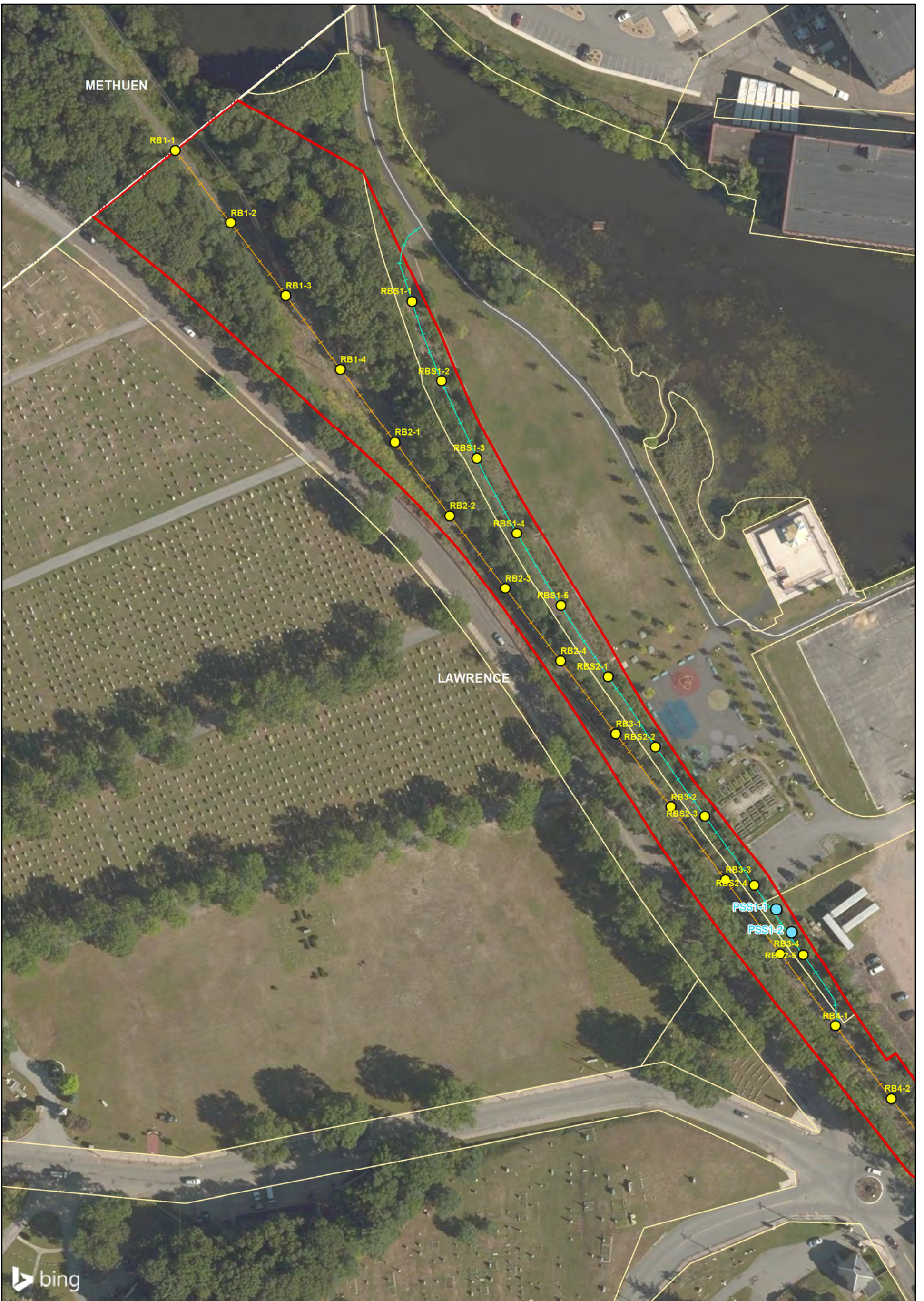


Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

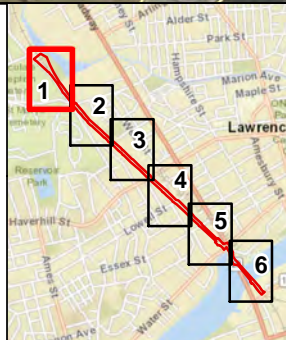
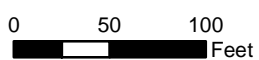
**LOCUS PLAN
PROPOSED LAWRENCE RAIL TRAIL
LAWRENCE, MASSACHUSETTS**

FIGURE 1

MAY 2018



- Project Boundary
- Former Railroad Track
- Former Railroad Spur
- RB1-1 Rail Bed Composite Sample Location
- PSS1-1 Perimeter Rail Bed Spur Composite Sample Location
- PS1-1 Perimeter Composite Sample location
- RBS1-1 Rail Bed Spur Composite Sample Location

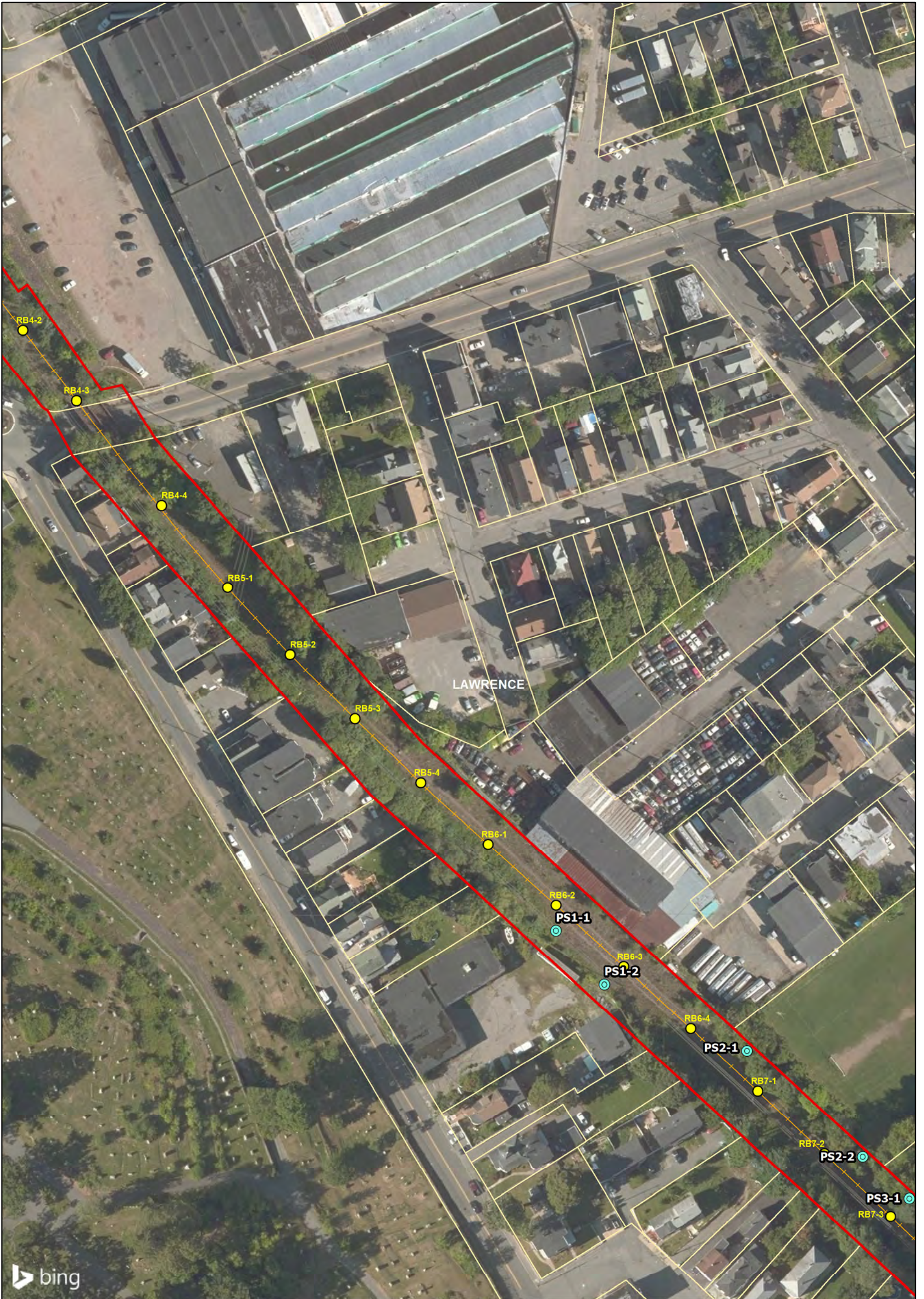


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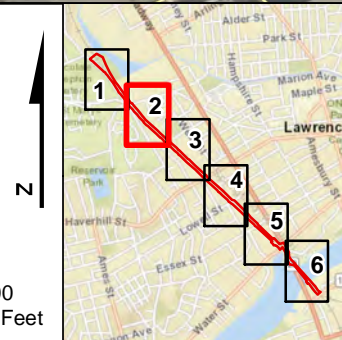
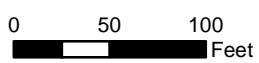
**BORING LOCATION PLAN
PROPOSED LAWRENCE RAIL TRAIL
LAWRENCE, MASSACHUSETTS**

FIGURE 2

MAY 2017



- Project Boundary
- Former Railroad Track
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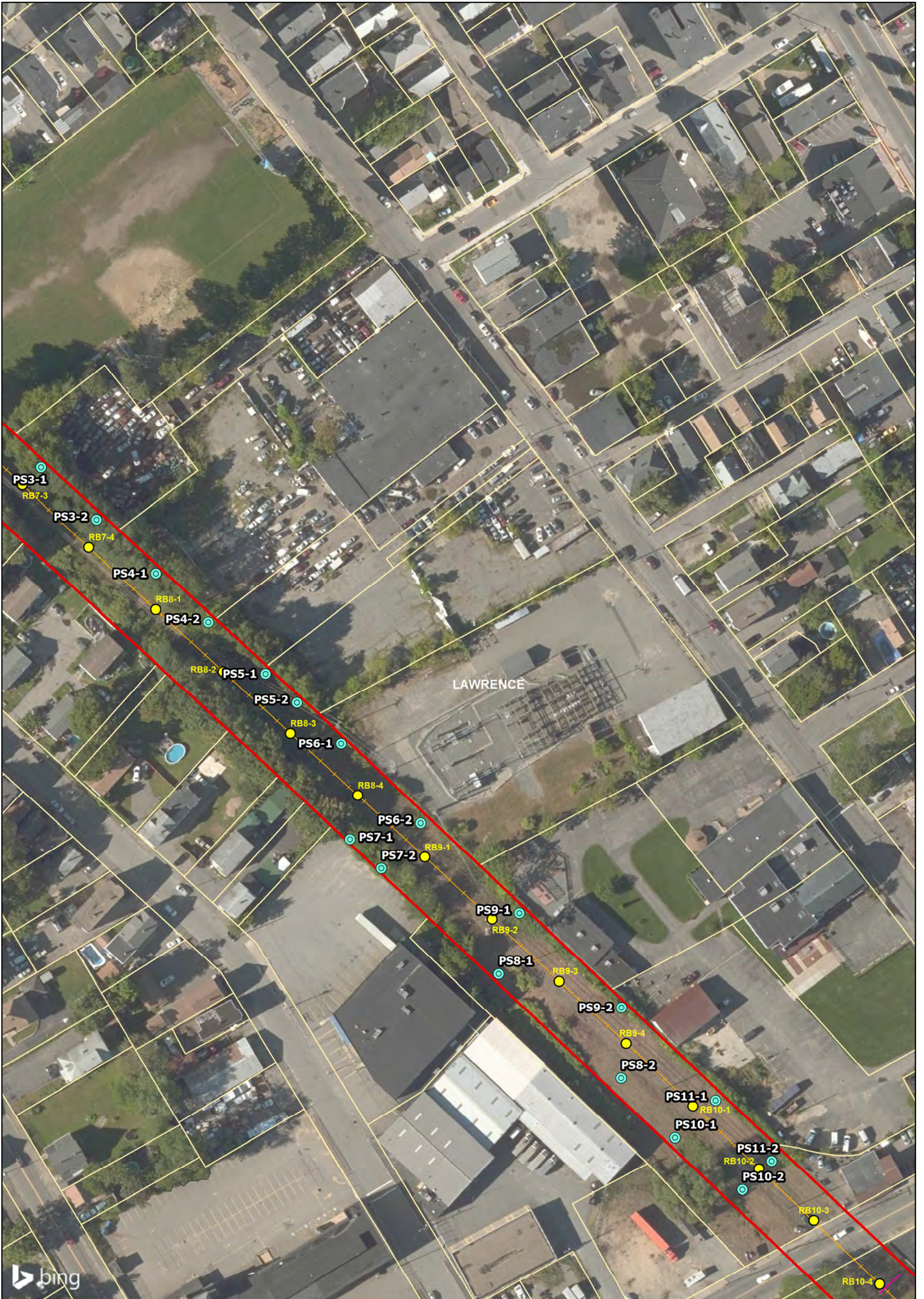


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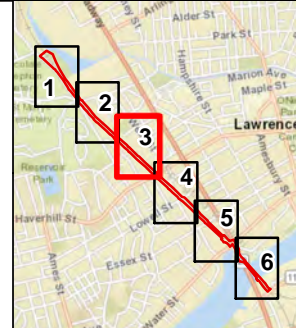
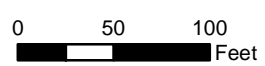
**BORING LOCATION PLAN
PROPOSED LAWRENCE RAIL TRAIL
LAWRENCE, MASSACHUSETTS**

FIGURE 2

MAY 2017



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**BORING LOCATION PLAN
 PROPOSED LAWRENCE RAIL TRAIL
 LAWRENCE, MASSACHUSETTS**

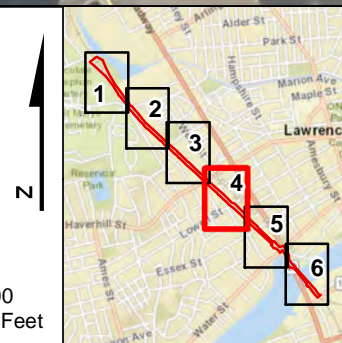
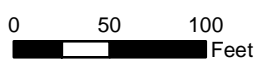
FIGURE 2

MAY 2017

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- Project Boundary
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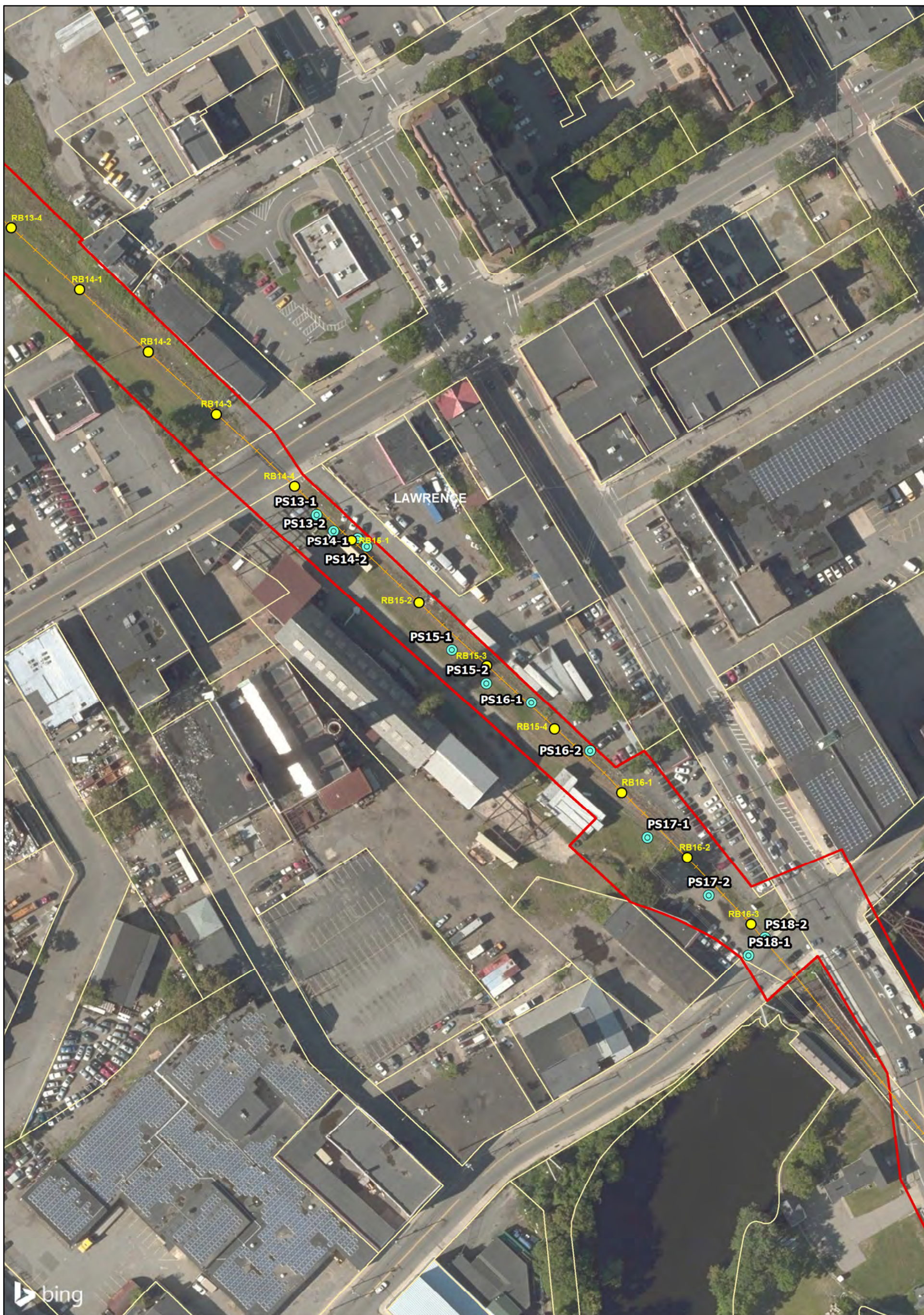


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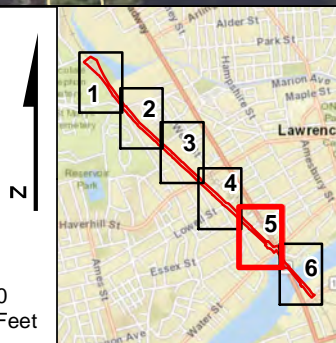
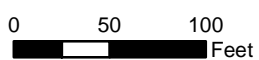
**BORING LOCATION PLAN
 PROPOSED LAWRENCE RAIL TRAIL
 LAWRENCE, MASSACHUSETTS**

FIGURE 2

MAY 2017



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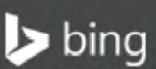
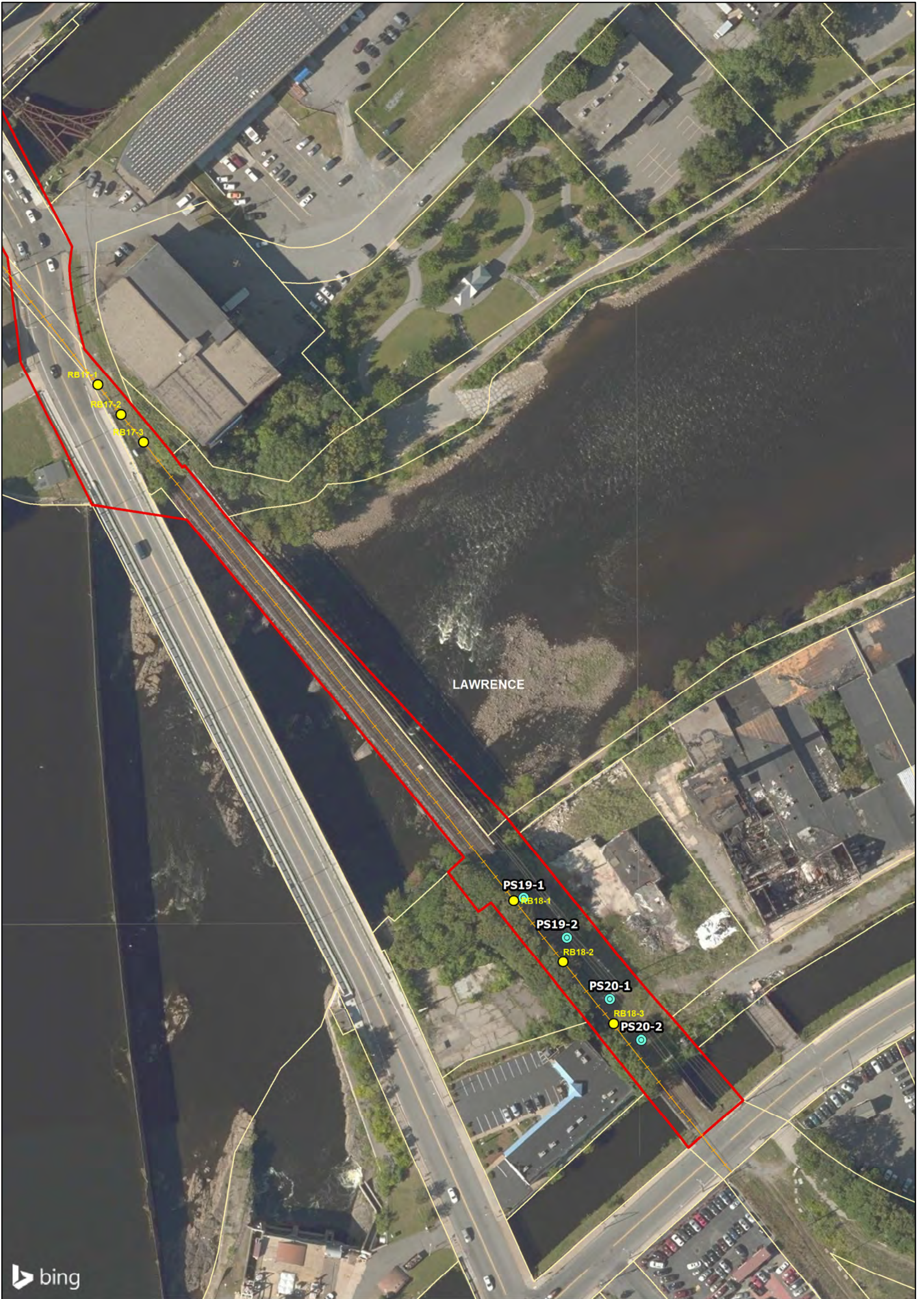


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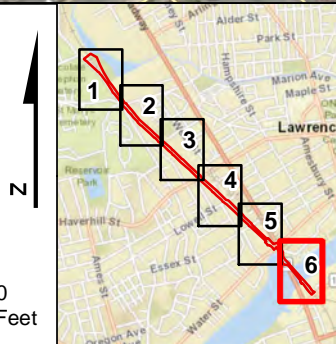
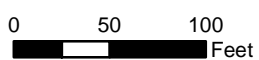
**BORING LOCATION PLAN
PROPOSED LAWRENCE RAIL TRAIL
LAWRENCE, MASSACHUSETTS**

FIGURE 2

MAY 2017



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**BORING LOCATION PLAN
PROPOSED LAWRENCE RAIL TRAIL
LAWRENCE, MASSACHUSETTS**

FIGURE 2

MAY 2017

TABLES

Table 1
Summary of Analytical Results for Soil Samples -- June 2018
Proposed Lawrence Rail Trail
Lawrence, Massachusetts

Analysis	Analyte	Sample Location:				PS-01		PS-02		PS-03		PS-04		PS-05		PS-06		PS-07		PS-08	
		Sample ID:		Sample Depth (ft.):		PS-1	PS-1	PS-2	PS-2	PS-3	PS-3	PS4	PS4	PS5	PS5	PS6	PS6	PS-7	PS-7	PS-8	PS-8
		S-1/GW-2	S-1/GW-3	RCS-1	RCS-2	0-1	1-3	0-1	1-3	0-1	1-3	0-1	1-3	0-1	1-3	0-1	1-3	0-1	1-3	0-1	1-3
					6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	
EPH																					
(mg/kg)	C9-C18 Aliphatics	1,000	1,000	1,000	3,000	10 U	11 U	10 U	10 U	26	15	11 U	10 U	11 U	11 U	11	10 U	16	11 U	21 U	11 U
	C19-C36 Aliphatics	3,000	3,000	3,000	5,000	10 U	11 U	10 U	10 U	13	12	11 U	10 U	17	15	23	18	11	11 U	32	13
	C11-C22 Aromatics	1,000	1,000	1,000	3,000	27	25	31	10 U	170	98	60	13	110	160	95	77	93	72	300	290
	Acenaphthene	1,000	1,000	4	3,000	0.10 U	0.11 U	0.10 U	0.10 U	0.17	0.19	0.11 U	0.1 U	0.68	1.4	0.17	0.41	0.18	0.46	4.3	2.4
	Acenaphthylene	600	10	1	10	0.10 U	0.11 U	0.10 U	0.10 U	0.63	0.32	0.24	0.1 U	0.19	0.14	0.32	0.1 U	0.11 U	0.11 U	0.21 U	0.22
	Anthracene	1,000	1,000	1,000	3,000	0.10 U	0.11 U	0.10 U	0.10 U	0.49	0.24	0.15	0.1 U	1.5	3.4	0.35	0.72	0.33	0.67	12	6.1
	Benzo(a)anthracene	7	7	7	40	0.41	0.48	0.35	0.10 U	3.4	1.8	1.1	0.24	2.7	5.8	1.4	1.4	1.9	2.0	14	13
	Benzo(a)pyrene	2	2	2	7	0.47	0.46	0.33	0.10 U	2.8	1.6	1.1	0.17	2.4	4.8	1.5	1.3	1.7	1.9	11	10
	Benzo(b)fluoranthene	7	7	7	40	0.86	0.74	0.72	0.10 U	6.3	3.4	2.5	0.41	4.1	6.3	3.2	2.3	3.2	2.6	14	13
	Benzo(g,h,i)perylene	1,000	1,000	1,000	3,000	0.87	0.48	2.5	0.25	2.1	1.3	1.5	0.22	3.1	2.8	5.5	1.8	1.4	1.1	5.4	5.1
	Benzo(k)fluoranthene	70	70	70	400	0.29	0.23	0.23	0.10 U	2.3	1.2	0.81	0.14	1.5	2.6	1.1	0.68	1.0	0.91	5.1	4.8
	Chrysene	70	70	70	400	0.63	0.60	0.65	0.10 U	4.7	2.6	1.8	0.33	3.5	6.3	2.4	2	2.9	2.6	14	12
	Dibenz(a,h)anthracene	0.7	0.7	0.7	4	0.10 U	0.11 U	0.10 U	0.10 U	0.78	0.41	0.29	0.1 U	0.55	0.83	0.47	0.27	0.36	0.35	1.8	1.8
	Fluoranthene	1,000	1,000	1,000	3,000	0.94	0.98	0.77	0.10 U	6.2	3.3	2.4	0.26	6.5	14	3.3	3.6	4.4	4.8	35	25
	Fluorene	1,000	1,000	1,000	3,000	0.10 U	0.11 U	0.10 U	0.10 U	0.26	0.21	0.11 U	0.1 U	0.68	1.5	0.25	0.42	0.33	0.43	6.9	3.7
	Indeno(1,2,3-cd)pyrene	7	7	7	40	0.39	0.32	0.22	0.10 U	2.1	1.1	0.84	0.12	1.6	2.3	1.3	0.85	1.1	1.2	5.5	6.2
	2-Methylnaphthalene	80	300	0.7	80	0.16	0.17	0.10 U	0.10 U	0.34	0.34	0.11 U	0.1 U	0.34	0.39	0.24	0.17	0.27	0.22	1.8	1.2
	Naphthalene	20	500	4	20	0.10 U	0.11 U	0.10 U	0.10 U	0.41	0.50	0.13	0.1 U	0.4	0.45	0.33	0.21	0.29	0.31	1.4	1.5
	Phenanthrene	500	500	10	1,000	0.37	0.49	0.32	0.10 U	1.6	1.0	0.56	0.1 U	6	13	1.9	3.3	2.1	4.2	41	22
	Pyrene	1,000	1,000	1,000	3,000	0.93	1.0	0.66	0.15	5.8	3.3	2.6	0.4	6.5	13	3	3.4	4.1	4.6	30	23
PCBs																					
(mg/kg)	Aroclor-1016	1	1	1	4	0.083 U	0.084 U	0.082 U	0.082 U	0.087 U	0.086 U	0.09 U	0.084 U	0.091 U	0.086 U	0.086 U	0.085 U	0.088 U	0.089 U	0.084 U	0.085 U
	Aroclor-1221	1	1	1	4	0.083 U	0.084 U	0.082 U	0.082 U	0.087 U	0.086 U	0.09 U	0.084 U	0.091 U	0.086 U	0.086 U	0.085 U	0.088 U	0.089 U	0.084 U	0.085 U
	Aroclor-1232	1	1	1	4	0.083 U	0.084 U	0.082 U	0.082 U	0.087 U	0.086 U	0.09 U	0.084 U	0.091 U	0.086 U	0.086 U	0.085 U	0.088 U	0.089 U	0.084 U	0.085 U
	Aroclor-1242	1	1	1	4	0.083 U	0.084 U	0.082 U	0.082 U	0.087 U	0.086 U	0.09 U	0.084 U	0.091 U	0.086 U	0.086 U	0.085 U	0.088 U	0.089 U	0.084 U	0.085 U
	Aroclor-1248	1	1	1	4	0.083 U	0.084 U	0.082 U	0.082 U	0.087 U	0.086 U	0.09 U	0.084 U	0.091 U	0.086 U	0.086 U	0.085 U	0.088 U	0.089 U	0.084 U	0.085 U
	Aroclor-1254	1	1	1	4	0.083 U	0.084 U	0.082 U	0.082 U	0.087 U	0.086 U	0.09 U	0.084 U	0.091 U	0.086 U	0.086 U	0.085 U	0.088 U	0.089 U	0.084 U	0.085 U
	Aroclor-1260	1	1	1	4	0.083 U	0.084 U	0.082 U	0.082 U	0.087 U	0.086 U	0.09 U	0.084 U	0.091 U	0.086 U	0.086 U	0.085 U	0.088 U	0.089 U	0.084 U	0.085 U
	Aroclor-1262	1	1	1	4	0.083 U	0.084 U	0.082 U	0.082 U	0.087 U	0.086 U	0.09 U	0.084 U	0.091 U	0.086 U	0.086 U	0.085 U	0.088 U	0.089 U	0.084 U	0.085 U
	Aroclor-1268	1	1	1	4	0.083 U	0.084 U	0.082 U	0.082 U	0.087 U	0.086 U	0.09 U	0.084 U	0.091 U	0.086 U	0.086 U	0.085 U	0.088 U	0.089 U	0.084 U	0.085 U
	Total PCBs	1	1	1	4	0.083 U	0.084 U	0.082 U	0.082 U	0.087 U	0.086 U	0.09 U	0.084 U	0.091 U	0.086 U	0.086 U	0.085 U	0.088 U	0.089 U	0.084 U	0.085 U
Metals, total																					
(mg/kg)	Arsenic	20	20	20	20	7.9	10	9.7	4.5	17	12	51	5.8	42	14	75	21	12	14	6.1	5.6
	Barium	1,000	1,000	1,000	3,000	21	22	26	22	75	52	39	16	47	38	56	48	60	84	49	47
	Cadmium	70	70	70	100	0.48	0.56	0.43	0.21	0.80	0.64	1.9	0.27	1.6	0.6	2.5	0.62	0.55	0.69	0.40	0.34
	Chromium	100	100	100	200	13	16	14	12	14	13	14	13	33	19	16	13	17	20	21	15
	Lead	200	200	200	600	34	27	42	8.2	110	130	67	12	140	95	170	200	190	210	100	1,500
	Mercury	20	20	20	30	0.082	0.062	0.047	0.026 U	0.090	0.061	0.085	0.027 U	0.2	0.19	0.22	0.26	0.064	0.92	0.15	0.14
	Selenium	400	400	400	700	3.4 U	3.5 U	3.5 U	3.6 U	3.7 U	3.7 U	3.8 U	3.3 U	3.6 U	3.4 U	3.7 U	3.4 U	3.6 U	3.8 U	3.5 U	3.7 U
	Silver	100	100	100	200	0.34 U	0.35 U	0.35 U	0.36 U	0.37 U	0.37 U	0.38 U	0.33 U	0.36 U	0.34 U	0.37 U	0.58	0.36 U	0.38 U	0.35 U	0.37 U
Asbestos																					
(%)	Asbestos	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
 mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).
 NA - Sample not analyzed for the listed analyte.
 N/A - Not available/applicable.
 U - Analyte was not detected at specified quantitation limit.
 Values in **bold** indicate the analyte was detected.
Values shown in bold and shaded type are equal to or exceed one or more of the listed MassDEP standards/criteria.
 EPH - Extractable Petroleum Hydrocarbons.
 PCBs - Polychlorinated Biphenyls.
 RC - Reportable concentration.

Table 1
Summary of Analytical Results for Soil Samples -- June 2018
Proposed Lawrence Rail Trail
Lawrence, Massachusetts

Analysis	Analyte	Sample Location:				PS-09		PS-10		PS-11		PS-12		PS-13		PS-14		PS-15		PS-16		PS-17	
		Sample ID:				PS9	PS9	PS-10	PS-10	PS11	PS11	PS12	PS12	PS13	PS13	PS14	PS14	PS15	PS15	PS16	PS16	PS17	PS17
		Sample Depth (ft.):				0-1	1-3	0-1	1-3	0-1	1-3	0-1	1-3	0-1	1-3	0-1	1-3	0-1	1-3	0-1	1-3	0-1	1-3
		S-1/GW-2	S-1/GW-3	RCS-1	RCS-2	6/25/2018	6/25/2018	6/21/2018	6/21/2018	6/25/2018	6/25/2018	6/26/2018	6/26/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018
EPH (mg/kg)	C9-C18 Aliphatics	1,000	1,000	1,000	3,000	11 U	11 U	10 U	11 U	10 U	16	13 U	12 U	11 U	10 U	11 U	11 U	10 U	11 U	10 U	11 U	11 U	
	C19-C36 Aliphatics	3,000	3,000	3,000	5,000	19	17	10 U	23	10 U	23	29	12 U	51	10 U	39	11 U	35	10 U	16	10 U	48	31
	C11-C22 Aromatics	1,000	1,000	1,000	3,000	120	140	56	92	48	170	220	46	75	10 U	68	13	67	14	83	19	64	55
	Acenaphthene	1,000	1,000	4	3,000	0.16	0.58	0.17	0.20	0.13	0.28	1.4	0.12 U	0.11 U	0.1 U	0.13	0.11 U	0.11 U	0.1 U	0.11 U	0.1 U	0.11 U	0.13
	Acenaphthylene	600	10	1	10	0.59	0.58	0.19	0.21	0.17	0.62	1	0.16	0.14	0.1 U	0.14	0.11 U	0.15	0.1 U	0.28	0.1 U	0.17	0.16
	Anthracene	1,000	1,000	1,000	3,000	0.43	1	0.23	0.55	0.23	0.65	0.89	0.12 U	0.18	0.1 U	0.19	0.11 U	0.15	0.1 U	0.23	0.1 U	0.16	0.14
	Benzo(a)anthracene	7	7	7	40	2.7	4.1	1.3	2.8	1.2	4.6	5.9	0.88	0.94	0.1 U	1	0.11 U	0.94	0.1 U	1.1	0.1 U	0.79	0.64
	Benzo(a)pyrene	2	2	2	7	3.1	4	1.4	2.7	1.5	4.7	4.9	0.84	0.95	0.1 U	1.2	0.11 U	0.89	0.1 U	1.1	0.1 U	0.8	0.7
	Benzo(b)fluoranthene	7	7	7	40	6.2	7.3	2.4	4.1	2.3	9	10	1.6	2.1	0.1 U	2	0.21	1.7	0.14	2.5	0.21	1.7	1.5
	Benzo(g,h,i)perylene	1,000	1,000	1,000	3,000	4.4	3.4	0.98	1.7	1.1	4	2.3	0.49	0.88	0.1 U	0.9	0.13	1.6	0.21	2.6	0.28	0.58	1.3
	Benzo(k)fluoranthene	70	70	70	400	2.2	2.7	0.89	1.4	0.78	3.2	3.8	0.56	0.76	0.1 U	0.67	0.11 U	0.6	0.1 U	0.82	0.1 U	0.54	0.49
	Chrysene	70	70	70	400	4.3	5.3	1.8	3.5	1.6	6.1	7.6	1.2	1.4	0.1 U	1.6	0.16	1.4	0.11	1.9	0.12	1.3	1.1
	Dibenz(a,h)anthracene	0.7	0.7	0.7	4	0.78	0.93	0.31	0.54	0.31	0.96	0.89	0.12 U	0.25	0.1 U	0.25	0.11 U	0.2	0.1 U	0.34	0.1 U	0.21	0.11 U
	Fluoranthene	1,000	1,000	1,000	3,000	6.2	9.6	3.0	5.6	2.5	9.2	13	1.8	2.4	0.1 U	2.6	0.21	2.2	0.15	2.3	0.22	1.8	1.6
	Fluorene	1,000	1,000	1,000	3,000	0.19	0.47	0.15	0.28	0.13	0.28	0.74	0.12 U	0.11 U	0.1 U	0.11 U	0.11 U	0.11 U	0.11 U	0.1 U	0.11 U	0.1 U	0.16
	Indeno(1,2,3-cd)pyrene	7	7	7	40	2.5	2.6	0.99	1.9	1	3.2	2.7	0.51	0.83	0.1 U	0.9	0.11	0.67	0.1 U	1	0.13	0.62	0.57
	2-Methylnaphthalene	80	300	0.7	80	0.22	0.37	0.10 U	0.21	0.1 U	0.24	1.9	0.12 U	0.11 U	0.1 U	0.11 U	0.11 U	0.11 U	0.1 U	0.11 U	0.1 U	0.11	0.22
	Naphthalene	20	500	4	20	0.31	0.44	0.13	0.25	0.1 U	0.34	5.4	0.12 U	0.11 U	0.1 U	0.11 U	0.11 U	0.11 U	0.1 U	0.16	0.1 U	0.11	0.17
	Phenanthrene	500	500	10	1,000	1.3	4.1	1.3	2.3	0.89	2.7	3.6	0.29	0.87	0.1 U	1.3	0.11 U	0.58	0.1 U	0.46	0.1 U	0.77	0.73
	Pyrene	1,000	1,000	1,000	3,000	6.3	9.5	2.9	5.4	2.5	9.5	14	1.9	2.3	0.1 U	2.4	0.22	2.1	0.16	2.8	0.22	1.6	1.5
PCBs (mg/kg)	Aroclor-1016	1	1	1	4	0.09 U	0.086 U	0.082 U	0.085 U	0.085 U	0.09 U	0.1 U	0.096 U	0.092 U	0.085 U	0.09 U	0.086 U	0.087 U	0.084 U	0.086 U	0.084 U	0.088 U	0.089 U
	Aroclor-1221	1	1	1	4	0.09 U	0.086 U	0.082 U	0.085 U	0.085 U	0.09 U	0.1 U	0.096 U	0.092 U	0.085 U	0.09 U	0.086 U	0.087 U	0.084 U	0.086 U	0.084 U	0.088 U	0.089 U
	Aroclor-1232	1	1	1	4	0.09 U	0.086 U	0.082 U	0.085 U	0.085 U	0.09 U	0.1 U	0.096 U	0.092 U	0.085 U	0.09 U	0.086 U	0.087 U	0.084 U	0.086 U	0.084 U	0.088 U	0.089 U
	Aroclor-1242	1	1	1	4	0.09 U	0.086 U	0.082 U	0.085 U	0.085 U	0.09 U	0.1 U	0.096 U	0.092 U	0.085 U	0.09 U	0.086 U	0.087 U	0.084 U	0.086 U	0.084 U	0.088 U	0.089 U
	Aroclor-1248	1	1	1	4	0.09 U	0.086 U	0.082 U	0.085 U	0.085 U	0.09 U	0.1 U	0.096 U	0.092 U	0.085 U	0.09 U	0.086 U	0.087 U	0.084 U	0.086 U	0.084 U	0.088 U	0.089 U
	Aroclor-1254	1	1	1	4	0.09 U	0.086 U	0.082 U	0.085 U	0.085 U	0.09 U	0.1 U	0.096 U	0.092 U	0.085 U	0.09 U	0.086 U	0.087 U	0.084 U	0.086 U	0.084 U	0.088 U	0.089 U
	Aroclor-1260	1	1	1	4	0.09 U	0.086 U	0.082 U	0.085 U	0.085 U	0.09 U	0.1 U	0.096 U	0.24	0.085 U	0.12	0.086 U	0.087 U	0.084 U	0.086 U	0.084 U	0.088 U	0.089 U
	Aroclor-1262	1	1	1	4	0.09 U	0.086 U	0.082 U	0.085 U	0.085 U	0.09 U	0.1 U	0.096 U	0.092 U	0.085 U	0.09 U	0.086 U	0.087 U	0.084 U	0.086 U	0.084 U	0.088 U	0.089 U
	Aroclor-1268	1	1	1	4	0.09 U	0.086 U	0.082 U	0.085 U	0.085 U	0.09 U	0.1 U	0.096 U	0.092 U	0.085 U	0.09 U	0.086 U	0.087 U	0.084 U	0.086 U	0.084 U	0.088 U	0.089 U
	Total PCBs	1	1	1	4	0.090 U	0.086 U	0.082 U	0.085 U	0.085 U	0.09 U	0.10 U	0.096 U	0.24	0.085 U	0.12	0.086 U	0.087 U	0.084 U	0.086 U	0.084 U	0.088 U	0.089 U
	Metals, total (mg/kg)	Arsenic	20	20	20	20	31	34	5.1	9.0	10	60	110	11	36	4.5	35	5.8	21	3.9	14	4.1	18
Barium		1,000	1,000	1,000	3,000	38	27	41	56	35	56	58	42	49	12	58	28	40	12	25	10	50	38
Cadmium		70	70	70	100	0.87	0.9	0.44	0.69	0.45	1.7	3.9	0.52	1.4	0.22	1	0.19	0.99	0.17 U	0.44	0.17 U	0.66	0.35
Chromium		100	100	100	200	17	13	27	18	15	17	29	24	69	11	34	18	38	11	15	9.8	39	19
Lead		200	200	200	600	120	77	86	190	66	180	260	54	170	25	200	20	120	14	84	7.9	140	100
Mercury		20	20	20	30	0.11	0.072	0.084	0.20	0.18	0.45	0.39	0.062	0.15	0.027 U	0.091	0.05	0.17	0.033	0.12	0.025 U	0.13	0.16
Selenium		400	400	400	700	3.6 U	3.5 U	3.2 U	3.5 U	3.5 U	3.8 U	4.3 U	4.2 U	3.8 U	3.4 U	3.7 U	3.4 U	3.4 U	3.4 U	3.5 U	3.5 U	3.6 U	3.7 U
Silver		100	100	100	200	0.69	0.45	0.32 U	0.35 U	0.35 U	0.5	0.43 U	0.42 U	0.48	0.34 U	0.58	0.34 U	0.57	0.34 U	0.39	0.35 U	0.52	0.46
Asbestos (%)	Asbestos	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
 mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).
 NA - Sample not analyzed for the listed analyte.
 N/A - Not available/applicable.
 U - Analyte was not detected at specified quantitation limit.
 Values in bold indicate the analyte was detected.

Values shown in bold and shaded type are equal to or exceed one or more of the listed MassDEP standards/criteria.

EPH - Extractable Petroleum Hydrocarbons.
 PCBs - Polychlorinated Biphenyls.
 RC - Reportable concentration.

Table 1
Summary of Analytical Results for Soil Samples -- June 2018
Proposed Lawrence Rail Trail
Lawrence, Massachusetts

Analysis	Analyte	Sample Location:				PS-18		PS-19		PS-20		PSS-01				RB-01	RB-02	RB-03	RB-04	RB-05	RB-06
		Sample ID:		Sample Depth (ft.):		PS18	PS18	PS19	PS19	PS20	PS20	PSS-1	PSS-1A	PSS-1	PSS-1B	RB-1	RB-2	RB-3	RB-4	RB-5	RB-6
		S-1/GW-2	S-1/GW-3	RCS-1	RCS-2	0-1	1-3	0-1	1-3	0-1	1-3	0-1	0-1	1-3	1-3	0-1	0-1	0-1	0-1	0-1	0-1
						6/25/2018	6/25/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/21/2018	7/11/2018	6/21/2018	7/11/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/22/2018	6/22/2018
EPH (mg/kg)	C9-C18 Aliphatics	1,000	1,000	1,000	3,000	11 U	21 U	11 U	11 U	30	10 U	53 U	NA	53 U	NA	10 U	21 U	10 U	10 U	10 U	10 U
	C19-C36 Aliphatics	3,000	3,000	3,000	5,000	63	83	17	11 U	67	10 U	71	NA	59	NA	14	22	14	16	10 U	10 U
	C11-C22 Aromatics	1,000	1,000	1,000	3,000	130	180	120	24	270	19	220	NA	180	NA	88	140	100	70	47	37
	Acenaphthene	1,000	1,000	4	3,000	0.17	0.6	0.15	0.11 U	0.76	0.1 U	0.53 U	NA	0.53 U	NA	0.10 U	0.56	0.10 U	0.10 U	0.10 U	0.10 U
	Acenaphthylene	600	10	1	10	0.13	0.21 U	0.35	0.11 U	0.96	0.1 U	0.53 U	NA	0.53 U	NA	0.35	0.33	0.39	0.19	0.14	0.13
	Anthracene	1,000	1,000	1,000	3,000	0.29	0.75	0.44	0.11 U	1.4	0.1 U	0.53 U	NA	0.53 U	NA	0.22	1.5	0.28	0.18	0.11	0.10 U
	Benzo(a)anthracene	7	7	7	40	2.3	2	2.4	0.34	6.7	0.2	1.0	NA	1.8	NA	1.8	3.4	2.5	1.0	0.74	0.64
	Benzo(a)pyrene	2	2	2	7	1.8	1.7	1.9	0.24	5.6	0.17	1.1	NA	1.5	NA	1.8	2.9	2.3	1.1	0.91	0.69
	Benzo(b)fluoranthene	7	7	7	40	3.8	2.3	4.5	0.58	11	0.39	1.6	NA	2.4	NA	3.4	4.0	4.3	2.0	1.9	1.8
	Benzo(g,h,i)perylene	1,000	1,000	1,000	3,000	1.3	1.1	1.1	0.11 U	3.4	0.18	1.0	NA	1.2	NA	1.3	1.5	1.5	1.3	2.0	0.64
	Benzo(k)fluoranthene	70	70	70	400	1.4	0.86	1.4	0.18	3.7	0.14	0.53 U	NA	0.82	NA	1.2	1.5	1.6	0.69	0.64	0.65
	Chrysene	70	70	70	400	3.1	2.6	3.2	0.49	8.9	0.24	1.3	NA	2.4	NA	2.5	3.7	2.9	1.6	1.3	1.3
	Dibenz(a,h)anthracene	0.7	0.7	0.7	4	0.31	0.21 U	0.48	0.11 U	1.5	0.1 U	0.53 U	NA	0.53 U	NA	0.41	0.53	0.48	0.10 U	0.21	0.18
	Fluoranthene	1,000	1,000	1,000	3,000	3.9	5.7	6	0.82	12	0.37	2.6	NA	5.5	NA	4.1	7.6	4.9	2.5	2.0	2.0
	Fluorene	1,000	1,000	1,000	3,000	0.15	0.47	0.26	0.11 U	0.69	0.1 U	0.53 U	NA	0.53 U	NA	0.10 U	0.69	0.10 U	0.10 U	0.10 U	0.10 U
	Indeno(1,2,3-cd)pyrene	7	7	7	40	1.3	1.1	1.4	0.18	3.8	0.13	0.53 U	NA	0.98	NA	1.4	1.7	1.5	0.77	0.65	0.50
	2-Methylnaphthalene	80	300	0.7	80	0.11 U	0.21 U	0.16	0.11 U	0.41	0.1 U	0.53 U	NA	0.53 U	NA	0.10 U	0.21 U	0.10 U	0.10 U	0.10 U	0.10 U
	Naphthalene	20	500	4	20	0.11	0.29	0.15	0.11 U	0.51	0.1 U	0.53 U	NA	0.53 U	NA	0.10 U	0.21 U	0.10 U	0.10 U	0.10 U	0.10 U
	Phenanthrene	500	500	10	1,000	1.8	7.1	2.1	0.24	5.2	0.1 U	1.5	NA	3.8	NA	0.46	5.5	0.27	0.57	0.31	0.29
	Pyrene	1,000	1,000	1,000	3,000	4.5	5.6	6	0.82	13	0.42	2.4	NA	4.8	NA	3.9	7.6	5.3	2.5	2.1	1.9
PCBs (mg/kg)	Aroclor-1016	1	1	1	4	0.087 U	0.083 U	0.088 U	0.085 U	0.087 U	0.081 U	0.085 U	NA	0.085 U	NA	0.083 U	0.083 U	0.082 U	0.083 U	0.082 U	0.078 U
	Aroclor-1221	1	1	1	4	0.087 U	0.083 U	0.088 U	0.085 U	0.087 U	0.081 U	0.085 U	NA	0.085 U	NA	0.083 U	0.083 U	0.082 U	0.083 U	0.082 U	0.078 U
	Aroclor-1232	1	1	1	4	0.087 U	0.083 U	0.088 U	0.085 U	0.087 U	0.081 U	0.085 U	NA	0.085 U	NA	0.083 U	0.083 U	0.082 U	0.083 U	0.082 U	0.078 U
	Aroclor-1242	1	1	1	4	0.087 U	0.083 U	0.088 U	0.085 U	0.087 U	0.081 U	0.085 U	NA	0.085 U	NA	0.083 U	0.083 U	0.082 U	0.083 U	0.082 U	0.078 U
	Aroclor-1248	1	1	1	4	0.087 U	0.083 U	0.088 U	0.085 U	0.087 U	0.081 U	0.085 U	NA	0.085 U	NA	0.083 U	0.083 U	0.082 U	0.083 U	0.082 U	0.078 U
	Aroclor-1254	1	1	1	4	0.087 U	0.083 U	0.088 U	0.085 U	0.087 U	0.081 U	0.085 U	NA	0.085 U	NA	0.083 U	0.083 U	0.082 U	0.083 U	0.082 U	0.078 U
	Aroclor-1260	1	1	1	4	0.087 U	0.083 U	0.088 U	0.085 U	0.087 U	0.081 U	0.085 U	NA	0.085 U	NA	0.083 U	0.083 U	0.082 U	0.083 U	0.082 U	0.078 U
	Aroclor-1262	1	1	1	4	0.087 U	0.083 U	0.088 U	0.085 U	0.087 U	0.081 U	0.085 U	NA	0.085 U	NA	0.083 U	0.083 U	0.082 U	0.083 U	0.082 U	0.078 U
	Aroclor-1268	1	1	1	4	0.087 U	0.083 U	0.088 U	0.085 U	0.087 U	0.081 U	0.085 U	NA	0.085 U	NA	0.083 U	0.083 U	0.082 U	0.083 U	0.082 U	0.078 U
	Total PCBs	1	1	1	4	0.087 U	0.083 U	0.088 U	0.085 U	0.087 U	0.081 U	0.085 U	NA	0.085 U	NA	0.083 U	0.083 U	0.082 U	0.083 U	0.082 U	0.078 U
Metals, total (mg/kg)	Arsenic	20	20	20	20	6.3	6.8	24	5.5	110	7	7.1	NA	7.3	NA	9.4	7.4	12	23	16	21
	Barium	1,000	1,000	1,000	3,000	47	28	56	25	63	15	57	NA	60	NA	18	26	22	28	26	25
	Cadmium	70	70	70	100	0.98	0.66	0.71	0.17 U	2.9	0.17 U	0.89	NA	0.45	NA	4.5	0.33	0.45	0.75	0.56	0.77
	Chromium	100	100	100	200	41	18	21	12	26	9.2	24	NA	19	NA	15	17	18	22	22	15
	Lead	200	200	200	600	180	94	110	68	150	23	73	NA	83	NA	22	36	41	45	39	41
	Mercury	20	20	20	30	0.12	0.06	0.2	0.095	0.33	0.045	0.11	NA	0.28	NA	0.026 U	0.046	0.045	0.031	0.044	0.033
	Selenium	400	400	400	700	3.7 U	3.4 U	3.6 U	3.4 U	3.8 U	3.3 U	3.5 U	NA	3.7 U	NA	3.3 U	3.4 U	3.5 U	3.6 U	3.4 U	3.5 U
	Silver	100	100	100	200	0.37 U	0.34 U	0.59	0.34 U	1	0.33 U	0.35 U	NA	0.37 U	NA	0.33 U	0.34 U	0.35 U	0.36 U	0.34 U	0.35 U
Asbestos (%)	Asbestos	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	1.0 U	NA	NA	NA	NA	NA	NA

Notes:

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

NA - Sample not analyzed for the listed analyte.

N/A - Not available/applicable.

U - Analyte was not detected at specified quantitation limit.

Values in bold indicate the analyte was detected.

Values shown in bold and shaded type are equal to or exceed one or more of the listed MassDEP standards/criteria.

EPH - Extractable Petroleum Hydrocarbons.

PCBs - Polychlorinated Biphenyls.

RC - Reportable concentration.

Table 1
Summary of Analytical Results for Soil Samples -- June 2018
Proposed Lawrence Rail Trail
Lawrence, Massachusetts

Analysis	Analyte	Sample Location:				RB-07 RB-7 0-1 6/22/2018	RB-08 RB-8 0-1 6/22/2018	RB-09 RB-9 0-1 6/22/2018	RB-10 RB-10 0-1 6/22/2018	RB-11 RB11 0-1 6/26/2018	RB-12 RB12 0-1 6/26/2018	RB-13		RB-14 RB14 0-1 6/26/2018	RB-15		RB-16 RB16 0-1 6/25/2018	RB-17 RB17 0-1 6/26/2018	RB-18		RBS-01 RBS-1 0-1 6/21/2018	RBS-02 RBS-2 0-1 6/21/2018
		Sample ID:	Sample Depth (ft.):	Sample Date:	RB13							DUP2	RB15		DUP1	RB18			DUP3			
		S-1/GW-2	S-1/GW-3	RCS-1	RCS-2							0-1	0-1		0-1	0-1			0-1	0-1		
EPH (mg/kg)	C9-C18 Aliphatics	1,000	1,000	1,000	3,000	10 U	11 U	10 U	10 U	12 U	24 U	20	11	52	11 U	11 U	10 U	11 U	13	14	21 U	53 U
	C19-C36 Aliphatics	3,000	3,000	3,000	5,000	10 U	11 U	11	57	55	93	76	41	28	29	23	10 U	25	35	29	63	99
	C11-C22 Aromatics	1,000	1,000	1,000	3,000	17	68	53	110	200	260	640	430	320	63	53	13	89	130	130	170	350
	Acenaphthene	1,000	1,000	4	3,000	0.40	0.11 U	0.10 U	0.12	0.19	0.24 U	19	11	20	0.11 U	0.13	0.1 U	0.16	0.32	0.32	0.24	5.3
	Acenaphthylene	600	10	1	10	0.10 U	0.34	0.12	0.21	0.73	0.41	0.81	0.56	0.11 U	0.22	0.19	0.1 U	0.16	0.46	0.47	0.21 U	0.53 U
	Anthracene	1,000	1,000	1,000	3,000	0.13	0.28	0.12	0.26	0.62	0.43	22	6.7	11	0.19	0.17	0.1 U	0.42	0.56	0.65	0.32	1.8
	Benzo(a)anthracene	7	7	7	40	0.29	2.1	0.85	1.8	3.9	1.8	17	4.7	4.4	1	0.90	0.14	1.8	2.8	2.9	0.83	3.2
	Benzo(a)pyrene	2	2	2	7	0.27	2.0	0.90	1.9	3.4	1.9	6.5	2.8	3	1	0.94	0.14	1.7	2.8	2.5	0.97	2.0
	Benzo(b)fluoranthene	7	7	7	40	0.58	3.8	2.0	3.5	7.5	4.3	13	5.8	5.8	2.1	1.8	0.25	3.3	5	4.8	2.2	3.6
	Benzo(g,h,i)perylene	1,000	1,000	1,000	3,000	0.38	1.3	1.1	1.4	2.1	1.3	2.4	1.5	1.7	1.3	1.2	0.14	1.5	1.6	1.6	0.94	1.5
	Benzo(k)fluoranthene	70	70	70	400	0.18	1.4	0.69	1.1	2.9	1.5	4.6	2.0	2	0.64	0.61	0.1 U	1.1	1.8	1.7	0.72	1.2
	Chrysene	70	70	70	400	0.44	2.3	1.4	2.6	5.2	2.5	21	5.4	4.9	1.6	1.6	0.21	2.4	4.2	4.1	1.7	4.3
	Dibenz(a,h)anthracene	0.7	0.7	0.7	4	0.10 U	0.43	0.25	0.39	0.83	0.29	1.1	0.53	0.53	0.26	0.25	0.1 U	0.36	0.67	0.58	0.21 U	0.53 U
	Fluoranthene	1,000	1,000	1,000	3,000	0.83	5.6	1.7	3.7	10	4.4	97	20	20	2.4	2.5	0.31	4.4	6.7	6.9	2.3	22
	Fluorene	1,000	1,000	1,000	3,000	0.27	0.11 U	0.10 U	0.10 U	0.36	0.27	14	8.8	14	0.11 U	0.11 U	0.1 U	0.24	0.39	0.44	0.21 U	2.3
	Indeno(1,2,3-cd)pyrene	7	7	7	40	0.18	1.2	0.68	1.4	2.4	1.5	3	1.7	1.8	0.81	0.73	0.11	1.2	2	1.6	0.78	1.2
	2-Methylnaphthalene	80	300	0.7	80	0.10 U	0.11 U	0.10 U	0.17	0.38	0.24 U	4.4	5.6	16	0.11 U	0.11 U	0.1 U	0.21	0.33	0.42	0.21 U	2.6
	Naphthalene	20	500	4	20	0.10 U	0.11 U	0.10 U	0.21	0.35	0.37	3	6.6	5.5	0.11 U	0.11 U	0.1 U	0.19	0.3	0.40	0.25	3.5
Phenanthrene	500	500	10	1,000	0.95	0.81	0.39	1.3	3.1	1.2	91	28	37	0.77	0.81	0.18	2.2	3.4	3.3	1.0	32	
Pyrene	1,000	1,000	1,000	3,000	0.76	5.4	1.8	3.7	9.4	4.3	76	18	18	2.2	2.3	0.33	4.3	6.7	6.6	2.5	17	
PCBs (mg/kg)	Aroclor-1016	1	1	1	4	0.081 U	0.082 U	0.079 U	0.083 U	0.091 U	0.093 U	0.089 U	0.089 U	0.083 U	0.086 U	0.087 U	0.081 U	0.088 U	0.089 U	0.090 U	0.084 U	0.084 U
	Aroclor-1221	1	1	1	4	0.081 U	0.082 U	0.079 U	0.083 U	0.091 U	0.093 U	0.089 U	0.089 U	0.083 U	0.086 U	0.087 U	0.081 U	0.088 U	0.089 U	0.090 U	0.084 U	0.084 U
	Aroclor-1232	1	1	1	4	0.081 U	0.082 U	0.079 U	0.083 U	0.091 U	0.093 U	0.089 U	0.089 U	0.083 U	0.086 U	0.087 U	0.081 U	0.088 U	0.089 U	0.090 U	0.084 U	0.084 U
	Aroclor-1242	1	1	1	4	0.081 U	0.082 U	0.079 U	0.083 U	0.091 U	0.093 U	0.089 U	0.089 U	0.083 U	0.086 U	0.087 U	0.081 U	0.088 U	0.089 U	0.090 U	0.084 U	0.084 U
	Aroclor-1248	1	1	1	4	0.081 U	0.082 U	0.079 U	0.083 U	0.091 U	0.093 U	0.089 U	0.089 U	0.083 U	0.086 U	0.087 U	0.081 U	0.088 U	0.089 U	0.090 U	0.084 U	0.084 U
	Aroclor-1254	1	1	1	4	0.081 U	0.082 U	0.079 U	0.083 U	0.091 U	0.093 U	0.089 U	0.089 U	0.083 U	0.086 U	0.087 U	0.081 U	0.088 U	0.089 U	0.090 U	0.084 U	0.084 U
	Aroclor-1260	1	1	1	4	0.081 U	0.082 U	0.079 U	0.083 U	0.091 U	0.35	0.089 U	0.089 U	0.18	0.086 U	0.12	0.081 U	0.088 U	0.089 U	0.090 U	0.084 U	0.084 U
	Aroclor-1262	1	1	1	4	0.081 U	0.082 U	0.079 U	0.083 U	0.091 U	0.093 U	0.089 U	0.089 U	0.083 U	0.086 U	0.087 U	0.081 U	0.088 U	0.089 U	0.090 U	0.084 U	0.084 U
	Aroclor-1268	1	1	1	4	0.081 U	0.082 U	0.079 U	0.083 U	0.091 U	0.093 U	0.089 U	0.089 U	0.083 U	0.086 U	0.087 U	0.081 U	0.088 U	0.089 U	0.090 U	0.084 U	0.084 U
	Total PCBs	1	1	1	4	0.081 U	0.082 U	0.079 U	0.083 U	0.091 U	0.35	0.089 U	0.089 U	0.18	0.086 U	0.12	0.081 U	0.088 U	0.089 U	0.090 U	0.084 U	0.084 U
	Metals, total (mg/kg)	Arsenic	20	20	20	20	7.4	24	21	27	54	32	21	26	16	33	28	4.3	41	77	74	7.7
Barium		1,000	1,000	1,000	3,000	18	31	26	55	67	42	40	42	45	46	47	20	57	170	81	32	56
Cadmium		70	70	70	100	0.44	0.86	0.70	2.9	1.9	1.3	1	1.1	0.76	1.4	1.2	0.23	1.2	2.6	2.0	0.42	0.95
Chromium		100	100	100	200	13	16	14	28	19	20	24	25	38	36	34	12	23	23	28	13	19
Lead		200	200	200	600	15	59	67	160	130	86	120	130	230	150	140	24	170	150	130	59	110
Mercury		20	20	20	30	0.025 U	0.073	0.12	0.19	0.13	0.095	0.15	0.20	0.35	0.12	0.19	0.051	0.24	0.15	0.20	0.055	0.17
Selenium		400	400	400	700	3.5 U	3.4 U	3.4 U	3.6 U	3.9 U	4.1 U	3.7 U	3.8 U	3.5 U	3.6 U	3.6 U	3.5 U	3.6 U	3.7 U	3.7 U	3.6 U	3.5 U
Silver		100	100	100	200	0.35 U	0.34 U	0.34 U	0.36 U	0.39 U	0.41 U	0.37 U	0.38 U	0.35 U	0.36 U	0.36 U	0.35 U	0.62	0.37 U	0.94	0.36 U	0.35 U
Asbestos (%)	Asbestos	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).
NA - Sample not analyzed for the listed analyte.
N/A - Not available/applicable.
U - Analyte was not detected at specified quantitation limit.
Values in bold indicate the analyte was detected.
Values shown in bold and shaded type are equal to or exceed one or more of the listed MassDEP standards/criteria.
EPH - Extractable Petroleum Hydrocarbons.
PCBs - Polychlorinated Biphenyls.
RC - Reportable concentration.

Table 2
Summary of Dioxins Results for Soil Samples -- June 2018
Proposed Lawrence Rail Trail
Lawrence, Massachusetts

Analysis	Analyte	Sample Location:					RBS-1	RBS-2	RB-1	RB-2	RB-3	RB-4	PSS-1			
		Sample ID:					RBS-1 (0-1')	RBS-2 (0-1')	RB-1 (0-1')	RB-2 (0-1')	RB-3 (0-1')	RB-4 (0-1')	PSS-1 (0-1')	PSS-1 (1-3')		
		Sample Depth (ft.):					0-1	0-1	0-1	0-1	0-1	0-1	0-1	1-3		
Sample Date:					6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018			
		S-1/GW-2	S-1/GW-3	RCS-1	RCS-2	TEF*										
Dioxins (ng/kg)	2,3,7,8-TCDF	N/A	N/A	N/A	N/A	0.1	3.8	9.3	1.6 U	2.1 U	3 U	1.4 U	38	2.8		
	Non-2,3,7,8-TCDF	N/A	N/A	N/A	N/A	0	96.2	210.7	3.9	8.2	22	33.6	312	53.2		
	2,3,7,8-TCDD	N/A	N/A	N/A	N/A	1	2.7	5.3	1.6 U	2.4 U	1.8 U	1.5 U	12	1.7		
	Non-2,3,7,8-TCDD	N/A	N/A	N/A	N/A	0	38.3	104.7	1.6	2.4 U	6.6	14	198	27.3		
	1,2,3,7,8-PeCDF	N/A	N/A	N/A	N/A	0.03	9.2	26 M	0.86 J	0.92 J	7.3 M, PJ	3.8 J	52 M, P	6.1		
	2,3,4,7,8-PeCDF	N/A	N/A	N/A	N/A	0.3	11	26	1.9 J	1.4 M, LJ	4.6 J	5.7	38	6.9		
	Non-2,3,7,8-PeCDF	N/A	N/A	N/A	N/A	0	99.8	188	16.24	29.68	57.1	62.5	290	59		
	1,2,3,7,8-PeCDD	N/A	N/A	N/A	N/A	1	15	46	1.7 J	2.1 J	6.4 J	6.9	71	10		
	Non-2,3,7,8-PeCDD	N/A	N/A	N/A	N/A	0	68	244	4.1	6.2	22.6	34.1	409	56		
	1,2,3,4,7,8-HxCDF	N/A	N/A	N/A	N/A	0.1	16	51	2.4 J	2.3 J	9.4 J	9.3	85	12		
	1,2,3,6,7,8-HxCDF	N/A	N/A	N/A	N/A	0.1	19	52	2.6 M, PJ	3 J	10 J	10	99	13		
	2,3,4,6,7,8-HxCDF	N/A	N/A	N/A	N/A	0.1	9.5	33	1.9 J	1.9 J	6.9 J	5.7	52	7.6		
	1,2,3,7,8,9-HxCDF	N/A	N/A	N/A	N/A	0.1	3.1 J	6.6 M, LJ	0.95 M, LJ	1.3 J	3.1 U	1.9 J	13	2.4 J		
	Non-2,3,7,8-HxCDF	N/A	N/A	N/A	N/A	0	112.4	307.4	17.15	29.5	70.6	72.1	701	95		
	1,2,3,4,7,8-HxCDD	N/A	N/A	N/A	N/A	0.1	9.4	32	1.3 J	1.3 J	4.8 M, LJ	5.4	53	7.8		
	1,2,3,6,7,8-HxCDD	N/A	N/A	N/A	N/A	0.1	12	46	2.3 J	2.3 J	6.8 M, LJ	6.3	74	11		
	1,2,3,7,8,9-HxCDD	N/A	N/A	N/A	N/A	0.1	11	45	0.97 J	0.94 J	11 J	2.9 J	61	8.5		
	Non-2,3,7,8-HxCDD	N/A	N/A	N/A	N/A	0	117.6	417	16.43	20.46	38.4	70.4	812	112.7		
	1,2,3,4,6,7,8-HpCDF	N/A	N/A	N/A	N/A	0.01	81	220	14	18	93	48	390	59		
	1,2,3,4,7,8,9-HpCDF	N/A	N/A	N/A	N/A	0.01	4.1 J	11 J	1.4 J	2.1 J	1.9 U	3.5 J	26	3.6 J		
	Non-2,3,7,8-HpCDF	N/A	N/A	N/A	N/A	0	13.9	69	8.6	15.9	45.1	18.5	3 U	26.4		
	1,2,3,4,6,7,8-HpCDD	N/A	N/A	N/A	N/A	0.01	95	290	31	28	67	60	460	93		
	Non-2,3,7,8-HpCDD	N/A	N/A	N/A	N/A	0	135	290	23	23	83	70	450	157		
	OCDF	N/A	N/A	N/A	N/A	0.0003	26	68	15	22	51	22	110	32		
	OCDD	N/A	N/A	N/A	N/A	0.0003	420	900	260	280	420	270	1,200	400		
	TEQ		20	20	20	20	N/A	31.591	92.87	4.9643	5.7282	15.845	14.897	152.61	22.149	

Notes:

ng/kg - Nanograms per kilogram (dry weight).

I - Interference present.

J - Estimated value.

M - Estimated Maximum Possible Concentration.

N/A - Not available/applicable.

P - PCDE Interference.

U - Analyte was not detected at specified quantitation limit.

Values in **bold** indicate the analyte was detected.

Values shown in bold and shaded type exceed one or more of the listed MassDEP standards/criteria.

RC - Reportable concentration.

* - Toxicity Equivalency Factor (TEF), World Health Organization (WHO) 2005.

TEQ - Toxicity Equivalent of dioxins/furans; calculated using 2005 WHO Toxicity Equivalency Factors.

TEQ calculated including EMPCs; non-detects were set equal to one-half the sample quantitation limit.

APPENDIX A

LABORATORY ANALYTICAL REPORTS



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

July 3, 2018

Jamie Stapleton
TRC Environmental Corporation - New Hampshire
670 N. Commercial Street
Manchester, NH 03101

Project Location: Lawrence, MA
Client Job Number:
Project Number: 246949.4000.0000
Laboratory Work Order Number: 18F1322

Enclosed are results of analyses for samples received by the laboratory on June 26, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Meghan E. Kelley". The signature is written in a cursive style with a large, sweeping "y" at the end.

Meghan E. Kelley
Project Manager

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

TRC Environmental Corporation - New Hampshire
670 N. Commercial Street
Manchester, NH 03101
ATTN: Jamie Stapleton

REPORT DATE: 7/3/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 246949.4000.0000

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18F1322

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

PROJECT LOCATION: Lawrence, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PS4 (0-1)	18F1322-01	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS4 (1-3)	18F1322-02	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS5 (0-1)	18F1322-03	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS5 (1-3)	18F1322-04	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS6 (0-1)	18F1322-05	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS6 (1-3)	18F1322-06	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS9 (0-1)	18F1322-07	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS9 (1-3)	18F1322-08	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	



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

TRC Environmental Corporation - New Hampshire
670 N. Commercial Street
Manchester, NH 03101
ATTN: Jamie Stapleton

REPORT DATE: 7/3/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 246949.4000.0000

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18F1322

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

PROJECT LOCATION: Lawrence, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PS11 (0-1)	18F1322-09	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS11 (1-3)	18F1322-10	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS13 (0-1)	18F1322-11	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS13 (1-3)	18F1322-12	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS14 (0-1)	18F1322-13	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS14 (1-3)	18F1322-14	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS15 (0-1)	18F1322-15	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS15 (1-3)	18F1322-16	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	



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

TRC Environmental Corporation - New Hampshire
670 N. Commercial Street
Manchester, NH 03101
ATTN: Jamie Stapleton

REPORT DATE: 7/3/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 246949.4000.0000

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18F1322

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

PROJECT LOCATION: Lawrence, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PS16 (0-1)	18F1322-17	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS16 (1-3)	18F1322-18	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS17 (0-1)	18F1322-19	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS17 (1-3)	18F1322-20	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	



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CASE NARRATIVE SUMMARY

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



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

MADEP-EPH-04-1.1**Qualifications:****B**

Analyte is found in the associated laboratory blank as well as in the sample.

Analyte & Samples(s) Qualified:**n-Hexadecane**

B206758-BS1, B206758-BSD1

n-Octadecane

B206758-BS1, B206758-BSD1

MS-07A

Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery.

Possibility of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.

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

18F1322-01[PS4 (0-1)], B206758-MS1, B206758-MSD1

n-Nonane

B206758-MS1, B206758-MSD1

MS-22

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

Analyte & Samples(s) Qualified:**C9-C18 Aliphatics**

B206758-MS1

SW-846 6010C-D**Qualifications:****M-10**

The reporting limit verification for the AIHA lead program is outside of control limits for this element. Any reported result at or near the detection limit may be biased on the high side.

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

18F1322-01[PS4 (0-1)], 18F1322-02[PS4 (1-3)], 18F1322-03[PS5 (0-1)], 18F1322-04[PS5 (1-3)], 18F1322-05[PS6 (0-1)], 18F1322-06[PS6 (1-3)], 18F1322-07[PS9 (0-1)], 18F1322-08[PS9 (1-3)], 18F1322-09[PS11 (0-1)], 18F1322-10[PS11 (1-3)], 18F1322-11[PS13 (0-1)], 18F1322-12[PS13 (1-3)], 18F1322-13[PS14 (0-1)], 18F1322-14[PS14 (1-3)], 18F1322-15[PS15 (0-1)], 18F1322-16[PS15 (1-3)], 18F1322-17[PS16 (0-1)], 18F1322-18[PS16 (1-3)], 18F1322-19[PS17 (0-1)], 18F1322-20[PS17 (1-3)], B206972-DUP1, B206972-MRL1

SW-846 8082A**Qualifications:****O-32**

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

Analyte & Samples(s) Qualified:

18F1322-01[PS4 (0-1)], 18F1322-02[PS4 (1-3)], 18F1322-03[PS5 (0-1)], 18F1322-04[PS5 (1-3)], 18F1322-05[PS6 (0-1)], 18F1322-06[PS6 (1-3)], 18F1322-07[PS9 (0-1)], 18F1322-08[PS9 (1-3)], 18F1322-09[PS11 (0-1)], 18F1322-10[PS11 (1-3)], 18F1322-12[PS13 (1-3)], 18F1322-14[PS14 (1-3)], 18F1322-15[PS15 (0-1)], 18F1322-16[PS15 (1-3)], 18F1322-17[PS16 (0-1)], 18F1322-18[PS16 (1-3)], 18F1322-19[PS17 (0-1)], 18F1322-20[PS17 (1-3)]

S-12

Surrogate recovery is outside of control limits on confirmatory column, but within control limits on primary column. Data validation is not affected.

Analyte & Samples(s) Qualified:**Tetrachloro-m-xylene [2C]**

18F1322-11[PS13 (0-1)]



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

MADEP-EPH-04-1.1

SPE cartridge contamination with non-petroleum compounds, if present, is verified by GC/MS in each method blank per extraction batch and excluded from C11-C22 aromatic range fraction in all samples in the batch. No significant modifications were made to the method.

SW-846 6010C/D SW-846 6020A/B

For NC, Metals methods SW-846 6010D and SW-846 6020B are followed, and for all other states methods SW-846 6010C and SW-846 6020A are followed.

The results of analyses reported only relate to samples submitted to the Con-Test 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.

A handwritten signature in black ink, appearing to read "Lisa A. Worthington", is written over a light gray rectangular background.

Lisa A. Worthington
Project Manager



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS4 (0-1)

Sampled: 6/25/2018 09:11

Sample ID: 18F1322-01

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	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 14:49	JMB
Aroclor-1221 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 14:49	JMB
Aroclor-1232 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 14:49	JMB
Aroclor-1242 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 14:49	JMB
Aroclor-1248 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 14:49	JMB
Aroclor-1254 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 14:49	JMB
Aroclor-1260 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 14:49	JMB
Aroclor-1262 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 14:49	JMB
Aroclor-1268 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 14:49	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		71.7	30-150					6/29/18 14:49	
Decachlorobiphenyl [2]		65.5	30-150					6/29/18 14:49	
Tetrachloro-m-xylene [1]		76.4	30-150					6/29/18 14:49	
Tetrachloro-m-xylene [2]		90.5	30-150					6/29/18 14:49	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS4 (0-1)

Sampled: 6/25/2018 09:11

Sample ID: 18F1322-01

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
C19-C36 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Unadjusted C11-C22 Aromatics	77	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
C11-C22 Aromatics	60	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Acenaphthylene	0.24	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Anthracene	0.15	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Benzo(a)anthracene	1.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Benzo(a)pyrene	1.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Benzo(b)fluoranthene	2.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Benzo(g,h,i)perylene	1.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Benzo(k)fluoranthene	0.81	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Chrysene	1.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Dibenz(a,h)anthracene	0.29	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Fluoranthene	2.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Indeno(1,2,3-cd)pyrene	0.84	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Naphthalene	0.13	0.11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Phenanthrene	0.56	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Pyrene	2.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:53	RMW
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		64.2	40-140					7/1/18 2:53	
o-Terphenyl (OTP)		66.4	40-140					7/1/18 2:53	
2-Bromonaphthalene		74.4	40-140					7/1/18 2:53	
2-Fluorobiphenyl		96.1	40-140					7/1/18 2:53	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS4 (0-1)

Sampled: 6/25/2018 09:11

Sample ID: 18F1322-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	51	1.9	0.96	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:12	QNW
Barium	39	1.9		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:12	QNW
Cadmium	1.9	0.19		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:12	QNW
Chromium	14	0.38		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:12	QNW
Lead	67	0.57		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 12:12	QNW
Mercury	0.085	0.028		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 13:58	EJB
Selenium	ND	3.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:12	QNW
Silver	ND	0.38		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:12	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS4 (0-1)

Sampled: 6/25/2018 09:11

Sample ID: 18F1322-01

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	88.5		% Wt	1		SM 2540G	6/28/18	6/29/18 7:06	KMG



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS4 (1-3)

Sampled: 6/25/2018 09:11

Sample ID: 18F1322-02

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	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:06	JMB
Aroclor-1221 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:06	JMB
Aroclor-1232 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:06	JMB
Aroclor-1242 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:06	JMB
Aroclor-1248 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:06	JMB
Aroclor-1254 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:06	JMB
Aroclor-1260 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:06	JMB
Aroclor-1262 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:06	JMB
Aroclor-1268 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:06	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		60.8	30-150					6/29/18 15:06	
Decachlorobiphenyl [2]		53.0	30-150					6/29/18 15:06	
Tetrachloro-m-xylene [1]		65.1	30-150					6/29/18 15:06	
Tetrachloro-m-xylene [2]		77.8	30-150					6/29/18 15:06	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS4 (1-3)

Sampled: 6/25/2018 09:11

Sample ID: 18F1322-02

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Unadjusted C11-C22 Aromatics	15	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
C11-C22 Aromatics	13	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Acenaphthylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Benzo(a)anthracene	0.24	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Benzo(a)pyrene	0.17	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Benzo(b)fluoranthene	0.41	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Benzo(g,h,i)perylene	0.22	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Benzo(k)fluoranthene	0.14	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Chrysene	0.33	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Dibenz(a,h)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Fluoranthene	0.26	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Indeno(1,2,3-cd)pyrene	0.12	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Phenanthrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW
Pyrene	0.40	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:10	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	60.6	40-140	
o-Terphenyl (OTP)	58.9	40-140	
2-Bromonaphthalene	71.3	40-140	
2-Fluorobiphenyl	88.8	40-140	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS4 (1-3)

Sampled: 6/25/2018 09:11

Sample ID: 18F1322-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	5.8	1.7	0.84	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:07	QNW
Barium	16	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:07	QNW
Cadmium	0.27	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:07	QNW
Chromium	13	0.33		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:07	QNW
Lead	12	0.50		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 12:07	QNW
Mercury	ND	0.027		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:00	EJB
Selenium	ND	3.3		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:07	QNW
Silver	ND	0.33		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:07	QNW



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS4 (1-3)

Sampled: 6/25/2018 09:11

Sample ID: 18F1322-02

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	95.5		% Wt	1		SM 2540G	6/28/18	6/29/18 7:16	KMG



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS5 (0-1)

Sampled: 6/25/2018 09:26

Sample ID: 18F1322-03

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	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:24	JMB
Aroclor-1221 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:24	JMB
Aroclor-1232 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:24	JMB
Aroclor-1242 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:24	JMB
Aroclor-1248 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:24	JMB
Aroclor-1254 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:24	JMB
Aroclor-1260 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:24	JMB
Aroclor-1262 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:24	JMB
Aroclor-1268 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:24	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		68.3	30-150					6/29/18 15:24	
Decachlorobiphenyl [2]		64.5	30-150					6/29/18 15:24	
Tetrachloro-m-xylene [1]		72.4	30-150					6/29/18 15:24	
Tetrachloro-m-xylene [2]		85.0	30-150					6/29/18 15:24	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS5 (0-1)

Sampled: 6/25/2018 09:26

Sample ID: 18F1322-03

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
C19-C36 Aliphatics	17	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Unadjusted C11-C22 Aromatics	150	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
C11-C22 Aromatics	110	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Acenaphthene	0.68	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Acenaphthylene	0.19	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Anthracene	1.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Benzo(a)anthracene	2.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Benzo(a)pyrene	2.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Benzo(b)fluoranthene	4.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Benzo(g,h,i)perylene	3.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Benzo(k)fluoranthene	1.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Chrysene	3.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Dibenz(a,h)anthracene	0.55	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Fluoranthene	6.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Fluorene	0.68	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Indeno(1,2,3-cd)pyrene	1.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
2-Methylnaphthalene	0.34	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Naphthalene	0.40	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Phenanthrene	6.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW
Pyrene	6.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:06	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	47.8	40-140	
o-Terphenyl (OTP)	50.4	40-140	
2-Bromonaphthalene	73.8	40-140	
2-Fluorobiphenyl	94.5	40-140	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS5 (0-1)

Sampled: 6/25/2018 09:26

Sample ID: 18F1322-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	42	1.8	0.90	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:17	QNW
Barium	47	1.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:17	QNW
Cadmium	1.6	0.18		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:17	QNW
Chromium	33	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:17	QNW
Lead	140	0.54		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 12:17	QNW
Mercury	0.20	0.029		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:02	EJB
Selenium	ND	3.6		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:17	QNW
Silver	ND	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:17	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS5 (0-1)

Sampled: 6/25/2018 09:26

Sample ID: 18F1322-03

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	88.1		% Wt	1		SM 2540G	6/28/18	6/29/18 7:16	KMG



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS5 (1-3)

Sampled: 6/25/2018 09:26

Sample ID: 18F1322-04

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	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:42	JMB
Aroclor-1221 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:42	JMB
Aroclor-1232 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:42	JMB
Aroclor-1242 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:42	JMB
Aroclor-1248 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:42	JMB
Aroclor-1254 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:42	JMB
Aroclor-1260 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:42	JMB
Aroclor-1262 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:42	JMB
Aroclor-1268 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 15:42	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		63.0	30-150					6/29/18 15:42	
Decachlorobiphenyl [2]		62.2	30-150					6/29/18 15:42	
Tetrachloro-m-xylene [1]		66.9	30-150					6/29/18 15:42	
Tetrachloro-m-xylene [2]		75.3	30-150					6/29/18 15:42	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS5 (1-3)

Sampled: 6/25/2018 09:26

Sample ID: 18F1322-04

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
C19-C36 Aliphatics	15	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Unadjusted C11-C22 Aromatics	240	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
C11-C22 Aromatics	160	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Acenaphthene	1.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Acenaphthylene	0.14	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Anthracene	3.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Benzo(a)anthracene	5.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Benzo(a)pyrene	4.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Benzo(b)fluoranthene	6.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Benzo(g,h,i)perylene	2.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Benzo(k)fluoranthene	2.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Chrysene	6.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Dibenz(a,h)anthracene	0.83	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Fluoranthene	14	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Fluorene	1.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Indeno(1,2,3-cd)pyrene	2.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
2-Methylnaphthalene	0.39	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Naphthalene	0.45	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Phenanthrene	13	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW
Pyrene	13	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:43	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	65.7	40-140	
o-Terphenyl (OTP)	69.3	40-140	
2-Bromonaphthalene	76.6	40-140	
2-Fluorobiphenyl	98.1	40-140	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS5 (1-3)

Sampled: 6/25/2018 09:26

Sample ID: 18F1322-04

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	14	1.7	0.85	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:24	QNW
Barium	38	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:24	QNW
Cadmium	0.60	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:24	QNW
Chromium	19	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:24	QNW
Lead	95	0.51		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 12:24	QNW
Mercury	0.19	0.026		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:03	EJB
Selenium	ND	3.4		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:24	QNW
Silver	ND	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:24	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Sampled: 6/25/2018 09:26

Field Sample #: PS5 (1-3)

Sample ID: 18F1322-04

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	92.7		% Wt	1		SM 2540G	6/28/18	6/29/18 7:17	KMG



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS6 (0-1)

Sampled: 6/25/2018 09:45

Sample ID: 18F1322-05

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	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:00	JMB
Aroclor-1221 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:00	JMB
Aroclor-1232 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:00	JMB
Aroclor-1242 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:00	JMB
Aroclor-1248 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:00	JMB
Aroclor-1254 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:00	JMB
Aroclor-1260 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:00	JMB
Aroclor-1262 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:00	JMB
Aroclor-1268 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:00	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		70.0	30-150					6/29/18 16:00	
Decachlorobiphenyl [2]		64.9	30-150					6/29/18 16:00	
Tetrachloro-m-xylene [1]		75.3	30-150					6/29/18 16:00	
Tetrachloro-m-xylene [2]		88.6	30-150					6/29/18 16:00	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS6 (0-1)

Sampled: 6/25/2018 09:45

Sample ID: 18F1322-05

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	11	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
C19-C36 Aliphatics	23	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Unadjusted C11-C22 Aromatics	120	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
C11-C22 Aromatics	95	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Acenaphthene	0.17	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Acenaphthylene	0.32	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Anthracene	0.35	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Benzo(a)anthracene	1.4	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Benzo(a)pyrene	1.5	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Benzo(b)fluoranthene	3.2	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Benzo(g,h,i)perylene	5.5	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Benzo(k)fluoranthene	1.1	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Chrysene	2.4	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Dibenz(a,h)anthracene	0.47	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Fluoranthene	3.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Fluorene	0.25	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Indeno(1,2,3-cd)pyrene	1.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
2-Methylnaphthalene	0.24	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Naphthalene	0.33	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Phenanthrene	1.9	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Pyrene	3.0	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:02	RMW
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		61.8	40-140					6/30/18 17:02	
o-Terphenyl (OTP)		60.9	40-140					6/30/18 17:02	
2-Bromonaphthalene		71.5	40-140					6/30/18 17:02	
2-Fluorobiphenyl		93.0	40-140					6/30/18 17:02	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS6 (0-1)

Sampled: 6/25/2018 09:45

Sample ID: 18F1322-05

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	75	1.8	0.92	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:29	QNW
Barium	56	1.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:29	QNW
Cadmium	2.5	0.18		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:29	QNW
Chromium	16	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:29	QNW
Lead	170	0.55		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 12:29	QNW
Mercury	0.22	0.028		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:05	EJB
Selenium	ND	3.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:29	QNW
Silver	ND	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:29	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Sampled: 6/25/2018 09:45

Field Sample #: PS6 (0-1)

Sample ID: 18F1322-05

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	93.4		% Wt	1		SM 2540G	6/28/18	6/29/18 7:18	KMG



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS6 (1-3)

Sampled: 6/25/2018 09:45

Sample ID: 18F1322-06

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	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:18	JMB
Aroclor-1221 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:18	JMB
Aroclor-1232 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:18	JMB
Aroclor-1242 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:18	JMB
Aroclor-1248 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:18	JMB
Aroclor-1254 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:18	JMB
Aroclor-1260 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:18	JMB
Aroclor-1262 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:18	JMB
Aroclor-1268 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:18	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		77.7	30-150					6/29/18 16:18	
Decachlorobiphenyl [2]		69.4	30-150					6/29/18 16:18	
Tetrachloro-m-xylene [1]		81.6	30-150					6/29/18 16:18	
Tetrachloro-m-xylene [2]		95.2	30-150					6/29/18 16:18	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS6 (1-3)

Sampled: 6/25/2018 09:45

Sample ID: 18F1322-06

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
C19-C36 Aliphatics	18	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Unadjusted C11-C22 Aromatics	99	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
C11-C22 Aromatics	77	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Acenaphthene	0.41	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Acenaphthylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Anthracene	0.72	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Benzo(a)anthracene	1.4	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Benzo(a)pyrene	1.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Benzo(b)fluoranthene	2.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Benzo(g,h,i)perylene	1.8	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Benzo(k)fluoranthene	0.68	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Chrysene	2.0	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Dibenz(a,h)anthracene	0.27	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Fluoranthene	3.6	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Fluorene	0.42	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Indeno(1,2,3-cd)pyrene	0.85	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
2-Methylnaphthalene	0.17	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Naphthalene	0.21	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Phenanthrene	3.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Pyrene	3.4	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:25	RMW
Surrogates		% Recovery		Recovery Limits		Flag/Qual			
Chlorooctadecane (COD)		74.9		40-140				7/1/18 4:25	
o-Terphenyl (OTP)		78.4		40-140				7/1/18 4:25	
2-Bromonaphthalene		82.7		40-140				7/1/18 4:25	
2-Fluorobiphenyl		102		40-140				7/1/18 4:25	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS6 (1-3)

Sampled: 6/25/2018 09:45

Sample ID: 18F1322-06

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	21	1.7	0.87	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:21	QNW
Barium	48	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:21	QNW
Cadmium	0.62	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:21	QNW
Chromium	13	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:21	QNW
Lead	200	0.51		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 12:21	QNW
Mercury	0.26	0.028		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:11	EJB
Selenium	ND	3.4		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:21	QNW
Silver	0.58	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:21	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS6 (1-3)

Sampled: 6/25/2018 09:45

Sample ID: 18F1322-06

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	94.1		% Wt	1		SM 2540G	6/28/18	6/29/18 7:18	KMG



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS9 (0-1)

Sampled: 6/25/2018 10:07

Sample ID: 18F1322-07

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	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:35	JMB
Aroclor-1221 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:35	JMB
Aroclor-1232 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:35	JMB
Aroclor-1242 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:35	JMB
Aroclor-1248 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:35	JMB
Aroclor-1254 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:35	JMB
Aroclor-1260 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:35	JMB
Aroclor-1262 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:35	JMB
Aroclor-1268 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:35	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		74.6	30-150					6/29/18 16:35	
Decachlorobiphenyl [2]		74.2	30-150					6/29/18 16:35	
Tetrachloro-m-xylene [1]		80.8	30-150					6/29/18 16:35	
Tetrachloro-m-xylene [2]		94.0	30-150					6/29/18 16:35	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS9 (0-1)

Sampled: 6/25/2018 10:07

Sample ID: 18F1322-07

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
C19-C36 Aliphatics	19	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Unadjusted C11-C22 Aromatics	160	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
C11-C22 Aromatics	120	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Acenaphthene	0.16	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Acenaphthylene	0.59	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Anthracene	0.43	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Benzo(a)anthracene	2.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Benzo(a)pyrene	3.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Benzo(b)fluoranthene	6.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Benzo(g,h,i)perylene	4.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Benzo(k)fluoranthene	2.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Chrysene	4.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Dibenz(a,h)anthracene	0.78	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Fluoranthene	6.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Fluorene	0.19	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Indeno(1,2,3-cd)pyrene	2.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
2-Methylnaphthalene	0.22	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Naphthalene	0.31	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Phenanthrene	1.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Pyrene	6.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 3:48	RMW
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		64.2	40-140					7/1/18 3:48	
o-Terphenyl (OTP)		65.8	40-140					7/1/18 3:48	
2-Bromonaphthalene		78.6	40-140					7/1/18 3:48	
2-Fluorobiphenyl		96.4	40-140					7/1/18 3:48	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS9 (0-1)

Sampled: 6/25/2018 10:07

Sample ID: 18F1322-07

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	31	1.8	0.91	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:27	QNW
Barium	38	1.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:27	QNW
Cadmium	0.87	0.18		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:27	QNW
Chromium	17	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:27	QNW
Lead	120	0.54		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 12:27	QNW
Mercury	0.11	0.029		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:12	EJB
Selenium	ND	3.6		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:27	QNW
Silver	0.69	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:27	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS9 (0-1)

Sampled: 6/25/2018 10:07

Sample ID: 18F1322-07

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	89.0		% Wt	1		SM 2540G	6/28/18	6/29/18 7:19	KMG



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS9 (1-3)

Sampled: 6/25/2018 10:07

Sample ID: 18F1322-08

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	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:53	JMB
Aroclor-1221 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:53	JMB
Aroclor-1232 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:53	JMB
Aroclor-1242 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:53	JMB
Aroclor-1248 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:53	JMB
Aroclor-1254 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:53	JMB
Aroclor-1260 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:53	JMB
Aroclor-1262 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:53	JMB
Aroclor-1268 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 16:53	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		75.4	30-150					6/29/18 16:53	
Decachlorobiphenyl [2]		76.9	30-150					6/29/18 16:53	
Tetrachloro-m-xylene [1]		82.0	30-150					6/29/18 16:53	
Tetrachloro-m-xylene [2]		95.2	30-150					6/29/18 16:53	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS9 (1-3)

Sampled: 6/25/2018 10:07

Sample ID: 18F1322-08

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
C19-C36 Aliphatics	17	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Unadjusted C11-C22 Aromatics	200	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
C11-C22 Aromatics	140	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Acenaphthene	0.58	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Acenaphthylene	0.58	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Anthracene	1.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Benzo(a)anthracene	4.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Benzo(a)pyrene	4.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Benzo(b)fluoranthene	7.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Benzo(g,h,i)perylene	3.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Benzo(k)fluoranthene	2.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Chrysene	5.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Dibenz(a,h)anthracene	0.93	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Fluoranthene	9.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Fluorene	0.47	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Indeno(1,2,3-cd)pyrene	2.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
2-Methylnaphthalene	0.37	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Naphthalene	0.44	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Phenanthrene	4.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Pyrene	9.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:07	RMW
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		59.1	40-140					7/1/18 4:07	
o-Terphenyl (OTP)		61.2	40-140					7/1/18 4:07	
2-Bromonaphthalene		79.2	40-140					7/1/18 4:07	
2-Fluorobiphenyl		96.8	40-140					7/1/18 4:07	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS9 (1-3)

Sampled: 6/25/2018 10:07

Sample ID: 18F1322-08

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	34	1.7	0.88	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:33	QNW
Barium	27	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:33	QNW
Cadmium	0.90	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:33	QNW
Chromium	13	0.35		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:33	QNW
Lead	77	0.52		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 12:33	QNW
Mercury	0.072	0.026		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:14	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:33	QNW
Silver	0.45	0.35		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:33	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Sampled: 6/25/2018 10:07

Field Sample #: PS9 (1-3)

Sample ID: 18F1322-08

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	92.8		% Wt	1		SM 2540G	6/28/18	6/29/18 7:19	KMG



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS11 (0-1)

Sampled: 6/25/2018 10:26

Sample ID: 18F1322-09

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	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 17:11	JMB
Aroclor-1221 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 17:11	JMB
Aroclor-1232 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 17:11	JMB
Aroclor-1242 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 17:11	JMB
Aroclor-1248 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 17:11	JMB
Aroclor-1254 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 17:11	JMB
Aroclor-1260 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 17:11	JMB
Aroclor-1262 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 17:11	JMB
Aroclor-1268 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 17:11	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		89.9	30-150					6/29/18 17:11	
Decachlorobiphenyl [2]		81.0	30-150					6/29/18 17:11	
Tetrachloro-m-xylene [1]		95.8	30-150					6/29/18 17:11	
Tetrachloro-m-xylene [2]		112	30-150					6/29/18 17:11	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS11 (0-1)

Sampled: 6/25/2018 10:26

Sample ID: 18F1322-09

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Unadjusted C11-C22 Aromatics	64	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
C11-C22 Aromatics	48	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Acenaphthene	0.13	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Acenaphthylene	0.17	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Anthracene	0.23	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Benzo(a)anthracene	1.2	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Benzo(a)pyrene	1.5	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Benzo(b)fluoranthene	2.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Benzo(g,h,i)perylene	1.1	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Benzo(k)fluoranthene	0.78	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Chrysene	1.6	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Dibenz(a,h)anthracene	0.31	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Fluoranthene	2.5	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Fluorene	0.13	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Indeno(1,2,3-cd)pyrene	1.0	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Phenanthrene	0.89	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW
Pyrene	2.5	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:47	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	73.7	40-140	
o-Terphenyl (OTP)	73.4	40-140	
2-Bromonaphthalene	66.1	40-140	
2-Fluorobiphenyl	91.2	40-140	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS11 (0-1)

Sampled: 6/25/2018 10:26

Sample ID: 18F1322-09

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	10	1.8	0.90	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:38	QNW
Barium	35	1.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:38	QNW
Cadmium	0.45	0.18		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:38	QNW
Chromium	15	0.35		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:38	QNW
Lead	66	0.53		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 12:38	QNW
Mercury	0.18	0.026		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:16	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:38	QNW
Silver	ND	0.35		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:38	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS11 (0-1)

Sampled: 6/25/2018 10:26

Sample ID: 18F1322-09

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	93.7		% Wt	1		SM 2540G	6/28/18	6/29/18 7:19	KMG



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS11 (1-3)

Sampled: 6/25/2018 10:26

Sample ID: 18F1322-10

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	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:17	JMB
Aroclor-1221 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:17	JMB
Aroclor-1232 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:17	JMB
Aroclor-1242 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:17	JMB
Aroclor-1248 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:17	JMB
Aroclor-1254 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:17	JMB
Aroclor-1260 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:17	JMB
Aroclor-1262 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:17	JMB
Aroclor-1268 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:17	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		72.4	30-150					6/29/18 18:17	
Decachlorobiphenyl [2]		76.4	30-150					6/29/18 18:17	
Tetrachloro-m-xylene [1]		76.4	30-150					6/29/18 18:17	
Tetrachloro-m-xylene [2]		88.6	30-150					6/29/18 18:17	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS11 (1-3)

Sampled: 6/25/2018 10:26

Sample ID: 18F1322-10

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	16	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
C19-C36 Aliphatics	23	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Unadjusted C11-C22 Aromatics	230	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
C11-C22 Aromatics	170	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Acenaphthene	0.28	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Acenaphthylene	0.62	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Anthracene	0.65	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Benzo(a)anthracene	4.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Benzo(a)pyrene	4.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Benzo(b)fluoranthene	9.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Benzo(g,h,i)perylene	4.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Benzo(k)fluoranthene	3.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Chrysene	6.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Dibenz(a,h)anthracene	0.96	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Fluoranthene	9.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Fluorene	0.28	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Indeno(1,2,3-cd)pyrene	3.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
2-Methylnaphthalene	0.24	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Naphthalene	0.34	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Phenanthrene	2.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW
Pyrene	9.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:16	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	75.4	40-140	
o-Terphenyl (OTP)	75.9	40-140	
2-Bromonaphthalene	70.9	40-140	
2-Fluorobiphenyl	97.7	40-140	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS11 (1-3)

Sampled: 6/25/2018 10:26

Sample ID: 18F1322-10

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	60	1.9	0.96	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:43	QNW
Barium	56	1.9		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:43	QNW
Cadmium	1.7	0.19		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:43	QNW
Chromium	17	0.38		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:43	QNW
Lead	180	0.57		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 12:43	QNW
Mercury	0.45	0.029		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:17	EJB
Selenium	ND	3.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:43	QNW
Silver	0.50	0.38		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:43	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS11 (1-3)

Sampled: 6/25/2018 10:26

Sample ID: 18F1322-10

Sample Matrix: Soil

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	88.8		% Wt	1		SM 2540G	6/28/18	6/29/18 7:19	KMG



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS13 (0-1)

Sampled: 6/25/2018 11:31

Sample ID: 18F1322-11

Sample Matrix: Soil

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:34	JMB
Aroclor-1221 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:34	JMB
Aroclor-1232 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:34	JMB
Aroclor-1242 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:34	JMB
Aroclor-1248 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:34	JMB
Aroclor-1254 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:34	JMB
Aroclor-1260 [1]	0.24	0.092	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:34	JMB
Aroclor-1262 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:34	JMB
Aroclor-1268 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:34	JMB
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]	127		30-150			6/29/18 18:34			
Decachlorobiphenyl [2]	121		30-150			6/29/18 18:34			
Tetrachloro-m-xylene [1]	137		30-150			6/29/18 18:34			
Tetrachloro-m-xylene [2]	158 *		30-150		S-12	6/29/18 18:34			



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS13 (0-1)

Sampled: 6/25/2018 11:31

Sample ID: 18F1322-11

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
C19-C36 Aliphatics	51	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Unadjusted C11-C22 Aromatics	89	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
C11-C22 Aromatics	75	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Acenaphthylene	0.14	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Anthracene	0.18	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Benzo(a)anthracene	0.94	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Benzo(a)pyrene	0.95	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Benzo(b)fluoranthene	2.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Benzo(g,h,i)perylene	0.88	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Benzo(k)fluoranthene	0.76	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Chrysene	1.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Dibenz(a,h)anthracene	0.25	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Fluoranthene	2.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Indeno(1,2,3-cd)pyrene	0.83	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Naphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Phenanthrene	0.87	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Pyrene	2.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:38	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		70.2	40-140					6/29/18 21:38	
o-Terphenyl (OTP)		69.3	40-140					6/29/18 21:38	
2-Bromonaphthalene		76.1	40-140					6/29/18 21:38	
2-Fluorobiphenyl		106	40-140					6/29/18 21:38	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS13 (0-1)

Sampled: 6/25/2018 11:31

Sample ID: 18F1322-11

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	36	1.9	0.95	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:49	QNW
Barium	49	1.9		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:49	QNW
Cadmium	1.4	0.19		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:49	QNW
Chromium	69	0.38		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:49	QNW
Lead	170	0.56		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 12:49	QNW
Mercury	0.15	0.029		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:19	EJB
Selenium	ND	3.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:49	QNW
Silver	0.48	0.38		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:49	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS13 (0-1)

Sampled: 6/25/2018 11:31

Sample ID: 18F1322-11

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	87.4		% Wt	1		SM 2540G	6/28/18	6/29/18 7:19	KMG



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS13 (1-3)

Sampled: 6/25/2018 11:31

Sample ID: 18F1322-12

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	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:52	JMB
Aroclor-1221 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:52	JMB
Aroclor-1232 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:52	JMB
Aroclor-1242 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:52	JMB
Aroclor-1248 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:52	JMB
Aroclor-1254 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:52	JMB
Aroclor-1260 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:52	JMB
Aroclor-1262 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:52	JMB
Aroclor-1268 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 18:52	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		67.0	30-150					6/29/18 18:52	
Decachlorobiphenyl [2]		60.0	30-150					6/29/18 18:52	
Tetrachloro-m-xylene [1]		69.2	30-150					6/29/18 18:52	
Tetrachloro-m-xylene [2]		82.3	30-150					6/29/18 18:52	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS13 (1-3)

Sampled: 6/25/2018 11:31

Sample ID: 18F1322-12

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Unadjusted C11-C22 Aromatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
C11-C22 Aromatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Acenaphthylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Benzo(a)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Benzo(a)pyrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Benzo(b)fluoranthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Benzo(g,h,i)perylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Benzo(k)fluoranthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Chrysene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Dibenz(a,h)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Fluoranthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Indeno(1,2,3-cd)pyrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Phenanthrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Pyrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:35	RMW
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		63.5	40-140					7/1/18 2:35	
o-Terphenyl (OTP)		63.6	40-140					7/1/18 2:35	
2-Bromonaphthalene		70.5	40-140					7/1/18 2:35	
2-Fluorobiphenyl		84.9	40-140					7/1/18 2:35	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS13 (1-3)

Sampled: 6/25/2018 11:31

Sample ID: 18F1322-12

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	4.5	1.7	0.85	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:56	QNW
Barium	12	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:56	QNW
Cadmium	0.22	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:56	QNW
Chromium	11	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:56	QNW
Lead	25	0.51		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 12:56	QNW
Mercury	ND	0.027		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:21	EJB
Selenium	ND	3.4		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:56	QNW
Silver	ND	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 12:56	QNW



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS13 (1-3)

Sampled: 6/25/2018 11:31

Sample ID: 18F1322-12

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	94.1		% Wt	1		SM 2540G	6/28/18	6/29/18 7:19	KMG



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS14 (0-1)

Sampled: 6/25/2018 12:10

Sample ID: 18F1322-13

Sample Matrix: Soil

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:10	JMB
Aroclor-1221 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:10	JMB
Aroclor-1232 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:10	JMB
Aroclor-1242 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:10	JMB
Aroclor-1248 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:10	JMB
Aroclor-1254 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:10	JMB
Aroclor-1260 [1]	0.12	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:10	JMB
Aroclor-1262 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:10	JMB
Aroclor-1268 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:10	JMB
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]	66.0		30-150				6/29/18 19:10		
Decachlorobiphenyl [2]	61.8		30-150				6/29/18 19:10		
Tetrachloro-m-xylene [1]	69.8		30-150				6/29/18 19:10		
Tetrachloro-m-xylene [2]	81.4		30-150				6/29/18 19:10		



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS14 (0-1)

Sampled: 6/25/2018 12:10

Sample ID: 18F1322-13

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
C19-C36 Aliphatics	39	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Unadjusted C11-C22 Aromatics	84	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
C11-C22 Aromatics	68	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Acenaphthene	0.13	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Acenaphthylene	0.14	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Anthracene	0.19	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Benzo(a)anthracene	1.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Benzo(a)pyrene	1.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Benzo(b)fluoranthene	2.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Benzo(g,h,i)perylene	0.90	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Benzo(k)fluoranthene	0.67	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Chrysene	1.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Dibenz(a,h)anthracene	0.25	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Fluoranthene	2.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Indeno(1,2,3-cd)pyrene	0.90	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Naphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Phenanthrene	1.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW
Pyrene	2.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 18:34	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	55.5	40-140	
o-Terphenyl (OTP)	56.2	40-140	
2-Bromonaphthalene	81.0	40-140	
2-Fluorobiphenyl	99.7	40-140	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS14 (0-1)

Sampled: 6/25/2018 12:10

Sample ID: 18F1322-13

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	35	1.8	0.93	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:01	QNW
Barium	58	1.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:01	QNW
Cadmium	1.0	0.18		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:01	QNW
Chromium	34	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:01	QNW
Lead	200	0.55		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 13:01	QNW
Mercury	0.091	0.027		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:22	EJB
Selenium	ND	3.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:01	QNW
Silver	0.58	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:01	QNW



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS14 (0-1)

Sampled: 6/25/2018 12:10

Sample ID: 18F1322-13

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	88.7		% Wt	1		SM 2540G	6/28/18	6/29/18 7:20	KMG



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS14 (1-3)

Sampled: 6/25/2018 12:10

Sample ID: 18F1322-14

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	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:28	JMB
Aroclor-1221 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:28	JMB
Aroclor-1232 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:28	JMB
Aroclor-1242 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:28	JMB
Aroclor-1248 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:28	JMB
Aroclor-1254 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:28	JMB
Aroclor-1260 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:28	JMB
Aroclor-1262 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:28	JMB
Aroclor-1268 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:28	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		85.3	30-150					6/29/18 19:28	
Decachlorobiphenyl [2]		78.4	30-150					6/29/18 19:28	
Tetrachloro-m-xylene [1]		91.2	30-150					6/29/18 19:28	
Tetrachloro-m-xylene [2]		107	30-150					6/29/18 19:28	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS14 (1-3)

Sampled: 6/25/2018 12:10

Sample ID: 18F1322-14

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
C19-C36 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Unadjusted C11-C22 Aromatics	14	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
C11-C22 Aromatics	13	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Acenaphthylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Benzo(a)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Benzo(a)pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Benzo(b)fluoranthene	0.21	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Benzo(g,h,i)perylene	0.13	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Benzo(k)fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Chrysene	0.16	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Dibenz(a,h)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Fluoranthene	0.21	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Indeno(1,2,3-cd)pyrene	0.11	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Naphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Phenanthrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW
Pyrene	0.22	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 16:24	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	62.6	40-140	6/30/18 16:24
o-Terphenyl (OTP)	64.5	40-140	6/30/18 16:24
2-Bromonaphthalene	64.2	40-140	6/30/18 16:24
2-Fluorobiphenyl	75.9	40-140	6/30/18 16:24



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS14 (1-3)

Sampled: 6/25/2018 12:10

Sample ID: 18F1322-14

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	5.8	1.7	0.85	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:07	QNW
Barium	28	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:07	QNW
Cadmium	0.19	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:07	QNW
Chromium	18	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:07	QNW
Lead	20	0.51		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 13:07	QNW
Mercury	0.050	0.028		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:24	EJB
Selenium	ND	3.4		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:07	QNW
Silver	ND	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:07	QNW



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS14 (1-3)

Sampled: 6/25/2018 12:10

Sample ID: 18F1322-14

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	93.3		% Wt	1		SM 2540G	6/28/18	6/29/18 7:20	KMG



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS15 (0-1)

Sampled: 6/25/2018 12:20

Sample ID: 18F1322-15

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	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:45	JMB
Aroclor-1221 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:45	JMB
Aroclor-1232 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:45	JMB
Aroclor-1242 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:45	JMB
Aroclor-1248 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:45	JMB
Aroclor-1254 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:45	JMB
Aroclor-1260 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:45	JMB
Aroclor-1262 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:45	JMB
Aroclor-1268 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 19:45	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		80.9	30-150					6/29/18 19:45	
Decachlorobiphenyl [2]		76.4	30-150					6/29/18 19:45	
Tetrachloro-m-xylene [1]		87.2	30-150					6/29/18 19:45	
Tetrachloro-m-xylene [2]		102	30-150					6/29/18 19:45	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS15 (0-1)

Sampled: 6/25/2018 12:20

Sample ID: 18F1322-15

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
C19-C36 Aliphatics	35	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Unadjusted C11-C22 Aromatics	80	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
C11-C22 Aromatics	67	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Acenaphthylene	0.15	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Anthracene	0.15	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Benzo(a)anthracene	0.94	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Benzo(a)pyrene	0.89	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Benzo(b)fluoranthene	1.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Benzo(g,h,i)perylene	1.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Benzo(k)fluoranthene	0.60	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Chrysene	1.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Dibenz(a,h)anthracene	0.20	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Fluoranthene	2.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Indeno(1,2,3-cd)pyrene	0.67	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Naphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Phenanthrene	0.58	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW
Pyrene	2.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:11	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	62.3	40-140	
o-Terphenyl (OTP)	63.5	40-140	
2-Bromonaphthalene	73.5	40-140	
2-Fluorobiphenyl	94.6	40-140	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS15 (0-1)

Sampled: 6/25/2018 12:20

Sample ID: 18F1322-15

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	21	1.7	0.87	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:52	QNW
Barium	40	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:52	QNW
Cadmium	0.99	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:52	QNW
Chromium	38	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:52	QNW
Lead	120	0.51		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 13:52	QNW
Mercury	0.17	0.026		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:26	EJB
Selenium	ND	3.4		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:52	QNW
Silver	0.57	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:52	QNW



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS15 (0-1)

Sampled: 6/25/2018 12:20

Sample ID: 18F1322-15

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	91.9		% Wt	1		SM 2540G	6/28/18	6/29/18 7:20	KMG



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS15 (1-3)

Sampled: 6/25/2018 12:20

Sample ID: 18F1322-16

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	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:03	JMB
Aroclor-1221 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:03	JMB
Aroclor-1232 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:03	JMB
Aroclor-1242 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:03	JMB
Aroclor-1248 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:03	JMB
Aroclor-1254 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:03	JMB
Aroclor-1260 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:03	JMB
Aroclor-1262 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:03	JMB
Aroclor-1268 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:03	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		81.1	30-150					6/29/18 20:03	
Decachlorobiphenyl [2]		71.3	30-150					6/29/18 20:03	
Tetrachloro-m-xylene [1]		84.9	30-150					6/29/18 20:03	
Tetrachloro-m-xylene [2]		101	30-150					6/29/18 20:03	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS15 (1-3)

Sampled: 6/25/2018 12:20

Sample ID: 18F1322-16

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Unadjusted C11-C22 Aromatics	15	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
C11-C22 Aromatics	14	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Acenaphthylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Benzo(a)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Benzo(a)pyrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Benzo(b)fluoranthene	0.14	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Benzo(g,h,i)perylene	0.21	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Benzo(k)fluoranthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Chrysene	0.11	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Dibenz(a,h)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Fluoranthene	0.15	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Indeno(1,2,3-cd)pyrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Phenanthrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Pyrene	0.16	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 2:16	RMW
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		63.5	40-140					7/1/18 2:16	
o-Terphenyl (OTP)		64.9	40-140					7/1/18 2:16	
2-Bromonaphthalene		74.7	40-140					7/1/18 2:16	
2-Fluorobiphenyl		86.7	40-140					7/1/18 2:16	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS15 (1-3)

Sampled: 6/25/2018 12:20

Sample ID: 18F1322-16

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	3.9	1.7	0.86	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:58	QNW
Barium	12	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:58	QNW
Cadmium	ND	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:58	QNW
Chromium	11	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:58	QNW
Lead	14	0.51		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 13:58	QNW
Mercury	0.033	0.025		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:31	EJB
Selenium	ND	3.4		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:58	QNW
Silver	ND	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:58	QNW



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS15 (1-3)

Sampled: 6/25/2018 12:20

Sample ID: 18F1322-16

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	95.4		% Wt	1		SM 2540G	6/28/18	6/29/18 7:20	KMG



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS16 (0-1)

Sampled: 6/25/2018 13:21

Sample ID: 18F1322-17

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	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:21	JMB
Aroclor-1221 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:21	JMB
Aroclor-1232 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:21	JMB
Aroclor-1242 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:21	JMB
Aroclor-1248 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:21	JMB
Aroclor-1254 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:21	JMB
Aroclor-1260 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:21	JMB
Aroclor-1262 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:21	JMB
Aroclor-1268 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:21	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		82.4	30-150					6/29/18 20:21	
Decachlorobiphenyl [2]		81.6	30-150					6/29/18 20:21	
Tetrachloro-m-xylene [1]		89.5	30-150					6/29/18 20:21	
Tetrachloro-m-xylene [2]		105	30-150					6/29/18 20:21	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS16 (0-1)

Sampled: 6/25/2018 13:21

Sample ID: 18F1322-17

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
C19-C36 Aliphatics	16	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Unadjusted C11-C22 Aromatics	100	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
C11-C22 Aromatics	83	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Acenaphthylene	0.28	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Anthracene	0.23	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Benzo(a)anthracene	1.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Benzo(a)pyrene	1.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Benzo(b)fluoranthene	2.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Benzo(g,h,i)perylene	2.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Benzo(k)fluoranthene	0.82	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Chrysene	1.9	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Dibenz(a,h)anthracene	0.34	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Fluoranthene	2.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Indeno(1,2,3-cd)pyrene	1.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Naphthalene	0.16	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Phenanthrene	0.46	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Pyrene	2.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 4:44	RMW
Surrogates		% Recovery			Recovery Limits				Flag/Qual
Chlorooctadecane (COD)		64.1			40-140			7/1/18 4:44	
o-Terphenyl (OTP)		68.7			40-140			7/1/18 4:44	
2-Bromonaphthalene		87.0			40-140			7/1/18 4:44	
2-Fluorobiphenyl		98.8			40-140			7/1/18 4:44	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS16 (0-1)

Sampled: 6/25/2018 13:21

Sample ID: 18F1322-17

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	14	1.7	0.88	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:03	QNW
Barium	25	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:03	QNW
Cadmium	0.44	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:03	QNW
Chromium	15	0.35		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:03	QNW
Lead	84	0.52		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 14:03	QNW
Mercury	0.12	0.028		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:33	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:03	QNW
Silver	0.39	0.35		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:03	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS16 (0-1)

Sampled: 6/25/2018 13:21

Sample ID: 18F1322-17

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	93.3		% Wt	1		SM 2540G	6/28/18	6/29/18 7:20	KMG



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS16 (1-3)

Sampled: 6/25/2018 13:21

Sample ID: 18F1322-18

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	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:39	JMB
Aroclor-1221 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:39	JMB
Aroclor-1232 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:39	JMB
Aroclor-1242 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:39	JMB
Aroclor-1248 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:39	JMB
Aroclor-1254 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:39	JMB
Aroclor-1260 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:39	JMB
Aroclor-1262 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:39	JMB
Aroclor-1268 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:39	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		70.3	30-150					6/29/18 20:39	
Decachlorobiphenyl [2]		66.8	30-150					6/29/18 20:39	
Tetrachloro-m-xylene [1]		78.2	30-150					6/29/18 20:39	
Tetrachloro-m-xylene [2]		92.5	30-150					6/29/18 20:39	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS16 (1-3)

Sampled: 6/25/2018 13:21

Sample ID: 18F1322-18

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Unadjusted C11-C22 Aromatics	20	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
C11-C22 Aromatics	19	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Acenaphthylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Benzo(a)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Benzo(a)pyrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Benzo(b)fluoranthene	0.21	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Benzo(g,h,i)perylene	0.28	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Benzo(k)fluoranthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Chrysene	0.12	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Dibenz(a,h)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Fluoranthene	0.22	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Indeno(1,2,3-cd)pyrene	0.13	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Phenanthrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW
Pyrene	0.22	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:30	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	60.4	40-140	
o-Terphenyl (OTP)	61.3	40-140	
2-Bromonaphthalene	76.1	40-140	
2-Fluorobiphenyl	92.4	40-140	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS16 (1-3)

Sampled: 6/25/2018 13:21

Sample ID: 18F1322-18

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	4.1	1.7	0.88	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:09	QNW
Barium	10	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:09	QNW
Cadmium	ND	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:09	QNW
Chromium	9.8	0.35		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:09	QNW
Lead	7.9	0.52		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 14:09	QNW
Mercury	ND	0.025		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:35	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:09	QNW
Silver	ND	0.35		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:09	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS16 (1-3)

Sampled: 6/25/2018 13:21

Sample ID: 18F1322-18

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	95.5		% Wt	1		SM 2540G	6/28/18	6/29/18 7:21	KMG



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS17 (0-1)

Sampled: 6/25/2018 13:55

Sample ID: 18F1322-19

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	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:56	JMB
Aroclor-1221 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:56	JMB
Aroclor-1232 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:56	JMB
Aroclor-1242 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:56	JMB
Aroclor-1248 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:56	JMB
Aroclor-1254 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:56	JMB
Aroclor-1260 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:56	JMB
Aroclor-1262 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:56	JMB
Aroclor-1268 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:56	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		72.4	30-150					6/29/18 20:56	
Decachlorobiphenyl [2]		72.3	30-150					6/29/18 20:56	
Tetrachloro-m-xylene [1]		77.5	30-150					6/29/18 20:56	
Tetrachloro-m-xylene [2]		91.7	30-150					6/29/18 20:56	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS17 (0-1)

Sampled: 6/25/2018 13:55

Sample ID: 18F1322-19

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
C19-C36 Aliphatics	48	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Unadjusted C11-C22 Aromatics	75	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
C11-C22 Aromatics	64	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Acenaphthylene	0.17	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Anthracene	0.16	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Benzo(a)anthracene	0.79	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Benzo(a)pyrene	0.80	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Benzo(b)fluoranthene	1.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Benzo(g,h,i)perylene	0.58	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Benzo(k)fluoranthene	0.54	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Chrysene	1.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Dibenz(a,h)anthracene	0.21	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Fluoranthene	1.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Indeno(1,2,3-cd)pyrene	0.62	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
2-Methylnaphthalene	0.11	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Naphthalene	0.11	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Phenanthrene	0.77	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Pyrene	1.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:58	RMW
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		58.3	40-140					7/1/18 1:58	
o-Terphenyl (OTP)		58.7	40-140					7/1/18 1:58	
2-Bromonaphthalene		78.6	40-140					7/1/18 1:58	
2-Fluorobiphenyl		101	40-140					7/1/18 1:58	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS17 (0-1)

Sampled: 6/25/2018 13:55

Sample ID: 18F1322-19

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	18	1.8	0.90	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:14	QNW
Barium	50	1.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:14	QNW
Cadmium	0.66	0.18		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:14	QNW
Chromium	39	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:14	QNW
Lead	140	0.53		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 14:14	QNW
Mercury	0.13	0.026		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:36	EJB
Selenium	ND	3.6		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:14	QNW
Silver	0.52	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:14	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS17 (0-1)

Sampled: 6/25/2018 13:55

Sample ID: 18F1322-19

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	91.0		% Wt	1		SM 2540G	6/28/18	6/29/18 7:21	KMG



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS17 (1-3)

Sampled: 6/25/2018 13:55

Sample ID: 18F1322-20

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	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:14	JMB
Aroclor-1221 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:14	JMB
Aroclor-1232 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:14	JMB
Aroclor-1242 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:14	JMB
Aroclor-1248 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:14	JMB
Aroclor-1254 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:14	JMB
Aroclor-1260 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:14	JMB
Aroclor-1262 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:14	JMB
Aroclor-1268 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:14	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		69.6	30-150					6/29/18 21:14	
Decachlorobiphenyl [2]		64.2	30-150					6/29/18 21:14	
Tetrachloro-m-xylene [1]		78.1	30-150					6/29/18 21:14	
Tetrachloro-m-xylene [2]		93.1	30-150					6/29/18 21:14	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS17 (1-3)

Sampled: 6/25/2018 13:55

Sample ID: 18F1322-20

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
C19-C36 Aliphatics	31	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Unadjusted C11-C22 Aromatics	66	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
C11-C22 Aromatics	55	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Acenaphthene	0.13	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Acenaphthylene	0.16	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Anthracene	0.14	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Benzo(a)anthracene	0.64	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Benzo(a)pyrene	0.70	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Benzo(b)fluoranthene	1.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Benzo(g,h,i)perylene	1.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Benzo(k)fluoranthene	0.49	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Chrysene	1.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Dibenz(a,h)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Fluoranthene	1.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Fluorene	0.16	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Indeno(1,2,3-cd)pyrene	0.57	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
2-Methylnaphthalene	0.22	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Naphthalene	0.17	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Phenanthrene	0.73	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Pyrene	1.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:39	RMW
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		61.2	40-140					7/1/18 1:39	
o-Terphenyl (OTP)		63.5	40-140					7/1/18 1:39	
2-Bromonaphthalene		82.7	40-140					7/1/18 1:39	
2-Fluorobiphenyl		100	40-140					7/1/18 1:39	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS17 (1-3)

Sampled: 6/25/2018 13:55

Sample ID: 18F1322-20

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	9.5	1.8	0.93	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:19	QNW
Barium	38	1.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:19	QNW
Cadmium	0.35	0.18		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:19	QNW
Chromium	19	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:19	QNW
Lead	100	0.55		mg/Kg dry	1	M-10	SW-846 6010C-D	7/2/18	7/3/18 14:19	QNW
Mercury	0.16	0.027		mg/Kg dry	1		SW-846 7471B	6/29/18	7/2/18 14:38	EJB
Selenium	ND	3.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:19	QNW
Silver	0.46	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:19	QNW



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1322

Date Received: 6/26/2018

Field Sample #: PS17 (1-3)

Sampled: 6/25/2018 13:55

Sample ID: 18F1322-20

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	89.4		% Wt	1		SM 2540G	6/28/18	6/29/18 7:21	KMG



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

Sample Extraction Data

Prep Method: SW-846 3546-MADEP-EPH-04-1.1

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1322-01 [PS4 (0-1)]	B206758	20.2	2.00	06/27/18
18F1322-02 [PS4 (1-3)]	B206758	20.1	2.00	06/27/18
18F1322-03 [PS5 (0-1)]	B206758	20.1	2.00	06/27/18
18F1322-04 [PS5 (1-3)]	B206758	20.2	2.00	06/27/18
18F1322-05 [PS6 (0-1)]	B206758	20.6	2.00	06/27/18
18F1322-06 [PS6 (1-3)]	B206758	20.4	2.00	06/27/18
18F1322-07 [PS9 (0-1)]	B206758	20.5	2.00	06/27/18
18F1322-08 [PS9 (1-3)]	B206758	20.4	2.00	06/27/18
18F1322-09 [PS11 (0-1)]	B206758	20.5	2.00	06/27/18
18F1322-10 [PS11 (1-3)]	B206758	20.4	2.00	06/27/18
18F1322-11 [PS13 (0-1)]	B206758	20.1	2.00	06/27/18
18F1322-12 [PS13 (1-3)]	B206758	20.5	2.00	06/27/18
18F1322-13 [PS14 (0-1)]	B206758	20.0	2.00	06/27/18
18F1322-14 [PS14 (1-3)]	B206758	20.1	2.00	06/27/18
18F1322-15 [PS15 (0-1)]	B206758	20.0	2.00	06/27/18
18F1322-16 [PS15 (1-3)]	B206758	20.2	2.00	06/27/18
18F1322-17 [PS16 (0-1)]	B206758	20.0	2.00	06/27/18
18F1322-18 [PS16 (1-3)]	B206758	20.2	2.00	06/27/18
18F1322-19 [PS17 (0-1)]	B206758	20.0	2.00	06/27/18
18F1322-20 [PS17 (1-3)]	B206758	20.0	2.00	06/27/18

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18F1322-01 [PS4 (0-1)]	B206892	06/28/18
18F1322-02 [PS4 (1-3)]	B206892	06/28/18
18F1322-03 [PS5 (0-1)]	B206892	06/28/18
18F1322-04 [PS5 (1-3)]	B206892	06/28/18
18F1322-05 [PS6 (0-1)]	B206892	06/28/18
18F1322-06 [PS6 (1-3)]	B206892	06/28/18
18F1322-07 [PS9 (0-1)]	B206892	06/28/18
18F1322-08 [PS9 (1-3)]	B206892	06/28/18
18F1322-09 [PS11 (0-1)]	B206892	06/28/18
18F1322-10 [PS11 (1-3)]	B206892	06/28/18
18F1322-11 [PS13 (0-1)]	B206892	06/28/18
18F1322-12 [PS13 (1-3)]	B206892	06/28/18
18F1322-13 [PS14 (0-1)]	B206892	06/28/18
18F1322-14 [PS14 (1-3)]	B206892	06/28/18
18F1322-15 [PS15 (0-1)]	B206892	06/28/18
18F1322-16 [PS15 (1-3)]	B206892	06/28/18
18F1322-17 [PS16 (0-1)]	B206892	06/28/18
18F1322-18 [PS16 (1-3)]	B206892	06/28/18
18F1322-19 [PS17 (0-1)]	B206892	06/28/18
18F1322-20 [PS17 (1-3)]	B206892	06/28/18

Prep Method: SW-846 3050B-SW-846 6010C-D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1322-01 [PS4 (0-1)]	B206972	1.49	50.0	07/02/18
18F1322-02 [PS4 (1-3)]	B206972	1.58	50.0	07/02/18
18F1322-03 [PS5 (0-1)]	B206972	1.59	50.0	07/02/18
18F1322-04 [PS5 (1-3)]	B206972	1.60	50.0	07/02/18
18F1322-05 [PS6 (0-1)]	B206972	1.46	50.0	07/02/18



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Sample Extraction Data

Prep Method: SW-846 3050B-SW-846 6010C-D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1322-06 [PS6 (1-3)]	B206972	1.55	50.0	07/02/18
18F1322-07 [PS9 (0-1)]	B206972	1.57	50.0	07/02/18
18F1322-08 [PS9 (1-3)]	B206972	1.55	50.0	07/02/18
18F1322-09 [PS11 (0-1)]	B206972	1.50	50.0	07/02/18
18F1322-10 [PS11 (1-3)]	B206972	1.48	50.0	07/02/18
18F1322-11 [PS13 (0-1)]	B206972	1.52	50.0	07/02/18
18F1322-12 [PS13 (1-3)]	B206972	1.58	50.0	07/02/18
18F1322-13 [PS14 (0-1)]	B206972	1.53	50.0	07/02/18
18F1322-14 [PS14 (1-3)]	B206972	1.59	50.0	07/02/18
18F1322-15 [PS15 (0-1)]	B206972	1.59	50.0	07/02/18
18F1322-16 [PS15 (1-3)]	B206972	1.54	50.0	07/02/18
18F1322-17 [PS16 (0-1)]	B206972	1.54	50.0	07/02/18
18F1322-18 [PS16 (1-3)]	B206972	1.50	50.0	07/02/18
18F1322-19 [PS17 (0-1)]	B206972	1.55	50.0	07/02/18
18F1322-20 [PS17 (1-3)]	B206972	1.52	50.0	07/02/18

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1322-01 [PS4 (0-1)]	B206939	0.597	50.0	06/29/18
18F1322-02 [PS4 (1-3)]	B206939	0.585	50.0	06/29/18
18F1322-03 [PS5 (0-1)]	B206939	0.582	50.0	06/29/18
18F1322-04 [PS5 (1-3)]	B206939	0.617	50.0	06/29/18
18F1322-05 [PS6 (0-1)]	B206939	0.575	50.0	06/29/18
18F1322-06 [PS6 (1-3)]	B206939	0.579	50.0	06/29/18
18F1322-07 [PS9 (0-1)]	B206939	0.584	50.0	06/29/18
18F1322-08 [PS9 (1-3)]	B206939	0.612	50.0	06/29/18
18F1322-09 [PS11 (0-1)]	B206939	0.613	50.0	06/29/18
18F1322-10 [PS11 (1-3)]	B206939	0.577	50.0	06/29/18
18F1322-11 [PS13 (0-1)]	B206939	0.599	50.0	06/29/18
18F1322-12 [PS13 (1-3)]	B206939	0.591	50.0	06/29/18
18F1322-13 [PS14 (0-1)]	B206939	0.618	50.0	06/29/18
18F1322-14 [PS14 (1-3)]	B206939	0.573	50.0	06/29/18
18F1322-15 [PS15 (0-1)]	B206939	0.623	50.0	06/29/18
18F1322-16 [PS15 (1-3)]	B206939	0.635	50.0	06/29/18
18F1322-17 [PS16 (0-1)]	B206939	0.584	50.0	06/29/18
18F1322-18 [PS16 (1-3)]	B206939	0.627	50.0	06/29/18
18F1322-19 [PS17 (0-1)]	B206939	0.623	50.0	06/29/18
18F1322-20 [PS17 (1-3)]	B206939	0.622	50.0	06/29/18

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1322-01 [PS4 (0-1)]	B206779	10.0	10.0	06/27/18
18F1322-02 [PS4 (1-3)]	B206779	10.0	10.0	06/27/18
18F1322-03 [PS5 (0-1)]	B206779	10.0	10.0	06/27/18
18F1322-04 [PS5 (1-3)]	B206779	10.0	10.0	06/27/18
18F1322-05 [PS6 (0-1)]	B206779	10.0	10.0	06/27/18
18F1322-06 [PS6 (1-3)]	B206779	10.0	10.0	06/27/18
18F1322-07 [PS9 (0-1)]	B206779	10.0	10.0	06/27/18
18F1322-08 [PS9 (1-3)]	B206779	10.0	10.0	06/27/18
18F1322-09 [PS11 (0-1)]	B206779	10.0	10.0	06/27/18
18F1322-10 [PS11 (1-3)]	B206779	10.0	10.0	06/27/18



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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1322-11 [PS13 (0-1)]	B206779	10.0	10.0	06/27/18
18F1322-12 [PS13 (1-3)]	B206779	10.0	10.0	06/27/18
18F1322-13 [PS14 (0-1)]	B206779	10.0	10.0	06/27/18
18F1322-14 [PS14 (1-3)]	B206779	10.0	10.0	06/27/18
18F1322-15 [PS15 (0-1)]	B206779	10.0	10.0	06/27/18
18F1322-16 [PS15 (1-3)]	B206779	10.0	10.0	06/27/18
18F1322-17 [PS16 (0-1)]	B206779	10.0	10.0	06/27/18
18F1322-18 [PS16 (1-3)]	B206779	10.0	10.0	06/27/18
18F1322-19 [PS17 (0-1)]	B206779	10.0	10.0	06/27/18
18F1322-20 [PS17 (1-3)]	B206779	10.0	10.0	06/27/18



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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
Batch B206779 - SW-846 3546										
Blank (B206779-BLK1)										
Prepared: 06/27/18 Analyzed: 06/29/18										
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	0.140		mg/Kg wet	0.200		70.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.130		mg/Kg wet	0.200		65.1	30-150			
Surrogate: Tetrachloro-m-xylene	0.153		mg/Kg wet	0.200		76.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.177		mg/Kg wet	0.200		88.6	30-150			
LCS (B206779-BS1)										
Prepared: 06/27/18 Analyzed: 06/29/18										
Aroclor-1016	0.20	0.020	mg/Kg wet	0.200		99.3	40-140			
Aroclor-1016 [2C]	0.18	0.020	mg/Kg wet	0.200		89.2	40-140			
Aroclor-1260	0.19	0.020	mg/Kg wet	0.200		96.2	40-140			
Aroclor-1260 [2C]	0.17	0.020	mg/Kg wet	0.200		84.8	40-140			
Surrogate: Decachlorobiphenyl	0.170		mg/Kg wet	0.200		84.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.159		mg/Kg wet	0.200		79.4	30-150			
Surrogate: Tetrachloro-m-xylene	0.182		mg/Kg wet	0.200		90.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.212		mg/Kg wet	0.200		106	30-150			
LCS Dup (B206779-BSD1)										
Prepared: 06/27/18 Analyzed: 06/29/18										
Aroclor-1016	0.20	0.020	mg/Kg wet	0.200		98.4	40-140	0.862	30	
Aroclor-1016 [2C]	0.18	0.020	mg/Kg wet	0.200		92.3	40-140	3.41	30	
Aroclor-1260	0.20	0.020	mg/Kg wet	0.200		98.8	40-140	2.67	30	
Aroclor-1260 [2C]	0.17	0.020	mg/Kg wet	0.200		86.4	40-140	1.95	30	
Surrogate: Decachlorobiphenyl	0.175		mg/Kg wet	0.200		87.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.165		mg/Kg wet	0.200		82.3	30-150			
Surrogate: Tetrachloro-m-xylene	0.185		mg/Kg wet	0.200		92.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.216		mg/Kg wet	0.200		108	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
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Batch B206779 - SW-846 3546

Matrix Spike (B206779-MS1)

Source: 18F1322-01

Prepared: 06/27/18 Analyzed: 06/29/18

Aroclor-1016	0.19	0.090	mg/Kg dry	0.226	ND	86.0	40-140			
Aroclor-1016 [2C]	0.17	0.090	mg/Kg dry	0.226	ND	77.1	40-140			
Aroclor-1260	0.18	0.090	mg/Kg dry	0.226	ND	77.4	40-140			
Aroclor-1260 [2C]	0.15	0.090	mg/Kg dry	0.226	ND	68.4	40-140			
Surrogate: Decachlorobiphenyl	0.143		mg/Kg dry	0.226		63.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.133		mg/Kg dry	0.226		58.8	30-150			
Surrogate: Tetrachloro-m-xylene	0.155		mg/Kg dry	0.226		68.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.184		mg/Kg dry	0.226		81.5	30-150			

Matrix Spike Dup (B206779-MSD1)

Source: 18F1322-01

Prepared: 06/27/18 Analyzed: 06/29/18

Aroclor-1016	0.23	0.090	mg/Kg dry	0.226	ND	103	40-140	18.2	30	
Aroclor-1016 [2C]	0.20	0.090	mg/Kg dry	0.226	ND	90.6	40-140	16.1	30	
Aroclor-1260	0.21	0.090	mg/Kg dry	0.226	ND	93.3	40-140	18.6	30	
Aroclor-1260 [2C]	0.19	0.090	mg/Kg dry	0.226	ND	82.2	40-140	18.2	30	
Surrogate: Decachlorobiphenyl	0.174		mg/Kg dry	0.226		77.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.166		mg/Kg dry	0.226		73.2	30-150			
Surrogate: Tetrachloro-m-xylene	0.185		mg/Kg dry	0.226		81.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.220		mg/Kg dry	0.226		97.3	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 B206758 - SW-846 3546

Blank (B206758-BLK1)

Prepared: 06/27/18 Analyzed: 06/29/18

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							
n-Decane	ND	0.10	mg/Kg wet							
n-Docosane	ND	0.10	mg/Kg wet							
n-Dodecane	ND	0.10	mg/Kg wet							
n-Eicosane	ND	0.10	mg/Kg wet							
n-Hexacosane	ND	0.10	mg/Kg wet							
n-Hexadecane	0.11	0.10	mg/Kg wet							
n-Hexatriacontane	ND	0.10	mg/Kg wet							
n-Nonadecane	ND	0.10	mg/Kg wet							
n-Nonane	ND	0.10	mg/Kg wet							
n-Octacosane	ND	0.10	mg/Kg wet							
n-Octadecane	0.16	0.10	mg/Kg wet							
n-Tetracosane	ND	0.10	mg/Kg wet							
n-Tetradecane	ND	0.10	mg/Kg wet							
n-Triacontane	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)	3.59		mg/Kg wet	5.05		71.0	40-140			
Surrogate: o-Terphenyl (OTP)	3.48		mg/Kg wet	5.00		69.6	40-140			
Surrogate: 2-Bromonaphthalene	3.34		mg/Kg wet	5.04		66.3	40-140			
Surrogate: 2-Fluorobiphenyl	4.11		mg/Kg wet	5.02		81.8	40-140			

LCS (B206758-BS1)

Prepared: 06/27/18 Analyzed: 06/29/18

C9-C18 Aliphatics	22.4	10	mg/Kg wet	30.0		74.7	40-140			
C19-C36 Aliphatics	29.0	10	mg/Kg wet	40.0		72.6	40-140			
Acenaphthene	3.45	0.10	mg/Kg wet	5.00		69.0	40-140			
Acenaphthylene	3.31	0.10	mg/Kg wet	5.00		66.1	40-140			
Anthracene	3.87	0.10	mg/Kg wet	5.00		77.4	40-140			
Benzo(a)anthracene	4.00	0.10	mg/Kg wet	5.00		80.1	40-140			
Benzo(a)pyrene	3.89	0.10	mg/Kg wet	5.00		77.8	40-140			
Benzo(b)fluoranthene	3.93	0.10	mg/Kg wet	5.00		78.5	40-140			
Benzo(g,h,i)perylene	3.76	0.10	mg/Kg wet	5.00		75.2	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
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Batch B206758 - SW-846 3546

LCS (B206758-BS1)

Prepared: 06/27/18 Analyzed: 06/29/18

Benzo(k)fluoranthene	3.98	0.10	mg/Kg wet	5.00		79.6	40-140			
Chrysene	4.03	0.10	mg/Kg wet	5.00		80.6	40-140			
Dibenz(a,h)anthracene	3.99	0.10	mg/Kg wet	5.00		79.9	40-140			
Fluoranthene	3.95	0.10	mg/Kg wet	5.00		79.0	40-140			
Fluorene	3.63	0.10	mg/Kg wet	5.00		72.6	40-140			
Indeno(1,2,3-cd)pyrene	3.70	0.10	mg/Kg wet	5.00		74.0	40-140			
2-Methylnaphthalene	3.30	0.10	mg/Kg wet	5.00		66.0	40-140			
Naphthalene	2.96	0.10	mg/Kg wet	5.00		59.2	40-140			
Phenanthrene	3.86	0.10	mg/Kg wet	5.00		77.2	40-140			
Pyrene	4.00	0.10	mg/Kg wet	5.00		79.9	40-140			
n-Decane	2.43	0.10	mg/Kg wet	5.00		48.6	40-140			
n-Docosane	3.82	0.10	mg/Kg wet	5.00		76.4	40-140			
n-Dodecane	2.83	0.10	mg/Kg wet	5.00		56.6	40-140			
n-Eicosane	3.70	0.10	mg/Kg wet	5.00		73.9	40-140			
n-Hexacosane	3.67	0.10	mg/Kg wet	5.00		73.3	40-140			
n-Hexadecane	3.66	0.10	mg/Kg wet	5.00		73.2	40-140			B
n-Hexatriacontane	3.24	0.10	mg/Kg wet	5.00		64.8	40-140			
n-Nonadecane	3.69	0.10	mg/Kg wet	5.00		73.8	40-140			
n-Nonane	1.91	0.10	mg/Kg wet	5.00		38.3	30-140			
n-Octacosane	3.56	0.10	mg/Kg wet	5.00		71.1	40-140			
n-Octadecane	3.93	0.10	mg/Kg wet	5.00		78.6	40-140			B
n-Tetracosane	3.72	0.10	mg/Kg wet	5.00		74.4	40-140			
n-Tetradecane	3.23	0.10	mg/Kg wet	5.00		64.7	40-140			
n-Triacontane	3.45	0.10	mg/Kg wet	5.00		69.1	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)	3.94		mg/Kg wet	5.05		77.9	40-140			
Surrogate: o-Terphenyl (OTP)	3.80		mg/Kg wet	5.00		76.1	40-140			
Surrogate: 2-Bromonaphthalene	3.86		mg/Kg wet	5.04		76.6	40-140			
Surrogate: 2-Fluorobiphenyl	5.01		mg/Kg wet	5.02		99.8	40-140			

LCS Dup (B206758-BSD1)

Prepared: 06/27/18 Analyzed: 06/29/18

C9-C18 Aliphatics	21.7	10	mg/Kg wet	30.0		72.4	40-140	3.07	25	
C19-C36 Aliphatics	27.9	10	mg/Kg wet	40.0		69.9	40-140	3.82	25	
Acenaphthene	3.36	0.10	mg/Kg wet	5.00		67.2	40-140	2.66	25	
Acenaphthylene	3.26	0.10	mg/Kg wet	5.00		65.1	40-140	1.54	25	
Anthracene	3.67	0.10	mg/Kg wet	5.00		73.5	40-140	5.23	25	
Benzo(a)anthracene	3.86	0.10	mg/Kg wet	5.00		77.2	40-140	3.63	25	
Benzo(a)pyrene	3.74	0.10	mg/Kg wet	5.00		74.8	40-140	3.98	25	
Benzo(b)fluoranthene	3.78	0.10	mg/Kg wet	5.00		75.5	40-140	3.87	25	
Benzo(g,h,i)perylene	3.62	0.10	mg/Kg wet	5.00		72.4	40-140	3.77	25	
Benzo(k)fluoranthene	3.81	0.10	mg/Kg wet	5.00		76.2	40-140	4.36	25	
Chrysene	3.88	0.10	mg/Kg wet	5.00		77.5	40-140	3.91	25	
Dibenz(a,h)anthracene	3.85	0.10	mg/Kg wet	5.00		77.0	40-140	3.60	25	
Fluoranthene	3.79	0.10	mg/Kg wet	5.00		75.7	40-140	4.25	25	
Fluorene	3.51	0.10	mg/Kg wet	5.00		70.2	40-140	3.38	25	
Indeno(1,2,3-cd)pyrene	3.56	0.10	mg/Kg wet	5.00		71.2	40-140	3.96	25	
2-Methylnaphthalene	3.22	0.10	mg/Kg wet	5.00		64.4	40-140	2.42	25	
Naphthalene	2.89	0.10	mg/Kg wet	5.00		57.8	40-140	2.40	25	
Phenanthrene	3.68	0.10	mg/Kg wet	5.00		73.6	40-140	4.73	25	
Pyrene	3.83	0.10	mg/Kg wet	5.00		76.6	40-140	4.27	25	
n-Decane	2.42	0.10	mg/Kg wet	5.00		48.4	40-140	0.367	25	



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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
Batch B206758 - SW-846 3546										
LCS Dup (B206758-BSD1)										
					Prepared: 06/27/18 Analyzed: 06/29/18					
n-Docosane	3.69	0.10	mg/Kg wet	5.00		73.9	40-140	3.34	25	
n-Dodecane	2.88	0.10	mg/Kg wet	5.00		57.6	40-140	1.65	25	
n-Eicosane	3.58	0.10	mg/Kg wet	5.00		71.6	40-140	3.22	25	
n-Hexacosane	3.56	0.10	mg/Kg wet	5.00		71.2	40-140	3.02	25	
n-Hexadecane	3.58	0.10	mg/Kg wet	5.00		71.6	40-140	2.19	25	B
n-Hexatriacontane	3.21	0.10	mg/Kg wet	5.00		64.3	40-140	0.895	25	
n-Nonadecane	3.55	0.10	mg/Kg wet	5.00		71.1	40-140	3.74	25	
n-Nonane	1.82	0.10	mg/Kg wet	5.00		36.5	30-140	4.82	25	
n-Octacosane	3.44	0.10	mg/Kg wet	5.00		68.9	40-140	3.27	25	
n-Octadecane	3.80	0.10	mg/Kg wet	5.00		75.9	40-140	3.54	25	B
n-Tetracosane	3.60	0.10	mg/Kg wet	5.00		72.1	40-140	3.20	25	
n-Tetradecane	3.28	0.10	mg/Kg wet	5.00		65.6	40-140	1.43	25	
n-Triacontane	3.36	0.10	mg/Kg wet	5.00		67.3	40-140	2.65	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	5.05		74.0	40-140			
Surrogate: o-Terphenyl (OTP)	3.58		mg/Kg wet	5.00		71.6	40-140			
Surrogate: 2-Bromonaphthalene	3.18		mg/Kg wet	5.04		63.1	40-140			
Surrogate: 2-Fluorobiphenyl	3.99		mg/Kg wet	5.02		79.5	40-140			
Matrix Spike (B206758-MS1)										
		Source: 18F1322-01			Prepared: 06/27/18 Analyzed: 07/01/18					
C9-C18 Aliphatics	20.6	11	mg/Kg dry	33.7	7.75	38.0 *	40-140			MS-22
C19-C36 Aliphatics	29.6	11	mg/Kg dry	45.0	8.32	47.2	40-140			
Unadjusted C11-C22 Aromatics	122	11	mg/Kg dry	95.6	76.5	47.5	40-140			
Acenaphthene	3.06	0.11	mg/Kg dry	5.62	0.0948	52.6	40-140			
Acenaphthylene	3.11	0.11	mg/Kg dry	5.62	0.238	51.1	40-140			
Anthracene	3.45	0.11	mg/Kg dry	5.62	0.148	58.7	40-140			
Benzo(a)anthracene	4.41	0.11	mg/Kg dry	5.62	1.09	59.1	40-140			
Benzo(a)pyrene	4.08	0.11	mg/Kg dry	5.62	1.11	52.7	40-140			
Benzo(b)fluoranthene	5.46	0.11	mg/Kg dry	5.62	2.54	52.1	40-140			
Benzo(g,h,i)perylene	4.21	0.11	mg/Kg dry	5.62	1.47	48.7	40-140			
Benzo(k)fluoranthene	4.10	0.11	mg/Kg dry	5.62	0.806	58.6	40-140			
Chrysene	4.96	0.11	mg/Kg dry	5.62	1.83	55.5	40-140			
Dibenz(a,h)anthracene	3.53	0.11	mg/Kg dry	5.62	0.290	57.6	40-140			
Fluoranthene	5.42	0.11	mg/Kg dry	5.62	2.44	53.1	40-140			
Fluorene	3.25	0.11	mg/Kg dry	5.62	0.0899	56.2	40-140			
Indeno(1,2,3-cd)pyrene	3.62	0.11	mg/Kg dry	5.62	0.840	49.3	40-140			
2-Methylnaphthalene	2.78	0.11	mg/Kg dry	5.62	0.0893	47.9	40-140			
Naphthalene	2.34	0.11	mg/Kg dry	5.62	0.128	39.3 *	40-140			MS-07A
Phenanthrene	3.81	0.11	mg/Kg dry	5.62	0.559	57.8	40-140			
Pyrene	5.63	0.11	mg/Kg dry	5.62	2.65	53.1	40-140			
n-Nonane	1.10	0.11	mg/Kg dry	5.62	ND	19.6 *	30-140			MS-07A
Surrogate: Chlorooctadecane (COD)	3.18		mg/Kg dry	5.68		55.9	40-140			
Surrogate: o-Terphenyl (OTP)	3.32		mg/Kg dry	5.62		59.0	40-140			
Surrogate: 2-Bromonaphthalene	4.41		mg/Kg dry	5.67		77.8	40-140			
Surrogate: 2-Fluorobiphenyl	5.59		mg/Kg dry	5.65		99.0	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
Batch B206758 - SW-846 3546										
Matrix Spike Dup (B206758-MSD1)	Source: 18F1322-01			Prepared: 06/27/18 Analyzed: 07/01/18						
C9-C18 Aliphatics	21.6	11	mg/Kg dry	33.6	7.75	41.4	40-140	5.01	50	
C19-C36 Aliphatics	30.0	11	mg/Kg dry	44.8	8.32	48.4	40-140	1.42	50	
Unadjusted C11-C22 Aromatics	120	11	mg/Kg dry	95.1	76.5	45.9	40-140	1.46	50	
Acenaphthene	3.08	0.11	mg/Kg dry	5.60	0.0948	53.3	40-140	0.802	50	
Acenaphthylene	3.03	0.11	mg/Kg dry	5.60	0.238	49.9	40-140	2.59	50	
Anthracene	3.34	0.11	mg/Kg dry	5.60	0.148	57.1	40-140	3.28	50	
Benzo(a)anthracene	4.33	0.11	mg/Kg dry	5.60	1.09	57.8	40-140	1.94	50	
Benzo(a)pyrene	3.85	0.11	mg/Kg dry	5.60	1.11	48.9	40-140	5.74	50	
Benzo(b)fluoranthene	5.10	0.11	mg/Kg dry	5.60	2.54	45.8	40-140	6.90	50	
Benzo(g,h,i)perylene	3.71	0.11	mg/Kg dry	5.60	1.47	40.2	40-140	12.4	50	
Benzo(k)fluoranthene	3.76	0.11	mg/Kg dry	5.60	0.806	52.8	40-140	8.57	50	
Chrysene	4.87	0.11	mg/Kg dry	5.60	1.83	54.4	40-140	1.66	50	
Dibenz(a,h)anthracene	3.14	0.11	mg/Kg dry	5.60	0.290	50.9	40-140	11.9	50	
Fluoranthene	5.61	0.11	mg/Kg dry	5.60	2.44	56.7	40-140	3.43	50	
Fluorene	3.19	0.11	mg/Kg dry	5.60	0.0899	55.4	40-140	1.97	50	
Indeno(1,2,3-cd)pyrene	3.26	0.11	mg/Kg dry	5.60	0.840	43.3	40-140	10.3	50	
2-Methylnaphthalene	2.81	0.11	mg/Kg dry	5.60	0.0893	48.5	40-140	0.837	50	
Naphthalene	2.35	0.11	mg/Kg dry	5.60	0.128	39.7 *	40-140	0.705	50	MS-07A
Phenanthrene	4.21	0.11	mg/Kg dry	5.60	0.559	65.2	40-140	9.86	50	
Pyrene	5.85	0.11	mg/Kg dry	5.60	2.65	57.2	40-140	3.77	50	
n-Nonane	1.25	0.11	mg/Kg dry	5.60	ND	22.4 *	30-140	13.0	50	MS-07A
Surrogate: Chlorooctadecane (COD)	3.27		mg/Kg dry	5.65		57.9	40-140			
Surrogate: o-Terphenyl (OTP)	3.17		mg/Kg dry	5.60		56.6	40-140			
Surrogate: 2-Bromonaphthalene	4.14		mg/Kg dry	5.64		73.4	40-140			
Surrogate: 2-Fluorobiphenyl	5.29		mg/Kg dry	5.62		94.1	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
Batch B206939 - SW-846 7471										
Blank (B206939-BLK1) Prepared: 06/29/18 Analyzed: 07/02/18										
Mercury	ND	0.025	mg/Kg wet							
LCS (B206939-BS1) Prepared: 06/29/18 Analyzed: 07/02/18										
Mercury	9.69	1.9	mg/Kg wet	9.36		104	73.7-126.3			
LCS Dup (B206939-BSD1) Prepared: 06/29/18 Analyzed: 07/02/18										
Mercury	10.6	1.9	mg/Kg wet	9.36		114	73.7-126.3	9.34	30	
Duplicate (B206939-DUP1) Source: 18F1322-01 Prepared: 06/29/18 Analyzed: 07/02/18										
Mercury	0.0992	0.028	mg/Kg dry		0.0847			15.7	35	
Matrix Spike (B206939-MS1) Source: 18F1322-01 Prepared: 06/29/18 Analyzed: 07/02/18										
Mercury	0.296	0.029	mg/Kg dry	0.195	0.0847	109	75-125			
Batch B206972 - SW-846 3050B										
Blank (B206972-BLK1) Prepared: 07/02/18 Analyzed: 07/03/18										
Arsenic	ND	1.7	mg/Kg wet							
Barium	ND	1.7	mg/Kg wet							
Cadmium	ND	0.17	mg/Kg wet							
Chromium	ND	0.33	mg/Kg wet							
Lead	ND	0.50	mg/Kg wet							
Selenium	ND	3.3	mg/Kg wet							
Silver	ND	0.33	mg/Kg wet							
LCS (B206972-BS1) Prepared: 07/02/18 Analyzed: 07/03/18										
Arsenic	170	5.0	mg/Kg wet	161		106	83.2-116.8			
Barium	263	5.0	mg/Kg wet	260		101	82.7-117.3			
Cadmium	212	0.50	mg/Kg wet	211		101	83.4-116.6			
Chromium	142	0.99	mg/Kg wet	136		104	82.4-117.6			
Lead	112	1.5	mg/Kg wet	111		101	83-117.1			
Selenium	200	9.9	mg/Kg wet	191		105	79.6-120.9			
Silver	45.8	0.99	mg/Kg wet	43.3		106	79.9-119.9			
LCS Dup (B206972-BSD1) Prepared: 07/02/18 Analyzed: 07/03/18										
Arsenic	164	4.9	mg/Kg wet	161		102	83.2-116.8	3.69	30	
Barium	241	4.9	mg/Kg wet	260		92.6	82.7-117.3	8.82	30	
Cadmium	207	0.49	mg/Kg wet	211		98.0	83.4-116.6	2.59	30	
Chromium	136	0.99	mg/Kg wet	136		100	82.4-117.6	3.86	30	
Lead	109	1.5	mg/Kg wet	111		97.8	83-117.1	3.40	30	
Selenium	196	9.9	mg/Kg wet	191		103	79.6-120.9	2.13	30	
Silver	44.8	0.99	mg/Kg wet	43.3		103	79.9-119.9	2.33	30	



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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
Batch B206972 - SW-846 3050B										
Duplicate (B206972-DUP1)		Source: 18F1322-02			Prepared: 07/02/18 Analyzed: 07/03/18					
Arsenic	5.83	1.7	mg/Kg dry		5.83			0.111	35	
Barium	15.4	1.7	mg/Kg dry		15.8			2.52	35	
Cadmium	0.267	0.17	mg/Kg dry		0.267			0.156	35	
Chromium	13.7	0.33	mg/Kg dry		13.4			2.34	35	
Lead	11.0	0.50	mg/Kg dry		11.7			6.15	35	M-10
Selenium	ND	3.3	mg/Kg dry		ND			NC	35	
Silver	ND	0.33	mg/Kg dry		ND			NC	35	
MRL Check (B206972-MRL1)										
Prepared: 07/02/18 Analyzed: 07/03/18										
Lead	0.698	0.49	mg/Kg wet	0.494		141	* 80-120			M-10
Matrix Spike (B206972-MS1)		Source: 18F1322-02			Prepared: 07/02/18 Analyzed: 07/03/18					
Arsenic	22.8	1.8	mg/Kg dry	17.6	5.83	96.6	75-125			
Barium	35.0	1.8	mg/Kg dry	17.6	15.8	109	75-125			
Cadmium	17.5	0.18	mg/Kg dry	17.6	0.267	97.8	75-125			
Chromium	32.3	0.35	mg/Kg dry	17.6	13.4	107	75-125			
Lead	29.5	0.53	mg/Kg dry	17.6	11.7	101	75-125			
Selenium	16.6	3.5	mg/Kg dry	17.6	ND	94.3	75-125			
Silver	17.5	0.35	mg/Kg dry	17.6	ND	99.7	75-125			



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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
Batch B206892 - % Solids										
Duplicate (B206892-DUP1)	Source: 18F1322-01		Prepared: 06/28/18 Analyzed: 06/29/18							
% Solids	88.7		% Wt		88.5			0.219	20	
Duplicate (B206892-DUP2)	Source: 18F1322-02		Prepared: 06/28/18 Analyzed: 06/29/18							
% Solids	95.5		% Wt		95.5			0.0554	20	
Duplicate (B206892-DUP3)	Source: 18F1322-03		Prepared: 06/28/18 Analyzed: 06/29/18							
% Solids	88.2		% Wt		88.1			0.108	20	
Duplicate (B206892-DUP4)	Source: 18F1322-04		Prepared: 06/28/18 Analyzed: 06/29/18							
% Solids	93.2		% Wt		92.7			0.521	20	



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

PS13 (0-1)

SW-846 8082A

Lab Sample ID: 18F1322-11 Date(s) Analyzed: 06/29/2018 06/29/2018

Instrument ID (1): ECD5 Instrument ID (2): ECD5

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1260	1	0.000	0.000	0.000	0.24	
	2	0.000	0.000	0.000	0.20	18.2



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

PS14 (0-1)

SW-846 8082A

Lab Sample ID: 18F1322-13 Date(s) Analyzed: 06/29/2018 06/29/2018

Instrument ID (1): ECD5 Instrument ID (2): ECD5

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1260	1	0.000	0.000	0.000	0.12	
	2	0.000	0.000	0.000	0.10	18.2



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

LCS

SW-846 8082A

Lab Sample ID: B206779-BS1 Date(s) Analyzed: 06/29/2018 06/29/2018

Instrument ID (1): ECD5 Instrument ID (2): ECD5

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	0.20	
	2	0.000	0.000	0.000	0.18	10.5
Aroclor-1260	1	0.000	0.000	0.000	0.19	
	2	0.000	0.000	0.000	0.17	11.1



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

LCS Dup

SW-846 8082A

Lab Sample ID: B206779-BSD1 Date(s) Analyzed: 06/29/2018 06/29/2018

Instrument ID (1): ECD5 Instrument ID (2): ECD5

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	0.20	
	2	0.000	0.000	0.000	0.18	10.5
Aroclor-1260	1	0.000	0.000	0.000	0.20	
	2	0.000	0.000	0.000	0.17	16.2



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

Matrix Spike

SW-846 8082A

Lab Sample ID: B206779-MS1 Date(s) Analyzed: 06/29/2018 06/29/2018

Instrument ID (1): ECD5 Instrument ID (2): ECD5

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	0.19	
	2	0.000	0.000	0.000	0.17	11.1
Aroclor-1260	1	0.000	0.000	0.000	0.18	
	2	0.000	0.000	0.000	0.15	18.2



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

Matrix Spike Dup

SW-846 8082A

Lab Sample ID: B206779-MSD1 Date(s) Analyzed: 06/29/2018 06/29/2018

Instrument ID (1): ECD5 Instrument ID (2): ECD5

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	0.23	
	2	0.000	0.000	0.000	0.20	14.0
Aroclor-1260	1	0.000	0.000	0.000	0.21	
	2	0.000	0.000	0.000	0.19	10.0



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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.
B	Analyte is found in the associated laboratory blank as well as in the sample.
M-10	The reporting limit verification for the AIHA lead program is outside of control limits for this element. Any reported result at or near the detection limit may be biased on the high side.
MS-07A	Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possibility of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.
MS-22	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.
O-32	A dilution was performed as part of the standard analytical procedure.
S-12	Surrogate recovery is outside of control limits on confirmatory column, but within control limits on primary column. Data validation is not affected.



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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
MADEP-EPH-04-1.1 in Soil	
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
SW-846 6010C-D in Soil	
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
SW-846 7470A in Water	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA



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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8082A in Soil	
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8082A in Water	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Public Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2018
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2018



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 TRC
 Received By RLF Date 6/26/18 Time 1840
 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 # 8 Actual Temp -2.6, 5.3
 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 Who was notified? _____
 Are there Rushes? F Who was notified? _____
 Are there Short Holds? F Who was notified? _____
 Is there enough Volume? T
 Is there Headspace where applicable? NA MS/MSD? F
 Proper Media/Containers Used? T Is splitting samples required? F
 Were trip blanks received? F On COC? NA
 Do all samples have the proper pH? Acid NA Base NA

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		

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:



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July 5, 2018

Jamie Stapleton
TRC Environmental Corporation - New Hampshire
670 N. Commercial Street
Manchester, NH 03101

Project Location: Lawrence, MA
Client Job Number:
Project Number: 246949.4000.0000
Laboratory Work Order Number: 18F1324

Enclosed are results of analyses for samples received by the laboratory on June 26, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Meghan E. Kelley". The signature is written in a cursive style with a large, sweeping "y" at the end.

Meghan E. Kelley
Project Manager

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

TRC Environmental Corporation - New Hampshire
670 N. Commercial Street
Manchester, NH 03101
ATTN: Jamie Stapleton

REPORT DATE: 7/5/2018

PURCHASE ORDER NUMBER: 90720

PROJECT NUMBER: 246949.4000.0000

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18F1324

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

PROJECT LOCATION: Lawrence, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PS18 (0-1)	18F1324-01	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS18 (1-3)	18F1324-02	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB16 (0-1)	18F1324-03	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB15 (0-1)	18F1324-04	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
DUP1 (0-1)	18F1324-05	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS12 (0-1)	18F1324-06	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS12 (1-3)	18F1324-07	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB14 (0-1)	18F1324-08	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	



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

TRC Environmental Corporation - New Hampshire
670 N. Commercial Street
Manchester, NH 03101
ATTN: Jamie Stapleton

REPORT DATE: 7/5/2018

PURCHASE ORDER NUMBER: 90720

PROJECT NUMBER: 246949.4000.0000

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18F1324

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

PROJECT LOCATION: Lawrence, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
RB13 (0-1)	18F1324-09	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
DUP2 (0-1)	18F1324-10	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB11 (0-1)	18F1324-11	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB12 (0-1)	18F1324-12	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB17 (0-1)	18F1324-13	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS19 (0-1)	18F1324-14	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS19 (1-3)	18F1324-15	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS20 (0-1)	18F1324-16	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	



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

TRC Environmental Corporation - New Hampshire
670 N. Commercial Street
Manchester, NH 03101
ATTN: Jamie Stapleton

REPORT DATE: 7/5/2018

PURCHASE ORDER NUMBER: 90720

PROJECT NUMBER: 246949.4000.0000

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18F1324

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

PROJECT LOCATION: Lawrence, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PS20 (1-3)	18F1324-17	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB18 (0-1)	18F1324-18	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
DUP3 (0-1)	18F1324-19	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	



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CASE NARRATIVE SUMMARY

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



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MADEP-EPH-04-1.1**Qualifications:****MS-07A**

Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery.

Possibility of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.

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

18F1324-09[RB13 (0-1)], B206737-MS2, B206737-MSD2

Anthracene

18F1324-09[RB13 (0-1)], B206737-MS2, B206737-MSD2

Benzo(a)anthracene

18F1324-09[RB13 (0-1)], B206737-MS2, B206737-MSD2

Benzo(a)pyrene

18F1324-09[RB13 (0-1)], B206737-MS2, B206737-MSD2

Benzo(b)fluoranthene

18F1324-09[RB13 (0-1)], B206737-MS2, B206737-MSD2

Benzo(g,h,i)perylene

18F1324-18[RB18 (0-1)], B206737-MS3, B206737-MSD3

Benzo(k)fluoranthene

18F1324-09[RB13 (0-1)], B206737-MS2, B206737-MSD2

C19-C36 Aliphatics

18F1324-04[RB15 (0-1)], 18F1324-09[RB13 (0-1)], 18F1324-18[RB18 (0-1)], B206737-MS1, B206737-MS2, B206737-MS3, B206737-MSD1, B206737-MSD2, B206737-MSD3

C9-C18 Aliphatics

18F1324-09[RB13 (0-1)], B206737-MS2, B206737-MSD2

Chrysene

18F1324-09[RB13 (0-1)], B206737-MS2, B206737-MSD2

Fluoranthene

18F1324-09[RB13 (0-1)], B206737-MS2, B206737-MSD2

Fluorene

18F1324-09[RB13 (0-1)], B206737-MS2, B206737-MSD2

Indeno(1,2,3-cd)pyrene

18F1324-09[RB13 (0-1)], 18F1324-18[RB18 (0-1)], B206737-MS2, B206737-MS3, B206737-MSD2, B206737-MSD3

Naphthalene

18F1324-04[RB15 (0-1)], B206737-MS1, B206737-MSD1

n-Nonane

B206737-MS1, B206737-MS2, B206737-MS3, B206737-MSD1, B206737-MSD2, B206737-MSD3

Phenanthrene

18F1324-09[RB13 (0-1)], B206737-MS2, B206737-MSD2

Pyrene

18F1324-09[RB13 (0-1)], B206737-MS2, B206737-MSD2

Unadjusted C11-C22 Aromatics

18F1324-09[RB13 (0-1)], B206737-MS2, B206737-MSD2



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MS-22

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

Analyte & Samples(s) Qualified:**Benzo(a)pyrene**

B206737-MSD1

Benzo(b)fluoranthene

B206737-MSD1

Benzo(g,h,i)perylene

B206737-MSD1, B206737-MSD2

C9-C18 Aliphatics

B206737-MSD1

Chrysene

B206737-MSD1

Fluoranthene

B206737-MSD1

Indeno(1,2,3-cd)pyrene

B206737-MSD1

Phenanthrene

B206737-MS3

Pyrene

B206737-MS3, B206737-MSD1

Unadjusted C11-C22 Aromatics

B206737-MS3, B206737-MSD1

SW-846 6010C-D**Qualifications:****MS-19**

Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

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

18F1324-18[RB18 (0-1)], B207045-MS3, B207045-MSD3

Lead

18F1324-04[RB15 (0-1)], 18F1324-09[RB13 (0-1)], 18F1324-18[RB18 (0-1)], B207045-MS1, B207045-MS2, B207045-MSD1

MS-22

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

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

B207045-MS1

Chromium

B207045-MS1

SW-846 8082A**Qualifications:****O-32**

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

Analyte & Samples(s) Qualified:

18F1324-01[PS18 (0-1)], 18F1324-02[PS18 (1-3)], 18F1324-03[RB16 (0-1)], 18F1324-04[RB15 (0-1)], 18F1324-06[PS12 (0-1)], 18F1324-07[PS12 (1-3)], 18F1324-09[RB13 (0-1)], 18F1324-10[DUP2 (0-1)], 18F1324-11[RB11 (0-1)], 18F1324-13[RB17 (0-1)], 18F1324-14[PS19 (0-1)], 18F1324-15[PS19 (1-3)], 18F1324-16[PS20 (0-1)], 18F1324-17[PS20 (1-3)], 18F1324-18[RB18 (0-1)], 18F1324-19[DUP3 (0-1)]



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MADEP-EPH-04-1.1

SPE cartridge contamination with non-petroleum compounds, if present, is verified by GC/MS in each method blank per extraction batch and excluded from C 11-C22 aromatic range fraction in all samples in the batch. No significant modifications were made to the method.

SW-846 6010C/D SW-846 6020A/B

For NC, Metals methods SW-846 6010D and SW-846 6020B are followed, and for all other states methods SW-846 6010C and SW-846 6020A are followed.

The results of analyses reported only relate to samples submitted to the Con-Test 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.

A handwritten signature in black ink, appearing to read "Lisa A. Worthington", is written over a light gray rectangular background.

Lisa A. Worthington
Project Manager



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS18 (0-1)

Sampled: 6/25/2018 14:30

Sample ID: 18F1324-01

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	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:45	JMB
Aroclor-1221 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:45	JMB
Aroclor-1232 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:45	JMB
Aroclor-1242 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:45	JMB
Aroclor-1248 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:45	JMB
Aroclor-1254 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:45	JMB
Aroclor-1260 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:45	JMB
Aroclor-1262 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:45	JMB
Aroclor-1268 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 20:45	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		82.3	30-150					6/29/18 20:45	
Decachlorobiphenyl [2]		86.8	30-150					6/29/18 20:45	
Tetrachloro-m-xylene [1]		94.2	30-150					6/29/18 20:45	
Tetrachloro-m-xylene [2]		110	30-150					6/29/18 20:45	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS18 (0-1)

Sampled: 6/25/2018 14:30

Sample ID: 18F1324-01

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
C19-C36 Aliphatics	63	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Unadjusted C11-C22 Aromatics	150	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
C11-C22 Aromatics	130	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Acenaphthene	0.17	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Acenaphthylene	0.13	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Anthracene	0.29	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Benzo(a)anthracene	2.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Benzo(a)pyrene	1.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Benzo(b)fluoranthene	3.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Benzo(g,h,i)perylene	1.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Benzo(k)fluoranthene	1.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Chrysene	3.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Dibenz(a,h)anthracene	0.31	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Fluoranthene	3.9	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Fluorene	0.15	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Indeno(1,2,3-cd)pyrene	1.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Naphthalene	0.11	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Phenanthrene	1.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW
Pyrene	4.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:25	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	53.6	40-140	
o-Terphenyl (OTP)	52.5	40-140	
2-Bromonaphthalene	77.3	40-140	
2-Fluorobiphenyl	94.9	40-140	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS18 (0-1)

Sampled: 6/25/2018 14:30

Sample ID: 18F1324-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	6.3	1.8	0.93	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:47	QNW
Barium	47	1.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:47	QNW
Cadmium	0.98	0.18		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:47	QNW
Chromium	41	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:47	QNW
Lead	180	0.55		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:47	QNW
Mercury	0.12	0.028		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 9:45	EJB
Selenium	ND	3.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:47	QNW
Silver	ND	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:47	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Sampled: 6/25/2018 14:30

Field Sample #: PS18 (0-1)

Sample ID: 18F1324-01

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	91.2		% Wt	1		SM 2540G	6/27/18	6/28/18 9:08	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS18 (1-3)

Sampled: 6/25/2018 14:30

Sample ID: 18F1324-02

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	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:02	JMB
Aroclor-1221 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:02	JMB
Aroclor-1232 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:02	JMB
Aroclor-1242 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:02	JMB
Aroclor-1248 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:02	JMB
Aroclor-1254 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:02	JMB
Aroclor-1260 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:02	JMB
Aroclor-1262 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:02	JMB
Aroclor-1268 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:02	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		60.1	30-150					6/29/18 21:02	
Decachlorobiphenyl [2]		64.5	30-150					6/29/18 21:02	
Tetrachloro-m-xylene [1]		70.7	30-150					6/29/18 21:02	
Tetrachloro-m-xylene [2]		88.5	30-150					6/29/18 21:02	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS18 (1-3)

Sampled: 6/25/2018 14:30

Sample ID: 18F1324-02

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	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
C19-C36 Aliphatics	83	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Unadjusted C11-C22 Aromatics	210	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
C11-C22 Aromatics	180	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Acenaphthene	0.60	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Acenaphthylene	ND	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Anthracene	0.75	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Benzo(a)anthracene	2.0	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Benzo(a)pyrene	1.7	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Benzo(b)fluoranthene	2.3	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Benzo(g,h,i)perylene	1.1	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Benzo(k)fluoranthene	0.86	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Chrysene	2.6	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Dibenz(a,h)anthracene	ND	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Fluoranthene	5.7	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Fluorene	0.47	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Indeno(1,2,3-cd)pyrene	1.1	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
2-Methylnaphthalene	ND	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Naphthalene	0.29	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Phenanthrene	7.1	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW
Pyrene	5.6	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/30/18 20:44	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	60.4	40-140	
o-Terphenyl (OTP)	60.5	40-140	
2-Bromonaphthalene	78.5	40-140	
2-Fluorobiphenyl	94.3	40-140	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS18 (1-3)

Sampled: 6/25/2018 14:30

Sample ID: 18F1324-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	6.8	1.7	0.86	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:52	QNW
Barium	28	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:52	QNW
Cadmium	0.66	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:52	QNW
Chromium	18	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:52	QNW
Lead	94	0.51		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:52	QNW
Mercury	0.060	0.027		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 9:46	EJB
Selenium	ND	3.4		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:52	QNW
Silver	ND	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:52	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS18 (1-3)

Sampled: 6/25/2018 14:30

Sample ID: 18F1324-02

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	94.4		% Wt	1		SM 2540G	6/27/18	6/28/18 9:09	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB16 (0-1)

Sampled: 6/25/2018 14:20

Sample ID: 18F1324-03

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	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:19	JMB
Aroclor-1221 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:19	JMB
Aroclor-1232 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:19	JMB
Aroclor-1242 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:19	JMB
Aroclor-1248 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:19	JMB
Aroclor-1254 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:19	JMB
Aroclor-1260 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:19	JMB
Aroclor-1262 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:19	JMB
Aroclor-1268 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:19	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		68.0	30-150					6/29/18 21:19	
Decachlorobiphenyl [2]		71.2	30-150					6/29/18 21:19	
Tetrachloro-m-xylene [1]		81.4	30-150					6/29/18 21:19	
Tetrachloro-m-xylene [2]		106	30-150					6/29/18 21:19	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB16 (0-1)

Sampled: 6/25/2018 14:20

Sample ID: 18F1324-03

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Unadjusted C11-C22 Aromatics	15	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
C11-C22 Aromatics	13	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Acenaphthylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Benzo(a)anthracene	0.14	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Benzo(a)pyrene	0.14	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Benzo(b)fluoranthene	0.25	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Benzo(g,h,i)perylene	0.14	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Benzo(k)fluoranthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Chrysene	0.21	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Dibenz(a,h)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Fluoranthene	0.31	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Indeno(1,2,3-cd)pyrene	0.11	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Phenanthrene	0.18	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW
Pyrene	0.33	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 15:29	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	63.0	40-140	6/30/18 15:29
o-Terphenyl (OTP)	61.4	40-140	6/30/18 15:29
2-Bromonaphthalene	80.9	40-140	6/30/18 15:29
2-Fluorobiphenyl	90.9	40-140	6/30/18 15:29



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB16 (0-1)

Sampled: 6/25/2018 14:20

Sample ID: 18F1324-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	4.3	1.7	0.88	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:05	QNW
Barium	20	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:05	QNW
Cadmium	0.23	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:05	QNW
Chromium	12	0.35		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:05	QNW
Lead	24	0.52		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:05	QNW
Mercury	0.051	0.024		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 9:48	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:05	QNW
Silver	ND	0.35		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:05	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB16 (0-1)

Sampled: 6/25/2018 14:20

Sample ID: 18F1324-03

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	97.3		% Wt	1		SM 2540G	6/27/18	6/28/18 9:09	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB15 (0-1)

Sampled: 6/25/2018 13:07

Sample ID: 18F1324-04

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	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:37	JMB
Aroclor-1221 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:37	JMB
Aroclor-1232 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:37	JMB
Aroclor-1242 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:37	JMB
Aroclor-1248 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:37	JMB
Aroclor-1254 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:37	JMB
Aroclor-1260 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:37	JMB
Aroclor-1262 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:37	JMB
Aroclor-1268 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:37	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		51.5	30-150					6/29/18 21:37	
Decachlorobiphenyl [2]		56.0	30-150					6/29/18 21:37	
Tetrachloro-m-xylene [1]		59.9	30-150					6/29/18 21:37	
Tetrachloro-m-xylene [2]		81.2	30-150					6/29/18 21:37	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB15 (0-1)

Sampled: 6/25/2018 13:07

Sample ID: 18F1324-04

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
C19-C36 Aliphatics	29	11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Unadjusted C11-C22 Aromatics	78	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
C11-C22 Aromatics	63	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Acenaphthylene	0.22	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Anthracene	0.19	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Benzo(a)anthracene	1.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Benzo(a)pyrene	1.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Benzo(b)fluoranthene	2.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Benzo(g,h,i)perylene	1.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Benzo(k)fluoranthene	0.64	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Chrysene	1.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Dibenz(a,h)anthracene	0.26	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Fluoranthene	2.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Indeno(1,2,3-cd)pyrene	0.81	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Naphthalene	ND	0.11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Phenanthrene	0.77	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Pyrene	2.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:26	RMW
Surrogates		% Recovery			Recovery Limits			Flag/Qual	
Chlorooctadecane (COD)		61.7			40-140			7/1/18 0:26	
o-Terphenyl (OTP)		63.3			40-140			7/1/18 0:26	
2-Bromonaphthalene		81.8			40-140			7/1/18 0:26	
2-Fluorobiphenyl		95.8			40-140			7/1/18 0:26	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB15 (0-1)

Sampled: 6/25/2018 13:07

Sample ID: 18F1324-04

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	33	1.8	0.90	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:24	QNW
Barium	46	1.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:24	QNW
Cadmium	1.4	0.18		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:24	QNW
Chromium	36	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:24	QNW
Lead	150	0.54		mg/Kg dry	1	MS-19	SW-846 6010C-D	7/2/18	7/3/18 13:24	QNW
Mercury	0.12	0.027		mg/Kg dry	1		SW-846 7471B	7/5/18	7/5/18 13:17	EJB
Selenium	ND	3.6		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:24	QNW
Silver	ND	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 13:24	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB15 (0-1)

Sampled: 6/25/2018 13:07

Sample ID: 18F1324-04

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	90.7		% Wt	1		SM 2540G	6/27/18	6/28/18 9:09	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: DUPI (0-1)

Sampled: 6/25/2018 12:07

Sample ID: 18F1324-05

Sample Matrix: Soil

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:54	JMB
Aroclor-1221 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:54	JMB
Aroclor-1232 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:54	JMB
Aroclor-1242 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:54	JMB
Aroclor-1248 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:54	JMB
Aroclor-1254 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:54	JMB
Aroclor-1260 [2]	0.12	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:54	JMB
Aroclor-1262 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:54	JMB
Aroclor-1268 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 21:54	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		59.9	30-150					6/29/18 21:54	
Decachlorobiphenyl [2]		65.0	30-150					6/29/18 21:54	
Tetrachloro-m-xylene [1]		67.3	30-150					6/29/18 21:54	
Tetrachloro-m-xylene [2]		93.3	30-150					6/29/18 21:54	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: DUPI (0-1)

Sampled: 6/25/2018 12:07

Sample ID: 18F1324-05

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
C19-C36 Aliphatics	23	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Unadjusted C11-C22 Aromatics	67	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
C11-C22 Aromatics	53	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Acenaphthene	0.13	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Acenaphthylene	0.19	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Anthracene	0.17	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Benzo(a)anthracene	0.90	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Benzo(a)pyrene	0.94	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Benzo(b)fluoranthene	1.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Benzo(g,h,i)perylene	1.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Benzo(k)fluoranthene	0.61	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Chrysene	1.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Dibenz(a,h)anthracene	0.25	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Fluoranthene	2.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Indeno(1,2,3-cd)pyrene	0.73	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Naphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Phenanthrene	0.81	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Pyrene	2.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:49	RMW
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		58.1	40-140					6/30/18 23:49	
o-Terphenyl (OTP)		60.3	40-140					6/30/18 23:49	
2-Bromonaphthalene		82.2	40-140					6/30/18 23:49	
2-Fluorobiphenyl		98.0	40-140					6/30/18 23:49	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: DUPI (0-1)

Sampled: 6/25/2018 12:07

Sample ID: 18F1324-05

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	28	1.8	0.91	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:09	QNW
Barium	47	1.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:09	QNW
Cadmium	1.2	0.18		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:09	QNW
Chromium	34	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:09	QNW
Lead	140	0.54		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:09	QNW
Mercury	0.19	0.029		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 9:50	EJB
Selenium	ND	3.6		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:09	QNW
Silver	ND	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:09	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: DUP1 (0-1)

Sampled: 6/25/2018 12:07

Sample ID: 18F1324-05

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	90.7		% Wt	1		SM 2540G	6/27/18	6/28/18 9:09	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS12 (0-1)

Sampled: 6/26/2018 09:32

Sample ID: 18F1324-06

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	0.10	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:11	JMB
Aroclor-1221 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:11	JMB
Aroclor-1232 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:11	JMB
Aroclor-1242 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:11	JMB
Aroclor-1248 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:11	JMB
Aroclor-1254 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:11	JMB
Aroclor-1260 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:11	JMB
Aroclor-1262 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:11	JMB
Aroclor-1268 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:11	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		54.1	30-150					6/29/18 22:11	
Decachlorobiphenyl [2]		84.1	30-150					6/29/18 22:11	
Tetrachloro-m-xylene [1]		63.0	30-150					6/29/18 22:11	
Tetrachloro-m-xylene [2]		87.4	30-150					6/29/18 22:11	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS12 (0-1)

Sampled: 6/26/2018 09:32

Sample ID: 18F1324-06

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	13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
C19-C36 Aliphatics	29	13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Unadjusted C11-C22 Aromatics	300	13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
C11-C22 Aromatics	220	13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Acenaphthene	1.4	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Acenaphthylene	1.0	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Anthracene	0.89	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Benzo(a)anthracene	5.9	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Benzo(a)pyrene	4.9	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Benzo(b)fluoranthene	10	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Benzo(g,h,i)perylene	2.3	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Benzo(k)fluoranthene	3.8	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Chrysene	7.6	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Dibenz(a,h)anthracene	0.89	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Fluoranthene	13	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Fluorene	0.74	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Indeno(1,2,3-cd)pyrene	2.7	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
2-Methylnaphthalene	1.9	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Naphthalene	5.4	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Phenanthrene	3.6	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Pyrene	14	0.13	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 0:07	RMW
Surrogates		% Recovery			Recovery Limits			Flag/Qual	
Chlorooctadecane (COD)		49.6			40-140			7/1/18 0:07	
o-Terphenyl (OTP)		51.3			40-140			7/1/18 0:07	
2-Bromonaphthalene		87.5			40-140			7/1/18 0:07	
2-Fluorobiphenyl		105			40-140			7/1/18 0:07	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS12 (0-1)

Sampled: 6/26/2018 09:32

Sample ID: 18F1324-06

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	110	2.2	1.1	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:14	QNW
Barium	58	2.2		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:14	QNW
Cadmium	3.9	0.22		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:14	QNW
Chromium	29	0.43		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:14	QNW
Lead	260	0.65		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:14	QNW
Mercury	0.39	0.034		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 9:51	EJB
Selenium	ND	4.3		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:14	QNW
Silver	ND	0.43		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:14	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Sampled: 6/26/2018 09:32

Field Sample #: PS12 (0-1)

Sample ID: 18F1324-06

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	76.7		% Wt	1		SM 2540G	6/27/18	6/28/18 9:10	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS12 (1-3)

Sampled: 6/26/2018 09:32

Sample ID: 18F1324-07

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	0.096	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:29	JMB
Aroclor-1221 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:29	JMB
Aroclor-1232 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:29	JMB
Aroclor-1242 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:29	JMB
Aroclor-1248 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:29	JMB
Aroclor-1254 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:29	JMB
Aroclor-1260 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:29	JMB
Aroclor-1262 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:29	JMB
Aroclor-1268 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:29	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		58.8	30-150					6/29/18 22:29	
Decachlorobiphenyl [2]		64.1	30-150					6/29/18 22:29	
Tetrachloro-m-xylene [1]		64.0	30-150					6/29/18 22:29	
Tetrachloro-m-xylene [2]		91.7	30-150					6/29/18 22:29	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS12 (1-3)

Sampled: 6/26/2018 09:32

Sample ID: 18F1324-07

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-04-1.1	6/27/18	7/1/18 1:21	RMW
C19-C36 Aliphatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Unadjusted C11-C22 Aromatics	56	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
C11-C22 Aromatics	46	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Acenaphthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Acenaphthylene	0.16	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Benzo(a)anthracene	0.88	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Benzo(a)pyrene	0.84	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Benzo(b)fluoranthene	1.6	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Benzo(g,h,i)perylene	0.49	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Benzo(k)fluoranthene	0.56	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Chrysene	1.2	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Dibenz(a,h)anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Fluoranthene	1.8	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Fluorene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Indeno(1,2,3-cd)pyrene	0.51	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
2-Methylnaphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Naphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Phenanthrene	0.29	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Pyrene	1.9	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/1/18 1:21	RMW
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		61.7	40-140					7/1/18 1:21	
o-Terphenyl (OTP)		62.4	40-140					7/1/18 1:21	
2-Bromonaphthalene		74.0	40-140					7/1/18 1:21	
2-Fluorobiphenyl		87.4	40-140					7/1/18 1:21	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS12 (1-3)

Sampled: 6/26/2018 09:32

Sample ID: 18F1324-07

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	11	2.1	1.1	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:19	QNW
Barium	42	2.1		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:19	QNW
Cadmium	0.52	0.21		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:19	QNW
Chromium	24	0.42		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:19	QNW
Lead	54	0.62		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:19	QNW
Mercury	0.062	0.031		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 9:53	EJB
Selenium	ND	4.2		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:19	QNW
Silver	ND	0.42		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:19	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS12 (1-3)

Sampled: 6/26/2018 09:32

Sample ID: 18F1324-07

Sample Matrix: Soil

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	81.8		% Wt	1		SM 2540G	6/27/18	6/28/18 9:10	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB14 (0-1)

Sampled: 6/26/2018 08:55

Sample ID: 18F1324-08

Sample Matrix: Soil

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:46	JMB
Aroclor-1221 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:46	JMB
Aroclor-1232 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:46	JMB
Aroclor-1242 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:46	JMB
Aroclor-1248 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:46	JMB
Aroclor-1254 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:46	JMB
Aroclor-1260 [2]	0.18	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:46	JMB
Aroclor-1262 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:46	JMB
Aroclor-1268 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 22:46	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		54.4	30-150					6/29/18 22:46	
Decachlorobiphenyl [2]		67.5	30-150					6/29/18 22:46	
Tetrachloro-m-xylene [1]		54.2	30-150					6/29/18 22:46	
Tetrachloro-m-xylene [2]		77.4	30-150					6/29/18 22:46	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB14 (0-1)

Sampled: 6/26/2018 08:55

Sample ID: 18F1324-08

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	52	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
C19-C36 Aliphatics	28	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Unadjusted C11-C22 Aromatics	480	110	mg/Kg dry	10		MADEP-EPH-04-1.1	6/27/18	6/30/18 14:52	RMW
C11-C22 Aromatics	320	110	mg/Kg dry	10		MADEP-EPH-04-1.1	6/27/18	6/30/18 14:52	RMW
Acenaphthene	20	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Acenaphthylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Anthracene	11	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Benzo(a)anthracene	4.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Benzo(a)pyrene	3.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Benzo(b)fluoranthene	5.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Benzo(g,h,i)perylene	1.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Benzo(k)fluoranthene	2.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Chrysene	4.9	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Dibenz(a,h)anthracene	0.53	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Fluoranthene	20	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Fluorene	14	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Indeno(1,2,3-cd)pyrene	1.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
2-Methylnaphthalene	16	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Naphthalene	5.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Phenanthrene	37	1.1	mg/Kg dry	10		MADEP-EPH-04-1.1	6/27/18	6/30/18 14:52	RMW
Pyrene	18	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:15	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		57.7	40-140					6/29/18 22:15	
o-Terphenyl (OTP)		64.0	40-140					6/29/18 22:15	
2-Bromonaphthalene		76.2	40-140					6/29/18 22:15	
2-Fluorobiphenyl		99.1	40-140					6/29/18 22:15	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB14 (0-1)

Sampled: 6/26/2018 08:55

Sample ID: 18F1324-08

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	16	1.7	0.88	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:24	QNW
Barium	45	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:24	QNW
Cadmium	0.76	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:24	QNW
Chromium	38	0.35		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:24	QNW
Lead	230	0.52		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:24	QNW
Mercury	0.35	0.027		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 9:54	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:24	QNW
Silver	ND	0.35		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:24	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB14 (0-1)

Sampled: 6/26/2018 08:55

Sample ID: 18F1324-08

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	93.4		% Wt	1		SM 2540G	6/27/18	6/28/18 9:10	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB13 (0-1)

Sampled: 6/26/2018 09:15

Sample ID: 18F1324-09

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	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:03	JMB
Aroclor-1221 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:03	JMB
Aroclor-1232 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:03	JMB
Aroclor-1242 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:03	JMB
Aroclor-1248 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:03	JMB
Aroclor-1254 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:03	JMB
Aroclor-1260 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:03	JMB
Aroclor-1262 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:03	JMB
Aroclor-1268 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:03	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		54.0	30-150					6/29/18 23:03	
Decachlorobiphenyl [2]		66.7	30-150					6/29/18 23:03	
Tetrachloro-m-xylene [1]		60.8	30-150					6/29/18 23:03	
Tetrachloro-m-xylene [2]		95.7	30-150					6/29/18 23:03	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB13 (0-1)

Sampled: 6/26/2018 09:15

Sample ID: 18F1324-09

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	20	11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
C19-C36 Aliphatics	76	11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Unadjusted C11-C22 Aromatics	1000	110	mg/Kg dry	10	MS-07A	MADEP-EPH-04-1.1	6/27/18	7/2/18 17:34	RMW
C11-C22 Aromatics	640	110	mg/Kg dry	10		MADEP-EPH-04-1.1	6/27/18	7/2/18 17:34	RMW
Acenaphthene	19	0.11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Acenaphthylene	0.81	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Anthracene	22	0.11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Benzo(a)anthracene	17	0.11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Benzo(a)pyrene	6.5	0.11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Benzo(b)fluoranthene	13	0.11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Benzo(g,h,i)perylene	2.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Benzo(k)fluoranthene	4.6	0.11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Chrysene	21	0.11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Dibenz(a,h)anthracene	1.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Fluoranthene	97	1.1	mg/Kg dry	10	MS-07A	MADEP-EPH-04-1.1	6/27/18	7/2/18 17:34	RMW
Fluorene	14	0.11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Indeno(1,2,3-cd)pyrene	3.0	0.11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
2-Methylnaphthalene	4.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Naphthalene	3.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 19:30	RMW
Phenanthrene	91	1.1	mg/Kg dry	10	MS-07A	MADEP-EPH-04-1.1	6/27/18	7/2/18 17:34	RMW
Pyrene	76	1.1	mg/Kg dry	10	MS-07A	MADEP-EPH-04-1.1	6/27/18	7/2/18 17:34	RMW
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		57.6	40-140					6/30/18 19:30	
o-Terphenyl (OTP)		85.1	40-140					6/30/18 19:30	
2-Bromonaphthalene		81.6	40-140					6/30/18 19:30	
2-Fluorobiphenyl		101	40-140					6/30/18 19:30	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB13 (0-1)

Sampled: 6/26/2018 09:15

Sample ID: 18F1324-09

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	21	1.9	0.94	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:06	QNW
Barium	40	1.8		mg/Kg dry	1		SW-846 6010C-D	7/3/18	7/5/18 16:20	QNW
Cadmium	1.0	0.19		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:06	QNW
Chromium	24	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:06	QNW
Lead	120	0.56		mg/Kg dry	1	MS-19	SW-846 6010C-D	7/2/18	7/3/18 14:06	QNW
Mercury	0.15	0.029		mg/Kg dry	1		SW-846 7471B	7/5/18	7/5/18 13:22	EJB
Selenium	ND	3.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:06	QNW
Silver	ND	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:06	QNW



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB13 (0-1)

Sampled: 6/26/2018 09:15

Sample ID: 18F1324-09

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	89.3		% Wt	1		SM 2540G	6/27/18	6/28/18 9:10	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: DUP2 (0-1)

Sampled: 6/26/2018 08:15

Sample ID: 18F1324-10

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	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:21	JMB
Aroclor-1221 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:21	JMB
Aroclor-1232 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:21	JMB
Aroclor-1242 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:21	JMB
Aroclor-1248 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:21	JMB
Aroclor-1254 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:21	JMB
Aroclor-1260 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:21	JMB
Aroclor-1262 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:21	JMB
Aroclor-1268 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/29/18 23:21	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		47.9	30-150					6/29/18 23:21	
Decachlorobiphenyl [2]		62.2	30-150					6/29/18 23:21	
Tetrachloro-m-xylene [1]		55.4	30-150					6/29/18 23:21	
Tetrachloro-m-xylene [2]		85.1	30-150					6/29/18 23:21	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: DUP2 (0-1)

Sampled: 6/26/2018 08:15

Sample ID: 18F1324-10

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	11	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
C19-C36 Aliphatics	41	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Unadjusted C11-C22 Aromatics	560	110	mg/Kg dry	10		MADEP-EPH-04-1.1	6/27/18	6/30/18 21:39	RMW
C11-C22 Aromatics	430	110	mg/Kg dry	10		MADEP-EPH-04-1.1	6/27/18	6/30/18 21:39	RMW
Acenaphthene	11	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Acenaphthylene	0.56	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Anthracene	6.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Benzo(a)anthracene	4.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Benzo(a)pyrene	2.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Benzo(b)fluoranthene	5.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Benzo(g,h,i)perylene	1.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Benzo(k)fluoranthene	2.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Chrysene	5.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Dibenz(a,h)anthracene	0.53	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Fluoranthene	20	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Fluorene	8.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Indeno(1,2,3-cd)pyrene	1.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
2-Methylnaphthalene	5.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Naphthalene	6.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Phenanthrene	28	1.1	mg/Kg dry	10		MADEP-EPH-04-1.1	6/27/18	6/30/18 21:39	RMW
Pyrene	18	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 22:52	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		52.9	40-140					6/29/18 22:52	
o-Terphenyl (OTP)		57.6	40-140					6/29/18 22:52	
2-Bromonaphthalene		69.1	40-140					6/29/18 22:52	
2-Fluorobiphenyl		88.1	40-140					6/29/18 22:52	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: DUP2 (0-1)

Sampled: 6/26/2018 08:15

Sample ID: 18F1324-10

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	26	1.9	0.97	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:29	QNW
Barium	42	1.9		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:29	QNW
Cadmium	1.1	0.19		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:29	QNW
Chromium	25	0.38		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:29	QNW
Lead	130	0.58		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:29	QNW
Mercury	0.20	0.028		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 9:56	EJB
Selenium	ND	3.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:29	QNW
Silver	ND	0.38		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:29	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: DUP2 (0-1)

Sampled: 6/26/2018 08:15

Sample ID: 18F1324-10

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	89.8		% Wt	1		SM 2540G	6/27/18	6/28/18 9:10	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB11 (0-1)

Sampled: 6/26/2018 11:00

Sample ID: 18F1324-11

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	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:42	JMB
Aroclor-1221 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:42	JMB
Aroclor-1232 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:42	JMB
Aroclor-1242 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:42	JMB
Aroclor-1248 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:42	JMB
Aroclor-1254 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:42	JMB
Aroclor-1260 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:42	JMB
Aroclor-1262 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:42	JMB
Aroclor-1268 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:42	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		65.2	30-150					6/30/18 0:42	
Decachlorobiphenyl [2]		100	30-150					6/30/18 0:42	
Tetrachloro-m-xylene [1]		77.2	30-150					6/30/18 0:42	
Tetrachloro-m-xylene [2]		117	30-150					6/30/18 0:42	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB11 (0-1)

Sampled: 6/26/2018 11:00

Sample ID: 18F1324-11

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-04-1.1	6/27/18	6/29/18 21:20	KLB
C19-C36 Aliphatics	55	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Unadjusted C11-C22 Aromatics	250	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
C11-C22 Aromatics	200	12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Acenaphthene	0.19	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Acenaphthylene	0.73	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Anthracene	0.62	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Benzo(a)anthracene	3.9	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Benzo(a)pyrene	3.4	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Benzo(b)fluoranthene	7.5	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Benzo(g,h,i)perylene	2.1	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Benzo(k)fluoranthene	2.9	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Chrysene	5.2	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Dibenz(a,h)anthracene	0.83	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Fluoranthene	10	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Fluorene	0.36	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Indeno(1,2,3-cd)pyrene	2.4	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
2-Methylnaphthalene	0.38	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Naphthalene	0.35	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Phenanthrene	3.1	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB
Pyrene	9.4	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:20	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	59.6	40-140	
o-Terphenyl (OTP)	59.2	40-140	
2-Bromonaphthalene	78.0	40-140	
2-Fluorobiphenyl	99.4	40-140	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB11 (0-1)

Sampled: 6/26/2018 11:00

Sample ID: 18F1324-11

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	54	1.9	0.98	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:34	QNW
Barium	67	1.9		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:34	QNW
Cadmium	1.9	0.19		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:34	QNW
Chromium	19	0.39		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:34	QNW
Lead	130	0.58		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:34	QNW
Mercury	0.13	0.028		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 10:02	EJB
Selenium	ND	3.9		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:34	QNW
Silver	ND	0.39		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:34	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB11 (0-1)

Sampled: 6/26/2018 11:00

Sample ID: 18F1324-11

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	85.0		% Wt	1		SM 2540G	6/27/18	6/28/18 9:10	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB12 (0-1)

Sampled: 6/26/2018 10:55

Sample ID: 18F1324-12

Sample Matrix: Soil

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.093	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:59	JMB
Aroclor-1221 [1]	ND	0.093	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:59	JMB
Aroclor-1232 [1]	ND	0.093	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:59	JMB
Aroclor-1242 [1]	ND	0.093	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:59	JMB
Aroclor-1248 [1]	ND	0.093	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:59	JMB
Aroclor-1254 [1]	ND	0.093	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:59	JMB
Aroclor-1260 [2]	0.35	0.093	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:59	JMB
Aroclor-1262 [1]	ND	0.093	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:59	JMB
Aroclor-1268 [1]	ND	0.093	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 0:59	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		51.8	30-150					6/30/18 0:59	
Decachlorobiphenyl [2]		64.8	30-150					6/30/18 0:59	
Tetrachloro-m-xylene [1]		66.1	30-150					6/30/18 0:59	
Tetrachloro-m-xylene [2]		104	30-150					6/30/18 0:59	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB12 (0-1)

Sampled: 6/26/2018 10:55

Sample ID: 18F1324-12

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	24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
C19-C36 Aliphatics	93	24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Unadjusted C11-C22 Aromatics	280	24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
C11-C22 Aromatics	260	24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Acenaphthene	ND	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Acenaphthylene	0.41	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Anthracene	0.43	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Benzo(a)anthracene	1.8	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Benzo(a)pyrene	1.9	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Benzo(b)fluoranthene	4.3	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Benzo(g,h,i)perylene	1.3	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Benzo(k)fluoranthene	1.5	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Chrysene	2.5	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Dibenz(a,h)anthracene	0.29	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Fluoranthene	4.4	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Fluorene	0.27	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Indeno(1,2,3-cd)pyrene	1.5	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
2-Methylnaphthalene	ND	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Naphthalene	0.37	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Phenanthrene	1.2	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB
Pyrene	4.3	0.24	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	6/29/18 23:10	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	55.2	40-140	
o-Terphenyl (OTP)	56.5	40-140	
2-Bromonaphthalene	74.8	40-140	
2-Fluorobiphenyl	94.6	40-140	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB12 (0-1)

Sampled: 6/26/2018 10:55

Sample ID: 18F1324-12

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	32	2.0	1.0	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:39	QNW
Barium	42	2.0		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:39	QNW
Cadmium	1.3	0.20		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:39	QNW
Chromium	20	0.41		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:39	QNW
Lead	86	0.61		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:39	QNW
Mercury	0.095	0.029		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 10:03	EJB
Selenium	ND	4.1		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:39	QNW
Silver	ND	0.41		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:39	QNW



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB12 (0-1)

Sampled: 6/26/2018 10:55

Sample ID: 18F1324-12

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	84.4		% Wt	1		SM 2540G	6/27/18	6/28/18 9:11	DMP



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB17 (0-1)

Sampled: 6/26/2018 11:40

Sample ID: 18F1324-13

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	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:16	JMB
Aroclor-1221 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:16	JMB
Aroclor-1232 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:16	JMB
Aroclor-1242 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:16	JMB
Aroclor-1248 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:16	JMB
Aroclor-1254 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:16	JMB
Aroclor-1260 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:16	JMB
Aroclor-1262 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:16	JMB
Aroclor-1268 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:16	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		52.8	30-150					6/30/18 1:16	
Decachlorobiphenyl [2]		67.3	30-150					6/30/18 1:16	
Tetrachloro-m-xylene [1]		64.8	30-150					6/30/18 1:16	
Tetrachloro-m-xylene [2]		101	30-150					6/30/18 1:16	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB17 (0-1)

Sampled: 6/26/2018 11:40

Sample ID: 18F1324-13

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
C19-C36 Aliphatics	25	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Unadjusted C11-C22 Aromatics	110	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
C11-C22 Aromatics	89	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Acenaphthene	0.16	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Acenaphthylene	0.16	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Anthracene	0.42	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Benzo(a)anthracene	1.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Benzo(a)pyrene	1.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Benzo(b)fluoranthene	3.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Benzo(g,h,i)perylene	1.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Benzo(k)fluoranthene	1.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Chrysene	2.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Dibenz(a,h)anthracene	0.36	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Fluoranthene	4.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Fluorene	0.24	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Indeno(1,2,3-cd)pyrene	1.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
2-Methylnaphthalene	0.21	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Naphthalene	0.19	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Phenanthrene	2.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB
Pyrene	4.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:42	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	58.1	40-140	6/29/18 20:42
o-Terphenyl (OTP)	58.4	40-140	6/29/18 20:42
2-Bromonaphthalene	77.1	40-140	6/29/18 20:42
2-Fluorobiphenyl	95.5	40-140	6/29/18 20:42



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB17 (0-1)

Sampled: 6/26/2018 11:40

Sample ID: 18F1324-13

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	41	1.8	0.92	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:39	QNW
Barium	57	1.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:39	QNW
Cadmium	1.2	0.18		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:39	QNW
Chromium	23	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:39	QNW
Lead	170	0.54		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:39	QNW
Mercury	0.24	0.027		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 10:05	EJB
Selenium	ND	3.6		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:39	QNW
Silver	0.62	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:39	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB17 (0-1)

Sampled: 6/26/2018 11:40

Sample ID: 18F1324-13

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	90.2		% Wt	1		SM 2540G	6/27/18	6/28/18 9:11	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS19 (0-1)

Sampled: 6/26/2018 13:20

Sample ID: 18F1324-14

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	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:34	JMB
Aroclor-1221 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:34	JMB
Aroclor-1232 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:34	JMB
Aroclor-1242 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:34	JMB
Aroclor-1248 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:34	JMB
Aroclor-1254 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:34	JMB
Aroclor-1260 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:34	JMB
Aroclor-1262 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:34	JMB
Aroclor-1268 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:34	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		47.8	30-150					6/30/18 1:34	
Decachlorobiphenyl [2]		60.4	30-150					6/30/18 1:34	
Tetrachloro-m-xylene [1]		59.4	30-150					6/30/18 1:34	
Tetrachloro-m-xylene [2]		92.4	30-150					6/30/18 1:34	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS19 (0-1)

Sampled: 6/26/2018 13:20

Sample ID: 18F1324-14

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
C19-C36 Aliphatics	17	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Unadjusted C11-C22 Aromatics	150	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
C11-C22 Aromatics	120	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Acenaphthene	0.15	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Acenaphthylene	0.35	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Anthracene	0.44	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Benzo(a)anthracene	2.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Benzo(a)pyrene	1.9	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Benzo(b)fluoranthene	4.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Benzo(g,h,i)perylene	1.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Benzo(k)fluoranthene	1.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Chrysene	3.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Dibenz(a,h)anthracene	0.48	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Fluoranthene	6.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Fluorene	0.26	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Indeno(1,2,3-cd)pyrene	1.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
2-Methylnaphthalene	0.16	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Naphthalene	0.15	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Phenanthrene	2.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB
Pyrene	6.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 21:01	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	60.3	40-140	
o-Terphenyl (OTP)	62.0	40-140	
2-Bromonaphthalene	78.6	40-140	
2-Fluorobiphenyl	101	40-140	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS19 (0-1)

Sampled: 6/26/2018 13:20

Sample ID: 18F1324-14

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	24	1.8	0.90	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:44	QNW
Barium	56	1.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:44	QNW
Cadmium	0.71	0.18		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:44	QNW
Chromium	21	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:44	QNW
Lead	110	0.53		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:44	QNW
Mercury	0.20	0.029		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 10:07	EJB
Selenium	ND	3.6		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:44	QNW
Silver	0.59	0.36		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:44	QNW



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Sampled: 6/26/2018 13:20

Field Sample #: PS19 (0-1)

Sample ID: 18F1324-14

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	89.4		% Wt	1		SM 2540G	6/27/18	6/28/18 9:11	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS19 (1-3)

Sampled: 6/26/2018 13:20

Sample ID: 18F1324-15

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	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:51	JMB
Aroclor-1221 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:51	JMB
Aroclor-1232 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:51	JMB
Aroclor-1242 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:51	JMB
Aroclor-1248 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:51	JMB
Aroclor-1254 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:51	JMB
Aroclor-1260 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:51	JMB
Aroclor-1262 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:51	JMB
Aroclor-1268 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 1:51	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		52.9	30-150					6/30/18 1:51	
Decachlorobiphenyl [2]		61.9	30-150					6/30/18 1:51	
Tetrachloro-m-xylene [1]		62.2	30-150					6/30/18 1:51	
Tetrachloro-m-xylene [2]		98.3	30-150					6/30/18 1:51	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS19 (1-3)

Sampled: 6/26/2018 13:20

Sample ID: 18F1324-15

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
C19-C36 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Unadjusted C11-C22 Aromatics	28	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
C11-C22 Aromatics	24	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Acenaphthylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Benzo(a)anthracene	0.34	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Benzo(a)pyrene	0.24	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Benzo(b)fluoranthene	0.58	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Benzo(g,h,i)perylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Benzo(k)fluoranthene	0.18	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Chrysene	0.49	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Dibenz(a,h)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Fluoranthene	0.82	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Indeno(1,2,3-cd)pyrene	0.18	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Naphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Phenanthrene	0.24	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW
Pyrene	0.82	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 23:12	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	71.3	40-140	6/30/18 23:12
o-Terphenyl (OTP)	71.0	40-140	6/30/18 23:12
2-Bromonaphthalene	85.7	40-140	6/30/18 23:12
2-Fluorobiphenyl	100	40-140	6/30/18 23:12



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS19 (1-3)

Sampled: 6/26/2018 13:20

Sample ID: 18F1324-15

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	5.5	1.7	0.87	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:48	QNW
Barium	25	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:48	QNW
Cadmium	ND	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:48	QNW
Chromium	12	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:48	QNW
Lead	68	0.51		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:48	QNW
Mercury	0.095	0.026		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 10:08	EJB
Selenium	ND	3.4		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:48	QNW
Silver	ND	0.34		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:48	QNW



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS19 (1-3)

Sampled: 6/26/2018 13:20

Sample ID: 18F1324-15

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	94.2		% Wt	1		SM 2540G	6/27/18	6/28/18 9:11	DMP



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS20 (0-1)

Sampled: 6/26/2018 13:03

Sample ID: 18F1324-16

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	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:08	JMB
Aroclor-1221 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:08	JMB
Aroclor-1232 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:08	JMB
Aroclor-1242 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:08	JMB
Aroclor-1248 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:08	JMB
Aroclor-1254 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:08	JMB
Aroclor-1260 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:08	JMB
Aroclor-1262 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:08	JMB
Aroclor-1268 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:08	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		56.1	30-150					6/30/18 2:08	
Decachlorobiphenyl [2]		77.6	30-150					6/30/18 2:08	
Tetrachloro-m-xylene [1]		66.1	30-150					6/30/18 2:08	
Tetrachloro-m-xylene [2]		108	30-150					6/30/18 2:08	



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Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS20 (0-1)

Sampled: 6/26/2018 13:03

Sample ID: 18F1324-16

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	30	22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
C19-C36 Aliphatics	67	22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Unadjusted C11-C22 Aromatics	350	22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
C11-C22 Aromatics	270	22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Acenaphthene	0.76	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Acenaphthylene	0.96	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Anthracene	1.4	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Benzo(a)anthracene	6.7	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Benzo(a)pyrene	5.6	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Benzo(b)fluoranthene	11	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Benzo(g,h,i)perylene	3.4	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Benzo(k)fluoranthene	3.7	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Chrysene	8.9	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Dibenz(a,h)anthracene	1.5	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Fluoranthene	12	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Fluorene	0.69	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Indeno(1,2,3-cd)pyrene	3.8	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
2-Methylnaphthalene	0.41	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Naphthalene	0.51	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Phenanthrene	5.2	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW
Pyrene	13	0.22	mg/Kg dry	2		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:05	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	55.9	40-140	
o-Terphenyl (OTP)	57.6	40-140	
2-Bromonaphthalene	75.4	40-140	
2-Fluorobiphenyl	91.8	40-140	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS20 (0-1)

Sampled: 6/26/2018 13:03

Sample ID: 18F1324-16

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	110	1.9	0.95	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:53	QNW
Barium	63	1.9		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:53	QNW
Cadmium	2.9	0.19		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:53	QNW
Chromium	26	0.38		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:53	QNW
Lead	150	0.56		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:53	QNW
Mercury	0.33	0.028		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 10:10	EJB
Selenium	ND	3.8		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:53	QNW
Silver	1.0	0.38		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:53	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Sampled: 6/26/2018 13:03

Field Sample #: PS20 (0-1)

Sample ID: 18F1324-16

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	90.1		% Wt	1		SM 2540G	6/27/18	6/28/18 9:11	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS20 (1-3)

Sampled: 6/26/2018 13:05

Sample ID: 18F1324-17

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	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:26	JMB
Aroclor-1221 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:26	JMB
Aroclor-1232 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:26	JMB
Aroclor-1242 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:26	JMB
Aroclor-1248 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:26	JMB
Aroclor-1254 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:26	JMB
Aroclor-1260 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:26	JMB
Aroclor-1262 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:26	JMB
Aroclor-1268 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:26	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		58.4	30-150					6/30/18 2:26	
Decachlorobiphenyl [2]		68.3	30-150					6/30/18 2:26	
Tetrachloro-m-xylene [1]		65.3	30-150					6/30/18 2:26	
Tetrachloro-m-xylene [2]		105	30-150					6/30/18 2:26	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS20 (1-3)

Sampled: 6/26/2018 13:05

Sample ID: 18F1324-17

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Unadjusted C11-C22 Aromatics	21	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
C11-C22 Aromatics	19	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Acenaphthylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Benzo(a)anthracene	0.20	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Benzo(a)pyrene	0.17	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Benzo(b)fluoranthene	0.39	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Benzo(g,h,i)perylene	0.18	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Benzo(k)fluoranthene	0.14	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Chrysene	0.24	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Dibenz(a,h)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Fluoranthene	0.37	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Indeno(1,2,3-cd)pyrene	0.13	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Phenanthrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB
Pyrene	0.42	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/29/18 20:24	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	73.3	40-140	6/29/18 20:24
o-Terphenyl (OTP)	73.4	40-140	6/29/18 20:24
2-Bromonaphthalene	84.1	40-140	6/29/18 20:24
2-Fluorobiphenyl	96.3	40-140	6/29/18 20:24



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS20 (1-3)

Sampled: 6/26/2018 13:05

Sample ID: 18F1324-17

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	7.0	1.7	0.84	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:57	QNW
Barium	15	1.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:57	QNW
Cadmium	ND	0.17		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:57	QNW
Chromium	9.2	0.33		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:57	QNW
Lead	23	0.50		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:57	QNW
Mercury	0.045	0.025		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 10:12	EJB
Selenium	ND	3.3		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:57	QNW
Silver	ND	0.33		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:57	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: PS20 (1-3)

Sampled: 6/26/2018 13:05

Sample ID: 18F1324-17

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	96.2		% Wt	1		SM 2540G	6/27/18	6/28/18 9:11	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB18 (0-1)

Sampled: 6/26/2018 13:40

Sample ID: 18F1324-18

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	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:43	JMB
Aroclor-1221 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:43	JMB
Aroclor-1232 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:43	JMB
Aroclor-1242 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:43	JMB
Aroclor-1248 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:43	JMB
Aroclor-1254 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:43	JMB
Aroclor-1260 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:43	JMB
Aroclor-1262 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:43	JMB
Aroclor-1268 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 2:43	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		54.4	30-150					6/30/18 2:43	
Decachlorobiphenyl [2]		76.8	30-150					6/30/18 2:43	
Tetrachloro-m-xylene [1]		60.4	30-150					6/30/18 2:43	
Tetrachloro-m-xylene [2]		98.5	30-150					6/30/18 2:43	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB18 (0-1)

Sampled: 6/26/2018 13:40

Sample ID: 18F1324-18

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	13	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
C19-C36 Aliphatics	35	11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Unadjusted C11-C22 Aromatics	170	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
C11-C22 Aromatics	130	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Acenaphthene	0.32	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Acenaphthylene	0.46	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Anthracene	0.56	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Benzo(a)anthracene	2.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Benzo(a)pyrene	2.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Benzo(b)fluoranthene	5.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Benzo(g,h,i)perylene	1.6	0.11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Benzo(k)fluoranthene	1.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Chrysene	4.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Dibenz(a,h)anthracene	0.67	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Fluoranthene	6.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Fluorene	0.39	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Indeno(1,2,3-cd)pyrene	2.0	0.11	mg/Kg dry	1	MS-07A	MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
2-Methylnaphthalene	0.33	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Naphthalene	0.30	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Phenanthrene	3.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW
Pyrene	6.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	6/30/18 17:20	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	58.6	40-140	
o-Terphenyl (OTP)	57.8	40-140	
2-Bromonaphthalene	83.0	40-140	
2-Fluorobiphenyl	99.6	40-140	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB18 (0-1)

Sampled: 6/26/2018 13:40

Sample ID: 18F1324-18

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	77	1.9	0.94	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:32	QNW
Barium	170	1.9		mg/Kg dry	1	MS-19	SW-846 6010C-D	7/2/18	7/3/18 14:32	QNW
Cadmium	2.6	0.19		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:32	QNW
Chromium	23	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:32	QNW
Lead	150	0.56		mg/Kg dry	1	MS-19	SW-846 6010C-D	7/2/18	7/3/18 14:32	QNW
Mercury	0.15	0.029		mg/Kg dry	1		SW-846 7471B	7/5/18	7/5/18 14:37	EJB
Selenium	ND	3.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:32	QNW
Silver	ND	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 14:32	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: RB18 (0-1)

Sampled: 6/26/2018 13:40

Sample ID: 18F1324-18

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	89.2		% Wt	1		SM 2540G	6/27/18	6/28/18 9:11	DMP



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: DUP3 (0-1)

Sampled: 6/26/2018 12:40

Sample ID: 18F1324-19

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	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 3:00	JMB
Aroclor-1221 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 3:00	JMB
Aroclor-1232 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 3:00	JMB
Aroclor-1242 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 3:00	JMB
Aroclor-1248 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 3:00	JMB
Aroclor-1254 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 3:00	JMB
Aroclor-1260 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 3:00	JMB
Aroclor-1262 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 3:00	JMB
Aroclor-1268 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	6/27/18	6/30/18 3:00	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		48.6	30-150					6/30/18 3:00	
Decachlorobiphenyl [2]		65.0	30-150					6/30/18 3:00	
Tetrachloro-m-xylene [1]		60.0	30-150					6/30/18 3:00	
Tetrachloro-m-xylene [2]		46.4	30-150					6/30/18 3:00	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: DUP3 (0-1)

Sampled: 6/26/2018 12:40

Sample ID: 18F1324-19

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	14	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
C19-C36 Aliphatics	29	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Unadjusted C11-C22 Aromatics	170	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
C11-C22 Aromatics	130	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Acenaphthene	0.32	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Acenaphthylene	0.47	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Anthracene	0.65	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Benzo(a)anthracene	2.9	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Benzo(a)pyrene	2.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Benzo(b)fluoranthene	4.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Benzo(g,h,i)perylene	1.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Benzo(k)fluoranthene	1.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Chrysene	4.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Dibenz(a,h)anthracene	0.58	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Fluoranthene	6.9	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Fluorene	0.44	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Indeno(1,2,3-cd)pyrene	1.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
2-Methylnaphthalene	0.42	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Naphthalene	0.40	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Phenanthrene	3.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Pyrene	6.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/27/18	7/2/18 15:23	RMW
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		63.1	40-140					7/2/18 15:23	
o-Terphenyl (OTP)		65.2	40-140					7/2/18 15:23	
2-Bromonaphthalene		92.0	40-140					7/2/18 15:23	
2-Fluorobiphenyl		111	40-140					7/2/18 15:23	



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: DUP3 (0-1)

Sampled: 6/26/2018 12:40

Sample ID: 18F1324-19

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	74	1.9	0.95	mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:01	QNW
Barium	81	1.9		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:01	QNW
Cadmium	2.0	0.19		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:01	QNW
Chromium	28	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:01	QNW
Lead	130	0.56		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:01	QNW
Mercury	0.20	0.027		mg/Kg dry	1		SW-846 7471B	6/29/18	7/3/18 10:13	EJB
Selenium	ND	3.7		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:01	QNW
Silver	0.94	0.37		mg/Kg dry	1		SW-846 6010C-D	7/2/18	7/3/18 15:01	QNW



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

Project Location: Lawrence, MA

Sample Description:

Work Order: 18F1324

Date Received: 6/26/2018

Field Sample #: DUP3 (0-1)

Sampled: 6/26/2018 12:40

Sample ID: 18F1324-19

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	88.8		% Wt	1		SM 2540G	6/27/18	6/28/18 9:12	DMP



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

Sample Extraction Data

Prep Method: SW-846 3546-MADEP-EPH-04-1.1

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1324-01 [PS18 (0-1)]	B206737	20.2	2.00	06/27/18
18F1324-02 [PS18 (1-3)]	B206737	20.1	2.00	06/27/18
18F1324-03 [RB16 (0-1)]	B206737	20.2	2.00	06/27/18
18F1324-04 [RB15 (0-1)]	B206737	20.4	2.00	06/27/18
18F1324-05 [DUP1 (0-1)]	B206737	20.0	2.00	06/27/18
18F1324-06 [PS12 (0-1)]	B206737	20.5	2.00	06/27/18
18F1324-07 [PS12 (1-3)]	B206737	20.2	2.00	06/27/18
18F1324-08 [RB14 (0-1)]	B206737	20.2	2.00	06/27/18
18F1324-09 [RB13 (0-1)]	B206737	20.6	2.00	06/27/18
18F1324-10 [DUP2 (0-1)]	B206737	20.6	2.00	06/27/18
18F1324-11 [RB11 (0-1)]	B206737	20.4	2.00	06/27/18
18F1324-12 [RB12 (0-1)]	B206737	20.0	2.00	06/27/18
18F1324-13 [RB17 (0-1)]	B206737	20.0	2.00	06/27/18
18F1324-14 [PS19 (0-1)]	B206737	20.2	2.00	06/27/18
18F1324-15 [PS19 (1-3)]	B206737	20.2	2.00	06/27/18
18F1324-16 [PS20 (0-1)]	B206737	20.6	2.00	06/27/18
18F1324-17 [PS20 (1-3)]	B206737	20.3	2.00	06/27/18
18F1324-18 [RB18 (0-1)]	B206737	20.0	2.00	06/27/18
18F1324-19 [DUP3 (0-1)]	B206737	20.1	2.00	06/27/18

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18F1324-01 [PS18 (0-1)]	B206739	06/27/18
18F1324-02 [PS18 (1-3)]	B206739	06/27/18
18F1324-03 [RB16 (0-1)]	B206739	06/27/18
18F1324-04 [RB15 (0-1)]	B206739	06/27/18
18F1324-05 [DUP1 (0-1)]	B206739	06/27/18
18F1324-06 [PS12 (0-1)]	B206739	06/27/18
18F1324-07 [PS12 (1-3)]	B206739	06/27/18
18F1324-08 [RB14 (0-1)]	B206739	06/27/18
18F1324-09 [RB13 (0-1)]	B206739	06/27/18
18F1324-10 [DUP2 (0-1)]	B206739	06/27/18
18F1324-11 [RB11 (0-1)]	B206739	06/27/18
18F1324-12 [RB12 (0-1)]	B206739	06/27/18
18F1324-13 [RB17 (0-1)]	B206739	06/27/18
18F1324-14 [PS19 (0-1)]	B206739	06/27/18
18F1324-15 [PS19 (1-3)]	B206739	06/27/18
18F1324-16 [PS20 (0-1)]	B206739	06/27/18
18F1324-17 [PS20 (1-3)]	B206739	06/27/18
18F1324-18 [RB18 (0-1)]	B206739	06/27/18
18F1324-19 [DUP3 (0-1)]	B206739	06/27/18

Prep Method: SW-846 3050B-SW-846 6010C-D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1324-01 [PS18 (0-1)]	B207045	1.48	50.0	07/02/18
18F1324-02 [PS18 (1-3)]	B207045	1.55	50.0	07/02/18
18F1324-03 [RB16 (0-1)]	B207045	1.47	50.0	07/02/18
18F1324-04 [RB15 (0-1)]	B207045	1.54	50.0	07/02/18
18F1324-05 [DUP1 (0-1)]	B207045	1.53	50.0	07/02/18
18F1324-06 [PS12 (0-1)]	B207045	1.50	50.0	07/02/18
18F1324-07 [PS12 (1-3)]	B207045	1.47	50.0	07/02/18



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Sample Extraction Data

Prep Method: SW-846 3050B-SW-846 6010C-D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1324-08 [RB14 (0-1)]	B207045	1.54	50.0	07/02/18
18F1324-09 [RB13 (0-1)]	B207045	1.51	50.0	07/02/18
18F1324-10 [DUP2 (0-1)]	B207045	1.45	50.0	07/02/18
18F1324-11 [RB11 (0-1)]	B207045	1.51	50.0	07/02/18
18F1324-12 [RB12 (0-1)]	B207045	1.45	50.0	07/02/18
18F1324-13 [RB17 (0-1)]	B207045	1.53	50.0	07/02/18
18F1324-14 [PS19 (0-1)]	B207045	1.57	50.0	07/02/18
18F1324-15 [PS19 (1-3)]	B207045	1.55	50.0	07/02/18
18F1324-16 [PS20 (0-1)]	B207045	1.48	50.0	07/02/18
18F1324-17 [PS20 (1-3)]	B207045	1.57	50.0	07/02/18
18F1324-18 [RB18 (0-1)]	B207045	1.51	50.0	07/02/18
18F1324-19 [DUP3 (0-1)]	B207045	1.50	50.0	07/02/18

Prep Method: SW-846 3050B-SW-846 6010C-D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1324-09RE1 [RB13 (0-1)]	B207180	1.52	50.0	07/03/18

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1324-01 [PS18 (0-1)]	B206946	0.588	50.0	06/29/18
18F1324-02 [PS18 (1-3)]	B206946	0.598	50.0	06/29/18
18F1324-03 [RB16 (0-1)]	B206946	0.637	50.0	06/29/18
18F1324-05 [DUP1 (0-1)]	B206946	0.577	50.0	06/29/18
18F1324-06 [PS12 (0-1)]	B206946	0.580	50.0	06/29/18
18F1324-07 [PS12 (1-3)]	B206946	0.591	50.0	06/29/18
18F1324-08 [RB14 (0-1)]	B206946	0.593	50.0	06/29/18
18F1324-10 [DUP2 (0-1)]	B206946	0.598	50.0	06/29/18
18F1324-11 [RB11 (0-1)]	B206946	0.624	50.0	06/29/18
18F1324-12 [RB12 (0-1)]	B206946	0.618	50.0	06/29/18
18F1324-13 [RB17 (0-1)]	B206946	0.611	50.0	06/29/18
18F1324-14 [PS19 (0-1)]	B206946	0.580	50.0	06/29/18
18F1324-15 [PS19 (1-3)]	B206946	0.615	50.0	06/29/18
18F1324-16 [PS20 (0-1)]	B206946	0.600	50.0	06/29/18
18F1324-17 [PS20 (1-3)]	B206946	0.617	50.0	06/29/18
18F1324-19 [DUP3 (0-1)]	B206946	0.624	50.0	06/29/18

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1324-04RE1 [RB15 (0-1)]	B207234	0.619	50.0	07/05/18
18F1324-09RE1 [RB13 (0-1)]	B207234	0.589	50.0	07/05/18
18F1324-18RE1 [RB18 (0-1)]	B207234	0.581	50.0	07/05/18

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1324-01 [PS18 (0-1)]	B206757	10.1	10.0	06/27/18
18F1324-02 [PS18 (1-3)]	B206757	10.2	10.0	06/27/18



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

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1324-03 [RB16 (0-1)]	B206757	10.2	10.0	06/27/18
18F1324-04 [RB15 (0-1)]	B206757	10.2	10.0	06/27/18
18F1324-05 [DUP1 (0-1)]	B206757	10.1	10.0	06/27/18
18F1324-06 [PS12 (0-1)]	B206757	10.3	10.0	06/27/18
18F1324-07 [PS12 (1-3)]	B206757	10.2	10.0	06/27/18
18F1324-08 [RB14 (0-1)]	B206757	10.3	10.0	06/27/18
18F1324-09 [RB13 (0-1)]	B206757	10.1	10.0	06/27/18
18F1324-10 [DUP2 (0-1)]	B206757	10.0	10.0	06/27/18
18F1324-11 [RB11 (0-1)]	B206757	10.3	10.0	06/27/18
18F1324-12 [RB12 (0-1)]	B206757	10.2	10.0	06/27/18
18F1324-13 [RB17 (0-1)]	B206757	10.1	10.0	06/27/18
18F1324-14 [PS19 (0-1)]	B206757	10.2	10.0	06/27/18
18F1324-15 [PS19 (1-3)]	B206757	10.0	10.0	06/27/18
18F1324-16 [PS20 (0-1)]	B206757	10.2	10.0	06/27/18
18F1324-17 [PS20 (1-3)]	B206757	10.3	10.0	06/27/18
18F1324-18 [RB18 (0-1)]	B206757	10.1	10.0	06/27/18
18F1324-19 [DUP3 (0-1)]	B206757	10.0	10.0	06/27/18



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

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
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Batch B206757 - SW-846 3546

Blank (B206757-BLK1)

Prepared: 06/27/18 Analyzed: 06/29/18

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	0.182		mg/Kg wet	0.200		91.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.196		mg/Kg wet	0.200		97.8	30-150			
Surrogate: Tetrachloro-m-xylene	0.181		mg/Kg wet	0.200		90.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.218		mg/Kg wet	0.200		109	30-150			

LCS (B206757-BS1)

Prepared: 06/27/18 Analyzed: 06/29/18

Aroclor-1016	0.20	0.020	mg/Kg wet	0.200		97.8	40-140			
Aroclor-1016 [2C]	0.20	0.020	mg/Kg wet	0.200		98.2	40-140			
Aroclor-1260	0.19	0.020	mg/Kg wet	0.200		94.0	40-140			
Aroclor-1260 [2C]	0.18	0.020	mg/Kg wet	0.200		88.6	40-140			
Surrogate: Decachlorobiphenyl	0.172		mg/Kg wet	0.200		86.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.183		mg/Kg wet	0.200		91.7	30-150			
Surrogate: Tetrachloro-m-xylene	0.173		mg/Kg wet	0.200		86.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.204		mg/Kg wet	0.200		102	30-150			

LCS Dup (B206757-BSD1)

Prepared: 06/27/18 Analyzed: 06/29/18

Aroclor-1016	0.21	0.020	mg/Kg wet	0.200		106	40-140	7.80	30	
Aroclor-1016 [2C]	0.21	0.020	mg/Kg wet	0.200		105	40-140	6.38	30	
Aroclor-1260	0.20	0.020	mg/Kg wet	0.200		102	40-140	8.05	30	
Aroclor-1260 [2C]	0.20	0.020	mg/Kg wet	0.200		98.4	40-140	10.5	30	
Surrogate: Decachlorobiphenyl	0.182		mg/Kg wet	0.200		91.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.196		mg/Kg wet	0.200		98.1	30-150			
Surrogate: Tetrachloro-m-xylene	0.178		mg/Kg wet	0.200		89.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.216		mg/Kg wet	0.200		108	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
Batch B206757 - SW-846 3546										
Matrix Spike (B206757-MS1) Source: 18F1324-04 Prepared: 06/27/18 Analyzed: 06/30/18										
Aroclor-1016	0.18	0.087	mg/Kg dry	0.218	ND	83.9	40-140			
Aroclor-1016 [2C]	0.22	0.087	mg/Kg dry	0.218	ND	99.3	40-140			
Aroclor-1260	0.19	0.087	mg/Kg dry	0.218	ND	86.2	40-140			
Aroclor-1260 [2C]	0.22	0.087	mg/Kg dry	0.218	ND	101	40-140			
Surrogate: Decachlorobiphenyl	0.131		mg/Kg dry	0.218		59.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.158		mg/Kg dry	0.218		72.5	30-150			
Surrogate: Tetrachloro-m-xylene	0.150		mg/Kg dry	0.218		68.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.242		mg/Kg dry	0.218		111	30-150			
Matrix Spike (B206757-MS2) Source: 18F1324-09 Prepared: 06/27/18 Analyzed: 06/30/18										
Aroclor-1016	0.14	0.089	mg/Kg dry	0.222	ND	63.4	40-140			
Aroclor-1016 [2C]	0.18	0.089	mg/Kg dry	0.222	ND	79.3	40-140			
Aroclor-1260	0.14	0.089	mg/Kg dry	0.222	ND	61.7	40-140			
Aroclor-1260 [2C]	0.16	0.089	mg/Kg dry	0.222	ND	73.2	40-140			
Surrogate: Decachlorobiphenyl	0.112		mg/Kg dry	0.222		50.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.156		mg/Kg dry	0.222		70.3	30-150			
Surrogate: Tetrachloro-m-xylene	0.114		mg/Kg dry	0.222		51.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.185		mg/Kg dry	0.222		83.3	30-150			
Matrix Spike (B206757-MS3) Source: 18F1324-18 Prepared: 06/27/18 Analyzed: 06/30/18										
Aroclor-1016	0.13	0.089	mg/Kg dry	0.222	ND	60.0	40-140			
Aroclor-1016 [2C]	0.20	0.089	mg/Kg dry	0.222	ND	89.6	40-140			
Aroclor-1260	0.14	0.089	mg/Kg dry	0.222	ND	62.3	40-140			
Aroclor-1260 [2C]	0.18	0.089	mg/Kg dry	0.222	ND	79.5	40-140			
Surrogate: Decachlorobiphenyl	0.107		mg/Kg dry	0.222		48.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.154		mg/Kg dry	0.222		69.4	30-150			
Surrogate: Tetrachloro-m-xylene	0.132		mg/Kg dry	0.222		59.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.215		mg/Kg dry	0.222		97.0	30-150			
Matrix Spike Dup (B206757-MSD1) Source: 18F1324-04 Prepared: 06/27/18 Analyzed: 06/30/18										
Aroclor-1016	0.18	0.087	mg/Kg dry	0.218	ND	83.8	40-140	0.103	30	
Aroclor-1016 [2C]	0.22	0.087	mg/Kg dry	0.218	ND	99.7	40-140	0.378	30	
Aroclor-1260	0.20	0.087	mg/Kg dry	0.218	ND	90.2	40-140	4.55	30	
Aroclor-1260 [2C]	0.23	0.087	mg/Kg dry	0.218	ND	104	40-140	2.30	30	
Surrogate: Decachlorobiphenyl	0.140		mg/Kg dry	0.218		64.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.165		mg/Kg dry	0.218		75.6	30-150			
Surrogate: Tetrachloro-m-xylene	0.153		mg/Kg dry	0.218		70.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.244		mg/Kg dry	0.218		112	30-150			
Matrix Spike Dup (B206757-MSD2) Source: 18F1324-09 Prepared: 06/27/18 Analyzed: 06/30/18										
Aroclor-1016	0.16	0.089	mg/Kg dry	0.222	ND	74.0	40-140	15.4	30	
Aroclor-1016 [2C]	0.21	0.089	mg/Kg dry	0.222	ND	95.2	40-140	18.3	30	
Aroclor-1260	0.15	0.089	mg/Kg dry	0.222	ND	67.3	40-140	8.62	30	
Aroclor-1260 [2C]	0.18	0.089	mg/Kg dry	0.222	ND	80.8	40-140	9.92	30	
Surrogate: Decachlorobiphenyl	0.118		mg/Kg dry	0.222		53.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.156		mg/Kg dry	0.222		70.3	30-150			
Surrogate: Tetrachloro-m-xylene	0.131		mg/Kg dry	0.222		59.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.207		mg/Kg dry	0.222		93.6	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
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Batch B206757 - SW-846 3546

Matrix Spike Dup (B206757-MSD3)

Source: 18F1324-18

Prepared: 06/27/18 Analyzed: 06/30/18

Aroclor-1016	0.13	0.089	mg/Kg dry	0.222	ND	58.8	40-140	2.00	30	
Aroclor-1016 [2C]	0.17	0.089	mg/Kg dry	0.222	ND	76.3	40-140	16.0	30	
Aroclor-1260	0.13	0.089	mg/Kg dry	0.222	ND	59.4	40-140	4.73	30	
Aroclor-1260 [2C]	0.17	0.089	mg/Kg dry	0.222	ND	77.0	40-140	3.12	30	
Surrogate: Decachlorobiphenyl	0.104		mg/Kg dry	0.222		46.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.146		mg/Kg dry	0.222		65.8	30-150			
Surrogate: Tetrachloro-m-xylene	0.128		mg/Kg dry	0.222		57.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.206		mg/Kg dry	0.222		92.8	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 B206737 - SW-846 3546

Blank (B206737-BLK1)

Prepared: 06/27/18 Analyzed: 06/28/18

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							
n-Decane	ND	0.10	mg/Kg wet							
n-Docosane	ND	0.10	mg/Kg wet							
n-Dodecane	ND	0.10	mg/Kg wet							
n-Eicosane	ND	0.10	mg/Kg wet							
n-Hexacosane	ND	0.10	mg/Kg wet							
n-Hexadecane	ND	0.10	mg/Kg wet							
n-Hexatriacontane	ND	0.10	mg/Kg wet							
n-Nonadecane	ND	0.10	mg/Kg wet							
n-Nonane	ND	0.10	mg/Kg wet							
n-Octacosane	ND	0.10	mg/Kg wet							
n-Octadecane	ND	0.10	mg/Kg wet							
n-Tetracosane	ND	0.10	mg/Kg wet							
n-Tetradecane	ND	0.10	mg/Kg wet							
n-Triacontane	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)	3.78		mg/Kg wet	5.05		74.9	40-140			
Surrogate: o-Terphenyl (OTP)	3.59		mg/Kg wet	5.00		71.8	40-140			
Surrogate: 2-Bromonaphthalene	3.54		mg/Kg wet	5.04		70.1	40-140			
Surrogate: 2-Fluorobiphenyl	4.12		mg/Kg wet	5.02		82.1	40-140			

LCS (B206737-BS1)

Prepared: 06/27/18 Analyzed: 06/28/18

C9-C18 Aliphatics	22.2	10	mg/Kg wet	30.0		74.1	40-140			
C19-C36 Aliphatics	29.5	10	mg/Kg wet	40.0		73.7	40-140			
Acenaphthene	3.82	0.10	mg/Kg wet	5.00		76.3	40-140			
Acenaphthylene	3.72	0.10	mg/Kg wet	5.00		74.5	40-140			
Anthracene	4.21	0.10	mg/Kg wet	5.00		84.3	40-140			
Benzo(a)anthracene	4.41	0.10	mg/Kg wet	5.00		88.3	40-140			
Benzo(a)pyrene	4.28	0.10	mg/Kg wet	5.00		85.6	40-140			
Benzo(b)fluoranthene	4.30	0.10	mg/Kg wet	5.00		86.0	40-140			
Benzo(g,h,i)perylene	4.28	0.10	mg/Kg wet	5.00		85.6	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
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Batch B206737 - SW-846 3546

LCS (B206737-BS1)

Prepared: 06/27/18 Analyzed: 06/28/18

Benzo(k)fluoranthene	4.30	0.10	mg/Kg wet	5.00		85.9	40-140			
Chrysene	4.41	0.10	mg/Kg wet	5.00		88.2	40-140			
Dibenz(a,h)anthracene	4.42	0.10	mg/Kg wet	5.00		88.5	40-140			
Fluoranthene	4.33	0.10	mg/Kg wet	5.00		86.6	40-140			
Fluorene	3.98	0.10	mg/Kg wet	5.00		79.6	40-140			
Indeno(1,2,3-cd)pyrene	4.05	0.10	mg/Kg wet	5.00		81.1	40-140			
2-Methylnaphthalene	3.82	0.10	mg/Kg wet	5.00		76.5	40-140			
Naphthalene	3.32	0.10	mg/Kg wet	5.00		66.3	40-140			
Phenanthrene	4.20	0.10	mg/Kg wet	5.00		84.0	40-140			
Pyrene	4.38	0.10	mg/Kg wet	5.00		87.6	40-140			
n-Decane	2.47	0.10	mg/Kg wet	5.00		49.5	40-140			
n-Docosane	3.92	0.10	mg/Kg wet	5.00		78.5	40-140			
n-Dodecane	3.10	0.10	mg/Kg wet	5.00		61.9	40-140			
n-Eicosane	3.83	0.10	mg/Kg wet	5.00		76.7	40-140			
n-Hexacosane	3.89	0.10	mg/Kg wet	5.00		77.8	40-140			
n-Hexadecane	3.86	0.10	mg/Kg wet	5.00		77.2	40-140			
n-Hexatriacontane	3.59	0.10	mg/Kg wet	5.00		71.7	40-140			
n-Nonadecane	3.86	0.10	mg/Kg wet	5.00		77.1	40-140			
n-Nonane	1.72	0.10	mg/Kg wet	5.00		34.5	30-140			
n-Octacosane	3.82	0.10	mg/Kg wet	5.00		76.4	40-140			
n-Octadecane	4.05	0.10	mg/Kg wet	5.00		81.1	40-140			
n-Tetracosane	3.90	0.10	mg/Kg wet	5.00		78.0	40-140			
n-Tetradecane	3.58	0.10	mg/Kg wet	5.00		71.6	40-140			
n-Triacontane	3.73	0.10	mg/Kg wet	5.00		74.6	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)	4.01		mg/Kg wet	5.05		79.4	40-140			
Surrogate: o-Terphenyl (OTP)	4.06		mg/Kg wet	5.00		81.2	40-140			
Surrogate: 2-Bromonaphthalene	2.98		mg/Kg wet	5.04		59.2	40-140			
Surrogate: 2-Fluorobiphenyl	3.67		mg/Kg wet	5.02		73.2	40-140			

LCS Dup (B206737-BSD1)

Prepared: 06/27/18 Analyzed: 06/28/18

C9-C18 Aliphatics	22.1	10	mg/Kg wet	30.0		73.7	40-140	0.525	25	
C19-C36 Aliphatics	31.0	10	mg/Kg wet	40.0		77.5	40-140	5.05	25	
Acenaphthene	3.66	0.10	mg/Kg wet	5.00		73.2	40-140	4.21	25	
Acenaphthylene	3.56	0.10	mg/Kg wet	5.00		71.2	40-140	4.45	25	
Anthracene	4.16	0.10	mg/Kg wet	5.00		83.3	40-140	1.22	25	
Benzo(a)anthracene	4.33	0.10	mg/Kg wet	5.00		86.7	40-140	1.82	25	
Benzo(a)pyrene	4.19	0.10	mg/Kg wet	5.00		83.8	40-140	2.09	25	
Benzo(b)fluoranthene	4.22	0.10	mg/Kg wet	5.00		84.3	40-140	2.00	25	
Benzo(g,h,i)perylene	4.23	0.10	mg/Kg wet	5.00		84.6	40-140	1.23	25	
Benzo(k)fluoranthene	4.23	0.10	mg/Kg wet	5.00		84.5	40-140	1.64	25	
Chrysene	4.34	0.10	mg/Kg wet	5.00		86.7	40-140	1.75	25	
Dibenz(a,h)anthracene	4.37	0.10	mg/Kg wet	5.00		87.5	40-140	1.13	25	
Fluoranthene	4.27	0.10	mg/Kg wet	5.00		85.3	40-140	1.45	25	
Fluorene	3.88	0.10	mg/Kg wet	5.00		77.6	40-140	2.60	25	
Indeno(1,2,3-cd)pyrene	3.98	0.10	mg/Kg wet	5.00		79.7	40-140	1.72	25	
2-Methylnaphthalene	3.62	0.10	mg/Kg wet	5.00		72.5	40-140	5.38	25	
Naphthalene	3.12	0.10	mg/Kg wet	5.00		62.4	40-140	6.12	25	
Phenanthrene	4.15	0.10	mg/Kg wet	5.00		82.9	40-140	1.24	25	
Pyrene	4.32	0.10	mg/Kg wet	5.00		86.3	40-140	1.40	25	
n-Decane	2.47	0.10	mg/Kg wet	5.00		49.4	40-140	0.117	25	



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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
Batch B206737 - SW-846 3546										
LCS Dup (B206737-BSD1)										
					Prepared: 06/27/18 Analyzed: 06/28/18					
n-Docosane	4.20	0.10	mg/Kg wet	5.00		84.1	40-140	6.88	25	
n-Dodecane	3.05	0.10	mg/Kg wet	5.00		60.9	40-140	1.63	25	
n-Eicosane	4.08	0.10	mg/Kg wet	5.00		81.7	40-140	6.27	25	
n-Hexacosane	4.16	0.10	mg/Kg wet	5.00		83.3	40-140	6.75	25	
n-Hexadecane	3.99	0.10	mg/Kg wet	5.00		79.7	40-140	3.14	25	
n-Hexatriacontane	3.79	0.10	mg/Kg wet	5.00		75.8	40-140	5.53	25	
n-Nonadecane	4.10	0.10	mg/Kg wet	5.00		82.1	40-140	6.27	25	
n-Nonane	1.79	0.10	mg/Kg wet	5.00		35.8	30-140	3.67	25	
n-Octacosane	4.08	0.10	mg/Kg wet	5.00		81.6	40-140	6.61	25	
n-Octadecane	4.28	0.10	mg/Kg wet	5.00		85.6	40-140	5.45	25	
n-Tetracosane	4.17	0.10	mg/Kg wet	5.00		83.3	40-140	6.61	25	
n-Tetradecane	3.56	0.10	mg/Kg wet	5.00		71.2	40-140	0.572	25	
n-Triacontane	3.98	0.10	mg/Kg wet	5.00		79.6	40-140	6.56	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)	4.27		mg/Kg wet	5.05		84.6	40-140			
Surrogate: o-Terphenyl (OTP)	3.98		mg/Kg wet	5.00		79.7	40-140			
Surrogate: 2-Bromonaphthalene	3.26		mg/Kg wet	5.04		64.7	40-140			
Surrogate: 2-Fluorobiphenyl	3.92		mg/Kg wet	5.02		78.1	40-140			
Matrix Spike (B206737-MS1)										
		Source: 18F1324-04			Prepared: 06/27/18 Analyzed: 07/01/18					
C9-C18 Aliphatics	20.9	11	mg/Kg dry	32.3	7.29	42.1	40-140			
C19-C36 Aliphatics	45.2	11	mg/Kg dry	43.0	29.1	37.5 *	40-140			MS-07A
Unadjusted C11-C22 Aromatics	127	11	mg/Kg dry	91.4	77.6	54.5	40-140			
Acenaphthene	3.32	0.11	mg/Kg dry	5.38	ND	61.7	40-140			
Acenaphthylene	3.32	0.11	mg/Kg dry	5.38	0.216	57.8	40-140			
Anthracene	3.62	0.11	mg/Kg dry	5.38	0.186	63.8	40-140			
Benzo(a)anthracene	4.54	0.11	mg/Kg dry	5.38	1.01	65.6	40-140			
Benzo(a)pyrene	4.11	0.11	mg/Kg dry	5.38	1.04	57.1	40-140			
Benzo(b)fluoranthene	5.18	0.11	mg/Kg dry	5.38	2.06	58.1	40-140			
Benzo(g,h,i)perylene	4.13	0.11	mg/Kg dry	5.38	1.29	52.8	40-140			
Benzo(k)fluoranthene	4.05	0.11	mg/Kg dry	5.38	0.644	63.4	40-140			
Chrysene	4.99	0.11	mg/Kg dry	5.38	1.56	63.8	40-140			
Dibenz(a,h)anthracene	3.49	0.11	mg/Kg dry	5.38	0.258	60.1	40-140			
Fluoranthene	5.86	0.11	mg/Kg dry	5.38	2.37	65.0	40-140			
Fluorene	3.52	0.11	mg/Kg dry	5.38	ND	65.5	40-140			
Indeno(1,2,3-cd)pyrene	3.53	0.11	mg/Kg dry	5.38	0.810	50.7	40-140			
2-Methylnaphthalene	2.95	0.11	mg/Kg dry	5.38	ND	54.8	40-140			
Naphthalene	2.24	0.11	mg/Kg dry	5.38	0.107	39.7 *	40-140			MS-07A
Phenanthrene	4.39	0.11	mg/Kg dry	5.38	0.766	67.4	40-140			
Pyrene	5.65	0.11	mg/Kg dry	5.38	2.15	65.1	40-140			
n-Nonane	1.02	0.11	mg/Kg dry	5.38	ND	18.9 *	30-140			MS-07A
Surrogate: Chlorooctadecane (COD)	3.45		mg/Kg dry	5.43		63.5	40-140			
Surrogate: o-Terphenyl (OTP)	3.51		mg/Kg dry	5.38		65.3	40-140			
Surrogate: 2-Bromonaphthalene	4.32		mg/Kg dry	5.42		79.7	40-140			
Surrogate: 2-Fluorobiphenyl	5.41		mg/Kg dry	5.40		100	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
Batch B206737 - SW-846 3546										
Matrix Spike (B206737-MS2)	Source: 18F1324-09			Prepared: 06/27/18 Analyzed: 06/30/18						
C9-C18 Aliphatics	29.8	11	mg/Kg dry	33.6	19.5	30.7	* 40-140			MS-07A
C19-C36 Aliphatics	72.3	11	mg/Kg dry	44.8	76.2	-8.61	* 40-140			MS-07A
Unadjusted C11-C22 Aromatics	488	110	mg/Kg dry	95.1	1030	-571	* 40-140			MS-07A
Acenaphthene	13.4	0.11	mg/Kg dry	5.60	19.0	-101	* 40-140			MS-07A
Acenaphthylene	4.35	0.11	mg/Kg dry	5.60	0.814	63.2	40-140			
Anthracene	9.47	0.11	mg/Kg dry	5.60	21.5	-216	* 40-140			MS-07A
Benzo(a)anthracene	8.88	0.11	mg/Kg dry	5.60	17.2	-149	* 40-140			MS-07A
Benzo(a)pyrene	6.50	0.11	mg/Kg dry	5.60	6.48	0.481	* 40-140			MS-07A
Benzo(b)fluoranthene	9.27	0.11	mg/Kg dry	5.60	12.9	-64.8	* 40-140			MS-07A
Benzo(g,h,i)perylene	4.72	0.11	mg/Kg dry	5.60	2.38	41.8	40-140			
Benzo(k)fluoranthene	5.56	0.11	mg/Kg dry	5.60	4.62	16.8	* 40-140			MS-07A
Chrysene	10.6	0.11	mg/Kg dry	5.60	21.0	-185	* 40-140			MS-07A
Dibenz(a,h)anthracene	4.04	0.11	mg/Kg dry	5.60	1.08	52.8	40-140			
Fluoranthene	26.4	1.1	mg/Kg dry	5.60	96.7	-1260	* 40-140			MS-07A
Fluorene	9.88	0.11	mg/Kg dry	5.60	14.3	-78.4	* 40-140			MS-07A
Indeno(1,2,3-cd)pyrene	4.92	0.11	mg/Kg dry	5.60	2.99	34.5	* 40-140			MS-07A
2-Methylnaphthalene	7.91	0.11	mg/Kg dry	5.60	4.44	61.9	40-140			
Naphthalene	6.26	0.11	mg/Kg dry	5.60	3.01	58.0	40-140			
Phenanthrene	26.7	1.1	mg/Kg dry	5.60	90.8	-1140	* 40-140			MS-07A
Pyrene	23.3	1.1	mg/Kg dry	5.60	75.9	-940	* 40-140			MS-07A
n-Nonane	1.39	0.11	mg/Kg dry	5.60	ND	24.8	* 30-140			MS-07A
Surrogate: Chlorooctadecane (COD)	3.56		mg/Kg dry	5.65		62.9	40-140			
Surrogate: o-Terphenyl (OTP)	3.72		mg/Kg dry	5.60		66.4	40-140			
Surrogate: 2-Bromonaphthalene	4.46		mg/Kg dry	5.64		79.1	40-140			
Surrogate: 2-Fluorobiphenyl	5.67		mg/Kg dry	5.62		101	40-140			
Matrix Spike (B206737-MS3)	Source: 18F1324-18			Prepared: 06/27/18 Analyzed: 06/30/18						
C9-C18 Aliphatics	27.6	11	mg/Kg dry	33.1	13.3	43.3	40-140			
C19-C36 Aliphatics	43.1	11	mg/Kg dry	44.2	34.8	18.6	* 40-140			MS-07A
Unadjusted C11-C22 Aromatics	207	11	mg/Kg dry	93.8	172	37.6	* 40-140			MS-22
Acenaphthene	3.11	0.11	mg/Kg dry	5.52	0.322	50.4	40-140			
Acenaphthylene	3.15	0.11	mg/Kg dry	5.52	0.462	48.6	40-140			
Anthracene	3.27	0.11	mg/Kg dry	5.52	0.556	49.1	40-140			
Benzo(a)anthracene	5.75	0.11	mg/Kg dry	5.52	2.78	53.8	40-140			
Benzo(a)pyrene	5.07	0.11	mg/Kg dry	5.52	2.77	41.8	40-140			
Benzo(b)fluoranthene	7.41	0.11	mg/Kg dry	5.52	5.02	43.4	40-140			
Benzo(g,h,i)perylene	3.77	0.11	mg/Kg dry	5.52	1.62	38.9	* 40-140			MS-07A
Benzo(k)fluoranthene	4.40	0.11	mg/Kg dry	5.52	1.80	47.2	40-140			
Chrysene	6.80	0.11	mg/Kg dry	5.52	4.16	47.9	40-140			
Dibenz(a,h)anthracene	3.13	0.11	mg/Kg dry	5.52	0.673	44.5	40-140			
Fluoranthene	9.00	0.11	mg/Kg dry	5.52	6.71	41.4	40-140			
Fluorene	3.25	0.11	mg/Kg dry	5.52	0.395	51.6	40-140			
Indeno(1,2,3-cd)pyrene	4.02	0.11	mg/Kg dry	5.52	1.96	37.3	* 40-140			MS-07A
2-Methylnaphthalene	3.05	0.11	mg/Kg dry	5.52	0.329	49.4	40-140			
Naphthalene	2.51	0.11	mg/Kg dry	5.52	0.300	40.1	40-140			
Phenanthrene	5.55	0.11	mg/Kg dry	5.52	3.35	39.9	* 40-140			MS-22
Pyrene	8.81	0.11	mg/Kg dry	5.52	6.66	39.1	* 40-140			MS-22
n-Nonane	1.12	0.11	mg/Kg dry	5.52	ND	20.3	* 30-140			MS-07A
Surrogate: Chlorooctadecane (COD)	3.00		mg/Kg dry	5.57		53.7	40-140			
Surrogate: o-Terphenyl (OTP)	2.99		mg/Kg dry	5.52		54.2	40-140			
Surrogate: 2-Bromonaphthalene	4.59		mg/Kg dry	5.56		82.5	40-140			
Surrogate: 2-Fluorobiphenyl	5.35		mg/Kg dry	5.54		96.6	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
Batch B206737 - SW-846 3546										
Matrix Spike Dup (B206737-MSD1)										
Source: 18F1324-04 Prepared: 06/27/18 Analyzed: 07/01/18										
C9-C18 Aliphatics	18.0	11	mg/Kg dry	33.1	7.29	32.5	* 40-140	14.5	50	MS-22
C19-C36 Aliphatics	37.3	11	mg/Kg dry	44.1	29.1	18.7	* 40-140	19.1	50	MS-07A
Unadjusted C11-C22 Aromatics	99.2	11	mg/Kg dry	93.7	77.6	23.1	* 40-140	24.9	50	MS-22
Acenaphthene	2.65	0.11	mg/Kg dry	5.51	ND	48.0	40-140	22.6	50	
Acenaphthylene	2.64	0.11	mg/Kg dry	5.51	0.216	43.9	40-140	23.1	50	
Anthracene	2.84	0.11	mg/Kg dry	5.51	0.186	48.2	40-140	24.0	50	
Benzo(a)anthracene	3.37	0.11	mg/Kg dry	5.51	1.01	42.8	40-140	29.6	50	
Benzo(a)pyrene	3.02	0.11	mg/Kg dry	5.51	1.04	36.0	* 40-140	30.6	50	MS-22
Benzo(b)fluoranthene	3.78	0.11	mg/Kg dry	5.51	2.06	31.3	* 40-140	31.2	50	MS-22
Benzo(g,h,i)perylene	3.04	0.11	mg/Kg dry	5.51	1.29	31.6	* 40-140	30.6	50	MS-22
Benzo(k)fluoranthene	3.00	0.11	mg/Kg dry	5.51	0.644	42.6	40-140	30.0	50	
Chrysene	3.68	0.11	mg/Kg dry	5.51	1.56	38.5	* 40-140	30.2	50	MS-22
Dibenz(a,h)anthracene	2.59	0.11	mg/Kg dry	5.51	0.258	42.3	40-140	29.7	50	
Fluoranthene	4.35	0.11	mg/Kg dry	5.51	2.37	35.9	* 40-140	29.7	50	MS-22
Fluorene	2.78	0.11	mg/Kg dry	5.51	ND	50.5	40-140	23.5	50	
Indeno(1,2,3-cd)pyrene	2.58	0.11	mg/Kg dry	5.51	0.810	32.1	* 40-140	31.2	50	MS-22
2-Methylnaphthalene	2.44	0.11	mg/Kg dry	5.51	ND	44.3	40-140	18.7	50	
Naphthalene	2.01	0.11	mg/Kg dry	5.51	0.107	34.6	* 40-140	10.7	50	MS-07A
Phenanthrene	3.36	0.11	mg/Kg dry	5.51	0.766	47.0	40-140	26.8	50	
Pyrene	4.22	0.11	mg/Kg dry	5.51	2.15	37.4	* 40-140	29.2	50	MS-22
n-Nonane	1.00	0.11	mg/Kg dry	5.51	ND	18.2	* 30-140	1.49	50	MS-07A
Surrogate: Chlorooctadecane (COD)	2.78		mg/Kg dry	5.57		49.9	40-140			
Surrogate: o-Terphenyl (OTP)	2.68		mg/Kg dry	5.51		48.7	40-140			
Surrogate: 2-Bromonaphthalene	4.40		mg/Kg dry	5.56		79.2	40-140			
Surrogate: 2-Fluorobiphenyl	5.11		mg/Kg dry	5.54		92.3	40-140			
Matrix Spike Dup (B206737-MSD2)										
Source: 18F1324-09 Prepared: 06/27/18 Analyzed: 06/30/18										
C9-C18 Aliphatics	27.5	11	mg/Kg dry	33.2	19.5	24.0	* 40-140	8.14	50	MS-07A
C19-C36 Aliphatics	70.1	11	mg/Kg dry	44.3	76.2	-13.6	* 40-140	3.05	50	MS-07A
Unadjusted C11-C22 Aromatics	443	110	mg/Kg dry	94.2	1030	-625	* 40-140	9.70	50	MS-07A
Acenaphthene	11.7	0.11	mg/Kg dry	5.54	19.0	-133	* 40-140	13.5	50	MS-07A
Acenaphthylene	3.94	0.11	mg/Kg dry	5.54	0.814	56.3	40-140	10.1	50	
Anthracene	8.43	0.11	mg/Kg dry	5.54	21.5	-236	* 40-140	11.6	50	MS-07A
Benzo(a)anthracene	8.00	0.11	mg/Kg dry	5.54	17.2	-166	* 40-140	10.5	50	MS-07A
Benzo(a)pyrene	5.54	0.11	mg/Kg dry	5.54	6.48	-16.9	* 40-140	16.0	50	MS-07A
Benzo(b)fluoranthene	8.07	0.11	mg/Kg dry	5.54	12.9	-87.0	* 40-140	13.8	50	MS-07A
Benzo(g,h,i)perylene	4.14	0.11	mg/Kg dry	5.54	2.38	31.8	* 40-140	13.1	50	MS-22
Benzo(k)fluoranthene	5.18	0.11	mg/Kg dry	5.54	4.62	10.0	* 40-140	7.13	50	MS-07A
Chrysene	8.87	0.11	mg/Kg dry	5.54	21.0	-218	* 40-140	18.1	50	MS-07A
Dibenz(a,h)anthracene	3.70	0.11	mg/Kg dry	5.54	1.08	47.1	40-140	8.92	50	
Fluoranthene	20.5	0.11	mg/Kg dry	5.54	96.7	-1370	* 40-140	24.9	50	MS-07A
Fluorene	9.03	0.11	mg/Kg dry	5.54	14.3	-94.6	* 40-140	9.05	50	MS-07A
Indeno(1,2,3-cd)pyrene	4.38	0.11	mg/Kg dry	5.54	2.99	25.0	* 40-140	11.6	50	MS-07A
2-Methylnaphthalene	6.93	0.11	mg/Kg dry	5.54	4.44	44.8	40-140	13.2	50	
Naphthalene	5.57	0.11	mg/Kg dry	5.54	3.01	46.2	40-140	11.6	50	
Phenanthrene	23.7	1.1	mg/Kg dry	5.54	90.8	-1210	* 40-140	12.0	50	MS-07A
Pyrene	17.9	0.11	mg/Kg dry	5.54	75.9	-1050	* 40-140	25.9	50	MS-07A
n-Nonane	1.37	0.11	mg/Kg dry	5.54	ND	24.6	* 30-140	1.68	50	MS-07A
Surrogate: Chlorooctadecane (COD)	3.31		mg/Kg dry	5.60		59.1	40-140			
Surrogate: o-Terphenyl (OTP)	3.37		mg/Kg dry	5.54		60.9	40-140			
Surrogate: 2-Bromonaphthalene	4.26		mg/Kg dry	5.59		76.3	40-140			
Surrogate: 2-Fluorobiphenyl	5.20		mg/Kg dry	5.56		93.6	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
Batch B206737 - SW-846 3546										
Matrix Spike Dup (B206737-MSD3)	Source: 18F1324-18			Prepared: 06/27/18 Analyzed: 06/30/18						
C9-C18 Aliphatics	27.1	11	mg/Kg dry	33.0	13.3	42.0	40-140	1.89	50	
C19-C36 Aliphatics	45.3	11	mg/Kg dry	43.9	34.8	23.9 *	40-140	5.18	50	MS-07A
Unadjusted C11-C22 Aromatics	210	11	mg/Kg dry	93.4	172	40.6	40-140	1.27	50	
Acenaphthene	3.22	0.11	mg/Kg dry	5.49	0.322	52.8	40-140	3.66	50	
Acenaphthylene	3.16	0.11	mg/Kg dry	5.49	0.462	49.1	40-140	0.288	50	
Anthracene	3.44	0.11	mg/Kg dry	5.49	0.556	52.5	40-140	5.15	50	
Benzo(a)anthracene	5.90	0.11	mg/Kg dry	5.49	2.78	56.8	40-140	2.60	50	
Benzo(a)pyrene	5.02	0.11	mg/Kg dry	5.49	2.77	41.0	40-140	1.12	50	
Benzo(b)fluoranthene	7.38	0.11	mg/Kg dry	5.49	5.02	43.0	40-140	0.469	50	
Benzo(g,h,i)perylene	3.65	0.11	mg/Kg dry	5.49	1.62	37.0 *	40-140	3.13	50	MS-07A
Benzo(k)fluoranthene	4.41	0.11	mg/Kg dry	5.49	1.80	47.6	40-140	0.253	50	
Chrysene	7.07	0.11	mg/Kg dry	5.49	4.16	52.9	40-140	3.82	50	
Dibenz(a,h)anthracene	3.07	0.11	mg/Kg dry	5.49	0.673	43.6	40-140	2.01	50	
Fluoranthene	9.79	0.11	mg/Kg dry	5.49	6.71	56.1	40-140	8.47	50	
Fluorene	3.35	0.11	mg/Kg dry	5.49	0.395	53.8	40-140	3.15	50	
Indeno(1,2,3-cd)pyrene	3.83	0.11	mg/Kg dry	5.49	1.96	34.2 *	40-140	4.64	50	MS-07A
2-Methylnaphthalene	3.12	0.11	mg/Kg dry	5.49	0.329	50.7	40-140	2.02	50	
Naphthalene	2.68	0.11	mg/Kg dry	5.49	0.300	43.4	40-140	6.43	50	
Phenanthrene	6.97	0.11	mg/Kg dry	5.49	3.35	65.8	40-140	22.6	50	
Pyrene	9.54	0.11	mg/Kg dry	5.49	6.66	52.5	40-140	7.92	50	
n-Nonane	1.15	0.11	mg/Kg dry	5.49	ND	20.9 *	30-140	2.55	50	MS-07A
Surrogate: Chlorooctadecane (COD)	2.94		mg/Kg dry	5.55		53.1	40-140			
Surrogate: o-Terphenyl (OTP)	3.03		mg/Kg dry	5.49		55.1	40-140			
Surrogate: 2-Bromonaphthalene	4.63		mg/Kg dry	5.54		83.6	40-140			
Surrogate: 2-Fluorobiphenyl	5.37		mg/Kg dry	5.51		97.4	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
Batch B206946 - SW-846 7471										
Blank (B206946-BLK1) Prepared: 06/29/18 Analyzed: 07/03/18										
Mercury	ND	0.025	mg/Kg wet							
LCS (B206946-BS1) Prepared: 06/29/18 Analyzed: 07/03/18										
Mercury	7.97	1.9	mg/Kg wet	9.36		85.2	73.7-126.3			
LCS Dup (B206946-BSD1) Prepared: 06/29/18 Analyzed: 07/03/18										
Mercury	8.45	1.9	mg/Kg wet	9.36		90.3	73.7-126.3	5.88	30	
Batch B207045 - SW-846 3050B										
Blank (B207045-BLK1) Prepared: 07/02/18 Analyzed: 07/03/18										
Arsenic	ND	1.7	mg/Kg wet							
Barium	ND	1.7	mg/Kg wet							
Cadmium	ND	0.17	mg/Kg wet							
Chromium	ND	0.33	mg/Kg wet							
Lead	ND	0.50	mg/Kg wet							
Selenium	ND	3.3	mg/Kg wet							
Silver	ND	0.33	mg/Kg wet							
LCS (B207045-BS1) Prepared: 07/02/18 Analyzed: 07/03/18										
Arsenic	160	5.0	mg/Kg wet	161		99.1	83.2-116.8			
Barium	274	5.0	mg/Kg wet	260		106	82.7-117.3			
Cadmium	204	0.50	mg/Kg wet	211		96.7	83.4-116.6			
Chromium	138	0.99	mg/Kg wet	136		101	82.4-117.6			
Lead	109	1.5	mg/Kg wet	111		98.5	83-117.1			
Selenium	185	9.9	mg/Kg wet	191		96.9	79.6-120.9			
Silver	44.1	0.99	mg/Kg wet	43.3		102	79.9-119.9			
LCS Dup (B207045-BSD1) Prepared: 07/02/18 Analyzed: 07/03/18										
Arsenic	161	5.0	mg/Kg wet	161		100	83.2-116.8	1.21	30	
Barium	268	5.0	mg/Kg wet	260		103	82.7-117.3	2.33	30	
Cadmium	208	0.50	mg/Kg wet	211		98.7	83.4-116.6	2.08	30	
Chromium	140	1.0	mg/Kg wet	136		103	82.4-117.6	1.43	30	
Lead	107	1.5	mg/Kg wet	111		96.8	83-117.1	1.71	30	
Selenium	186	10	mg/Kg wet	191		97.6	79.6-120.9	0.743	30	
Silver	45.0	1.0	mg/Kg wet	43.3		104	79.9-119.9	2.07	30	
MRL Check (B207045-MRL1) Prepared: 07/02/18 Analyzed: 07/03/18										
Lead	0.495	0.48	mg/Kg wet	0.481		103	80-120			
Matrix Spike (B207045-MS1) Source: 18F1324-04 Prepared: 07/02/18 Analyzed: 07/03/18										
Arsenic	50.2	1.8	mg/Kg dry	17.8	32.9	97.1	75-125			
Barium	72.8	1.8	mg/Kg dry	17.8	45.6	153 *	75-125			MS-22
Cadmium	18.5	0.18	mg/Kg dry	17.8	1.36	96.3	75-125			
Chromium	60.7	0.36	mg/Kg dry	17.8	35.6	142 *	75-125			MS-22
Lead	147	0.53	mg/Kg dry	17.8	146	9.45 *	75-125			MS-19
Selenium	14.3	3.6	mg/Kg dry	17.8	ND	80.5	75-125			
Silver	17.8	0.36	mg/Kg dry	17.8	ND	100	75-125			



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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
Batch B207045 - SW-846 3050B										
Matrix Spike (B207045-MS2) Source: 18F1324-09 Prepared: 07/02/18 Analyzed: 07/03/18										
Arsenic	40.8	1.9	mg/Kg dry	18.6	21.3	105	75-125			
Cadmium	19.0	0.19	mg/Kg dry	18.6	1.01	96.6	75-125			
Chromium	44.5	0.37	mg/Kg dry	18.6	24.3	109	75-125			
Lead	137	0.56	mg/Kg dry	18.6	124	73.4 *	75-125			MS-19
Selenium	16.5	3.7	mg/Kg dry	18.6	ND	88.8	75-125			
Silver	18.5	0.37	mg/Kg dry	18.6	ND	99.3	75-125			
Matrix Spike (B207045-MS3) Source: 18F1324-18 Prepared: 07/02/18 Analyzed: 07/03/18										
Arsenic	93.7	1.9	mg/Kg dry	18.7	76.5	91.8	75-125			
Barium	109	1.9	mg/Kg dry	18.7	167	-308 *	75-125			MS-19
Cadmium	20.9	0.19	mg/Kg dry	18.7	2.65	97.9	75-125			
Chromium	43.1	0.37	mg/Kg dry	18.7	22.9	108	75-125			
Lead	168	0.56	mg/Kg dry	18.7	148	109	75-125			
Selenium	15.8	3.7	mg/Kg dry	18.7	ND	84.5	75-125			
Silver	19.0	0.37	mg/Kg dry	18.7	ND	102	75-125			
Matrix Spike Dup (B207045-MSD1) Source: 18F1324-04 Prepared: 07/02/18 Analyzed: 07/03/18										
Arsenic	47.0	1.8	mg/Kg dry	17.8	32.9	79.1	75-125	6.57	35	
Barium	65.7	1.8	mg/Kg dry	17.8	45.6	113	75-125	10.2	35	
Cadmium	18.4	0.18	mg/Kg dry	17.8	1.36	95.7	75-125	0.489	35	
Chromium	51.9	0.36	mg/Kg dry	17.8	35.6	91.9	75-125	15.6	35	
Lead	153	0.53	mg/Kg dry	17.8	146	40.9 *	75-125	3.72	35	MS-19
Selenium	14.6	3.6	mg/Kg dry	17.8	ND	81.9	75-125	1.89	35	
Silver	17.7	0.36	mg/Kg dry	17.8	ND	99.4	75-125	0.585	35	
Matrix Spike Dup (B207045-MSD2) Source: 18F1324-09 Prepared: 07/02/18 Analyzed: 07/03/18										
Arsenic	40.3	1.9	mg/Kg dry	18.6	21.3	102	75-125	1.14	35	
Cadmium	19.2	0.19	mg/Kg dry	18.6	1.01	97.9	75-125	1.32	35	
Chromium	46.5	0.37	mg/Kg dry	18.6	24.3	119	75-125	4.45	35	
Lead	140	0.56	mg/Kg dry	18.6	124	85.4	75-125	1.62	35	
Selenium	15.5	3.7	mg/Kg dry	18.6	ND	83.1	75-125	6.55	35	
Silver	18.9	0.37	mg/Kg dry	18.6	ND	102	75-125	2.44	35	
Matrix Spike Dup (B207045-MSD3) Source: 18F1324-18 Prepared: 07/02/18 Analyzed: 07/03/18										
Arsenic	92.9	1.9	mg/Kg dry	18.8	76.5	87.2	75-125	0.827	35	
Barium	99.9	1.9	mg/Kg dry	18.8	167	-356 *	75-125	8.92	35	MS-19
Cadmium	20.9	0.19	mg/Kg dry	18.8	2.65	97.1	75-125	0.224	35	
Chromium	43.5	0.38	mg/Kg dry	18.8	22.9	110	75-125	0.964	35	
Lead	166	0.56	mg/Kg dry	18.8	148	98.3	75-125	1.13	35	
Selenium	15.8	3.8	mg/Kg dry	18.8	ND	84.2	75-125	0.193	35	
Silver	18.7	0.38	mg/Kg dry	18.8	ND	99.4	75-125	1.68	35	



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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
Batch B207180 - SW-846 3050B										
Blank (B207180-BLK1)				Prepared: 07/03/18 Analyzed: 07/05/18						
Barium	ND	1.7	mg/Kg wet							
LCS (B207180-BS1)				Prepared: 07/03/18 Analyzed: 07/05/18						
Barium	272	5.0	mg/Kg wet	260	105	120	82.7-117.3			
LCS Dup (B207180-BSD1)				Prepared: 07/03/18 Analyzed: 07/05/18						
Barium	273	5.0	mg/Kg wet	260	105	120	82.7-117.3	0.549	30	
Matrix Spike (B207180-MS2)		Source: 18F1324-09RE1		Prepared: 07/03/18 Analyzed: 07/05/18						
Barium	61.9	1.8	mg/Kg dry	18.4	39.7	120	75-125			
Matrix Spike Dup (B207180-MSD2)		Source: 18F1324-09RE1		Prepared: 07/03/18 Analyzed: 07/05/18						
Barium	58.9	1.8	mg/Kg dry	18.0	39.7	107	75-125	4.83	35	
Batch B207234 - SW-846 7471										
Blank (B207234-BLK1)				Prepared & Analyzed: 07/05/18						
Mercury	ND	0.025	mg/Kg wet							
LCS (B207234-BS1)				Prepared & Analyzed: 07/05/18						
Mercury	9.46	1.9	mg/Kg wet	9.36	101	102	73.7-126.3			
LCS Dup (B207234-BSD1)				Prepared & Analyzed: 07/05/18						
Mercury	9.57	2.0	mg/Kg wet	9.36	102	102	73.7-126.3	1.12	30	
Matrix Spike (B207234-MS1)		Source: 18F1324-04RE1		Prepared & Analyzed: 07/05/18						
Mercury	0.288	0.027	mg/Kg dry	0.178	0.123	92.5	75-125			
Matrix Spike (B207234-MS2)		Source: 18F1324-09RE1		Prepared & Analyzed: 07/05/18						
Mercury	0.312	0.028	mg/Kg dry	0.190	0.150	85.3	75-125			
Matrix Spike (B207234-MS3)		Source: 18F1324-18RE1		Prepared & Analyzed: 07/05/18						
Mercury	0.317	0.029	mg/Kg dry	0.191	0.153	86.1	75-125			
Matrix Spike Dup (B207234-MSD1)		Source: 18F1324-04RE1		Prepared & Analyzed: 07/05/18						
Mercury	0.276	0.027	mg/Kg dry	0.179	0.123	85.1	75-125	4.26	35	
Matrix Spike Dup (B207234-MSD2)		Source: 18F1324-09RE1		Prepared & Analyzed: 07/05/18						
Mercury	0.337	0.029	mg/Kg dry	0.191	0.150	97.5	75-125	7.50	35	
Matrix Spike Dup (B207234-MSD3)		Source: 18F1324-18RE1		Prepared & Analyzed: 07/05/18						
Mercury	0.340	0.028	mg/Kg dry	0.189	0.153	99.0	75-125	6.99	35	



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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
Batch B206739 - % Solids										
Duplicate (B206739-DUP4)	Source: 18F1324-04		Prepared: 06/27/18 Analyzed: 06/28/18							
% Solids	90.2		% Wt		90.7			0.502	20	
Duplicate (B206739-DUP5)	Source: 18F1324-09		Prepared: 06/27/18 Analyzed: 06/28/18							
% Solids	88.3		% Wt		89.3			1.13	20	
Duplicate (B206739-DUP6)	Source: 18F1324-18		Prepared: 06/27/18 Analyzed: 06/28/18							
% Solids	89.4		% Wt		89.2			0.177	20	



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

DUP1 (0-1)

SW-846 8082A

Lab Sample ID: 18F1324-05 Date(s) Analyzed: 06/29/2018 06/29/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1260	1	0.000	0.000	0.000	0.12	
	2	0.000	0.000	0.000	0.12	0.0



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

RB14 (0-1)

SW-846 8082A

Lab Sample ID: 18F1324-08 Date(s) Analyzed: 06/29/2018 06/29/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
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**

RB12 (0-1)

SW-846 8082A

Lab Sample ID: 18F1324-12 Date(s) Analyzed: 06/30/2018 06/30/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1260	1	0.000	0.000	0.000	0.31	
	2	0.000	0.000	0.000	0.35	12.1



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

LCS

SW-846 8082A

Lab Sample ID: B206757-BS1 Date(s) Analyzed: 06/29/2018 06/29/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

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	0.20	
	2	0.000	0.000	0.000	0.20	0.0
Aroclor-1260	1	0.000	0.000	0.000	0.19	
	2	0.000	0.000	0.000	0.18	5.4



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

LCS Dup

SW-846 8082A

Lab Sample ID: B206757-BSD1 Date(s) Analyzed: 06/29/2018 06/29/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

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	0.21	
	2	0.000	0.000	0.000	0.21	0.0
Aroclor-1260	1	0.000	0.000	0.000	0.20	
	2	0.000	0.000	0.000	0.20	0.0



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

Matrix Spike

SW-846 8082A

Lab Sample ID: B206757-MS1 Date(s) Analyzed: 06/30/2018 06/30/2018
 Instrument ID (1): ECD10 Instrument ID (2): ECD10
 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	0.18	
	2	0.000	0.000	0.000	0.22	20.0
Aroclor-1260	1	0.000	0.000	0.000	0.19	
	2	0.000	0.000	0.000	0.22	14.6



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

Matrix Spike

SW-846 8082A

Lab Sample ID: B206757-MS2 Date(s) Analyzed: 06/30/2018 06/30/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

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	0.14	
	2	0.000	0.000	0.000	0.18	25.0
Aroclor-1260	1	0.000	0.000	0.000	0.14	
	2	0.000	0.000	0.000	0.16	13.3



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

Matrix Spike

SW-846 8082A

Lab Sample ID: B206757-MS3 Date(s) Analyzed: 06/30/2018 06/30/2018
 Instrument ID (1): ECD10 Instrument ID (2): ECD10
 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	0.13	
	2	0.000	0.000	0.000	0.20	42.4
Aroclor-1260	1	0.000	0.000	0.000	0.14	
	2	0.000	0.000	0.000	0.18	25.0



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

Matrix Spike Dup

SW-846 8082A

Lab Sample ID: B206757-MSD1 Date(s) Analyzed: 06/30/2018 06/30/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

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	0.18	
	2	0.000	0.000	0.000	0.22	20.0
Aroclor-1260	1	0.000	0.000	0.000	0.20	
	2	0.000	0.000	0.000	0.23	14.0



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

Matrix Spike Dup

SW-846 8082A

Lab Sample ID: B206757-MSD2 Date(s) Analyzed: 06/30/2018 06/30/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

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	0.21	27.0
Aroclor-1260	1	0.000	0.000	0.000	0.15	
	2	0.000	0.000	0.000	0.18	18.2



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

Matrix Spike Dup

SW-846 8082A

Lab Sample ID: B206757-MSD3 Date(s) Analyzed: 06/30/2018 06/30/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

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	0.13	
	2	0.000	0.000	0.000	0.17	26.7
Aroclor-1260	1	0.000	0.000	0.000	0.13	
	2	0.000	0.000	0.000	0.17	26.7



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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.
MS-07A	Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possibility of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.
MS-19	Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.
MS-22	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.
O-32	A dilution was performed as part of the standard analytical procedure.



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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
MADEP-EPH-04-1.1 in Soil	
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
SW-846 6010C-D in Soil	
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA



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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8082A in Soil</i>	
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
<i>SW-846 8082A in Water</i>	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Public Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2018
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2018

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East Longmeadow, MA 01028

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18F1324

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com



Address: TRC ENV

Requested Turnaround Time
 7-Day 10-Day 5 Day
 Due Date:
 Rush Approval Required: 3-Day 4-Day
 Data Delivery:
 Format: PDF EXCEL
 Other:
 CLP Like Data Pkg Required:
 Email To:
 Fax To #:

Company Name: MEX
 Project Name: Rain Treat
 Project Location:
 Project Number:
 Project Manager: S O P L H
 Con-Test Quote Name/Number:
 Invoice Recipient:
 Sampled By: Greg Pearson 61

Con-Test Work Order #	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code
27 01	PS-18 (0-1')	6/25/18	1430	X		S	U
27 02	PS-18 (1-3')		1430				
27 03	RB-16 (0-1')		1426				
27 04	RB-15 (0-1')		1307				
27 05	DUP # (0-1')		1207				
27 06	PS-12 (0-1')	6/26/18	0932				
27 07	PS-12 (1-3')	6/26/18	0932				
27 08	RB-14 (0-1')		0855				
27 09	RB-13 (0-1')		0915				
27 10	DUP-2 (0-1')		0915				

Comments: MS + MSD at RB 15 0-1
MS2 + MSD2 at RB 13 0-1

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
 H - High; M - Medium; L - Low; C - Clean; U - Unknown

1 Matrix Codes:
 GW = Ground Water
 WW = Waste Water
 DW = Drinking Water
 A = Air
 S = Soil
 SL = Sludge
 SOL = Solid
 O = Other (please define)

2 Preservation Codes:
 I = Iced
 H = HCL
 M = Methanol
 N = Nitric Acid
 S = Sulfuric Acid
 B = Sodium Bisulfate
 X = Sodium Hydroxide
 T = Sodium Thiosulfate
 O = Other (please define)

3 Container Codes:
 A = Amber Glass
 G = Glass
 P = Plastic
 ST = Sterile
 V = Vial
 S = Summa Canister
 T = Tedlar Bag
 O = Other (please define)

PCB ONLY
 Soxhlet
 Non Soxhlet

Requested Turnaround Time: 5 Day
 Rush Approval Required:
 Data Delivery: EXCEL
 Format: PDF EXCEL

Special Requirements:
 MA MCP Required
 MCP Certification Form Required
 CT RCP Required
 RCP Certification Form Required
 MA State DWR Request
 PWSID #

Project Entity:
 Government
 Federal
 City
 Municipality
 21 J
 Brownfield
 MWRA
 School
 MBTA
 WRTA
 Chromatogram
 AIHA-LAP, LLC
 Other

con-test ANALYTICAL LABORATORY
 www.contestlabs.com
 NELAP and AIHA-LAP, LLC Accredited

Doc # 381 Rev 1_03242017

39 Spruce Street
East Longmeadow, MA 01028

http://www.con-testlabs.com

CHAIN OF CUSTODY RECORD

Phone: 413-525-2332

Fax: 413-525-6405

Email: info@con-testlabs.com

TRC EAV

Company Name

Address

Phone

Project Name

Project Location

Project Number

Project Manager

Con-Test Quote Name/Number

Invoice Recipient

Sampled By

Con-Test Work Order #	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code
31	RB-11 (0-1')	6:20 AM	11:00	X		S	U
32	RB-12 (0-1')		10:55			U	
33	RB-17 (0-1')		11:40			U	
34	PS-14 (0-1')		13:20			U	
35	PS-19 (1-3')		13:20			U	
36	PS-20 (0-1')		13:03			U	
37	PS-20 (1-3')		13:05			U	
38	RB-18 (0-1')		13:40			U	
39	Dup-3 (0-1')		12:40			U	

Comments:

MS-3 MSD-3 RB-18

Please use the following codes to indicate possible sample concentration within the Conc Code column above:

H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)

Date/Time: 6/26/18 15:15

Received by: (signature)

Date/Time: 6/26/18 15:15

Relinquished by: (signature)

Date/Time: 6/26/18 18:40

Received by: (signature)

Date/Time: 6/26/18 18:40

Relinquished by: (signature)


Date/Time: 6/26/18 18:40

Received by: (signature)

Date/Time: 6/26/18 18:40

Detection Limit Requirements	Special Requirements
<input type="checkbox"/> MA	<input type="checkbox"/> MA MCP Required
<input type="checkbox"/> CT	<input type="checkbox"/> MCP Certification Form Required
<input type="checkbox"/> Other	<input type="checkbox"/> CT RCP Required
	<input type="checkbox"/> RCP Certification Form Required
	<input type="checkbox"/> MA State-DWP Required
PMSID #	

Project Entity	Municipality	MWRA	School	MBTA	Other	Chromatogram	AIHA-LAP, LLC
<input type="checkbox"/> Government	<input type="checkbox"/> 21 J	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> WRTA	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Federal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> City	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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ANALYTICAL LABORATORY
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# of Containers	
? Preservation Code	
? Container Code	
Dissolved Metals Samples	
<input type="radio"/> Field Filtered	
<input type="radio"/> Lab to Filter	
Ortho/Asbestos Samples	
<input type="radio"/> Field Filtered	
<input type="radio"/> Lab to Filter	

- 1 Matrix Codes:**
 GW = Ground Water
 WW = Waste Water
 DW = Drinking Water
 A = Air
 S = Soil
 SL = Sludge
 SOL = Solid
 O = Other (please define)

- 2 Preservation Codes:**
 I = Iced
 H = HCL
 M = Methanol
 N = Nitric Acid
 S = Sulfuric Acid
 B = Sodium Bisulfate
 X = Sodium Hydroxide
 T = Sodium Thiosulfate
 O = Other (please define)

- 3 Container Codes:**
 A = Amber Glass
 G = Glass
 P = Plastic
 ST = Sterile
 V = Vial
 S = Summa Canister
 T = Tedlar Bag
 O = Other (please define)

- PCB ONLY**
 Soxhlet
 Non Soxhlet



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 TBC
 Received By PLF Date 6/26/18 Time _____
 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 # 8 Actual Temp - 2.6, 5.3°C
 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 Who was notified? _____
 Are there Rushes? F Who was notified? _____
 Are there Short Holds? F Who was notified? _____
 Is there enough Volume? T
 Is there Headspace where applicable? NA MS/MSD? T
 Proper Media/Containers Used? T Is splitting samples required? F
 Were trip blanks received? F On COC? NA
 Do all samples have the proper pH? Acid NA Base NA

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		

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:



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

July 26, 2018

Jamie Stapleton
TRC Environmental Corporation - New Hampshire
670 N. Commercial Street
Manchester, NH 03101

Project Location: Lawrence
Client Job Number:
Project Number: 246949.4000.0000
Laboratory Work Order Number: 18F1166

Enclosed are results of analyses for samples received by the laboratory on June 22, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Meghan E. Kelley". The signature is written in a cursive style with a large, sweeping "y" at the end.

Meghan E. Kelley
Project Manager

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

TRC Environmental Corporation - New Hampshire
670 N. Commercial Street
Manchester, NH 03101
ATTN: Jamie Stapleton

REPORT DATE: 7/26/2018

PURCHASE ORDER NUMBER: 90720

PROJECT NUMBER: 246949.4000.0000

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18F1166

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

PROJECT LOCATION: Lawrence

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
RBS-1 (0-1)	18F1166-01	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RBS-2 (0-1)	18F1166-02	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB-1 (0-1)	18F1166-03	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB-2 (0-1)	18F1166-04	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB-3 (0-1)	18F1166-05	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB-4 (0-1)	18F1166-06	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PSS-1 (0-1)	18F1166-07	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PSS-1 (1-3)	18F1166-08	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	



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TRC Environmental Corporation - New Hampshire
670 N. Commercial Street
Manchester, NH 03101
ATTN: Jamie Stapleton

REPORT DATE: 7/26/2018

PURCHASE ORDER NUMBER: 90720

PROJECT NUMBER: 246949.4000.0000

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18F1166

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

PROJECT LOCATION: Lawrence

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PS-10 (0-1)	18F1166-09	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS-8 (0-1)	18F1166-10	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS-1 (0-1)	18F1166-11	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS-1 (1-3)	18F1166-12	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS-2 (0-1)	18F1166-13	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS-2 (1-3)	18F1166-14	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS-3 (0-1)	18F1166-15	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS-3 (1-3)	18F1166-16	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	



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TRC Environmental Corporation - New Hampshire
670 N. Commercial Street
Manchester, NH 03101
ATTN: Jamie Stapleton

REPORT DATE: 7/26/2018

PURCHASE ORDER NUMBER: 90720

PROJECT NUMBER: 246949.4000.0000

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18F1166

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

PROJECT LOCATION: Lawrence

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PS-7 (0-1)	18F1166-17	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS-10 (1-3)	18F1166-18	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS-8 (1-3)	18F1166-19	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
PS-7 (1-3)	18F1166-20	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB-9 (0-1)	18F1166-21	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB-10 (0-1)	18F1166-22	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB-5 (0-1)	18F1166-23	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB-6 (0-1)	18F1166-24	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	



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

TRC Environmental Corporation - New Hampshire
670 N. Commercial Street
Manchester, NH 03101
ATTN: Jamie Stapleton

REPORT DATE: 7/26/2018

PURCHASE ORDER NUMBER: 90720

PROJECT NUMBER: 246949.4000.0000

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18F1166

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

PROJECT LOCATION: Lawrence

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
RB-7 (0-1)	18F1166-25	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	
RB-8 (0-1)	18F1166-26	Soil		MADEP-EPH-04-1.1 SM 2540G SW-846 6010C-D SW-846 7471B SW-846 8082A	



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

CASE NARRATIVE SUMMARY

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

REVISED REPORT - 7/26/2018 - 18F1166-12 ID revised per clients request.

For method 6010, only RCRA 8 metals were requested and reported.



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

MADEP-EPH-04-1.1**Qualifications:****B**

Analyte is found in the associated laboratory blank as well as in the sample.

Analyte & Samples(s) Qualified:**n-Hexadecane**

B206529-BS1, B206529-BSD1, B206851-BS1, B206851-BSD1

n-Octadecane

B206529-BS1, B206529-BSD1, B206851-BS1, B206851-BSD1

RL-06

Elevated reporting limit due to high concentration of non-target compounds. MA CAM reporting limit not met.

Analyte & Samples(s) Qualified:**C9-C18 Aliphatics**

18F1166-02[RBS-2 (0-1)], 18F1166-07[PSS-1 (0-1)], 18F1166-08[PSS-1 (1-3)]

SW-846 6010C-D**Qualifications:****MS-11**

Matrix spike recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

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

18F1166-04[RB-2 (0-1)], 18F1166-12[PS-1 (1-3)], B206743-MS1, B206755-MS1

SW-846 8082A**Qualifications:****O-32**

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

Analyte & Samples(s) Qualified:

18F1166-01[RBS-1 (0-1)], 18F1166-02[RBS-2 (0-1)], 18F1166-03[RB-1 (0-1)], 18F1166-04[RB-2 (0-1)], 18F1166-05[RB-3 (0-1)], 18F1166-06[RB-4 (0-1)],
 18F1166-07[PSS-1 (0-1)], 18F1166-08[PSS-1 (1-3)], 18F1166-09[PS-10 (0-1)], 18F1166-10[PS-8 (0-1)], 18F1166-11[PS-1 (0-1)], 18F1166-12[PS-1 (1-3)], 18F1166-13[PS-2
 (0-1)], 18F1166-14[PS-2 (1-3)], 18F1166-15[PS-3 (0-1)], 18F1166-16[PS-3 (1-3)], 18F1166-17[PS-7 (0-1)], 18F1166-18[PS-10 (1-3)], 18F1166-19[PS-8 (1-3)],
 18F1166-20[PS-7 (1-3)], 18F1166-21[RB-9 (0-1)], 18F1166-22RE1[RB-10 (0-1)], 18F1166-23RE1[RB-5 (0-1)], 18F1166-24[RB-6 (0-1)], 18F1166-25[RB-7 (0-1)],
 18F1166-26[RB-8 (0-1)], B206525-BLK1

S-12

Surrogate recovery is outside of control limits on confirmatory column, but within control limits on primary column. Data validation is not affected.

Analyte & Samples(s) Qualified:**Decachlorobiphenyl [2C]**

18F1166-26[RB-8 (0-1)]

Tetrachloro-m-xylene [2C]

18F1166-25[RB-7 (0-1)]

S-17

Surrogate recovery is outside of control limits. Data validation is not affected since all associated results are less than the reporting limit and bias is on the high side.

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

18F1166-21[RB-9 (0-1)]

Decachlorobiphenyl [2C]

18F1166-21[RB-9 (0-1)]

Tetrachloro-m-xylene

18F1166-21[RB-9 (0-1)]

Tetrachloro-m-xylene [2C]

18F1166-21[RB-9 (0-1)]



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MADEP-EPH-04-1.1

SPE cartridge contamination with non-petroleum compounds, if present, is verified by GC/MS in each method blank per extraction batch and excluded from C 11-C22 aromatic range fraction in all samples in the batch. No significant modifications were made to the method.

SW-846 6010C/D SW-846 6020A/B

For NC, Metals methods SW-846 6010D and SW-846 6020B are followed, and for all other states methods SW-846 6010C and SW-846 6020A are followed.

The results of analyses reported only relate to samples submitted to the Con-Test 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.

A handwritten signature in black ink that reads "Meghan E. Kelley". The signature is written in a cursive style with a long, sweeping tail on the letter 'y'.

Meghan E. Kelley
Project Manager



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RBS-1 (0-1)

Sampled: 6/21/2018 09:11

Sample ID: 18F1166-01

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	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:00	JMB
Aroclor-1221 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:00	JMB
Aroclor-1232 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:00	JMB
Aroclor-1242 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:00	JMB
Aroclor-1248 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:00	JMB
Aroclor-1254 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:00	JMB
Aroclor-1260 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:00	JMB
Aroclor-1262 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:00	JMB
Aroclor-1268 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:00	JMB
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]	77.0		30-150				6/26/18 16:00		
Decachlorobiphenyl [2]	78.1		30-150				6/26/18 16:00		
Tetrachloro-m-xylene [1]	86.0		30-150				6/26/18 16:00		
Tetrachloro-m-xylene [2]	100		30-150				6/26/18 16:00		



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RBS-1 (0-1)

Sampled: 6/21/2018 09:11

Sample ID: 18F1166-01

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	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
C19-C36 Aliphatics	63	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Unadjusted C11-C22 Aromatics	180	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
C11-C22 Aromatics	170	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Acenaphthene	0.24	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Acenaphthylene	ND	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Anthracene	0.32	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Benzo(a)anthracene	0.83	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Benzo(a)pyrene	0.97	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Benzo(b)fluoranthene	2.2	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Benzo(g,h,i)perylene	0.94	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Benzo(k)fluoranthene	0.72	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Chrysene	1.7	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Dibenz(a,h)anthracene	ND	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Fluoranthene	2.3	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Fluorene	ND	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Indeno(1,2,3-cd)pyrene	0.78	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
2-Methylnaphthalene	ND	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Naphthalene	0.25	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Phenanthrene	1.0	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Pyrene	2.5	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:58	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		40.6	40-140					6/27/18 22:58	
o-Terphenyl (OTP)		45.2	40-140					6/27/18 22:58	
2-Bromonaphthalene		113	40-140					6/27/18 22:58	
2-Fluorobiphenyl		130	40-140					6/27/18 22:58	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RBS-1 (0-1)

Sampled: 6/21/2018 09:11

Sample ID: 18F1166-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	7.7	1.8	0.92	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:12	QNW
Barium	32	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:12	QNW
Cadmium	0.42	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:12	QNW
Chromium	13	0.36		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:12	QNW
Lead	59	0.55		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:12	QNW
Mercury	0.055	0.027		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 10:57	EJB
Selenium	ND	3.6		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:12	QNW
Silver	ND	0.36		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:12	QNW



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RBS-1 (0-1)

Sampled: 6/21/2018 09:11

Sample ID: 18F1166-01

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	95.6		% Wt	1		SM 2540G	6/25/18	6/26/18 7:17	MRL



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RBS-2 (0-1)

Sampled: 6/21/2018 09:47

Sample ID: 18F1166-02

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	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:17	JMB
Aroclor-1221 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:17	JMB
Aroclor-1232 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:17	JMB
Aroclor-1242 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:17	JMB
Aroclor-1248 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:17	JMB
Aroclor-1254 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:17	JMB
Aroclor-1260 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:17	JMB
Aroclor-1262 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:17	JMB
Aroclor-1268 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:17	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		70.0	30-150					6/26/18 16:17	
Decachlorobiphenyl [2]		76.5	30-150					6/26/18 16:17	
Tetrachloro-m-xylene [1]		77.2	30-150					6/26/18 16:17	
Tetrachloro-m-xylene [2]		86.3	30-150					6/26/18 16:17	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RBS-2 (0-1)

Sampled: 6/21/2018 09:47

Sample ID: 18F1166-02

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	53	mg/Kg dry	5	RL-06	MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
C19-C36 Aliphatics	99	53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Unadjusted C11-C22 Aromatics	450	53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
C11-C22 Aromatics	350	53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Acenaphthene	5.3	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Acenaphthylene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Anthracene	1.8	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Benzo(a)anthracene	3.2	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Benzo(a)pyrene	2.0	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Benzo(b)fluoranthene	3.6	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Benzo(g,h,i)perylene	1.5	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Benzo(k)fluoranthene	1.2	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Chrysene	4.3	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Dibenz(a,h)anthracene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Fluoranthene	22	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Fluorene	2.3	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Indeno(1,2,3-cd)pyrene	1.2	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
2-Methylnaphthalene	2.6	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Naphthalene	3.5	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Phenanthrene	32	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Pyrene	17	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:17	KLB
Surrogates		% Recovery		Recovery Limits	Flag/Qual				
Chlorooctadecane (COD)		53.3		40-140				6/27/18 23:17	
o-Terphenyl (OTP)		61.2		40-140				6/27/18 23:17	
2-Bromonaphthalene		115		40-140				6/27/18 23:17	
2-Fluorobiphenyl		130		40-140				6/27/18 23:17	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RBS-2 (0-1)

Sampled: 6/21/2018 09:47

Sample ID: 18F1166-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	8.2	1.8	0.89	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:17	QNW
Barium	56	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:17	QNW
Cadmium	0.95	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:17	QNW
Chromium	19	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:17	QNW
Lead	110	0.53		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:17	QNW
Mercury	0.17	0.026		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 10:59	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:17	QNW
Silver	ND	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:17	QNW



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RBS-2 (0-1)

Sampled: 6/21/2018 09:47

Sample ID: 18F1166-02

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	95.1		% Wt	1		SM 2540G	6/25/18	6/26/18 7:18	MRL



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-1 (0-1)

Sampled: 6/21/2018 10:57

Sample ID: 18F1166-03

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	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:36	JMB
Aroclor-1221 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:36	JMB
Aroclor-1232 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:36	JMB
Aroclor-1242 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:36	JMB
Aroclor-1248 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:36	JMB
Aroclor-1254 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:36	JMB
Aroclor-1260 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:36	JMB
Aroclor-1262 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:36	JMB
Aroclor-1268 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:36	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		75.8	30-150					6/26/18 16:36	
Decachlorobiphenyl [2]		79.1	30-150					6/26/18 16:36	
Tetrachloro-m-xylene [1]		86.4	30-150					6/26/18 16:36	
Tetrachloro-m-xylene [2]		102	30-150					6/26/18 16:36	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-1 (0-1)

Sampled: 6/21/2018 10:57

Sample ID: 18F1166-03

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
C19-C36 Aliphatics	14	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Unadjusted C11-C22 Aromatics	110	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
C11-C22 Aromatics	88	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Acenaphthylene	0.35	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Anthracene	0.22	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Benzo(a)anthracene	1.8	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Benzo(a)pyrene	1.8	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Benzo(b)fluoranthene	3.4	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Benzo(g,h,i)perylene	1.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Benzo(k)fluoranthene	1.2	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Chrysene	2.5	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Dibenz(a,h)anthracene	0.41	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Fluoranthene	4.1	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Indeno(1,2,3-cd)pyrene	1.4	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Phenanthrene	0.46	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Pyrene	3.9	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:36	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		55.0	40-140					6/27/18 23:36	
o-Terphenyl (OTP)		53.9	40-140					6/27/18 23:36	
2-Bromonaphthalene		109	40-140					6/27/18 23:36	
2-Fluorobiphenyl		128	40-140					6/27/18 23:36	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-1 (0-1)

Sampled: 6/21/2018 10:57

Sample ID: 18F1166-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	9.4	1.6	0.83	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:21	QNW
Barium	18	1.6		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:21	QNW
Cadmium	4.5	0.16		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:21	QNW
Chromium	15	0.33		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:21	QNW
Lead	22	0.49		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:21	QNW
Mercury	ND	0.026		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:04	EJB
Selenium	ND	3.3		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:21	QNW
Silver	ND	0.33		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:21	QNW



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-1 (0-1)

Sampled: 6/21/2018 10:57

Sample ID: 18F1166-03

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	96.9		% Wt	1		SM 2540G	6/25/18	6/26/18 7:18	MRL



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-2 (0-1)

Sampled: 6/21/2018 11:19

Sample ID: 18F1166-04

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	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:53	JMB
Aroclor-1221 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:53	JMB
Aroclor-1232 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:53	JMB
Aroclor-1242 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:53	JMB
Aroclor-1248 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:53	JMB
Aroclor-1254 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:53	JMB
Aroclor-1260 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:53	JMB
Aroclor-1262 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:53	JMB
Aroclor-1268 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 16:53	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		84.5	30-150					6/26/18 16:53	
Decachlorobiphenyl [2]		83.5	30-150					6/26/18 16:53	
Tetrachloro-m-xylene [1]		96.8	30-150					6/26/18 16:53	
Tetrachloro-m-xylene [2]		114	30-150					6/26/18 16:53	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-2 (0-1)

Sampled: 6/21/2018 11:19

Sample ID: 18F1166-04

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	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
C19-C36 Aliphatics	22	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Unadjusted C11-C22 Aromatics	180	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
C11-C22 Aromatics	140	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Acenaphthene	0.56	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Acenaphthylene	0.33	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Anthracene	1.5	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Benzo(a)anthracene	3.4	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Benzo(a)pyrene	2.9	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Benzo(b)fluoranthene	4.0	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Benzo(g,h,i)perylene	1.5	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Benzo(k)fluoranthene	1.5	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Chrysene	3.7	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Dibenz(a,h)anthracene	0.53	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Fluoranthene	7.6	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Fluorene	0.69	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Indeno(1,2,3-cd)pyrene	1.7	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
2-Methylnaphthalene	ND	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Naphthalene	ND	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Phenanthrene	5.5	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Pyrene	7.6	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 23:56	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		45.3	40-140					6/27/18 23:56	
o-Terphenyl (OTP)		46.5	40-140					6/27/18 23:56	
2-Bromonaphthalene		108	40-140					6/27/18 23:56	
2-Fluorobiphenyl		126	40-140					6/27/18 23:56	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-2 (0-1)

Sampled: 6/21/2018 11:19

Sample ID: 18F1166-04

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	7.4	1.7	0.85	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:23	QNW
Barium	26	1.7		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:23	QNW
Cadmium	0.33	0.17		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:23	QNW
Chromium	17	0.34		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:23	QNW
Lead	36	0.51		mg/Kg dry	1	MS-11	SW-846 6010C-D	6/27/18	6/28/18 18:23	QNW
Mercury	0.046	0.027		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 10:55	EJB
Selenium	ND	3.4		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:23	QNW
Silver	ND	0.34		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:23	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-2 (0-1)

Sampled: 6/21/2018 11:19

Sample ID: 18F1166-04

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	96.7		% Wt	1		SM 2540G	6/25/18	6/26/18 7:18	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-3 (0-1)

Sampled: 6/21/2018 11:53

Sample ID: 18F1166-05

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	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:11	JMB
Aroclor-1221 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:11	JMB
Aroclor-1232 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:11	JMB
Aroclor-1242 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:11	JMB
Aroclor-1248 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:11	JMB
Aroclor-1254 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:11	JMB
Aroclor-1260 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:11	JMB
Aroclor-1262 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:11	JMB
Aroclor-1268 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:11	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		81.6	30-150					6/26/18 17:11	
Decachlorobiphenyl [2]		91.2	30-150					6/26/18 17:11	
Tetrachloro-m-xylene [1]		93.0	30-150					6/26/18 17:11	
Tetrachloro-m-xylene [2]		111	30-150					6/26/18 17:11	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-3 (0-1)

Sampled: 6/21/2018 11:53

Sample ID: 18F1166-05

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
C19-C36 Aliphatics	14	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Unadjusted C11-C22 Aromatics	130	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
C11-C22 Aromatics	100	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Acenaphthylene	0.39	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Anthracene	0.28	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Benzo(a)anthracene	2.5	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Benzo(a)pyrene	2.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Benzo(b)fluoranthene	4.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Benzo(g,h,i)perylene	1.5	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Benzo(k)fluoranthene	1.6	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Chrysene	2.9	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Dibenz(a,h)anthracene	0.48	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Fluoranthene	4.9	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Indeno(1,2,3-cd)pyrene	1.5	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Phenanthrene	0.27	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Pyrene	5.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:15	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		48.5	40-140					6/28/18 0:15	
o-Terphenyl (OTP)		46.9	40-140					6/28/18 0:15	
2-Bromonaphthalene		119	40-140					6/28/18 0:15	
2-Fluorobiphenyl		139	40-140					6/28/18 0:15	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-3 (0-1)

Sampled: 6/21/2018 11:53

Sample ID: 18F1166-05

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	12	1.8	0.89	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:26	QNW
Barium	22	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:26	QNW
Cadmium	0.45	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:26	QNW
Chromium	18	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:26	QNW
Lead	41	0.53		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:26	QNW
Mercury	0.045	0.027		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:06	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:26	QNW
Silver	ND	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:26	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-3 (0-1)

Sampled: 6/21/2018 11:53

Sample ID: 18F1166-05

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	97.2		% Wt	1		SM 2540G	6/25/18	6/26/18 7:18	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-4 (0-1)

Sampled: 6/21/2018 13:30

Sample ID: 18F1166-06

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	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:29	JMB
Aroclor-1221 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:29	JMB
Aroclor-1232 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:29	JMB
Aroclor-1242 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:29	JMB
Aroclor-1248 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:29	JMB
Aroclor-1254 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:29	JMB
Aroclor-1260 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:29	JMB
Aroclor-1262 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:29	JMB
Aroclor-1268 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:29	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		79.8	30-150					6/26/18 17:29	
Decachlorobiphenyl [2]		76.5	30-150					6/26/18 17:29	
Tetrachloro-m-xylene [1]		88.7	30-150					6/26/18 17:29	
Tetrachloro-m-xylene [2]		105	30-150					6/26/18 17:29	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-4 (0-1)

Sampled: 6/21/2018 13:30

Sample ID: 18F1166-06

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
C19-C36 Aliphatics	16	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Unadjusted C11-C22 Aromatics	84	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
C11-C22 Aromatics	70	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Acenaphthylene	0.19	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Anthracene	0.18	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Benzo(a)anthracene	1.0	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Benzo(a)pyrene	1.1	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Benzo(b)fluoranthene	2.0	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Benzo(g,h,i)perylene	1.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Benzo(k)fluoranthene	0.69	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Chrysene	1.6	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Dibenz(a,h)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Fluoranthene	2.5	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Indeno(1,2,3-cd)pyrene	0.77	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Phenanthrene	0.57	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB
Pyrene	2.5	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:01	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	53.3	40-140	6/27/18 22:01
o-Terphenyl (OTP)	53.8	40-140	6/27/18 22:01
2-Bromonaphthalene	111	40-140	6/27/18 22:01
2-Fluorobiphenyl	138	40-140	6/27/18 22:01



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-4 (0-1)

Sampled: 6/21/2018 13:30

Sample ID: 18F1166-06

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	23	1.8	0.90	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:31	QNW
Barium	28	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:31	QNW
Cadmium	0.75	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:31	QNW
Chromium	22	0.36		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:31	QNW
Lead	45	0.53		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:31	QNW
Mercury	0.031	0.025		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:07	EJB
Selenium	ND	3.6		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:31	QNW
Silver	ND	0.36		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:31	QNW



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-4 (0-1)

Sampled: 6/21/2018 13:30

Sample ID: 18F1166-06

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	96.7		% Wt	1		SM 2540G	6/25/18	6/26/18 7:18	MRL



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PSS-1 (0-1)

Sampled: 6/21/2018 10:10

Sample ID: 18F1166-07

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	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:47	JMB
Aroclor-1221 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:47	JMB
Aroclor-1232 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:47	JMB
Aroclor-1242 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:47	JMB
Aroclor-1248 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:47	JMB
Aroclor-1254 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:47	JMB
Aroclor-1260 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:47	JMB
Aroclor-1262 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:47	JMB
Aroclor-1268 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 17:47	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		72.0	30-150					6/26/18 17:47	
Decachlorobiphenyl [2]		69.3	30-150					6/26/18 17:47	
Tetrachloro-m-xylene [1]		82.6	30-150					6/26/18 17:47	
Tetrachloro-m-xylene [2]		97.4	30-150					6/26/18 17:47	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PSS-1 (0-1)

Sampled: 6/21/2018 10:10

Sample ID: 18F1166-07

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	53	mg/Kg dry	5	RL-06	MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
C19-C36 Aliphatics	71	53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Unadjusted C11-C22 Aromatics	230	53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
C11-C22 Aromatics	220	53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Acenaphthene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Acenaphthylene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Anthracene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Benzo(a)anthracene	1.0	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Benzo(a)pyrene	1.1	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Benzo(b)fluoranthene	1.6	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Benzo(g,h,i)perylene	1.0	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Benzo(k)fluoranthene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Chrysene	1.3	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Dibenz(a,h)anthracene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Fluoranthene	2.6	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Fluorene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Indeno(1,2,3-cd)pyrene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
2-Methylnaphthalene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Naphthalene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Phenanthrene	1.5	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Pyrene	2.4	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:34	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		53.8	40-140					6/28/18 0:34	
o-Terphenyl (OTP)		50.6	40-140					6/28/18 0:34	
2-Bromonaphthalene		110	40-140					6/28/18 0:34	
2-Fluorobiphenyl		130	40-140					6/28/18 0:34	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PSS-1 (0-1)

Sampled: 6/21/2018 10:10

Sample ID: 18F1166-07

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	7.1	1.8	0.90	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:36	QNW
Barium	57	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:36	QNW
Cadmium	0.89	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:36	QNW
Chromium	24	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:36	QNW
Lead	73	0.53		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:36	QNW
Mercury	0.11	0.026		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:09	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:36	QNW
Silver	ND	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:36	QNW



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PSS-1 (0-1)

Sampled: 6/21/2018 10:10

Sample ID: 18F1166-07

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	94.1		% Wt	1		SM 2540G	6/25/18	6/26/18 7:18	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PSS-1 (1-3)

Sampled: 6/21/2018 10:10

Sample ID: 18F1166-08

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	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:04	JMB
Aroclor-1221 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:04	JMB
Aroclor-1232 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:04	JMB
Aroclor-1242 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:04	JMB
Aroclor-1248 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:04	JMB
Aroclor-1254 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:04	JMB
Aroclor-1260 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:04	JMB
Aroclor-1262 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:04	JMB
Aroclor-1268 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:04	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		74.6	30-150					6/26/18 18:04	
Decachlorobiphenyl [2]		75.9	30-150					6/26/18 18:04	
Tetrachloro-m-xylene [1]		84.0	30-150					6/26/18 18:04	
Tetrachloro-m-xylene [2]		98.4	30-150					6/26/18 18:04	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PSS-1 (1-3)

Sampled: 6/21/2018 10:10

Sample ID: 18F1166-08

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	53	mg/Kg dry	5	RL-06	MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
C19-C36 Aliphatics	59	53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Unadjusted C11-C22 Aromatics	210	53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
C11-C22 Aromatics	180	53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Acenaphthene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Acenaphthylene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Anthracene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Benzo(a)anthracene	1.8	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Benzo(a)pyrene	1.5	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Benzo(b)fluoranthene	2.4	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Benzo(g,h,i)perylene	1.2	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Benzo(k)fluoranthene	0.82	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Chrysene	2.4	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Dibenz(a,h)anthracene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Fluoranthene	5.5	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Fluorene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Indeno(1,2,3-cd)pyrene	0.98	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
2-Methylnaphthalene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Naphthalene	ND	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Phenanthrene	3.8	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Pyrene	4.8	0.53	mg/Kg dry	5		MADEP-EPH-04-1.1	6/25/18	6/28/18 0:53	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		84.2	40-140					6/28/18 0:53	
o-Terphenyl (OTP)		85.5	40-140					6/28/18 0:53	
2-Bromonaphthalene		115	40-140					6/28/18 0:53	
2-Fluorobiphenyl		133	40-140					6/28/18 0:53	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PSS-1 (1-3)

Sampled: 6/21/2018 10:10

Sample ID: 18F1166-08

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	7.3	1.8	0.93	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:41	QNW
Barium	60	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:41	QNW
Cadmium	0.45	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:41	QNW
Chromium	19	0.37		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:41	QNW
Lead	83	0.55		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:41	QNW
Mercury	0.28	0.026		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:11	EJB
Selenium	ND	3.7		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:41	QNW
Silver	ND	0.37		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 19:41	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PSS-1 (1-3)

Sampled: 6/21/2018 10:10

Sample ID: 18F1166-08

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	94.0		% Wt	1		SM 2540G	6/25/18	6/26/18 7:18	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-10 (0-1)

Sampled: 6/21/2018 14:10

Sample ID: 18F1166-09

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	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:23	JMB
Aroclor-1221 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:23	JMB
Aroclor-1232 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:23	JMB
Aroclor-1242 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:23	JMB
Aroclor-1248 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:23	JMB
Aroclor-1254 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:23	JMB
Aroclor-1260 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:23	JMB
Aroclor-1262 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:23	JMB
Aroclor-1268 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:23	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		92.9	30-150					6/26/18 18:23	
Decachlorobiphenyl [2]		87.8	30-150					6/26/18 18:23	
Tetrachloro-m-xylene [1]		103	30-150					6/26/18 18:23	
Tetrachloro-m-xylene [2]		121	30-150					6/26/18 18:23	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-10 (0-1)

Sampled: 6/21/2018 14:10

Sample ID: 18F1166-09

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Unadjusted C11-C22 Aromatics	74	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
C11-C22 Aromatics	56	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Acenaphthene	0.17	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Acenaphthylene	0.19	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Anthracene	0.23	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Benzo(a)anthracene	1.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Benzo(a)pyrene	1.4	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Benzo(b)fluoranthene	2.4	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Benzo(g,h,i)perylene	0.98	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Benzo(k)fluoranthene	0.89	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Chrysene	1.8	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Dibenz(a,h)anthracene	0.31	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Fluoranthene	3.0	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Fluorene	0.15	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Indeno(1,2,3-cd)pyrene	0.99	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Naphthalene	0.13	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Phenanthrene	1.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Pyrene	2.9	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:22	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		84.2	40-140					6/27/18 16:22	
o-Terphenyl (OTP)		89.1	40-140					6/27/18 16:22	
2-Bromonaphthalene		119	40-140					6/27/18 16:22	
2-Fluorobiphenyl		136	40-140					6/27/18 16:22	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-10 (0-1)

Sampled: 6/21/2018 14:10

Sample ID: 18F1166-09

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	5.1	1.6	0.81	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:15	QNW
Barium	41	1.6		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:15	QNW
Cadmium	0.44	0.16		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:15	QNW
Chromium	27	0.32		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:15	QNW
Lead	86	0.48		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:15	QNW
Mercury	0.084	0.027		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:12	EJB
Selenium	ND	3.2		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:15	QNW
Silver	ND	0.32		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:15	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-10 (0-1)

Sampled: 6/21/2018 14:10

Sample ID: 18F1166-09

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	97.6		% Wt	1		SM 2540G	6/25/18	6/26/18 7:19	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-8 (0-1)

Sampled: 6/21/2018 14:30

Sample ID: 18F1166-10

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	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:40	JMB
Aroclor-1221 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:40	JMB
Aroclor-1232 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:40	JMB
Aroclor-1242 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:40	JMB
Aroclor-1248 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:40	JMB
Aroclor-1254 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:40	JMB
Aroclor-1260 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:40	JMB
Aroclor-1262 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:40	JMB
Aroclor-1268 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 18:40	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		80.2	30-150					6/26/18 18:40	
Decachlorobiphenyl [2]		99.4	30-150					6/26/18 18:40	
Tetrachloro-m-xylene [1]		87.7	30-150					6/26/18 18:40	
Tetrachloro-m-xylene [2]		99.3	30-150					6/26/18 18:40	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-8 (0-1)

Sampled: 6/21/2018 14:30

Sample ID: 18F1166-10

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	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
C19-C36 Aliphatics	32	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Unadjusted C11-C22 Aromatics	510	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
C11-C22 Aromatics	300	21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Acenaphthene	4.3	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Acenaphthylene	ND	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Anthracene	12	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Benzo(a)anthracene	14	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Benzo(a)pyrene	11	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Benzo(b)fluoranthene	14	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Benzo(g,h,i)perylene	5.4	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Benzo(k)fluoranthene	5.1	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Chrysene	14	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Dibenz(a,h)anthracene	1.8	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Fluoranthene	35	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Fluorene	6.9	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Indeno(1,2,3-cd)pyrene	5.5	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
2-Methylnaphthalene	1.8	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Naphthalene	1.4	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Phenanthrene	41	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Pyrene	30	0.21	mg/Kg dry	2		MADEP-EPH-04-1.1	6/25/18	6/27/18 22:20	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		67.5	40-140					6/27/18 22:20	
o-Terphenyl (OTP)		75.3	40-140					6/27/18 22:20	
2-Bromonaphthalene		107	40-140					6/27/18 22:20	
2-Fluorobiphenyl		129	40-140					6/27/18 22:20	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-8 (0-1)

Sampled: 6/21/2018 14:30

Sample ID: 18F1166-10

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	6.1	1.8	0.89	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:20	QNW
Barium	49	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:20	QNW
Cadmium	0.40	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:20	QNW
Chromium	21	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:20	QNW
Lead	100	0.53		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:20	QNW
Mercury	0.15	0.027		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:14	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:20	QNW
Silver	ND	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:20	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-8 (0-1)

Sampled: 6/21/2018 14:30

Sample ID: 18F1166-10

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	94.1		% Wt	1		SM 2540G	6/25/18	6/26/18 7:19	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-1 (0-1)

Sampled: 6/22/2018 09:54

Sample ID: 18F1166-11

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	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:04	JMB
Aroclor-1221 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:04	JMB
Aroclor-1232 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:04	JMB
Aroclor-1242 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:04	JMB
Aroclor-1248 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:04	JMB
Aroclor-1254 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:04	JMB
Aroclor-1260 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:04	JMB
Aroclor-1262 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:04	JMB
Aroclor-1268 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:04	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		84.3	30-150					6/26/18 20:04	
Decachlorobiphenyl [2]		77.8	30-150					6/26/18 20:04	
Tetrachloro-m-xylene [1]		88.6	30-150					6/26/18 20:04	
Tetrachloro-m-xylene [2]		106	30-150					6/26/18 20:04	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-1 (0-1)

Sampled: 6/22/2018 09:54

Sample ID: 18F1166-11

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Unadjusted C11-C22 Aromatics	33	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
C11-C22 Aromatics	27	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Acenaphthylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Benzo(a)anthracene	0.41	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Benzo(a)pyrene	0.47	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Benzo(b)fluoranthene	0.86	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Benzo(g,h,i)perylene	0.87	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Benzo(k)fluoranthene	0.29	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Chrysene	0.63	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Dibenz(a,h)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Fluoranthene	0.94	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Indeno(1,2,3-cd)pyrene	0.39	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
2-Methylnaphthalene	0.16	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Phenanthrene	0.37	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Pyrene	0.93	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 16:03	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		85.7	40-140					6/27/18 16:03	
o-Terphenyl (OTP)		89.1	40-140					6/27/18 16:03	
2-Bromonaphthalene		118	40-140					6/27/18 16:03	
2-Fluorobiphenyl		127	40-140					6/27/18 16:03	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-1 (0-1)

Sampled: 6/22/2018 09:54

Sample ID: 18F1166-11

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	7.9	1.7	0.87	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:25	QNW
Barium	21	1.7		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:25	QNW
Cadmium	0.48	0.17		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:25	QNW
Chromium	13	0.34		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:25	QNW
Lead	34	0.52		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:25	QNW
Mercury	0.082	0.026		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:16	EJB
Selenium	ND	3.4		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:25	QNW
Silver	ND	0.34		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 20:25	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-1 (0-1)

Sampled: 6/22/2018 09:54

Sample ID: 18F1166-11

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	96.2		% Wt	1		SM 2540G	6/25/18	6/26/18 7:19	MRL



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-1 (1-3)

Sampled: 6/22/2018 09:56

Sample ID: 18F1166-12

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	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:22	JMB
Aroclor-1221 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:22	JMB
Aroclor-1232 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:22	JMB
Aroclor-1242 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:22	JMB
Aroclor-1248 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:22	JMB
Aroclor-1254 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:22	JMB
Aroclor-1260 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:22	JMB
Aroclor-1262 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:22	JMB
Aroclor-1268 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:22	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		94.3	30-150					6/26/18 20:22	
Decachlorobiphenyl [2]		86.9	30-150					6/26/18 20:22	
Tetrachloro-m-xylene [1]		100	30-150					6/26/18 20:22	
Tetrachloro-m-xylene [2]		120	30-150					6/26/18 20:22	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-1 (1-3)

Sampled: 6/22/2018 09:56

Sample ID: 18F1166-12

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
C19-C36 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Unadjusted C11-C22 Aromatics	31	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
C11-C22 Aromatics	25	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Acenaphthylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Benzo(a)anthracene	0.48	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Benzo(a)pyrene	0.46	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Benzo(b)fluoranthene	0.74	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Benzo(g,h,i)perylene	0.48	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Benzo(k)fluoranthene	0.23	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Chrysene	0.60	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Dibenz(a,h)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Fluoranthene	0.98	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Indeno(1,2,3-cd)pyrene	0.32	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
2-Methylnaphthalene	0.17	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Naphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Phenanthrene	0.49	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Pyrene	1.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 18:31	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		80.8	40-140					6/27/18 18:31	
o-Terphenyl (OTP)		88.2	40-140					6/27/18 18:31	
2-Bromonaphthalene		117	40-140					6/27/18 18:31	
2-Fluorobiphenyl		137	40-140					6/27/18 18:31	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-1 (1-3)

Sampled: 6/22/2018 09:56

Sample ID: 18F1166-12

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	10	1.8	0.89	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:25	QNW
Barium	22	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:25	QNW
Cadmium	0.56	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:25	QNW
Chromium	16	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:25	QNW
Lead	27	0.53		mg/Kg dry	1	MS-11	SW-846 6010C-D	6/27/18	6/28/18 16:25	QNW
Mercury	0.062	0.027		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:17	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:25	QNW
Silver	ND	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:25	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-1 (1-3)

Sampled: 6/22/2018 09:56

Sample ID: 18F1166-12

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	95.1		% Wt	1		SM 2540G	6/25/18	6/26/18 7:19	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-2 (0-1)

Sampled: 6/22/2018 10:28

Sample ID: 18F1166-13

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	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:40	JMB
Aroclor-1221 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:40	JMB
Aroclor-1232 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:40	JMB
Aroclor-1242 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:40	JMB
Aroclor-1248 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:40	JMB
Aroclor-1254 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:40	JMB
Aroclor-1260 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:40	JMB
Aroclor-1262 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:40	JMB
Aroclor-1268 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:40	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		86.0	30-150					6/26/18 20:40	
Decachlorobiphenyl [2]		79.9	30-150					6/26/18 20:40	
Tetrachloro-m-xylene [1]		92.2	30-150					6/26/18 20:40	
Tetrachloro-m-xylene [2]		111	30-150					6/26/18 20:40	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-2 (0-1)

Sampled: 6/22/2018 10:28

Sample ID: 18F1166-13

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Unadjusted C11-C22 Aromatics	38	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
C11-C22 Aromatics	31	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Acenaphthylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Benzo(a)anthracene	0.35	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Benzo(a)pyrene	0.33	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Benzo(b)fluoranthene	0.72	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Benzo(g,h,i)perylene	2.5	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Benzo(k)fluoranthene	0.23	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Chrysene	0.65	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Dibenz(a,h)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Fluoranthene	0.77	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Indeno(1,2,3-cd)pyrene	0.22	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Phenanthrene	0.32	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Pyrene	0.66	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:44	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		77.8	40-140					6/27/18 15:44	
o-Terphenyl (OTP)		79.7	40-140					6/27/18 15:44	
2-Bromonaphthalene		115	40-140					6/27/18 15:44	
2-Fluorobiphenyl		130	40-140					6/27/18 15:44	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-2 (0-1)

Sampled: 6/22/2018 10:28

Sample ID: 18F1166-13

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	9.7	1.8	0.89	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:42	QNW
Barium	26	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:42	QNW
Cadmium	0.43	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:42	QNW
Chromium	14	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:42	QNW
Lead	42	0.53		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:42	QNW
Mercury	0.047	0.026		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:19	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:42	QNW
Silver	ND	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:42	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-2 (0-1)

Sampled: 6/22/2018 10:28

Sample ID: 18F1166-13

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	96.5		% Wt	1		SM 2540G	6/25/18	6/26/18 7:19	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-2 (1-3)

Sampled: 6/22/2018 10:28

Sample ID: 18F1166-14

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	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:58	JMB
Aroclor-1221 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:58	JMB
Aroclor-1232 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:58	JMB
Aroclor-1242 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:58	JMB
Aroclor-1248 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:58	JMB
Aroclor-1254 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:58	JMB
Aroclor-1260 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:58	JMB
Aroclor-1262 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:58	JMB
Aroclor-1268 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 20:58	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		89.1	30-150					6/26/18 20:58	
Decachlorobiphenyl [2]		82.4	30-150					6/26/18 20:58	
Tetrachloro-m-xylene [1]		90.6	30-150					6/26/18 20:58	
Tetrachloro-m-xylene [2]		109	30-150					6/26/18 20:58	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-2 (1-3)

Sampled: 6/22/2018 10:28

Sample ID: 18F1166-14

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Unadjusted C11-C22 Aromatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
C11-C22 Aromatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Acenaphthylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Benzo(a)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Benzo(a)pyrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Benzo(b)fluoranthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Benzo(g,h,i)perylene	0.25	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Benzo(k)fluoranthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Chrysene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Dibenz(a,h)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Fluoranthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Indeno(1,2,3-cd)pyrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Phenanthrene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB
Pyrene	0.15	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 15:05	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	85.8	40-140	6/27/18 15:05
o-Terphenyl (OTP)	86.2	40-140	6/27/18 15:05
2-Bromonaphthalene	121	40-140	6/27/18 15:05
2-Fluorobiphenyl	135	40-140	6/27/18 15:05



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-2 (1-3)

Sampled: 6/22/2018 10:28

Sample ID: 18F1166-14

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	4.5	1.8	0.92	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:57	QNW
Barium	22	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:57	QNW
Cadmium	0.21	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:57	QNW
Chromium	12	0.36		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:57	QNW
Lead	8.2	0.54		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:57	QNW
Mercury	ND	0.026		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:24	EJB
Selenium	ND	3.6		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:57	QNW
Silver	ND	0.36		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 16:57	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-2 (1-3)

Sampled: 6/22/2018 10:28

Sample ID: 18F1166-14

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	97.6		% Wt	1		SM 2540G	6/25/18	6/26/18 7:19	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-3 (0-1)

Sampled: 6/22/2018 11:00

Sample ID: 18F1166-15

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	0.087	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:16	JMB
Aroclor-1221 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:16	JMB
Aroclor-1232 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:16	JMB
Aroclor-1242 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:16	JMB
Aroclor-1248 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:16	JMB
Aroclor-1254 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:16	JMB
Aroclor-1260 [2]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:16	JMB
Aroclor-1262 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:16	JMB
Aroclor-1268 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:16	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		76.5	30-150					6/26/18 21:16	
Decachlorobiphenyl [2]		86.4	30-150					6/26/18 21:16	
Tetrachloro-m-xylene [1]		82.4	30-150					6/26/18 21:16	
Tetrachloro-m-xylene [2]		97.6	30-150					6/26/18 21:16	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-3 (0-1)

Sampled: 6/22/2018 11:00

Sample ID: 18F1166-15

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	26	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
C19-C36 Aliphatics	13	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Unadjusted C11-C22 Aromatics	210	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
C11-C22 Aromatics	170	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Acenaphthene	0.17	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Acenaphthylene	0.63	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Anthracene	0.49	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Benzo(a)anthracene	3.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Benzo(a)pyrene	2.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Benzo(b)fluoranthene	6.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Benzo(g,h,i)perylene	2.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Benzo(k)fluoranthene	2.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Chrysene	4.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Dibenz(a,h)anthracene	0.78	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Fluoranthene	6.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Fluorene	0.26	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Indeno(1,2,3-cd)pyrene	2.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
2-Methylnaphthalene	0.34	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Naphthalene	0.41	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Phenanthrene	1.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Pyrene	5.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:26	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		77.8	40-140					6/27/18 20:26	
o-Terphenyl (OTP)		82.4	40-140					6/27/18 20:26	
2-Bromonaphthalene		118	40-140					6/27/18 20:26	
2-Fluorobiphenyl		135	40-140					6/27/18 20:26	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-3 (0-1)

Sampled: 6/22/2018 11:00

Sample ID: 18F1166-15

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date	Date/Time	Analyst
								Prepared	Analyzed	
Arsenic	17	1.9	0.94	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:02	QNW
Barium	75	1.9		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:02	QNW
Cadmium	0.80	0.19		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:02	QNW
Chromium	14	0.37		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:02	QNW
Lead	110	0.56		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:02	QNW
Mercury	0.090	0.028		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:26	EJB
Selenium	ND	3.7		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:02	QNW
Silver	ND	0.37		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:02	QNW



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-3 (0-1)

Sampled: 6/22/2018 11:00

Sample ID: 18F1166-15

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	92.2		% Wt	1		SM 2540G	6/25/18	6/26/18 7:19	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-3 (1-3)

Sampled: 6/22/2018 11:00

Sample ID: 18F1166-16

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	0.086	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:33	JMB
Aroclor-1221 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:33	JMB
Aroclor-1232 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:33	JMB
Aroclor-1242 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:33	JMB
Aroclor-1248 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:33	JMB
Aroclor-1254 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:33	JMB
Aroclor-1260 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:33	JMB
Aroclor-1262 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:33	JMB
Aroclor-1268 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:33	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		86.1	30-150					6/26/18 21:33	
Decachlorobiphenyl [2]		86.8	30-150					6/26/18 21:33	
Tetrachloro-m-xylene [1]		90.0	30-150					6/26/18 21:33	
Tetrachloro-m-xylene [2]		107	30-150					6/26/18 21:33	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-3 (1-3)

Sampled: 6/22/2018 11:00

Sample ID: 18F1166-16

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	15	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
C19-C36 Aliphatics	12	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Unadjusted C11-C22 Aromatics	120	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
C11-C22 Aromatics	98	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Acenaphthene	0.19	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Acenaphthylene	0.32	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Anthracene	0.24	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Benzo(a)anthracene	1.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Benzo(a)pyrene	1.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Benzo(b)fluoranthene	3.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Benzo(g,h,i)perylene	1.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Benzo(k)fluoranthene	1.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Chrysene	2.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Dibenz(a,h)anthracene	0.41	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Fluoranthene	3.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Fluorene	0.21	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Indeno(1,2,3-cd)pyrene	1.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
2-Methylnaphthalene	0.34	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Naphthalene	0.50	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Phenanthrene	1.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB
Pyrene	3.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:20	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	81.6	40-140	6/27/18 17:20
o-Terphenyl (OTP)	85.6	40-140	6/27/18 17:20
2-Bromonaphthalene	104	40-140	6/27/18 17:20
2-Fluorobiphenyl	115	40-140	6/27/18 17:20



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-3 (1-3)

Sampled: 6/22/2018 11:00

Sample ID: 18F1166-16

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	12	1.9	0.95	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:07	QNW
Barium	52	1.9		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:07	QNW
Cadmium	0.64	0.19		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:07	QNW
Chromium	13	0.37		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:07	QNW
Lead	130	0.56		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:07	QNW
Mercury	0.061	0.028		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:28	EJB
Selenium	ND	3.7		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:07	QNW
Silver	ND	0.37		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:07	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-3 (1-3)

Sampled: 6/22/2018 11:00

Sample ID: 18F1166-16

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	93.2		% Wt	1		SM 2540G	6/25/18	6/26/18 7:20	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-7 (0-1)

Sampled: 6/21/2018 15:14

Sample ID: 18F1166-17

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	0.088	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:51	JMB
Aroclor-1221 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:51	JMB
Aroclor-1232 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:51	JMB
Aroclor-1242 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:51	JMB
Aroclor-1248 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:51	JMB
Aroclor-1254 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:51	JMB
Aroclor-1260 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:51	JMB
Aroclor-1262 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:51	JMB
Aroclor-1268 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 21:51	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		76.3	30-150					6/26/18 21:51	
Decachlorobiphenyl [2]		75.3	30-150					6/26/18 21:51	
Tetrachloro-m-xylene [1]		82.6	30-150					6/26/18 21:51	
Tetrachloro-m-xylene [2]		99.0	30-150					6/26/18 21:51	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-7 (0-1)

Sampled: 6/21/2018 15:14

Sample ID: 18F1166-17

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	16	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
C19-C36 Aliphatics	11	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Unadjusted C11-C22 Aromatics	120	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
C11-C22 Aromatics	93	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Acenaphthene	0.18	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Acenaphthylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Anthracene	0.33	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Benzo(a)anthracene	1.9	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Benzo(a)pyrene	1.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Benzo(b)fluoranthene	3.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Benzo(g,h,i)perylene	1.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Benzo(k)fluoranthene	1.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Chrysene	2.9	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Dibenz(a,h)anthracene	0.36	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Fluoranthene	4.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Fluorene	0.33	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Indeno(1,2,3-cd)pyrene	1.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
2-Methylnaphthalene	0.27	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Naphthalene	0.29	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Phenanthrene	2.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Pyrene	4.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:39	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		81.2	40-140					6/27/18 17:39	
o-Terphenyl (OTP)		83.0	40-140					6/27/18 17:39	
2-Bromonaphthalene		106	40-140					6/27/18 17:39	
2-Fluorobiphenyl		117	40-140					6/27/18 17:39	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-7 (0-1)

Sampled: 6/21/2018 15:14

Sample ID: 18F1166-17

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	12	1.8	0.90	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:12	QNW
Barium	60	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:12	QNW
Cadmium	0.55	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:12	QNW
Chromium	17	0.36		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:12	QNW
Lead	190	0.53		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:12	QNW
Mercury	0.064	0.028		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:29	EJB
Selenium	ND	3.6		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:12	QNW
Silver	ND	0.36		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:12	QNW



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-7 (0-1)

Sampled: 6/21/2018 15:14

Sample ID: 18F1166-17

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	91.0		% Wt	1		SM 2540G	6/25/18	6/26/18 7:20	MRL



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-10 (1-3)

Sampled: 6/21/2018 14:10

Sample ID: 18F1166-18

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	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:10	JMB
Aroclor-1221 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:10	JMB
Aroclor-1232 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:10	JMB
Aroclor-1242 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:10	JMB
Aroclor-1248 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:10	JMB
Aroclor-1254 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:10	JMB
Aroclor-1260 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:10	JMB
Aroclor-1262 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:10	JMB
Aroclor-1268 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:10	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		76.8	30-150					6/26/18 22:10	
Decachlorobiphenyl [2]		81.0	30-150					6/26/18 22:10	
Tetrachloro-m-xylene [1]		83.6	30-150					6/26/18 22:10	
Tetrachloro-m-xylene [2]		98.6	30-150					6/26/18 22:10	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-10 (1-3)

Sampled: 6/21/2018 14:10

Sample ID: 18F1166-18

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
C19-C36 Aliphatics	23	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Unadjusted C11-C22 Aromatics	130	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
C11-C22 Aromatics	92	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Acenaphthene	0.20	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Acenaphthylene	0.21	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Anthracene	0.55	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Benzo(a)anthracene	2.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Benzo(a)pyrene	2.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Benzo(b)fluoranthene	4.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Benzo(g,h,i)perylene	1.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Benzo(k)fluoranthene	1.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Chrysene	3.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Dibenz(a,h)anthracene	0.54	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Fluoranthene	5.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Fluorene	0.28	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Indeno(1,2,3-cd)pyrene	1.9	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
2-Methylnaphthalene	0.21	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Naphthalene	0.25	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Phenanthrene	2.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Pyrene	5.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 20:45	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		79.7	40-140					6/27/18 20:45	
o-Terphenyl (OTP)		87.2	40-140					6/27/18 20:45	
2-Bromonaphthalene		109	40-140					6/27/18 20:45	
2-Fluorobiphenyl		118	40-140					6/27/18 20:45	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-10 (1-3)

Sampled: 6/21/2018 14:10

Sample ID: 18F1166-18

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	9.0	1.8	0.89	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:17	QNW
Barium	56	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:17	QNW
Cadmium	0.69	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:17	QNW
Chromium	18	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:17	QNW
Lead	190	0.53		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:17	QNW
Mercury	0.20	0.026		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:31	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:17	QNW
Silver	ND	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:17	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-10 (1-3)

Sampled: 6/21/2018 14:10

Sample ID: 18F1166-18

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	94.0		% Wt	1		SM 2540G	6/25/18	6/26/18 7:20	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-8 (1-3)

Sampled: 6/21/2018 14:30

Sample ID: 18F1166-19

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	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:28	JMB
Aroclor-1221 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:28	JMB
Aroclor-1232 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:28	JMB
Aroclor-1242 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:28	JMB
Aroclor-1248 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:28	JMB
Aroclor-1254 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:28	JMB
Aroclor-1260 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:28	JMB
Aroclor-1262 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:28	JMB
Aroclor-1268 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:28	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		82.3	30-150					6/26/18 22:28	
Decachlorobiphenyl [2]		101	30-150					6/26/18 22:28	
Tetrachloro-m-xylene [1]		86.4	30-150					6/26/18 22:28	
Tetrachloro-m-xylene [2]		95.8	30-150					6/26/18 22:28	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-8 (1-3)

Sampled: 6/21/2018 14:30

Sample ID: 18F1166-19

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
C19-C36 Aliphatics	13	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Unadjusted C11-C22 Aromatics	440	110	mg/Kg dry	10		MADEP-EPH-04-1.1	6/25/18	6/28/18 15:24	KLB
C11-C22 Aromatics	290	110	mg/Kg dry	10		MADEP-EPH-04-1.1	6/25/18	6/28/18 15:24	KLB
Acenaphthene	2.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Acenaphthylene	0.22	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Anthracene	6.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Benzo(a)anthracene	13	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Benzo(a)pyrene	10	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Benzo(b)fluoranthene	13	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Benzo(g,h,i)perylene	5.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Benzo(k)fluoranthene	4.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Chrysene	12	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Dibenz(a,h)anthracene	1.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Fluoranthene	25	1.1	mg/Kg dry	10		MADEP-EPH-04-1.1	6/25/18	6/28/18 15:24	KLB
Fluorene	3.7	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Indeno(1,2,3-cd)pyrene	6.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
2-Methylnaphthalene	1.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Naphthalene	1.5	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 21:42	KLB
Phenanthrene	22	1.1	mg/Kg dry	10		MADEP-EPH-04-1.1	6/25/18	6/28/18 15:24	KLB
Pyrene	23	1.1	mg/Kg dry	10		MADEP-EPH-04-1.1	6/25/18	6/28/18 15:24	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	82.6	40-140	6/27/18 21:42
o-Terphenyl (OTP)	86.4	40-140	6/27/18 21:42
2-Bromonaphthalene	105	40-140	6/27/18 21:42
2-Fluorobiphenyl	119	40-140	6/27/18 21:42



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-8 (1-3)

Sampled: 6/21/2018 14:30

Sample ID: 18F1166-19

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	5.6	1.8	0.93	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:22	QNW
Barium	47	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:22	QNW
Cadmium	0.34	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:22	QNW
Chromium	15	0.37		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:22	QNW
Lead	1500	0.55		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:22	QNW
Mercury	0.14	0.028		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:59	EJB
Selenium	ND	3.7		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:22	QNW
Silver	ND	0.37		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:22	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-8 (1-3)

Sampled: 6/21/2018 14:30

Sample ID: 18F1166-19

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	94.0		% Wt	1		SM 2540G	6/25/18	6/26/18 7:20	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-7 (1-3)

Sampled: 6/21/2018 15:14

Sample ID: 18F1166-20

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	0.089	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:46	JMB
Aroclor-1221 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:46	JMB
Aroclor-1232 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:46	JMB
Aroclor-1242 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:46	JMB
Aroclor-1248 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:46	JMB
Aroclor-1254 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:46	JMB
Aroclor-1260 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:46	JMB
Aroclor-1262 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:46	JMB
Aroclor-1268 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	6/25/18	6/26/18 22:46	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		87.6	30-150					6/26/18 22:46	
Decachlorobiphenyl [2]		86.1	30-150					6/26/18 22:46	
Tetrachloro-m-xylene [1]		91.8	30-150					6/26/18 22:46	
Tetrachloro-m-xylene [2]		107	30-150					6/26/18 22:46	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-7 (1-3)

Sampled: 6/21/2018 15:14

Sample ID: 18F1166-20

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
C19-C36 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Unadjusted C11-C22 Aromatics	100	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
C11-C22 Aromatics	72	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Acenaphthene	0.46	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Acenaphthylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Anthracene	0.67	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Benzo(a)anthracene	2.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Benzo(a)pyrene	1.9	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Benzo(b)fluoranthene	2.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Benzo(g,h,i)perylene	1.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Benzo(k)fluoranthene	0.91	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Chrysene	2.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Dibenz(a,h)anthracene	0.35	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Fluoranthene	4.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Fluorene	0.43	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Indeno(1,2,3-cd)pyrene	1.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
2-Methylnaphthalene	0.22	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Naphthalene	0.31	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Phenanthrene	4.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB
Pyrene	4.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/25/18	6/27/18 17:00	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	78.6	40-140	6/27/18 17:00
o-Terphenyl (OTP)	83.6	40-140	6/27/18 17:00
2-Bromonaphthalene	105	40-140	6/27/18 17:00
2-Fluorobiphenyl	118	40-140	6/27/18 17:00



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-7 (1-3)

Sampled: 6/21/2018 15:14

Sample ID: 18F1166-20

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	14	1.9	0.96	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:27	QNW
Barium	84	1.9		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:27	QNW
Cadmium	0.69	0.19		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:27	QNW
Chromium	20	0.38		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:27	QNW
Lead	210	0.57		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:27	QNW
Mercury	0.92	0.15		mg/Kg dry	5		SW-846 7471B	6/27/18	6/28/18 12:40	EJB
Selenium	ND	3.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:27	QNW
Silver	ND	0.38		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:27	QNW



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: PS-7 (1-3)

Sampled: 6/21/2018 15:14

Sample ID: 18F1166-20

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	89.1		% Wt	1		SM 2540G	6/25/18	6/26/18 7:20	MRL



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-9 (0-1)

Sampled: 6/22/2018 13:19

Sample ID: 18F1166-21

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	0.079	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:18	JMB
Aroclor-1221 [1]	ND	0.079	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:18	JMB
Aroclor-1232 [1]	ND	0.079	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:18	JMB
Aroclor-1242 [1]	ND	0.079	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:18	JMB
Aroclor-1248 [1]	ND	0.079	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:18	JMB
Aroclor-1254 [1]	ND	0.079	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:18	JMB
Aroclor-1260 [1]	ND	0.079	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:18	JMB
Aroclor-1262 [1]	ND	0.079	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:18	JMB
Aroclor-1268 [1]	ND	0.079	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:18	JMB
Surrogates	% Recovery		Recovery Limits	Flag/Qual					
Decachlorobiphenyl [1]	157	*	30-150	S-17		6/28/18 0:18			
Decachlorobiphenyl [2]	167	*	30-150	S-17		6/28/18 0:18			
Tetrachloro-m-xylene [1]	168	*	30-150	S-17		6/28/18 0:18			
Tetrachloro-m-xylene [2]	199	*	30-150	S-17		6/28/18 0:18			



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-9 (0-1)

Sampled: 6/22/2018 13:19

Sample ID: 18F1166-21

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
C19-C36 Aliphatics	11	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Unadjusted C11-C22 Aromatics	65	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
C11-C22 Aromatics	53	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Acenaphthylene	0.12	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Anthracene	0.12	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Benzo(a)anthracene	0.85	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Benzo(a)pyrene	0.90	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Benzo(b)fluoranthene	2.0	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Benzo(g,h,i)perylene	1.1	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Benzo(k)fluoranthene	0.69	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Chrysene	1.4	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Dibenz(a,h)anthracene	0.25	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Fluoranthene	1.7	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Indeno(1,2,3-cd)pyrene	0.68	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Phenanthrene	0.39	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Pyrene	1.8	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 18:12	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		46.6	40-140					6/27/18 18:12	
o-Terphenyl (OTP)		48.1	40-140					6/27/18 18:12	
2-Bromonaphthalene		97.0	40-140					6/27/18 18:12	
2-Fluorobiphenyl		113	40-140					6/27/18 18:12	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-9 (0-1)

Sampled: 6/22/2018 13:19

Sample ID: 18F1166-21

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	21	1.7	0.86	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:32	QNW
Barium	26	1.7		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:32	QNW
Cadmium	0.70	0.17		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:32	QNW
Chromium	14	0.34		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:32	QNW
Lead	67	0.51		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:32	QNW
Mercury	0.12	0.026		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 11:46	EJB
Selenium	ND	3.4		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:32	QNW
Silver	ND	0.34		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:32	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-9 (0-1)

Sampled: 6/22/2018 13:19

Sample ID: 18F1166-21

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	97.3		% Wt	1		SM 2540G	6/25/18	6/26/18 7:20	MRL



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-10 (0-1)

Sampled: 6/22/2018 13:50

Sample ID: 18F1166-22

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	0.083	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:28	KAL
Aroclor-1221 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:28	KAL
Aroclor-1232 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:28	KAL
Aroclor-1242 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:28	KAL
Aroclor-1248 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:28	KAL
Aroclor-1254 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:28	KAL
Aroclor-1260 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:28	KAL
Aroclor-1262 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:28	KAL
Aroclor-1268 [1]	ND	0.083	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:28	KAL
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		97.0	30-150					6/27/18 21:28	
Decachlorobiphenyl [2]		99.9	30-150					6/27/18 21:28	
Tetrachloro-m-xylene [1]		83.5	30-150					6/27/18 21:28	
Tetrachloro-m-xylene [2]		90.1	30-150					6/27/18 21:28	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-10 (0-1)

Sampled: 6/22/2018 13:50

Sample ID: 18F1166-22

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
C19-C36 Aliphatics	57	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Unadjusted C11-C22 Aromatics	140	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
C11-C22 Aromatics	110	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Acenaphthene	0.12	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Acenaphthylene	0.21	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Anthracene	0.26	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Benzo(a)anthracene	1.8	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Benzo(a)pyrene	1.9	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Benzo(b)fluoranthene	3.5	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Benzo(g,h,i)perylene	1.4	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Benzo(k)fluoranthene	1.1	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Chrysene	2.6	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Dibenz(a,h)anthracene	0.39	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Fluoranthene	3.7	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Indeno(1,2,3-cd)pyrene	1.4	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
2-Methylnaphthalene	0.17	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Naphthalene	0.21	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Phenanthrene	1.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Pyrene	3.7	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 22:39	KLB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Chlorooctadecane (COD)		64.8	40-140					6/27/18 22:39	
o-Terphenyl (OTP)		68.5	40-140					6/27/18 22:39	
2-Bromonaphthalene		104	40-140					6/27/18 22:39	
2-Fluorobiphenyl		123	40-140					6/27/18 22:39	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-10 (0-1)

Sampled: 6/22/2018 13:50

Sample ID: 18F1166-22

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	27	1.8	0.92	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:37	QNW
Barium	55	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:37	QNW
Cadmium	2.9	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:37	QNW
Chromium	28	0.36		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:37	QNW
Lead	160	0.54		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:37	QNW
Mercury	0.19	0.028		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 12:07	EJB
Selenium	ND	3.6		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:37	QNW
Silver	ND	0.36		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:37	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-10 (0-1)

Sampled: 6/22/2018 13:50

Sample ID: 18F1166-22

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	94.9		% Wt	1		SM 2540G	6/25/18	6/26/18 7:20	MRL



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-5 (0-1)

Sampled: 6/22/2018 09:15

Sample ID: 18F1166-23

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	0.082	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:40	KAL
Aroclor-1221 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:40	KAL
Aroclor-1232 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:40	KAL
Aroclor-1242 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:40	KAL
Aroclor-1248 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:40	KAL
Aroclor-1254 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:40	KAL
Aroclor-1260 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:40	KAL
Aroclor-1262 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:40	KAL
Aroclor-1268 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/26/18	6/27/18 21:40	KAL
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		73.5	30-150					6/27/18 21:40	
Decachlorobiphenyl [2]		70.1	30-150					6/27/18 21:40	
Tetrachloro-m-xylene [1]		67.0	30-150					6/27/18 21:40	
Tetrachloro-m-xylene [2]		72.7	30-150					6/27/18 21:40	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-5 (0-1)

Sampled: 6/22/2018 09:15

Sample ID: 18F1166-23

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Unadjusted C11-C22 Aromatics	60	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
C11-C22 Aromatics	47	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Acenaphthylene	0.14	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Anthracene	0.11	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Benzo(a)anthracene	0.74	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Benzo(a)pyrene	0.91	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Benzo(b)fluoranthene	1.9	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Benzo(g,h,i)perylene	2.0	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Benzo(k)fluoranthene	0.64	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Chrysene	1.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Dibenz(a,h)anthracene	0.21	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Fluoranthene	2.0	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Indeno(1,2,3-cd)pyrene	0.65	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Phenanthrene	0.31	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB
Pyrene	2.1	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 17:58	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	72.2	40-140	6/27/18 17:58
o-Terphenyl (OTP)	69.9	40-140	6/27/18 17:58
2-Bromonaphthalene	102	40-140	6/27/18 17:58
2-Fluorobiphenyl	118	40-140	6/27/18 17:58



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-5 (0-1)

Sampled: 6/22/2018 09:15

Sample ID: 18F1166-23

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	16	1.7	0.86	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:42	QNW
Barium	26	1.7		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:42	QNW
Cadmium	0.56	0.17		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:42	QNW
Chromium	22	0.34		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:42	QNW
Lead	39	0.51		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:42	QNW
Mercury	0.044	0.025		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 12:08	EJB
Selenium	ND	3.4		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:42	QNW
Silver	ND	0.34		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:42	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-5 (0-1)

Sampled: 6/22/2018 09:15

Sample ID: 18F1166-23

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	96.3		% Wt	1		SM 2540G	6/25/18	6/26/18 7:20	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-6 (0-1)

Sampled: 6/22/2018 09:37

Sample ID: 18F1166-24

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	0.078	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:31	JMB
Aroclor-1221 [1]	ND	0.078	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:31	JMB
Aroclor-1232 [1]	ND	0.078	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:31	JMB
Aroclor-1242 [1]	ND	0.078	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:31	JMB
Aroclor-1248 [1]	ND	0.078	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:31	JMB
Aroclor-1254 [1]	ND	0.078	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:31	JMB
Aroclor-1260 [1]	ND	0.078	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:31	JMB
Aroclor-1262 [1]	ND	0.078	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:31	JMB
Aroclor-1268 [1]	ND	0.078	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:31	JMB
Surrogates		% Recovery	Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]		111	30-150					6/28/18 0:31	
Decachlorobiphenyl [2]		110	30-150					6/28/18 0:31	
Tetrachloro-m-xylene [1]		118	30-150					6/28/18 0:31	
Tetrachloro-m-xylene [2]		142	30-150					6/28/18 0:31	



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-6 (0-1)

Sampled: 6/22/2018 09:37

Sample ID: 18F1166-24

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Unadjusted C11-C22 Aromatics	48	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
C11-C22 Aromatics	37	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Acenaphthene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Acenaphthylene	0.13	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Benzo(a)anthracene	0.64	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Benzo(a)pyrene	0.69	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Benzo(b)fluoranthene	1.8	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Benzo(g,h,i)perylene	0.64	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Benzo(k)fluoranthene	0.65	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Chrysene	1.3	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Dibenz(a,h)anthracene	0.18	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Fluoranthene	2.0	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Fluorene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Indeno(1,2,3-cd)pyrene	0.50	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Phenanthrene	0.29	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB
Pyrene	1.9	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 16:41	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	63.9	40-140	6/27/18 16:41
o-Terphenyl (OTP)	63.0	40-140	6/27/18 16:41
2-Bromonaphthalene	103	40-140	6/27/18 16:41
2-Fluorobiphenyl	117	40-140	6/27/18 16:41



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-6 (0-1)

Sampled: 6/22/2018 09:37

Sample ID: 18F1166-24

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	21	1.8	0.89	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:57	QNW
Barium	25	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:57	QNW
Cadmium	0.77	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:57	QNW
Chromium	15	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:57	QNW
Lead	41	0.53		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:57	QNW
Mercury	0.033	0.025		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 12:10	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:57	QNW
Silver	ND	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 17:57	QNW



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-6 (0-1)

Sampled: 6/22/2018 09:37

Sample ID: 18F1166-24

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	96.5		% Wt	1		SM 2540G	6/25/18	6/26/18 7:21	MRL



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-7 (0-1)

Sampled: 6/22/2018 10:31

Sample ID: 18F1166-25

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	0.081	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:44	JMB
Aroclor-1221 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:44	JMB
Aroclor-1232 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:44	JMB
Aroclor-1242 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:44	JMB
Aroclor-1248 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:44	JMB
Aroclor-1254 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:44	JMB
Aroclor-1260 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:44	JMB
Aroclor-1262 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:44	JMB
Aroclor-1268 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:44	JMB
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]	144		30-150			6/28/18 0:44			
Decachlorobiphenyl [2]	139		30-150			6/28/18 0:44			
Tetrachloro-m-xylene [1]	147		30-150			6/28/18 0:44			
Tetrachloro-m-xylene [2]	167 *		30-150		S-12	6/28/18 0:44			



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-7 (0-1)

Sampled: 6/22/2018 10:31

Sample ID: 18F1166-25

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	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
C19-C36 Aliphatics	ND	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Unadjusted C11-C22 Aromatics	23	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
C11-C22 Aromatics	17	10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Acenaphthene	0.40	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Acenaphthylene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Anthracene	0.13	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Benzo(a)anthracene	0.29	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Benzo(a)pyrene	0.27	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Benzo(b)fluoranthene	0.58	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Benzo(g,h,i)perylene	0.38	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Benzo(k)fluoranthene	0.18	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Chrysene	0.44	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Dibenz(a,h)anthracene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Fluoranthene	0.83	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Fluorene	0.27	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Indeno(1,2,3-cd)pyrene	0.18	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
2-Methylnaphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Naphthalene	ND	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Phenanthrene	0.95	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB
Pyrene	0.76	0.10	mg/Kg dry	1		MADEP-EPH-04-1.1	6/24/18	6/27/18 15:25	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	64.8	40-140	6/27/18 15:25
o-Terphenyl (OTP)	64.0	40-140	6/27/18 15:25
2-Bromonaphthalene	80.9	40-140	6/27/18 15:25
2-Fluorobiphenyl	93.5	40-140	6/27/18 15:25



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-7 (0-1)

Sampled: 6/22/2018 10:31

Sample ID: 18F1166-25

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	7.4	1.8	0.89	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:03	QNW
Barium	18	1.8		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:03	QNW
Cadmium	0.44	0.18		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:03	QNW
Chromium	13	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:03	QNW
Lead	15	0.53		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:03	QNW
Mercury	ND	0.025		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 12:11	EJB
Selenium	ND	3.5		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:03	QNW
Silver	ND	0.35		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:03	QNW



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-7 (0-1)

Sampled: 6/22/2018 10:31

Sample ID: 18F1166-25

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	96.5		% Wt	1		SM 2540G	6/25/18	6/26/18 7:21	MRL



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-8 (0-1)

Sampled: 6/22/2018 11:41

Sample ID: 18F1166-26

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	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:57	JMB
Aroclor-1221 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:57	JMB
Aroclor-1232 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:57	JMB
Aroclor-1242 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:57	JMB
Aroclor-1248 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:57	JMB
Aroclor-1254 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:57	JMB
Aroclor-1260 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:57	JMB
Aroclor-1262 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:57	JMB
Aroclor-1268 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	6/25/18	6/28/18 0:57	JMB
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
Decachlorobiphenyl [1]	124		30-150			6/28/18 0:57			
Decachlorobiphenyl [2]	155 *		30-150		S-12	6/28/18 0:57			
Tetrachloro-m-xylene [1]	129		30-150			6/28/18 0:57			
Tetrachloro-m-xylene [2]	149		30-150			6/28/18 0:57			



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Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-8 (0-1)

Sampled: 6/22/2018 11:41

Sample ID: 18F1166-26

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	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
C19-C36 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Unadjusted C11-C22 Aromatics	95	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
C11-C22 Aromatics	68	11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Acenaphthylene	0.34	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Anthracene	0.28	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Benzo(a)anthracene	2.1	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Benzo(a)pyrene	2.0	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Benzo(b)fluoranthene	3.8	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Benzo(g,h,i)perylene	1.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Benzo(k)fluoranthene	1.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Chrysene	2.3	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Dibenz(a,h)anthracene	0.43	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Fluoranthene	5.6	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Indeno(1,2,3-cd)pyrene	1.2	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Naphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Phenanthrene	0.81	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB
Pyrene	5.4	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	6/28/18	6/29/18 11:33	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	55.3	40-140	
o-Terphenyl (OTP)	52.4	40-140	
2-Bromonaphthalene	71.5	40-140	
2-Fluorobiphenyl	96.6	40-140	



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-8 (0-1)

Sampled: 6/22/2018 11:41

Sample ID: 18F1166-26

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	24	1.7	0.85	mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:08	QNW
Barium	31	1.7		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:08	QNW
Cadmium	0.86	0.17		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:08	QNW
Chromium	16	0.34		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:08	QNW
Lead	59	0.51		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:08	QNW
Mercury	0.073	0.025		mg/Kg dry	1		SW-846 7471B	6/27/18	6/28/18 12:13	EJB
Selenium	ND	3.4		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:08	QNW
Silver	ND	0.34		mg/Kg dry	1		SW-846 6010C-D	6/27/18	6/28/18 18:08	QNW



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

Project Location: Lawrence

Sample Description:

Work Order: 18F1166

Date Received: 6/22/2018

Field Sample #: RB-8 (0-1)

Sampled: 6/22/2018 11:41

Sample ID: 18F1166-26

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	94.7		% Wt	1		SM 2540G	6/25/18	6/26/18 7:21	MRL



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

Sample Extraction Data

Prep Method: SW-846 3546-MADEP-EPH-04-1.1

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1166-21 [RB-9 (0-1)]	B206486	20.3	2.00	06/24/18
18F1166-22 [RB-10 (0-1)]	B206486	20.1	2.00	06/24/18
18F1166-23 [RB-5 (0-1)]	B206486	20.3	2.00	06/24/18
18F1166-24 [RB-6 (0-1)]	B206486	20.2	2.00	06/24/18
18F1166-25 [RB-7 (0-1)]	B206486	20.0	2.00	06/24/18

Prep Method: SW-846 3546-MADEP-EPH-04-1.1

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1166-01 [RBS-1 (0-1)]	B206529	20.0	2.00	06/25/18
18F1166-02 [RBS-2 (0-1)]	B206529	20.0	2.00	06/25/18
18F1166-03 [RB-1 (0-1)]	B206529	20.0	2.00	06/25/18
18F1166-04 [RB-2 (0-1)]	B206529	20.0	2.00	06/25/18
18F1166-05 [RB-3 (0-1)]	B206529	20.0	2.00	06/25/18
18F1166-06 [RB-4 (0-1)]	B206529	20.0	2.00	06/25/18
18F1166-07 [PSS-1 (0-1)]	B206529	20.0	2.00	06/25/18
18F1166-08 [PSS-1 (1-3)]	B206529	20.0	2.00	06/25/18
18F1166-09 [PS-10 (0-1)]	B206529	20.0	2.00	06/25/18
18F1166-10 [PS-8 (0-1)]	B206529	20.1	2.00	06/25/18
18F1166-11 [PS-1 (0-1)]	B206529	20.0	2.00	06/25/18
18F1166-12 [PS-1 (1-3)]	B206529	20.0	2.00	06/25/18
18F1166-13 [PS-2 (0-1)]	B206529	20.1	2.00	06/25/18
18F1166-14 [PS-2 (1-3)]	B206529	20.0	2.00	06/25/18
18F1166-15 [PS-3 (0-1)]	B206529	20.0	2.00	06/25/18
18F1166-16 [PS-3 (1-3)]	B206529	20.0	2.00	06/25/18
18F1166-17 [PS-7 (0-1)]	B206529	20.0	2.00	06/25/18
18F1166-18 [PS-10 (1-3)]	B206529	20.0	2.00	06/25/18
18F1166-19 [PS-8 (1-3)]	B206529	20.0	2.00	06/25/18
18F1166-20 [PS-7 (1-3)]	B206529	20.0	2.00	06/25/18

Prep Method: SW-846 3546-MADEP-EPH-04-1.1

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1166-26RE1 [RB-8 (0-1)]	B206851	20.1	2.00	06/28/18

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18F1166-01 [RBS-1 (0-1)]	B206513	06/25/18
18F1166-02 [RBS-2 (0-1)]	B206513	06/25/18
18F1166-03 [RB-1 (0-1)]	B206513	06/25/18
18F1166-04 [RB-2 (0-1)]	B206513	06/25/18
18F1166-05 [RB-3 (0-1)]	B206513	06/25/18
18F1166-06 [RB-4 (0-1)]	B206513	06/25/18
18F1166-07 [PSS-1 (0-1)]	B206513	06/25/18
18F1166-08 [PSS-1 (1-3)]	B206513	06/25/18
18F1166-09 [PS-10 (0-1)]	B206513	06/25/18
18F1166-10 [PS-8 (0-1)]	B206513	06/25/18
18F1166-11 [PS-1 (0-1)]	B206513	06/25/18
18F1166-12 [PS-1 (1-3)]	B206513	06/25/18
18F1166-13 [PS-2 (0-1)]	B206513	06/25/18



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

Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18F1166-14 [PS-2 (1-3)]	B206513	06/25/18
18F1166-15 [PS-3 (0-1)]	B206513	06/25/18
18F1166-16 [PS-3 (1-3)]	B206513	06/25/18
18F1166-17 [PS-7 (0-1)]	B206513	06/25/18
18F1166-18 [PS-10 (1-3)]	B206513	06/25/18
18F1166-19 [PS-8 (1-3)]	B206513	06/25/18
18F1166-20 [PS-7 (1-3)]	B206513	06/25/18
18F1166-21 [RB-9 (0-1)]	B206513	06/25/18
18F1166-22 [RB-10 (0-1)]	B206513	06/25/18
18F1166-23 [RB-5 (0-1)]	B206513	06/25/18
18F1166-24 [RB-6 (0-1)]	B206513	06/25/18
18F1166-25 [RB-7 (0-1)]	B206513	06/25/18
18F1166-26 [RB-8 (0-1)]	B206513	06/25/18

Prep Method: SW-846 3050B-SW-846 6010C-D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1166-01 [RBS-1 (0-1)]	B206743	1.44	50.0	06/27/18
18F1166-02 [RBS-2 (0-1)]	B206743	1.49	50.0	06/27/18
18F1166-03 [RB-1 (0-1)]	B206743	1.57	50.0	06/27/18
18F1166-04 [RB-2 (0-1)]	B206743	1.53	50.0	06/27/18
18F1166-05 [RB-3 (0-1)]	B206743	1.45	50.0	06/27/18
18F1166-06 [RB-4 (0-1)]	B206743	1.45	50.0	06/27/18
18F1166-07 [PSS-1 (0-1)]	B206743	1.50	50.0	06/27/18
18F1166-08 [PSS-1 (1-3)]	B206743	1.45	50.0	06/27/18
18F1166-09 [PS-10 (0-1)]	B206743	1.60	50.0	06/27/18
18F1166-10 [PS-8 (0-1)]	B206743	1.50	50.0	06/27/18
18F1166-11 [PS-1 (0-1)]	B206743	1.51	50.0	06/27/18

Prep Method: SW-846 3050B-SW-846 6010C-D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1166-12 [PS-1 (1-3)]	B206755	1.49	50.0	06/27/18
18F1166-13 [PS-2 (0-1)]	B206755	1.46	50.0	06/27/18
18F1166-14 [PS-2 (1-3)]	B206755	1.41	50.0	06/27/18
18F1166-15 [PS-3 (0-1)]	B206755	1.46	50.0	06/27/18
18F1166-16 [PS-3 (1-3)]	B206755	1.43	50.0	06/27/18
18F1166-17 [PS-7 (0-1)]	B206755	1.54	50.0	06/27/18
18F1166-18 [PS-10 (1-3)]	B206755	1.51	50.0	06/27/18
18F1166-19 [PS-8 (1-3)]	B206755	1.45	50.0	06/27/18
18F1166-20 [PS-7 (1-3)]	B206755	1.48	50.0	06/27/18
18F1166-21 [RB-9 (0-1)]	B206755	1.52	50.0	06/27/18
18F1166-22 [RB-10 (0-1)]	B206755	1.45	50.0	06/27/18
18F1166-23 [RB-5 (0-1)]	B206755	1.53	50.0	06/27/18
18F1166-24 [RB-6 (0-1)]	B206755	1.47	50.0	06/27/18
18F1166-25 [RB-7 (0-1)]	B206755	1.48	50.0	06/27/18
18F1166-26 [RB-8 (0-1)]	B206755	1.56	50.0	06/27/18

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1166-01 [RBS-1 (0-1)]	B206745	0.589	50.0	06/27/18
18F1166-02 [RBS-2 (0-1)]	B206745	0.607	50.0	06/27/18
18F1166-03 [RB-1 (0-1)]	B206745	0.607	50.0	06/27/18
18F1166-04 [RB-2 (0-1)]	B206745	0.585	50.0	06/27/18
18F1166-05 [RB-3 (0-1)]	B206745	0.576	50.0	06/27/18
18F1166-06 [RB-4 (0-1)]	B206745	0.609	50.0	06/27/18
18F1166-07 [PSS-1 (0-1)]	B206745	0.623	50.0	06/27/18
18F1166-08 [PSS-1 (1-3)]	B206745	0.621	50.0	06/27/18
18F1166-09 [PS-10 (0-1)]	B206745	0.574	50.0	06/27/18
18F1166-10 [PS-8 (0-1)]	B206745	0.588	50.0	06/27/18
18F1166-11 [PS-1 (0-1)]	B206745	0.603	50.0	06/27/18
18F1166-12 [PS-1 (1-3)]	B206745	0.585	50.0	06/27/18
18F1166-13 [PS-2 (0-1)]	B206745	0.610	50.0	06/27/18
18F1166-14 [PS-2 (1-3)]	B206745	0.581	50.0	06/27/18
18F1166-15 [PS-3 (0-1)]	B206745	0.591	50.0	06/27/18
18F1166-16 [PS-3 (1-3)]	B206745	0.583	50.0	06/27/18
18F1166-17 [PS-7 (0-1)]	B206745	0.600	50.0	06/27/18
18F1166-18 [PS-10 (1-3)]	B206745	0.623	50.0	06/27/18

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1166-19 [PS-8 (1-3)]	B206759	0.570	50.0	06/27/18
18F1166-20 [PS-7 (1-3)]	B206759	0.580	50.0	06/27/18
18F1166-21 [RB-9 (0-1)]	B206759	0.593	50.0	06/27/18
18F1166-22 [RB-10 (0-1)]	B206759	0.574	50.0	06/27/18
18F1166-23 [RB-5 (0-1)]	B206759	0.628	50.0	06/27/18
18F1166-24 [RB-6 (0-1)]	B206759	0.632	50.0	06/27/18
18F1166-25 [RB-7 (0-1)]	B206759	0.631	50.0	06/27/18
18F1166-26 [RB-8 (0-1)]	B206759	0.624	50.0	06/27/18

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1166-01 [RBS-1 (0-1)]	B206525	10.0	10.0	06/25/18
18F1166-02 [RBS-2 (0-1)]	B206525	10.0	10.0	06/25/18
18F1166-03 [RB-1 (0-1)]	B206525	10.0	10.0	06/25/18
18F1166-04 [RB-2 (0-1)]	B206525	10.0	10.0	06/25/18
18F1166-05 [RB-3 (0-1)]	B206525	10.0	10.0	06/25/18
18F1166-06 [RB-4 (0-1)]	B206525	10.0	10.0	06/25/18
18F1166-07 [PSS-1 (0-1)]	B206525	10.0	10.0	06/25/18
18F1166-08 [PSS-1 (1-3)]	B206525	10.0	10.0	06/25/18
18F1166-09 [PS-10 (0-1)]	B206525	10.0	10.0	06/25/18
18F1166-10 [PS-8 (0-1)]	B206525	10.1	10.0	06/25/18
18F1166-11 [PS-1 (0-1)]	B206525	10.0	10.0	06/25/18
18F1166-12 [PS-1 (1-3)]	B206525	10.0	10.0	06/25/18
18F1166-13 [PS-2 (0-1)]	B206525	10.1	10.0	06/25/18
18F1166-14 [PS-2 (1-3)]	B206525	10.0	10.0	06/25/18
18F1166-15 [PS-3 (0-1)]	B206525	10.0	10.0	06/25/18
18F1166-16 [PS-3 (1-3)]	B206525	10.0	10.0	06/25/18
18F1166-17 [PS-7 (0-1)]	B206525	10.0	10.0	06/25/18
18F1166-18 [PS-10 (1-3)]	B206525	10.0	10.0	06/25/18
18F1166-19 [PS-8 (1-3)]	B206525	10.0	10.0	06/25/18



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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1166-20 [PS-7 (1-3)]	B206525	10.1	10.0	06/25/18

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1166-21 [RB-9 (0-1)]	B206554	10.4	10.0	06/25/18
18F1166-24 [RB-6 (0-1)]	B206554	10.7	10.0	06/25/18
18F1166-25 [RB-7 (0-1)]	B206554	10.2	10.0	06/25/18
18F1166-26 [RB-8 (0-1)]	B206554	10.3	10.0	06/25/18

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18F1166-22RE1 [RB-10 (0-1)]	B206587	10.1	10.0	06/26/18
18F1166-23RE1 [RB-5 (0-1)]	B206587	10.1	10.0	06/26/18



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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
Batch B206525 - SW-846 3546										
Blank (B206525-BLK1)										
Prepared: 06/25/18 Analyzed: 06/26/18										
O-32										
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	0.168		mg/Kg wet	0.200		84.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.166		mg/Kg wet	0.200		83.1	30-150			
Surrogate: Tetrachloro-m-xylene	0.173		mg/Kg wet	0.200		86.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.204		mg/Kg wet	0.200		102	30-150			
LCS (B206525-BS1)										
Prepared: 06/25/18 Analyzed: 06/26/18										
Aroclor-1016	0.20	0.020	mg/Kg wet	0.200		98.2	40-140			
Aroclor-1016 [2C]	0.18	0.020	mg/Kg wet	0.200		91.2	40-140			
Aroclor-1260	0.19	0.020	mg/Kg wet	0.200		94.7	40-140			
Aroclor-1260 [2C]	0.18	0.020	mg/Kg wet	0.200		89.7	40-140			
Surrogate: Decachlorobiphenyl	0.182		mg/Kg wet	0.200		91.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.181		mg/Kg wet	0.200		90.3	30-150			
Surrogate: Tetrachloro-m-xylene	0.187		mg/Kg wet	0.200		93.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.219		mg/Kg wet	0.200		110	30-150			
LCS Dup (B206525-BSD1)										
Prepared: 06/25/18 Analyzed: 06/26/18										
Aroclor-1016	0.19	0.020	mg/Kg wet	0.200		97.0	40-140	1.24	30	
Aroclor-1016 [2C]	0.18	0.020	mg/Kg wet	0.200		89.8	40-140	1.56	30	
Aroclor-1260	0.19	0.020	mg/Kg wet	0.200		94.8	40-140	0.162	30	
Aroclor-1260 [2C]	0.18	0.020	mg/Kg wet	0.200		88.7	40-140	1.16	30	
Surrogate: Decachlorobiphenyl	0.180		mg/Kg wet	0.200		90.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.181		mg/Kg wet	0.200		90.6	30-150			
Surrogate: Tetrachloro-m-xylene	0.182		mg/Kg wet	0.200		91.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.214		mg/Kg wet	0.200		107	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
Batch B206525 - SW-846 3546										
Matrix Spike (B206525-MS1)	Source: 18F1166-18			Prepared: 06/25/18 Analyzed: 06/26/18						
Aroclor-1016	0.22	0.085	mg/Kg dry	0.213	ND	104	40-140			
Aroclor-1016 [2C]	0.20	0.085	mg/Kg dry	0.213	ND	94.2	40-140			
Aroclor-1260	0.22	0.085	mg/Kg dry	0.213	ND	105	40-140			
Aroclor-1260 [2C]	0.20	0.085	mg/Kg dry	0.213	ND	94.2	40-140			
Surrogate: Decachlorobiphenyl	0.175		mg/Kg dry	0.213		82.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.183		mg/Kg dry	0.213		86.1	30-150			
Surrogate: Tetrachloro-m-xylene	0.190		mg/Kg dry	0.213		89.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.224		mg/Kg dry	0.213		106	30-150			
Matrix Spike Dup (B206525-MSD1)	Source: 18F1166-18			Prepared: 06/25/18 Analyzed: 06/26/18						
Aroclor-1016	0.22	0.085	mg/Kg dry	0.213	ND	103	40-140	1.56	30	
Aroclor-1016 [2C]	0.20	0.085	mg/Kg dry	0.213	ND	93.9	40-140	0.381	30	
Aroclor-1260	0.23	0.085	mg/Kg dry	0.213	ND	108	40-140	2.56	30	
Aroclor-1260 [2C]	0.20	0.085	mg/Kg dry	0.213	ND	95.3	40-140	1.18	30	
Surrogate: Decachlorobiphenyl	0.179		mg/Kg dry	0.213		84.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.187		mg/Kg dry	0.213		88.1	30-150			
Surrogate: Tetrachloro-m-xylene	0.191		mg/Kg dry	0.213		89.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.224		mg/Kg dry	0.213		105	30-150			
Batch B206554 - SW-846 3546										
Blank (B206554-BLK1)	Prepared: 06/25/18 Analyzed: 06/26/18									
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	0.180		mg/Kg wet	0.200		90.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.184		mg/Kg wet	0.200		91.9	30-150			
Surrogate: Tetrachloro-m-xylene	0.182		mg/Kg wet	0.200		91.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.190		mg/Kg wet	0.200		95.0	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
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Batch B206554 - SW-846 3546

LCS (B206554-BS1)

Prepared: 06/25/18 Analyzed: 06/26/18

Aroclor-1016	0.18	0.020	mg/Kg wet	0.200		91.4	40-140			
Aroclor-1016 [2C]	0.19	0.020	mg/Kg wet	0.200		93.1	40-140			
Aroclor-1260	0.18	0.020	mg/Kg wet	0.200		89.2	40-140			
Aroclor-1260 [2C]	0.18	0.020	mg/Kg wet	0.200		89.9	40-140			
Surrogate: Decachlorobiphenyl	0.184		mg/Kg wet	0.200		91.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.188		mg/Kg wet	0.200		93.8	30-150			
Surrogate: Tetrachloro-m-xylene	0.189		mg/Kg wet	0.200		94.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.196		mg/Kg wet	0.200		98.2	30-150			

LCS Dup (B206554-BSD1)

Prepared: 06/25/18 Analyzed: 06/26/18

Aroclor-1016	0.19	0.020	mg/Kg wet	0.200		95.6	40-140	4.59	30	
Aroclor-1016 [2C]	0.20	0.020	mg/Kg wet	0.200		98.6	40-140	5.76	30	
Aroclor-1260	0.19	0.020	mg/Kg wet	0.200		96.2	40-140	7.55	30	
Aroclor-1260 [2C]	0.19	0.020	mg/Kg wet	0.200		96.4	40-140	7.00	30	
Surrogate: Decachlorobiphenyl	0.193		mg/Kg wet	0.200		96.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.196		mg/Kg wet	0.200		97.9	30-150			
Surrogate: Tetrachloro-m-xylene	0.197		mg/Kg wet	0.200		98.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.204		mg/Kg wet	0.200		102	30-150			

Matrix Spike (B206554-MS1)

Source: 18F1166-21

Prepared: 06/25/18 Analyzed: 06/28/18

Aroclor-1016	0.18	0.019	mg/Kg dry	0.192	ND	91.6	40-140			
Aroclor-1016 [2C]	0.16	0.019	mg/Kg dry	0.192	ND	81.9	40-140			
Aroclor-1260	0.19	0.019	mg/Kg dry	0.192	ND	98.7	40-140			
Aroclor-1260 [2C]	0.15	0.019	mg/Kg dry	0.192	ND	79.0	40-140			
Surrogate: Decachlorobiphenyl	0.156		mg/Kg dry	0.192		81.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.176		mg/Kg dry	0.192		91.7	30-150			
Surrogate: Tetrachloro-m-xylene	0.179		mg/Kg dry	0.192		93.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.208		mg/Kg dry	0.192		109	30-150			

Matrix Spike Dup (B206554-MSD1)

Source: 18F1166-21

Prepared: 06/25/18 Analyzed: 06/28/18

Aroclor-1016	0.21	0.020	mg/Kg dry	0.200	ND	105	40-140	13.7	30	
Aroclor-1016 [2C]	0.18	0.020	mg/Kg dry	0.200	ND	90.5	40-140	10.0	30	
Aroclor-1260	0.22	0.020	mg/Kg dry	0.200	ND	112	40-140	12.7	30	
Aroclor-1260 [2C]	0.18	0.020	mg/Kg dry	0.200	ND	89.4	40-140	12.4	30	
Surrogate: Decachlorobiphenyl	0.184		mg/Kg dry	0.200		92.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.210		mg/Kg dry	0.200		105	30-150			
Surrogate: Tetrachloro-m-xylene	0.204		mg/Kg dry	0.200		102	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.235		mg/Kg dry	0.200		118	30-150			

Batch B206587 - SW-846 3546

Blank (B206587-BLK1)

Prepared: 06/26/18 Analyzed: 06/27/18

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							



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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
Batch B206587 - SW-846 3546										
Blank (B206587-BLK1)										
Prepared: 06/26/18 Analyzed: 06/27/18										
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	0.189		mg/Kg wet	0.200		94.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.177		mg/Kg wet	0.200		88.7	30-150			
Surrogate: Tetrachloro-m-xylene	0.156		mg/Kg wet	0.200		77.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.174		mg/Kg wet	0.200		87.0	30-150			
LCS (B206587-BS1)										
Prepared: 06/26/18 Analyzed: 06/27/18										
Aroclor-1016	0.19	0.020	mg/Kg wet	0.200		96.7	40-140			
Aroclor-1016 [2C]	0.21	0.020	mg/Kg wet	0.200		103	40-140			
Aroclor-1260	0.22	0.020	mg/Kg wet	0.200		110	40-140			
Aroclor-1260 [2C]	0.23	0.020	mg/Kg wet	0.200		116	40-140			
Surrogate: Decachlorobiphenyl	0.239		mg/Kg wet	0.200		119	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.226		mg/Kg wet	0.200		113	30-150			
Surrogate: Tetrachloro-m-xylene	0.177		mg/Kg wet	0.200		88.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.198		mg/Kg wet	0.200		99.1	30-150			
LCS Dup (B206587-BSD1)										
Prepared: 06/26/18 Analyzed: 06/28/18										
Aroclor-1016	0.19	0.020	mg/Kg wet	0.200		93.7	40-140	3.21	30	
Aroclor-1016 [2C]	0.18	0.020	mg/Kg wet	0.200		89.4	40-140	14.3	30	
Aroclor-1260	0.19	0.020	mg/Kg wet	0.200		93.4	40-140	16.3	30	
Aroclor-1260 [2C]	0.18	0.020	mg/Kg wet	0.200		88.3	40-140	27.0	30	
Surrogate: Decachlorobiphenyl	0.188		mg/Kg wet	0.200		93.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.188		mg/Kg wet	0.200		93.8	30-150			
Surrogate: Tetrachloro-m-xylene	0.168		mg/Kg wet	0.200		83.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.181		mg/Kg wet	0.200		90.3	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 B206486 - SW-846 3546

Blank (B206486-BLK1)

Prepared: 06/24/18 Analyzed: 06/25/18

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							
n-Decane	ND	0.10	mg/Kg wet							
n-Docosane	ND	0.10	mg/Kg wet							
n-Dodecane	ND	0.10	mg/Kg wet							
n-Eicosane	ND	0.10	mg/Kg wet							
n-Hexacosane	ND	0.10	mg/Kg wet							
n-Hexadecane	ND	0.10	mg/Kg wet							
n-Hexatriacontane	ND	0.10	mg/Kg wet							
n-Nonadecane	ND	0.10	mg/Kg wet							
n-Nonane	ND	0.10	mg/Kg wet							
n-Octacosane	ND	0.10	mg/Kg wet							
n-Octadecane	ND	0.10	mg/Kg wet							
n-Tetracosane	ND	0.10	mg/Kg wet							
n-Tetradecane	ND	0.10	mg/Kg wet							
n-Triacontane	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)	4.04		mg/Kg wet	5.00		80.8	40-140			
Surrogate: o-Terphenyl (OTP)	4.33		mg/Kg wet	5.00		86.7	40-140			
Surrogate: 2-Bromonaphthalene	4.29		mg/Kg wet	5.00		85.8	40-140			
Surrogate: 2-Fluorobiphenyl	5.16		mg/Kg wet	5.00		103	40-140			

LCS (B206486-BS1)

Prepared: 06/24/18 Analyzed: 06/25/18

C9-C18 Aliphatics	21.4	10	mg/Kg wet	30.0		71.3	40-140			
C19-C36 Aliphatics	28.1	10	mg/Kg wet	40.0		70.2	40-140			
Acenaphthene	3.89	0.10	mg/Kg wet	5.00		77.7	40-140			
Acenaphthylene	3.77	0.10	mg/Kg wet	5.00		75.4	40-140			
Anthracene	4.20	0.10	mg/Kg wet	5.00		83.9	40-140			
Benzo(a)anthracene	4.26	0.10	mg/Kg wet	5.00		85.1	40-140			
Benzo(a)pyrene	4.08	0.10	mg/Kg wet	5.00		81.7	40-140			
Benzo(b)fluoranthene	4.15	0.10	mg/Kg wet	5.00		83.0	40-140			
Benzo(g,h,i)perylene	4.05	0.10	mg/Kg wet	5.00		81.0	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
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Batch B206486 - SW-846 3546

LCS (B206486-BS1)

Prepared: 06/24/18 Analyzed: 06/25/18

Benzo(k)fluoranthene	4.14	0.10	mg/Kg wet	5.00		82.8	40-140			
Chrysene	4.26	0.10	mg/Kg wet	5.00		85.1	40-140			
Dibenz(a,h)anthracene	4.26	0.10	mg/Kg wet	5.00		85.3	40-140			
Fluoranthene	4.25	0.10	mg/Kg wet	5.00		84.9	40-140			
Fluorene	4.03	0.10	mg/Kg wet	5.00		80.7	40-140			
Indeno(1,2,3-cd)pyrene	3.88	0.10	mg/Kg wet	5.00		77.6	40-140			
2-Methylnaphthalene	3.75	0.10	mg/Kg wet	5.00		74.9	40-140			
Naphthalene	3.33	0.10	mg/Kg wet	5.00		66.5	40-140			
Phenanthrene	4.19	0.10	mg/Kg wet	5.00		83.9	40-140			
Pyrene	4.30	0.10	mg/Kg wet	5.00		85.9	40-140			
n-Decane	2.38	0.10	mg/Kg wet	5.00		47.5	40-140			
n-Docosane	3.81	0.10	mg/Kg wet	5.00		76.1	40-140			
n-Dodecane	2.96	0.10	mg/Kg wet	5.00		59.3	40-140			
n-Eicosane	3.73	0.10	mg/Kg wet	5.00		74.7	40-140			
n-Hexacosane	3.77	0.10	mg/Kg wet	5.00		75.4	40-140			
n-Hexadecane	3.69	0.10	mg/Kg wet	5.00		73.8	40-140			
n-Hexatriacontane	3.44	0.10	mg/Kg wet	5.00		68.7	40-140			
n-Nonadecane	3.73	0.10	mg/Kg wet	5.00		74.6	40-140			
n-Nonane	1.63	0.10	mg/Kg wet	5.00		32.6	30-140			
n-Octacosane	3.67	0.10	mg/Kg wet	5.00		73.4	40-140			
n-Octadecane	3.90	0.10	mg/Kg wet	5.00		78.0	40-140			
n-Tetracosane	3.78	0.10	mg/Kg wet	5.00		75.6	40-140			
n-Tetradecane	3.43	0.10	mg/Kg wet	5.00		68.6	40-140			
n-Triacontane	3.60	0.10	mg/Kg wet	5.00		72.0	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)	3.77		mg/Kg wet	5.00		75.4	40-140			
Surrogate: o-Terphenyl (OTP)	4.09		mg/Kg wet	5.00		81.9	40-140			
Surrogate: 2-Bromonaphthalene	4.29		mg/Kg wet	5.00		85.8	40-140			
Surrogate: 2-Fluorobiphenyl	5.05		mg/Kg wet	5.00		101	40-140			

LCS Dup (B206486-BS1)

Prepared: 06/24/18 Analyzed: 06/25/18

C9-C18 Aliphatics	22.3	10	mg/Kg wet	30.0		74.4	40-140	4.32	25	
C19-C36 Aliphatics	30.1	10	mg/Kg wet	40.0		75.3	40-140	6.92	25	
Acenaphthene	4.03	0.10	mg/Kg wet	5.00		80.5	40-140	3.56	25	
Acenaphthylene	3.90	0.10	mg/Kg wet	5.00		78.0	40-140	3.35	25	
Anthracene	4.40	0.10	mg/Kg wet	5.00		88.0	40-140	4.71	25	
Benzo(a)anthracene	4.52	0.10	mg/Kg wet	5.00		90.4	40-140	6.01	25	
Benzo(a)pyrene	4.35	0.10	mg/Kg wet	5.00		87.0	40-140	6.30	25	
Benzo(b)fluoranthene	4.41	0.10	mg/Kg wet	5.00		88.2	40-140	6.08	25	
Benzo(g,h,i)perylene	4.31	0.10	mg/Kg wet	5.00		86.2	40-140	6.30	25	
Benzo(k)fluoranthene	4.42	0.10	mg/Kg wet	5.00		88.4	40-140	6.53	25	
Chrysene	4.52	0.10	mg/Kg wet	5.00		90.5	40-140	6.11	25	
Dibenz(a,h)anthracene	4.55	0.10	mg/Kg wet	5.00		91.1	40-140	6.62	25	
Fluoranthene	4.48	0.10	mg/Kg wet	5.00		89.6	40-140	5.28	25	
Fluorene	4.21	0.10	mg/Kg wet	5.00		84.3	40-140	4.34	25	
Indeno(1,2,3-cd)pyrene	4.15	0.10	mg/Kg wet	5.00		82.9	40-140	6.60	25	
2-Methylnaphthalene	3.84	0.10	mg/Kg wet	5.00		76.9	40-140	2.55	25	
Naphthalene	3.40	0.10	mg/Kg wet	5.00		68.0	40-140	2.22	25	
Phenanthrene	4.39	0.10	mg/Kg wet	5.00		87.8	40-140	4.57	25	
Pyrene	4.53	0.10	mg/Kg wet	5.00		90.6	40-140	5.34	25	
n-Decane	2.53	0.10	mg/Kg wet	5.00		50.6	40-140	6.41	25	



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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 B206486 - SW-846 3546

LCS Dup (B206486-BSD1)

Prepared: 06/24/18 Analyzed: 06/25/18

n-Docosane	4.08	0.10	mg/Kg wet	5.00		81.7	40-140	7.03	25	
n-Dodecane	3.19	0.10	mg/Kg wet	5.00		63.8	40-140	7.34	25	
n-Eicosane	3.99	0.10	mg/Kg wet	5.00		79.8	40-140	6.63	25	
n-Hexacosane	4.13	0.10	mg/Kg wet	5.00		82.7	40-140	9.17	25	
n-Hexadecane	3.96	0.10	mg/Kg wet	5.00		79.2	40-140	7.11	25	
n-Hexatriacontane	3.88	0.10	mg/Kg wet	5.00		77.6	40-140	12.1	25	
n-Nonadecane	3.99	0.10	mg/Kg wet	5.00		79.7	40-140	6.65	25	
n-Nonane	1.72	0.10	mg/Kg wet	5.00		34.5	30-140	5.56	25	
n-Octacosane	4.09	0.10	mg/Kg wet	5.00		81.7	40-140	10.7	25	
n-Octadecane	4.17	0.10	mg/Kg wet	5.00		83.4	40-140	6.69	25	
n-Tetracosane	4.10	0.10	mg/Kg wet	5.00		82.0	40-140	8.12	25	
n-Tetradecane	3.71	0.10	mg/Kg wet	5.00		74.3	40-140	7.92	25	
n-Triacontane	4.03	0.10	mg/Kg wet	5.00		80.6	40-140	11.2	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)	3.94		mg/Kg wet	5.00		78.7	40-140			
Surrogate: o-Terphenyl (OTP)	4.18		mg/Kg wet	5.00		83.6	40-140			
Surrogate: 2-Bromonaphthalene	4.27		mg/Kg wet	5.00		85.4	40-140			
Surrogate: 2-Fluorobiphenyl	4.84		mg/Kg wet	5.00		96.8	40-140			

Batch B206529 - SW-846 3546

Blank (B206529-BLK1)

Prepared: 06/25/18 Analyzed: 06/27/18

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							
n-Decane	ND	0.10	mg/Kg wet							
n-Docosane	ND	0.10	mg/Kg wet							
n-Dodecane	ND	0.10	mg/Kg wet							
n-Eicosane	ND	0.10	mg/Kg wet							
n-Hexacosane	ND	0.10	mg/Kg wet							
n-Hexadecane	0.12	0.10	mg/Kg wet							
n-Hexatriacontane	ND	0.10	mg/Kg wet							
n-Nonadecane	ND	0.10	mg/Kg wet							
n-Nonane	ND	0.10	mg/Kg wet							



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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
Batch B206529 - SW-846 3546										
Blank (B206529-BLK1)										
Prepared: 06/25/18 Analyzed: 06/27/18										
n-Octacosane	ND	0.10	mg/Kg wet							
n-Octadecane	0.18	0.10	mg/Kg wet							
n-Tetracosane	ND	0.10	mg/Kg wet							
n-Tetradecane	ND	0.10	mg/Kg wet							
n-Triacontane	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)	3.71		mg/Kg wet	5.00		74.3	40-140			
Surrogate: o-Terphenyl (OTP)	3.59		mg/Kg wet	5.00		71.8	40-140			
Surrogate: 2-Bromonaphthalene	5.17		mg/Kg wet	5.00		103	40-140			
Surrogate: 2-Fluorobiphenyl	5.91		mg/Kg wet	5.00		118	40-140			
LCS (B206529-BS1)										
Prepared: 06/25/18 Analyzed: 06/27/18										
C9-C18 Aliphatics	20.3	10	mg/Kg wet	30.0		67.6	40-140			
C19-C36 Aliphatics	28.7	10	mg/Kg wet	40.0		71.8	40-140			
Acenaphthene	3.10	0.10	mg/Kg wet	5.00		61.9	40-140			
Acenaphthylene	2.92	0.10	mg/Kg wet	5.00		58.3	40-140			
Anthracene	3.59	0.10	mg/Kg wet	5.00		71.8	40-140			
Benzo(a)anthracene	3.98	0.10	mg/Kg wet	5.00		79.5	40-140			
Benzo(a)pyrene	3.83	0.10	mg/Kg wet	5.00		76.5	40-140			
Benzo(b)fluoranthene	3.91	0.10	mg/Kg wet	5.00		78.3	40-140			
Benzo(g,h,i)perylene	3.66	0.10	mg/Kg wet	5.00		73.1	40-140			
Benzo(k)fluoranthene	3.91	0.10	mg/Kg wet	5.00		78.1	40-140			
Chrysene	3.99	0.10	mg/Kg wet	5.00		79.8	40-140			
Dibenz(a,h)anthracene	3.98	0.10	mg/Kg wet	5.00		79.6	40-140			
Fluoranthene	3.85	0.10	mg/Kg wet	5.00		77.0	40-140			
Fluorene	3.28	0.10	mg/Kg wet	5.00		65.6	40-140			
Indeno(1,2,3-cd)pyrene	3.60	0.10	mg/Kg wet	5.00		72.0	40-140			
2-Methylnaphthalene	2.81	0.10	mg/Kg wet	5.00		56.2	40-140			
Naphthalene	2.38	0.10	mg/Kg wet	5.00		47.7	40-140			
Phenanthrene	3.60	0.10	mg/Kg wet	5.00		72.0	40-140			
Pyrene	3.91	0.10	mg/Kg wet	5.00		78.2	40-140			
n-Decane	1.96	0.10	mg/Kg wet	5.00		39.3	* 40-140			
n-Docosane	3.70	0.10	mg/Kg wet	5.00		73.9	40-140			
n-Dodecane	2.35	0.10	mg/Kg wet	5.00		46.9	40-140			
n-Eicosane	3.54	0.10	mg/Kg wet	5.00		70.7	40-140			
n-Hexacosane	3.64	0.10	mg/Kg wet	5.00		72.8	40-140			
n-Hexadecane	3.35	0.10	mg/Kg wet	5.00		67.0	40-140			B
n-Hexatriacontane	3.36	0.10	mg/Kg wet	5.00		67.2	40-140			
n-Nonadecane	3.52	0.10	mg/Kg wet	5.00		70.3	40-140			
n-Nonane	1.45	0.10	mg/Kg wet	5.00		29.1	* 30-140			
n-Octacosane	3.59	0.10	mg/Kg wet	5.00		71.9	40-140			
n-Octadecane	3.70	0.10	mg/Kg wet	5.00		74.1	40-140			B
n-Tetracosane	3.67	0.10	mg/Kg wet	5.00		73.3	40-140			
n-Tetradecane	2.89	0.10	mg/Kg wet	5.00		57.9	40-140			
n-Triacontane	3.52	0.10	mg/Kg wet	5.00		70.5	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)	3.68		mg/Kg wet	5.00		73.5	40-140			
Surrogate: o-Terphenyl (OTP)	3.51		mg/Kg wet	5.00		70.2	40-140			
Surrogate: 2-Bromonaphthalene	5.52		mg/Kg wet	5.00		110	40-140			
Surrogate: 2-Fluorobiphenyl	6.22		mg/Kg wet	5.00		124	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
Batch B206529 - SW-846 3546										
LCS Dup (B206529-BSD1)										
					Prepared: 06/25/18 Analyzed: 06/27/18					
C9-C18 Aliphatics	23.5	10	mg/Kg wet	30.0		78.4	40-140	14.8	25	
C19-C36 Aliphatics	31.0	10	mg/Kg wet	40.0		77.6	40-140	7.74	25	
Acenaphthene	3.58	0.10	mg/Kg wet	5.00		71.5	40-140	14.3	25	
Acenaphthylene	3.42	0.10	mg/Kg wet	5.00		68.4	40-140	15.9	25	
Anthracene	4.13	0.10	mg/Kg wet	5.00		82.5	40-140	13.9	25	
Benzo(a)anthracene	4.50	0.10	mg/Kg wet	5.00		90.1	40-140	12.4	25	
Benzo(a)pyrene	4.35	0.10	mg/Kg wet	5.00		87.0	40-140	12.8	25	
Benzo(b)fluoranthene	4.42	0.10	mg/Kg wet	5.00		88.4	40-140	12.2	25	
Benzo(g,h,i)perylene	4.34	0.10	mg/Kg wet	5.00		86.8	40-140	17.1	25	
Benzo(k)fluoranthene	4.44	0.10	mg/Kg wet	5.00		88.7	40-140	12.7	25	
Chrysene	4.52	0.10	mg/Kg wet	5.00		90.5	40-140	12.6	25	
Dibenz(a,h)anthracene	4.54	0.10	mg/Kg wet	5.00		90.8	40-140	13.2	25	
Fluoranthene	4.35	0.10	mg/Kg wet	5.00		86.9	40-140	12.2	25	
Fluorene	3.79	0.10	mg/Kg wet	5.00		75.9	40-140	14.6	25	
Indeno(1,2,3-cd)pyrene	4.10	0.10	mg/Kg wet	5.00		82.0	40-140	13.0	25	
2-Methylnaphthalene	3.45	0.10	mg/Kg wet	5.00		69.0	40-140	20.3	25	
Naphthalene	2.93	0.10	mg/Kg wet	5.00		58.7	40-140	20.7	25	
Phenanthrene	4.14	0.10	mg/Kg wet	5.00		82.8	40-140	13.9	25	
Pyrene	4.41	0.10	mg/Kg wet	5.00		88.2	40-140	12.0	25	
n-Decane	2.18	0.10	mg/Kg wet	5.00		43.6	40-140	10.4	25	
n-Docosane	4.12	0.10	mg/Kg wet	5.00		82.3	40-140	10.8	25	
n-Dodecane	2.88	0.10	mg/Kg wet	5.00		57.6	40-140	20.3	25	
n-Eicosane	3.97	0.10	mg/Kg wet	5.00		79.3	40-140	11.5	25	
n-Hexacosane	4.08	0.10	mg/Kg wet	5.00		81.6	40-140	11.4	25	
n-Hexadecane	3.92	0.10	mg/Kg wet	5.00		78.4	40-140	15.6	25	B
n-Hexatriacontane	3.79	0.10	mg/Kg wet	5.00		75.8	40-140	12.1	25	
n-Nonadecane	3.95	0.10	mg/Kg wet	5.00		79.0	40-140	11.7	25	
n-Nonane	1.37	0.10	mg/Kg wet	5.00		27.5	* 30-140	5.66	25	
n-Octacosane	4.02	0.10	mg/Kg wet	5.00		80.4	40-140	11.2	25	
n-Octadecane	4.19	0.10	mg/Kg wet	5.00		83.8	40-140	12.3	25	B
n-Tetracosane	4.09	0.10	mg/Kg wet	5.00		81.8	40-140	10.9	25	
n-Tetradecane	3.44	0.10	mg/Kg wet	5.00		68.8	40-140	17.3	25	
n-Triacontane	3.95	0.10	mg/Kg wet	5.00		79.1	40-140	11.5	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)	4.10		mg/Kg wet	5.00		82.1	40-140			
Surrogate: o-Terphenyl (OTP)	3.96		mg/Kg wet	5.00		79.2	40-140			
Surrogate: 2-Bromonaphthalene	5.39		mg/Kg wet	5.00		108	40-140			
Surrogate: 2-Fluorobiphenyl	6.26		mg/Kg wet	5.00		125	40-140			

Batch B206851 - SW-846 3546

Blank (B206851-BLK1)

Prepared: 06/28/18 Analyzed: 06/29/18

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							



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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 B206851 - SW-846 3546

Blank (B206851-BLK1)

Prepared: 06/28/18 Analyzed: 06/29/18

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							
n-Decane	ND	0.10	mg/Kg wet							
n-Docosane	ND	0.10	mg/Kg wet							
n-Dodecane	ND	0.10	mg/Kg wet							
n-Eicosane	ND	0.10	mg/Kg wet							
n-Hexacosane	ND	0.10	mg/Kg wet							
n-Hexadecane	0.11	0.10	mg/Kg wet							
n-Hexatriacontane	ND	0.10	mg/Kg wet							
n-Nonadecane	ND	0.10	mg/Kg wet							
n-Nonane	ND	0.10	mg/Kg wet							
n-Octacosane	ND	0.10	mg/Kg wet							
n-Octadecane	0.17	0.10	mg/Kg wet							
n-Tetracosane	ND	0.10	mg/Kg wet							
n-Tetradecane	ND	0.10	mg/Kg wet							
n-Triacontane	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)	4.27		mg/Kg wet	5.00		85.4	40-140			
Surrogate: o-Terphenyl (OTP)	4.04		mg/Kg wet	5.00		80.8	40-140			
Surrogate: 2-Bromonaphthalene	3.75		mg/Kg wet	5.00		75.0	40-140			
Surrogate: 2-Fluorobiphenyl	4.59		mg/Kg wet	5.00		91.9	40-140			

LCS (B206851-BS1)

Prepared: 06/28/18 Analyzed: 06/29/18

C9-C18 Aliphatics	22.4	10	mg/Kg wet	30.0		74.6	40-140			
C19-C36 Aliphatics	27.4	10	mg/Kg wet	40.0		68.6	40-140			
Acenaphthene	3.17	0.10	mg/Kg wet	5.00		63.5	40-140			
Acenaphthylene	3.03	0.10	mg/Kg wet	5.00		60.7	40-140			
Anthracene	3.62	0.10	mg/Kg wet	5.00		72.3	40-140			
Benzo(a)anthracene	3.80	0.10	mg/Kg wet	5.00		76.1	40-140			
Benzo(a)pyrene	3.68	0.10	mg/Kg wet	5.00		73.7	40-140			
Benzo(b)fluoranthene	3.70	0.10	mg/Kg wet	5.00		74.0	40-140			
Benzo(g,h,i)perylene	3.62	0.10	mg/Kg wet	5.00		72.4	40-140			
Benzo(k)fluoranthene	3.74	0.10	mg/Kg wet	5.00		74.8	40-140			
Chrysene	3.83	0.10	mg/Kg wet	5.00		76.5	40-140			
Dibenz(a,h)anthracene	3.85	0.10	mg/Kg wet	5.00		76.9	40-140			
Fluoranthene	3.73	0.10	mg/Kg wet	5.00		74.6	40-140			
Fluorene	3.36	0.10	mg/Kg wet	5.00		67.2	40-140			
Indeno(1,2,3-cd)pyrene	3.49	0.10	mg/Kg wet	5.00		69.8	40-140			
2-Methylnaphthalene	3.03	0.10	mg/Kg wet	5.00		60.7	40-140			
Naphthalene	2.72	0.10	mg/Kg wet	5.00		54.5	40-140			
Phenanthrene	3.60	0.10	mg/Kg wet	5.00		72.1	40-140			
Pyrene	3.78	0.10	mg/Kg wet	5.00		75.5	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
Batch B206851 - SW-846 3546										
LCS (B206851-BS1)										
					Prepared: 06/28/18 Analyzed: 06/29/18					
n-Decane	2.48	0.10	mg/Kg wet	5.00		49.7	40-140			
n-Docosane	3.51	0.10	mg/Kg wet	5.00		70.2	40-140			
n-Dodecane	2.81	0.10	mg/Kg wet	5.00		56.1	40-140			
n-Eicosane	3.41	0.10	mg/Kg wet	5.00		68.2	40-140			
n-Hexacosane	3.35	0.10	mg/Kg wet	5.00		67.0	40-140			
n-Hexadecane	3.45	0.10	mg/Kg wet	5.00		68.9	40-140			B
n-Hexatriacontane	3.12	0.10	mg/Kg wet	5.00		62.5	40-140			
n-Nonadecane	3.41	0.10	mg/Kg wet	5.00		68.1	40-140			
n-Nonane	1.99	0.10	mg/Kg wet	5.00		39.7	30-140			
n-Octacosane	3.24	0.10	mg/Kg wet	5.00		64.8	40-140			
n-Octadecane	3.65	0.10	mg/Kg wet	5.00		72.9	40-140			B
n-Tetracosane	3.41	0.10	mg/Kg wet	5.00		68.2	40-140			
n-Tetradecane	3.11	0.10	mg/Kg wet	5.00		62.2	40-140			
n-Triacontane	3.20	0.10	mg/Kg wet	5.00		63.9	40-140			
Naphthalene-aliphatic fraction	0.102	0.10	mg/Kg wet	5.00		2.04	0-5			
2-Methylnaphthalene-aliphatic fraction	0.0508	0.10	mg/Kg wet	5.00		1.02	0-5			
Surrogate: Chlorooctadecane (COD)	3.54		mg/Kg wet	5.00		70.8	40-140			
Surrogate: o-Terphenyl (OTP)	3.51		mg/Kg wet	5.00		70.2	40-140			
Surrogate: 2-Bromonaphthalene	3.08		mg/Kg wet	5.00		61.7	40-140			
Surrogate: 2-Fluorobiphenyl	4.30		mg/Kg wet	5.00		86.0	40-140			
LCS Dup (B206851-BSD1)										
					Prepared: 06/28/18 Analyzed: 06/29/18					
C9-C18 Aliphatics	21.7	10	mg/Kg wet	30.0		72.4	40-140	3.06	25	
C19-C36 Aliphatics	27.7	10	mg/Kg wet	40.0		69.1	40-140	0.831	25	
Acenaphthene	3.13	0.10	mg/Kg wet	5.00		62.5	40-140	1.53	25	
Acenaphthylene	3.00	0.10	mg/Kg wet	5.00		60.1	40-140	0.984	25	
Anthracene	3.46	0.10	mg/Kg wet	5.00		69.3	40-140	4.29	25	
Benzo(a)anthracene	3.61	0.10	mg/Kg wet	5.00		72.2	40-140	5.15	25	
Benzo(a)pyrene	3.48	0.10	mg/Kg wet	5.00		69.6	40-140	5.68	25	
Benzo(b)fluoranthene	3.52	0.10	mg/Kg wet	5.00		70.4	40-140	5.00	25	
Benzo(g,h,i)perylene	3.43	0.10	mg/Kg wet	5.00		68.7	40-140	5.24	25	
Benzo(k)fluoranthene	3.56	0.10	mg/Kg wet	5.00		71.2	40-140	4.99	25	
Chrysene	3.64	0.10	mg/Kg wet	5.00		72.9	40-140	4.87	25	
Dibenz(a,h)anthracene	3.64	0.10	mg/Kg wet	5.00		72.9	40-140	5.41	25	
Fluoranthene	3.55	0.10	mg/Kg wet	5.00		71.0	40-140	4.92	25	
Fluorene	3.27	0.10	mg/Kg wet	5.00		65.3	40-140	2.78	25	
Indeno(1,2,3-cd)pyrene	3.31	0.10	mg/Kg wet	5.00		66.2	40-140	5.30	25	
2-Methylnaphthalene	2.99	0.10	mg/Kg wet	5.00		59.8	40-140	1.44	25	
Naphthalene	2.69	0.10	mg/Kg wet	5.00		53.7	40-140	1.39	25	
Phenanthrene	3.45	0.10	mg/Kg wet	5.00		68.9	40-140	4.49	25	
Pyrene	3.59	0.10	mg/Kg wet	5.00		71.9	40-140	4.92	25	
n-Decane	2.38	0.10	mg/Kg wet	5.00		47.6	40-140	4.39	25	
n-Docosane	3.48	0.10	mg/Kg wet	5.00		69.6	40-140	0.795	25	
n-Dodecane	2.76	0.10	mg/Kg wet	5.00		55.2	40-140	1.57	25	
n-Eicosane	3.36	0.10	mg/Kg wet	5.00		67.2	40-140	1.56	25	
n-Hexacosane	3.35	0.10	mg/Kg wet	5.00		67.1	40-140	0.179	25	
n-Hexadecane	3.41	0.10	mg/Kg wet	5.00		68.3	40-140	0.982	25	B
n-Hexatriacontane	2.97	0.10	mg/Kg wet	5.00		59.4	40-140	5.11	25	
n-Nonadecane	3.39	0.10	mg/Kg wet	5.00		67.7	40-140	0.530	25	
n-Nonane	1.88	0.10	mg/Kg wet	5.00		37.6	30-140	5.50	25	
n-Octacosane	3.22	0.10	mg/Kg wet	5.00		64.4	40-140	0.594	25	
n-Octadecane	3.61	0.10	mg/Kg wet	5.00		72.3	40-140	0.870	25	B



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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 B206851 - SW-846 3546

LCS Dup (B206851-BSD1)

Prepared: 06/28/18 Analyzed: 06/29/18

n-Tetracosane	3.41	0.10	mg/Kg wet	5.00		68.3	40-140	0.0557	25	
n-Tetradecane	3.12	0.10	mg/Kg wet	5.00		62.3	40-140	0.183	25	
n-Triacontane	3.15	0.10	mg/Kg wet	5.00		63.0	40-140	1.48	25	
Naphthalene-aliphatic fraction	0.0455	0.10	mg/Kg wet	5.00		0.910	0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
Surrogate: Chlorooctadecane (COD)	3.59		mg/Kg wet	5.00		71.9	40-140			
Surrogate: o-Terphenyl (OTP)	3.43		mg/Kg wet	5.00		68.6	40-140			
Surrogate: 2-Bromonaphthalene	3.01		mg/Kg wet	5.00		60.2	40-140			
Surrogate: 2-Fluorobiphenyl	3.85		mg/Kg wet	5.00		77.1	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
Batch B206743 - SW-846 3050B										
Blank (B206743-BLK1) Prepared: 06/27/18 Analyzed: 06/28/18										
Arsenic	ND	1.7	mg/Kg wet							
Barium	ND	1.7	mg/Kg wet							
Cadmium	ND	0.17	mg/Kg wet							
Chromium	ND	0.33	mg/Kg wet							
Lead	ND	0.50	mg/Kg wet							
Selenium	ND	3.3	mg/Kg wet							
Silver	ND	0.33	mg/Kg wet							
LCS (B206743-BS1) Prepared: 06/27/18 Analyzed: 06/28/18										
Arsenic	170	5.0	mg/Kg wet	161		106	83.2-116.8			
Barium	292	5.0	mg/Kg wet	260		112	82.7-117.3			
Cadmium	216	0.50	mg/Kg wet	211		102	83.4-116.6			
Chromium	145	0.99	mg/Kg wet	136		107	82.4-117.6			
Lead	119	1.5	mg/Kg wet	111		107	83-117.1			
Selenium	198	9.9	mg/Kg wet	191		103	79.6-120.9			
Silver	45.5	0.99	mg/Kg wet	43.3		105	79.9-119.9			
LCS Dup (B206743-BSD1) Prepared: 06/27/18 Analyzed: 06/28/18										
Arsenic	161	4.9	mg/Kg wet	161		100	83.2-116.8	5.56	30	
Barium	271	4.9	mg/Kg wet	260		104	82.7-117.3	7.54	30	
Cadmium	203	0.49	mg/Kg wet	211		96.2	83.4-116.6	6.26	30	
Chromium	137	0.98	mg/Kg wet	136		101	82.4-117.6	5.66	30	
Lead	106	1.5	mg/Kg wet	111		95.7	83-117.1	11.2	30	
Selenium	187	9.8	mg/Kg wet	191		98.1	79.6-120.9	5.27	30	
Silver	43.4	0.98	mg/Kg wet	43.3		100	79.9-119.9	4.84	30	
Duplicate (B206743-DUP1) Source: 18F1166-04 Prepared: 06/27/18 Analyzed: 06/28/18										
Arsenic	6.79	1.7	mg/Kg dry		7.43			9.06	35	
Barium	24.5	1.7	mg/Kg dry		25.9			5.86	35	
Cadmium	0.310	0.17	mg/Kg dry		0.332			6.80	35	
Chromium	16.5	0.34	mg/Kg dry		17.2			4.42	35	
Lead	33.0	0.50	mg/Kg dry		35.8			8.27	35	
Selenium	ND	3.4	mg/Kg dry		ND			NC	35	
Silver	ND	0.34	mg/Kg dry		ND			NC	35	
MRL Check (B206743-MRL1) Prepared: 06/27/18 Analyzed: 06/28/18										
Lead	0.535	0.50	mg/Kg wet	0.502		107	80-120			
Matrix Spike (B206743-MS1) Source: 18F1166-04 Prepared: 06/27/18 Analyzed: 06/28/18										
Arsenic	23.7	1.7	mg/Kg dry	17.0	7.43	95.8	75-125			
Barium	44.9	1.7	mg/Kg dry	17.0	25.9	112	75-125			
Cadmium	16.9	0.17	mg/Kg dry	17.0	0.332	97.9	75-125			
Chromium	35.8	0.34	mg/Kg dry	17.0	17.2	110	75-125			
Lead	64.3	0.51	mg/Kg dry	17.0	35.8	168 *	75-125			MS-11
Selenium	14.8	3.4	mg/Kg dry	17.0	ND	87.0	75-125			
Silver	16.9	0.34	mg/Kg dry	17.0	ND	100	75-125			



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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
Batch B206745 - SW-846 7471										
Blank (B206745-BLK1) Prepared: 06/27/18 Analyzed: 06/28/18										
Mercury	ND	0.025	mg/Kg wet							
LCS (B206745-BS1) Prepared: 06/27/18 Analyzed: 06/28/18										
Mercury	10.1	1.9	mg/Kg wet	9.36		108	73.7-126.3			
LCS Dup (B206745-BSD1) Prepared: 06/27/18 Analyzed: 06/28/18										
Mercury	9.83	1.9	mg/Kg wet	9.36		105	73.7-126.3	2.74	30	
Duplicate (B206745-DUP1) Source: 18F1166-04 Prepared: 06/27/18 Analyzed: 06/28/18										
Mercury	0.0480	0.027	mg/Kg dry		0.0461			4.04	35	
Matrix Spike (B206745-MS1) Source: 18F1166-04 Prepared: 06/27/18 Analyzed: 06/28/18										
Mercury	0.228	0.027	mg/Kg dry	0.181	0.0461	101	75-125			
Batch B206755 - SW-846 3050B										
Blank (B206755-BLK1) Prepared: 06/27/18 Analyzed: 06/28/18										
Arsenic	ND	1.7	mg/Kg wet							
Barium	ND	1.7	mg/Kg wet							
Cadmium	ND	0.17	mg/Kg wet							
Chromium	ND	0.33	mg/Kg wet							
Lead	ND	0.50	mg/Kg wet							
Selenium	ND	3.3	mg/Kg wet							
Silver	ND	0.33	mg/Kg wet							
LCS (B206755-BS1) Prepared: 06/27/18 Analyzed: 06/28/18										
Arsenic	172	5.0	mg/Kg wet	161		107	83.2-116.8			
Barium	278	5.0	mg/Kg wet	260		107	82.7-117.3			
Cadmium	216	0.50	mg/Kg wet	211		102	83.4-116.6			
Chromium	146	1.0	mg/Kg wet	136		107	82.4-117.6			
Lead	115	1.5	mg/Kg wet	111		104	83-117.1			
Selenium	199	10	mg/Kg wet	191		104	79.6-120.9			
Silver	47.0	1.0	mg/Kg wet	43.3		108	79.9-119.9			
LCS Dup (B206755-BSD1) Prepared: 06/27/18 Analyzed: 06/28/18										
Arsenic	172	4.8	mg/Kg wet	161		107	83.2-116.8	0.270	30	
Barium	280	4.8	mg/Kg wet	260		108	82.7-117.3	0.870	30	
Cadmium	217	0.48	mg/Kg wet	211		103	83.4-116.6	0.843	30	
Chromium	145	0.96	mg/Kg wet	136		107	82.4-117.6	0.584	30	
Lead	115	1.4	mg/Kg wet	111		103	83-117.1	0.287	30	
Selenium	200	9.6	mg/Kg wet	191		105	79.6-120.9	0.347	30	
Silver	46.6	0.96	mg/Kg wet	43.3		108	79.9-119.9	0.826	30	



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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
Batch B206755 - SW-846 3050B										
Duplicate (B206755-DUP1)		Source: 18F1166-12			Prepared: 06/27/18 Analyzed: 06/28/18					
Arsenic	11.9	1.7	mg/Kg dry		10.2			14.9	35	
Barium	21.1	1.7	mg/Kg dry		22.4			5.91	35	
Cadmium	0.636	0.17	mg/Kg dry		0.560			12.7	35	
Chromium	15.4	0.34	mg/Kg dry		16.5			6.60	35	
Lead	35.3	0.51	mg/Kg dry		27.4			25.2	35	
Selenium	ND	3.4	mg/Kg dry		ND			NC	35	
Silver	ND	0.34	mg/Kg dry		ND			NC	35	
MRL Check (B206755-MRL1)										
					Prepared: 06/27/18 Analyzed: 06/28/18					
Lead	0.561	0.50	mg/Kg wet	0.499		113		80-120		
Matrix Spike (B206755-MS1)		Source: 18F1166-12			Prepared: 06/27/18 Analyzed: 06/28/18					
Arsenic	27.3	1.7	mg/Kg dry	17.4	10.2	98.5	75-125			
Barium	37.5	1.7	mg/Kg dry	17.4	22.4	86.8	75-125			
Cadmium	17.9	0.17	mg/Kg dry	17.4	0.560	99.9	75-125			
Chromium	30.9	0.35	mg/Kg dry	17.4	16.5	83.2	75-125			
Lead	49.6	0.52	mg/Kg dry	17.4	27.4	128 *	75-125			MS-11
Selenium	16.2	3.5	mg/Kg dry	17.4	ND	93.3	75-125			
Silver	17.4	0.35	mg/Kg dry	17.4	ND	100	75-125			
Batch B206759 - SW-846 7471										
Blank (B206759-BLK1)					Prepared: 06/27/18 Analyzed: 06/28/18					
Mercury	ND	0.025	mg/Kg wet							
LCS (B206759-BS1)					Prepared: 06/27/18 Analyzed: 06/28/18					
Mercury	11.1	1.9	mg/Kg wet	9.36		118	73.7-126.3			
LCS Dup (B206759-BSD1)					Prepared: 06/27/18 Analyzed: 06/28/18					
Mercury	10.5	1.9	mg/Kg wet	9.36		112	73.7-126.3	5.51	30	
Duplicate (B206759-DUP1)		Source: 18F1166-21			Prepared: 06/27/18 Analyzed: 06/28/18					
Mercury	0.112	0.026	mg/Kg dry		0.115			3.02	35	
Matrix Spike (B206759-MS1)		Source: 18F1166-21			Prepared: 06/27/18 Analyzed: 06/28/18					
Mercury	0.289	0.026	mg/Kg dry	0.174	0.115	99.7	75-125			



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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
Batch B206513 - % Solids										
Duplicate (B206513-DUP2)	Source: 18F1166-01		Prepared: 06/25/18 Analyzed: 06/26/18							
% Solids	95.8		% Wt		95.6			0.268	20	
Duplicate (B206513-DUP3)	Source: 18F1166-15		Prepared: 06/25/18 Analyzed: 06/26/18							
% Solids	92.3		% Wt		92.2			0.115	20	
Duplicate (B206513-DUP4)	Source: 18F1166-26		Prepared: 06/25/18 Analyzed: 06/26/18							
% Solids	94.7		% Wt		94.7			0.0130	20	



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

LCS

SW-846 8082A

Lab Sample ID: B206525-BS1 Date(s) Analyzed: 06/26/2018 06/26/2018

Instrument ID (1): ECD5 Instrument ID (2): ECD5

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	0.20	
	2	0.000	0.000	0.000	0.18	10.5
Aroclor-1260	1	0.000	0.000	0.000	0.19	
	2	0.000	0.000	0.000	0.18	5.4



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

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

LCS Dup

SW-846 8082A

Lab Sample ID: B206525-BSD1 Date(s) Analyzed: 06/26/2018 06/26/2018

Instrument ID (1): ECD5 Instrument ID (2): ECD5

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	0.19	
	2	0.000	0.000	0.000	0.18	5.4
Aroclor-1260	1	0.000	0.000	0.000	0.19	
	2	0.000	0.000	0.000	0.18	5.4



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

Matrix Spike

SW-846 8082A

Lab Sample ID: B206525-MS1 Date(s) Analyzed: 06/26/2018 06/26/2018

Instrument ID (1): ECD5 Instrument ID (2): ECD5

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	0.22	
	2	0.000	0.000	0.000	0.20	9.5
Aroclor-1260	1	0.000	0.000	0.000	0.22	
	2	0.000	0.000	0.000	0.20	9.5



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

Matrix Spike Dup

SW-846 8082A

Lab Sample ID: B206525-MSD1 Date(s) Analyzed: 06/26/2018 06/26/2018

Instrument ID (1): ECD5 Instrument ID (2): ECD5

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	0.22	
	2	0.000	0.000	0.000	0.20	9.5
Aroclor-1260	1	0.000	0.000	0.000	0.23	
	2	0.000	0.000	0.000	0.20	14.0



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

LCS

SW-846 8082A

Lab Sample ID: B206554-BS1 Date(s) Analyzed: 06/26/2018 06/26/2018

Instrument ID (1): ECD3 Instrument ID (2): ECD3

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	0.18	
	2	0.000	0.000	0.000	0.19	5.4
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**

LCS Dup

SW-846 8082A

Lab Sample ID: B206554-BSD1 Date(s) Analyzed: 06/26/2018 06/26/2018

Instrument ID (1): ECD3 Instrument ID (2): ECD3

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	0.19	
	2	0.000	0.000	0.000	0.20	5.1
Aroclor-1260	1	0.000	0.000	0.000	0.19	
	2	0.000	0.000	0.000	0.19	0.0



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

Matrix Spike

SW-846 8082A

Lab Sample ID: B206554-MS1 Date(s) Analyzed: 06/28/2018 06/28/2018

Instrument ID (1): ECD5 Instrument ID (2): ECD5

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	0.18	
	2	0.000	0.000	0.000	0.16	11.8
Aroclor-1260	1	0.000	0.000	0.000	0.19	
	2	0.000	0.000	0.000	0.15	23.5



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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

Matrix Spike Dup

SW-846 8082A

Lab Sample ID: B206554-MSD1 Date(s) Analyzed: 06/28/2018 06/28/2018

Instrument ID (1): ECD5 Instrument ID (2): ECD5

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	0.21	
	2	0.000	0.000	0.000	0.18	15.4
Aroclor-1260	1	0.000	0.000	0.000	0.22	
	2	0.000	0.000	0.000	0.18	20.0



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

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

LCS

SW-846 8082A

Lab Sample ID: B206587-BS1 Date(s) Analyzed: 06/27/2018 06/27/2018

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	0.19	
	2	0.000	0.000	0.000	0.21	10.0
Aroclor-1260	1	0.000	0.000	0.000	0.22	
	2	0.000	0.000	0.000	0.23	4.4



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

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

LCS Dup

SW-846 8082A

Lab Sample ID: B206587-BSD1 Date(s) Analyzed: 06/28/2018 06/28/2018

Instrument ID (1): ECD4 Instrument ID (2): ECD4

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	0.19	
	2	0.000	0.000	0.000	0.18	5.4
Aroclor-1260	1	0.000	0.000	0.000	0.19	
	2	0.000	0.000	0.000	0.18	5.4



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

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.
B	Analyte is found in the associated laboratory blank as well as in the sample.
MS-11	Matrix spike recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated.
O-32	A dilution was performed as part of the standard analytical procedure.
RL-06	Elevated reporting limit due to high concentration of non-target compounds. MA CAM reporting limit not met.
S-12	Surrogate recovery is outside of control limits on confirmatory column, but within control limits on primary column. Data validation is not affected.
S-17	Surrogate recovery is outside of control limits. Data validation is not affected since all associated results are less than the reporting limit and bias is on the high side.



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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
MADEP-EPH-04-1.1 in Soil	
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
MADEP-EPH-04-1.1 in Water	
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
SW-846 6010C-D in Soil	
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC



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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 6010C-D in Soil	
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8082A in Water	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA



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

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Public Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2018
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

39 Spruce Street
East Longmeadow, MA 01028

MEK
18F1166
Phone: 413-525-2332
Fax: 413-525-6405



Email: info@contestlabs.com

Company Name: TRC ENV
Address: 670 North Commerce St, Manchester, NH
Phone: 603 325 5480
Project Name: Proposed Lawrence Rail Trail
Project Location: Lawrence MA
Project Number: 2469494000000
Project Manager: Jamie Stapleton
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: Greg Reasall

Requested Turnaround Time: 7-Day 10-Day
Due Date: 5 Oct
Rush Approval Required:
1-Day 3-Day
2-Day 4-Day
Data Delivery: EXCEL
Format: PDF
Other:
CLP Like Data Pkg Required:
Email To:
Fax To #:

Con-Test Work Order #	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composites	Grab	Matrix Code	Conc Code
01	RBS-1 (0-1')	6/24/18	0911	X		5	U
02	RBS-2 (0-1')		0947	X		5	U
03	RBS-3 (0-1')		1057	X		5	U
04	RBS-2 (0-1')		1119	X		3	U
05	RBS-3 (0-1')		1153	X		3	U
06	RBS-4 (0-1')		1330	X		5	U
07	PSI (0-1')		1010	X		5	U
08	PSI (1-3')		1010	X		5	U
09	PSI0 (0-1')		1410	X		6	U
10	PSB (0-1')		1430	X		5	U

Comments: Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature) [Signature]
Date/Time: 6/22/18 3:00
Received by: (signature) [Signature]
Date/Time: 6/22/18 1:00
Relinquished by: (signature) [Signature]
Date/Time: 6/22/18 1:30
Received by: (signature) [Signature]
Date/Time: 6/22/18 1:30
Relinquished by: (signature) [Signature]
Date/Time: 6/22/18 1:30

Detection Limit Requirements	Special Requirements
MA	MA MCP Required <input type="checkbox"/>
	MCP Certification Form Required <input type="checkbox"/>
CT	CT RCP Required <input type="checkbox"/>
	RCP Certification Form Required <input type="checkbox"/>
Other	MA State DMI Required <input type="checkbox"/>
	PWSID #

Project Entity: Government Municipality MWRA WRTA Other Chromatogram AIHA-LAP, LLC
 Federal 21 J School
 City Brownfield MBTA

1 Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

2 Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

3 Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

PCB ONLY
 Soxhlet
 Non Soxhlet

www.contestlabs.com



Company Name: TRC F

Address:

Phone:

Project Name: 2 of 3

Project Location:

Project Number:

Project Manager:

Con-Test Quote Name/Number:

Invoice Recipient:

Sampled By:

Con-Test Work Order #	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code
SE622181	RB 9 (0-1)	6/22/18		*			
12	RB 10 (0-1)		0954				
13	PS 18 (0-1)		0956				
14	PS 1.1 (1-3)		1028				
15	PS 2 (0-1)		1028				
16	PS 2 (1-3)		1106				
17	PS 3 (0-1)		1106				
18	PS 3 (1-3)		1106				

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time:
<i>[Signature]</i>	6/22/18 3:00
<i>[Signature]</i>	6/22/18 19:00
<i>[Signature]</i>	6/22/18 18:30
<i>[Signature]</i>	6/22/18 18:30
<i>[Signature]</i>	6/22/18 18:30
<i>[Signature]</i>	6/22/18 18:30
<i>[Signature]</i>	6/22/18 18:30
<i>[Signature]</i>	6/22/18 18:30
<i>[Signature]</i>	6/22/18 18:30

Requested Turnaround Time
 7-Day 10-Day
 Due Date: _____

Rush Approval Required
 1-Day 3-Day
 2-Day 4-Day

Data Delivery
 Format: PDF EXCEL
 Other: _____

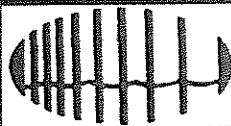
CLP Like Data Pkg Required:
 Email To: _____
 Fax To #: _____

Special Requirements
 MA MCP Required
 MCP Certification Form Required
 CT RCP Required
 RCP Certification Form Required
 MA State DW Required
 PWSID #: _____

Project Entity
 Government Municipality MWRA WRTA
 Federal 21 J School MBTA
 City Brownfield Other Chromatogram AIHA-LAP, LLC

PCB ONLY
 Soxhlet
 Non Soxhlet





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 TRC
 Received By SE Date 6/22/18 Time 1830
 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 # 8 Actual Temp - 2.2
 By Blank # _____ Actual Temp - _____
 Was Custody Seal Intact? N/A Were Samples Tampered with? N/A
 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? _____
 Is there enough Volume? T
 Is there Headspace where applicable? N/A MS/MSD? F
 Proper Media/Containers Used? T Is splitting samples required? F
 Were trip blanks received? F On COC? N/A
 Do all samples have the proper pH? N/A 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-		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	

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:

Industrial Hygiene Laboratory
 21 Griffin Road North
 Windsor, CT 06095
 (860) 298-6308



BULK ASBESTOS ANALYSIS REPORT

CLIENT: Massachusetts Dept. of Environmental Protection

Lab Log #: 0052515
 Project #: 246949.40004.0000
 Date Received: 07/12/2018
 Date Analyzed: 07/16/2018

Site: Lawrence Rail Trail, Lawrence, MA

POLARIZED LIGHT MICROSCOPY by EPA 600/R-93/116

Sample No.	Color	Homogenous	Multi-Layered	Layer No.	Other Matrix Materials	Asbestos %	Asbestos Type
PSS-1A	Dark Brown (soil)	Yes	No	--	20% cellulose	ND	None
PSS-1B	Dark Brown (soil)	Yes	No	--	20% cellulose	ND	None

Reporting limit- asbestos present at 1%
 ND - asbestos was not detected
 Trace - asbestos was observed at level of less than 1%
 NA/PS - Not Analyzed / Positive Stop
 SNA- Sample Not Analyzed- See Chain of Custody for details

Note: Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. In those cases, EPA recommends, and certain states (e.g. NY) require, that negative results be confirmed by quantitative transmission electron microscopy.

The Laboratory at TRC follows the EPA's Interim Method for the Determination of Asbestos in Bulk Insulation 1982 (EPA 600/M4-82-020) Bulk Analysis Code 18/A01 and the EPA recommended Method for the Determination of Asbestos in Bulk Building Materials July 1993, R.L. Perkins and B.W. Harvey, (EPA/600/R-93/116) Bulk Analysis Code 18/A03, which utilize polarized light microscopy (PLM). Our analysts have completed an accredited course in asbestos identification. TRC's Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), for Bulk Asbestos Fiber Analysis, NVLAP Code 18/A01, effective through June 30, 2018. TRC is accredited by the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC in the Industrial Hygiene Program (IHLAP) for PLM effective through October 1, 2018. Asbestos content is determined by visual estimate unless otherwise indicated. Quality Control is performed in-house on at least 10% of samples and QC data related to the samples is available upon written request from client.

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Analyzed by: K. Williamson Reviewed by: Cathryn Lemire Date Issued: 07/16/2018
 Kathleen Williamson, Laboratory Manager Cathryn Lemire, Approved Signatory

TRC LABORATORY ASBESTOS ANALYTICAL ACCREDITATIONS

NVLAP Lab Code 101424-0 AIHA-LAP,LLC #100122 CT #PH-0426 ME LA-0075, LB-0071 MA #AA000052 NY #10980 WV#LT000411
 RI #AAL-007 TX #300354 VT #AL014538 LA#05011 VA #3333 000283 AZ #A20944 HI #L-09-004 NJ #CT004 CA #2907
 CO# AL-15020 PHIL# 461 PA#68-03387



21 GRIFFIN ROAD NORTH
 WINDSOR, CONNECTICUT 06095
 TELEPHONE (860) 298-9692
 FAX (860) 298-6380

Edition: October 2009
 Supersede Previous Edition

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

LAB ID #. **52515**

PROJECT NAME
 Lawrence Rail Trail
 Lawrence, MA

PROJECT NUMBER
 246949.40000 Phase 4

INSPECTOR
 Michael McCarter

PARAMETERS

PLM: 8hr 24hr 48hr
 TEM: 24hr 48hr 3day 5day

TURNAROUND TIME

3day
 5day

FIELD SAMPLE NUMBER	DATE	TIME	TYPE		SAMPLE LOCATION	PLM EPA 600/R93/116(D)	PARAMETERS				MATERIAL	
			COMP	GRAB			8hr	24hr	48hr	3day		48hr
PSS-1A	7/11/18	936	X		PSS-1: 0'-1' Depth	X						Soil -
PSS-1B	7/11/18	930	X		PSS-1: 1'-3' Depth	X						

Relinquished by: (Signature) <i>[Signature]</i> (Printed)	Date: 7/11/18	Received by: (Signature) <i>[Signature]</i> (Printed)	Date: 7/12/18	Relinquished by: (Signature)	Date:	Received by: (Signature)
	Time: 1430			(Printed)	Time:	(Printed)
Remarks:				Condition of Samples: Acceptable: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Page 1 of



Pace Analytical Services, Inc.

1700 Elm Street
 Minneapolis, MN 55414
 Phone: 612.607.1700
 Fax: 612.607.6444

Report Prepared for:

Jamie Stapleton
 TRC Solutions
 670 N. Commercial St.
 Suite 203
 Manchester NH 03101

**REPORT OF
 LABORATORY
 ANALYSIS FOR
 PCDD/PCDF**

Report Prepared Date:

July 20, 2018

Report Information:

Pace Project #: 10436963

Sample Receipt Date: 06/22/2018

Client Project #: Proposed Lawrence Rail Trail

Client Sub PO #: 123265

State Cert #: N/A

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Nathan Boberg, your Pace Project Manager.

This report has been reviewed by:

July 20, 2018

Nathan Boberg, Project Manager

(612) 607-6444 (fax)

nathan.boberg@pacelabs.com



Report of Laboratory Analysis

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The results relate only to the samples included in this report.

**Pace Analytical Services, Inc.**

1700 Elm Street

Minneapolis, MN 55414

Phone: 612.607.1700

Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on eight samples submitted by a representative of TRC. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using a modified version of USEPA Method 8290. The reporting limits were based on signal-to-noise measurements. Estimated Maximum Possible Concentration (EMPC) values were treated as positives in the toxic equivalence calculations. Per request, this report was revised to provide changes to two sample identifications.

Second column confirmation analyses of 2,3,7,8-TCDF values obtained from the primary (DB5-MS) column are performed only when specifically requested for a project and only when the values are above the concentration of the lowest calibration standard. Typical resolution for this isomer using the DB5-MS column ranges from 25-30%.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 28-134%. Except for eight low values, which were flagged "R" on the results tables, the labeled internal standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

Values were flagged "I" where incorrect isotope ratios were obtained or "P" where polychlorinated diphenyl ethers were present. Concentrations below the calibration range were flagged "J" and should be regarded as estimates. Results obtained from the analyses of diluted sample extracts were flagged "D".

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to contain a trace level of Total TCDF. This level was below the calibration range of the method. The Total TCDF concentrations reported for the field samples were higher than the corresponding blank level by one or more orders of magnitude. These results indicate that the sample processing steps did not contribute significantly to the levels reported for the field samples.

A laboratory spike sample was also prepared with the sample batch using reference matrix that had been fortified with native standard materials. The results show that the spiked native compounds were recovered at 81-100%. These results were within the target range for the method. Matrix spikes were prepared with the sample batch using sample material from a separate project; results from these analyses will be provided upon request.

The responses obtained for selected labeled congeners in calibration standard analysis U180711B_17 were outside the target range. As specified in our procedures for this method, the averages of the daily response factors for these compounds were used in the calculations for the samples from this runshift. The affected values were flagged "Y" on the results tables. It should be noted that the accuracy of the native congener determinations was not impacted by these deviations.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
A2LA	2926.01	Mississippi	MN00064
Alabama	40770	Montana	CERT0092
Alaska	MN00064	Nebraska	NE-OS-18-06
Alaska	UST-078	Nevada	MN00064
Arizona	AZ0014	New Jersey (NE)	MN002
Arkansas	88-0680	New York (NEL)	11647
CNMI Saipan	MP0003	New Hampshire	2081
California	MN00064	North Carolina	27700
Colorado	MN00064	North Carolina	530
Connecticut	PH-0256	North Dakota	R-036
EPA Region 8	8TMS-L	Ohio	41244
Florida (NELAP)	E87605	Ohio VAP	CL101
Georgia (EDP)	959	Oklahoma	9507
Guam EPA	959	Oregon (ELAP)	MN200001
Hawaii	MN00064	Oregon (OREL)	MN300001
Idaho	MN00064	Pennsylvania	68-00563
Illinois	200011	Puerto Rico	MN00064
Indiana	C-MN-01	South Carolina	74003001
Iowa	368	Tennessee	TN02818
Kansas	E-10167	Texas	T104704192
Kentucky	90062	Utah (NELAP)	MN00064
Louisiana	03086	Virginia	460163
Louisiana	MN00064	Washington	C486
Maine	MN00064	West Virginia #	9952C
Maryland	322	West Virginia D	382
Michigan	9909	Wisconsin	999407970
Minnesota	027-053-137	Wyoming	8TMS-L

REPORT OF LABORATORY ANALYSIS

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Appendix A

Sample Management

WO#: 10436963



CHAIN-OF-CUSTODY / Analytical Request Doc

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed



Section A
Required Client Information:
Company: TRC ENV
Address: 670 N. Commercial St
Manchester, NH 03102
Email: jstapleton@trcsolutions.com
Phone: 603-328-5480
Requested Due Date/TAT: 15 days TAT

Section B
Required Project Information:
Report To: Jamie Stapleton
Copy To:
Purchase Order No.: 123265
Project Name: Proposed Lawrence Rail Trail
Project Number: TRD

Section C
Invoice Information:
Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: Matthew Babers
Pace Profile #:
Regulatory Agency: MA
Site Location: MA
State: MA

Section D
Requested Analysis Filtered (Y/N)

ITEM #	Matrix Codes MATRIX / CODE	Matrix Codes Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Tissue Other	SAMPLE ID (A-Z, 0-9 / -)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ S ₂ O ₃ Methanol Other	Y/N	Analysis Test ↑	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB							
1			RBS-1 (0-1)	SLC GRAB	0911			1					001
2			RBS-2 (0-1)		0947			1					002
3			RBS-1 (0-1)		1057			1					003
4			RBS-2 (0-1)		1119			1					004
5			RBS-3 (0-1)		1153			1					005
6			RBS-4 (0-1)		1530			1					006
7			PS-1 (0-1)		1616			1					007
8			PS-1 (1-3)		1610			1					008

ADDITIONAL COMMENTS

RELINQUISHED BY / AFFILIATION: [Signature] DATE: 6/20/18 TIME: 1741

ACCEPTED BY / AFFILIATION: FedEx DATE: 6/20/18 TIME: 5741

RECEIVED ON: 6/22/18

SEALING CONDITIONS: Y

COOLING CONDITIONS: Y

INTACT CONDITIONS: Y

TEMP IN °C: 19

SAMPLER NAME AND SIGNATURE: [Signature]

PRINT Name of SAMPLER: [Signature]

SIGNATURE of SAMPLER: [Signature]

DATE Signed (MM/DD/YYYY):

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

	Document Name: Sample Condition Upon Receipt Form	Document Revised: 02May2018 Page 1 of 2
	Document No.: F-MN-L-213-rev.23	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: TRC Env

Project #: **WO#: 10436963**

Courier: Fed Ex UPS USPS Client
 Commercial Pace SpeeDee Other: _____
 Tracking Number: 7815 3250 6060

PM: NB3 Due Date: 07/16/18
 CLIENT: TRC Solution

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No
 Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No
 Thermometer G87A9170600254 G87A9155100842
 Used: _____ Type of Ice: Wet Blue None Dry Melted
 Cooler Temp Read (°C): 1.8 Cooler Temp Corrected (°C): 1.9 Biological Tissue Frozen? Yes No N/A
 Temp should be above freezing to 6°C Correction Factor: +0.1 Date and Initials of Person Examining Contents: 6/22/18 J

USDA Regulated Soil (N/A, water sample)
 Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No
 Did samples originate from a foreign source (internationally including Hawaii and Puerto Rico)? Yes No
If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name and/or Signature on COC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved container
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Matrix: <u>SL</u>	12.
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH Positive for Res. Chlorine? Y N
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Sample #
Headspace in VOA Vials (>6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Initial when completed: _____ Lot # of added preservative: _____
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Pace Trip Blank Lot # (if purchased): _____	

CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No
 Person Contacted: J. Stapleton Date/Time: 7/18/18 13:05
 Comments/Resolution: Contacted lab for sample ID correction:
Sample PS-1(0-1') and PS-1(1'-3') is actually PSS-1(0-1') and PSS-1(1'-3') – the field sampler left off an 'S' in the sample ID

Project Manager Review: [Signature] Date: 6/25/18
 Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).



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Reporting Flags

- A = Reporting Limit based on signal to noise
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interference present
- J = Estimated value
- L = Suppressive interference, analyte may be biased low
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- * = See Discussion

REPORT OF LABORATORY ANALYSIS

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Appendix B

Sample Analysis Summary



Pace Analytical Services, LLC
 1700 Elm Street - Suite 200
 Minneapolis, MN 55414

Tel: 612-607-1700
 Fax: 612-607-6444

Method 8290 Sample Analysis Results

Client - TRC Solutions

Client's Sample ID	RBS-1 (0-1')		
Lab Sample ID	10436963001-R		
Filename	U180711B_08		
Injected By	SMT		
Total Amount Extracted	10.5 g	Matrix	Solid
% Moisture	4.7	Dilution	NA
Dry Weight Extracted	10.0 g	Collected	06/21/2018 09:11
ICAL ID	U180405	Received	06/22/2018 09:46
CCal Filename(s)	U180711B_02 & U180711B_17	Extracted	07/03/2018 17:15
Method Blank ID	BLANK-63270	Analyzed	07/11/2018 16:42

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	3.8	----	0.77	2,3,7,8-TCDF-13C	2.00	55
Total TCDF	100	----	0.77	2,3,7,8-TCDD-13C	2.00	51
				1,2,3,7,8-PeCDF-13C	2.00	51
2,3,7,8-TCDD	2.7	----	0.50	2,3,4,7,8-PeCDF-13C	2.00	46
Total TCDD	41	----	0.50	1,2,3,7,8-PeCDD-13C	2.00	53
				1,2,3,4,7,8-HxCDF-13C	2.00	66
1,2,3,7,8-PeCDF	9.2	----	0.28	1,2,3,6,7,8-HxCDF-13C	2.00	62
2,3,4,7,8-PeCDF	11	----	0.43	2,3,4,6,7,8-HxCDF-13C	2.00	57
Total PeCDF	120	----	0.36	1,2,3,7,8,9-HxCDF-13C	2.00	67
				1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	15	----	0.22	1,2,3,6,7,8-HxCDD-13C	2.00	57
Total PeCDD	83	----	0.22	1,2,3,4,6,7,8-HpCDF-13C	2.00	64 Y
				1,2,3,4,7,8,9-HpCDF-13C	2.00	74 Y
1,2,3,4,7,8-HxCDF	16	----	0.20	1,2,3,4,6,7,8-HpCDD-13C	2.00	81 Y
1,2,3,6,7,8-HxCDF	19	----	0.17	OCDD-13C	4.00	65 Y
2,3,4,6,7,8-HxCDF	9.5	----	0.22			
1,2,3,7,8,9-HxCDF	3.1	----	0.14 J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	160	----	0.18	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	9.4	----	0.25	2,3,7,8-TCDD-37Cl4	0.20	51
1,2,3,6,7,8-HxCDD	12	----	0.32			
1,2,3,7,8,9-HxCDD	11	----	0.32			
Total HxCDD	150	----	0.29			
1,2,3,4,6,7,8-HpCDF	81	----	0.15	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	4.1	----	0.17 J	Equivalence: 61 ng/Kg		
Total HpCDF	99	----	0.16	(Mid-bound - Using MADEP Factors)		
1,2,3,4,6,7,8-HpCDD	95	----	0.17			
Total HpCDD	230	----	0.17			
OCDF	26	----	0.40			
OCDD	420	----	0.33			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
 EMPC = Estimated Maximum Possible Concentration
 EDL = Estimated Detection Limit

ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.

J = Estimated value

Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

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 1700 Elm Street - Suite 200
 Minneapolis, MN 55414

Tel: 612-607-1700
 Fax: 612-607-6444

Method 8290 Sample Analysis Results

Client - TRC Solutions

Client's Sample ID	RBS-2 (0-1')				
Lab Sample ID	10436963002-R				
Filename	Y180712B_07				
Injected By	SMT				
Total Amount Extracted	10.6 g	Matrix	Solid		
% Moisture	5.3	Dilution	5		
Dry Weight Extracted	10.0 g	Collected	06/21/2018 09:47		
ICAL ID	Y180204	Received	06/22/2018 09:46		
CCal Filename(s)	Y180712B_03 & Y180712B_19	Extracted	07/03/2018 17:15		
Method Blank ID	BLANK-63270	Analyzed	07/12/2018 13:22		

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	9.3	----	1.3 D	2,3,7,8-TCDF-13C	2.00	64 D
Total TCDF	220	----	1.3 D	2,3,7,8-TCDD-13C	2.00	64 D
				1,2,3,7,8-PeCDF-13C	2.00	68 D
2,3,7,8-TCDD	5.3	----	1.2 D	2,3,4,7,8-PeCDF-13C	2.00	63 D
Total TCDD	110	----	1.2 D	1,2,3,7,8-PeCDD-13C	2.00	75 D
				1,2,3,4,7,8-HxCDF-13C	2.00	67 D
1,2,3,7,8-PeCDF	----	26	2.5 PD	1,2,3,6,7,8-HxCDF-13C	2.00	61 D
2,3,4,7,8-PeCDF	26	----	3.1 D	2,3,4,6,7,8-HxCDF-13C	2.00	58 D
Total PeCDF	240	----	2.8 D	1,2,3,7,8,9-HxCDF-13C	2.00	57 D
				1,2,3,4,7,8-HxCDD-13C	2.00	70 D
1,2,3,7,8-PeCDD	46	----	3.3 D	1,2,3,6,7,8-HxCDD-13C	2.00	54 D
Total PeCDD	290	----	3.3 D	1,2,3,4,6,7,8-HpCDF-13C	2.00	50 D
				1,2,3,4,7,8,9-HpCDF-13C	2.00	48 D
1,2,3,4,7,8-HxCDF	51	----	5.6 D	1,2,3,4,6,7,8-HpCDD-13C	2.00	50 D
1,2,3,6,7,8-HxCDF	52	----	2.9 D	OCDD-13C	4.00	35 RD
2,3,4,6,7,8-HxCDF	33	----	2.8 D			
1,2,3,7,8,9-HxCDF	----	6.6	1.8 IJD	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	450	----	3.3 D	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	32	----	3.3 D	2,3,7,8-TCDD-37Cl4	0.20	65 D
1,2,3,6,7,8-HxCDD	46	----	2.1 D			
1,2,3,7,8,9-HxCDD	45	----	2.9 D			
Total HxCDD	540	----	2.8 D			
1,2,3,4,6,7,8-HpCDF	220	----	1.1 D	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	11	----	1.6 JD	Equivalence: 170 ng/Kg		
Total HpCDF	300	----	1.4 D	(Mid-bound - Using MADEP Factors)		
1,2,3,4,6,7,8-HpCDD	290	----	2.2 D			
Total HpCDD	580	----	2.2 D			
OCDF	68	----	1.1 D			
OCDD	900	----	1.3 D			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
 EMPC = Estimated Maximum Possible Concentration
 EDL = Estimated Detection Limit

ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.

- J = Estimated value
- R = Recovery outside target range
- P = PCDE Interference
- I = Interference present
- D = Result obtained from analysis of diluted sample

REPORT OF LABORATORY ANALYSIS

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 1700 Elm Street - Suite 200
 Minneapolis, MN 55414

Tel: 612-607-1700
 Fax: 612-607-6444

Method 8290 Sample Analysis Results

Client - TRC Solutions

Client's Sample ID	RB-1 (0-1')		
Lab Sample ID	10436963003-R		
Filename	U180711B_10		
Injected By	SMT		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	3.7	Dilution	NA
Dry Weight Extracted	10.0 g	Collected	06/21/2018 10:57
ICAL ID	U180405	Received	06/22/2018 09:46
CCal Filename(s)	U180711B_02 & U180711B_17	Extracted	07/03/2018 17:15
Method Blank ID	BLANK-63270	Analyzed	07/11/2018 18:13

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.6	2,3,7,8-TCDF-13C	2.00	65
Total TCDF	3.9	----	1.6	2,3,7,8-TCDD-13C	2.00	57
				1,2,3,7,8-PeCDF-13C	2.00	66
2,3,7,8-TCDD	ND	----	1.6	2,3,4,7,8-PeCDF-13C	2.00	59
Total TCDD	1.6	----	1.6	1,2,3,7,8-PeCDD-13C	2.00	66
				1,2,3,4,7,8-HxCDF-13C	2.00	113
1,2,3,7,8-PeCDF	0.86	----	0.54 J	1,2,3,6,7,8-HxCDF-13C	2.00	114
2,3,4,7,8-PeCDF	1.9	----	0.68 J	2,3,4,6,7,8-HxCDF-13C	2.00	109
Total PeCDF	19	----	0.61	1,2,3,7,8,9-HxCDF-13C	2.00	106
				1,2,3,4,7,8-HxCDD-13C	2.00	120
1,2,3,7,8-PeCDD	1.7	----	0.64 J	1,2,3,6,7,8-HxCDD-13C	2.00	95
Total PeCDD	5.8	----	0.64	1,2,3,4,6,7,8-HpCDF-13C	2.00	91 Y
				1,2,3,4,7,8,9-HpCDF-13C	2.00	102 Y
1,2,3,4,7,8-HxCDF	2.4	----	0.58 J	1,2,3,4,6,7,8-HpCDD-13C	2.00	105 Y
1,2,3,6,7,8-HxCDF	----	2.6	0.74 PJ	OCDD-13C	4.00	76 Y
2,3,4,6,7,8-HxCDF	1.9	----	0.20 J			
1,2,3,7,8,9-HxCDF	----	0.95	0.34 IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	25	----	0.46	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.3	----	0.42 J	2,3,7,8-TCDD-37Cl4	0.20	64
1,2,3,6,7,8-HxCDD	2.3	----	0.38 J			
1,2,3,7,8,9-HxCDD	0.97	----	0.47 J			
Total HxCDD	21	----	0.42			
1,2,3,4,6,7,8-HpCDF	14	----	0.88	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	1.4	----	0.61 J	Equivalence: 11 ng/Kg		
Total HpCDF	24	----	0.75	(Mid-bound - Using MADEP Factors)		
1,2,3,4,6,7,8-HpCDD	31	----	0.48			
Total HpCDD	54	----	0.48			
OCDF	15	----	1.5			
OCDD	260	----	1.0			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
 EMPC = Estimated Maximum Possible Concentration
 EDL = Estimated Detection Limit

ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.

J = Estimated value
 P = PCDE Interference
 I = Interference present
 Y = Calculated using average of daily RFs

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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 8290 Sample Analysis Results

Client - TRC Solutions

Client's Sample ID	RB-2 (0-1')		
Lab Sample ID	10436963004-R		
Filename	U180711B_11		
Injected By	SMT		
Total Amount Extracted	10.6 g	Matrix	Solid
% Moisture	4.7	Dilution	NA
Dry Weight Extracted	10.1 g	Collected	06/21/2018 11:19
ICAL ID	U180405	Received	06/22/2018 09:46
CCal Filename(s)	U180711B_02 & U180711B_17	Extracted	07/03/2018 17:15
Method Blank ID	BLANK-63270	Analyzed	07/11/2018 18:59

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	2.1	2,3,7,8-TCDF-13C	2.00	63
Total TCDF	8.2	----	2.1	2,3,7,8-TCDD-13C	2.00	53
				1,2,3,7,8-PeCDF-13C	2.00	62
2,3,7,8-TCDD	ND	----	2.4	2,3,4,7,8-PeCDF-13C	2.00	60
Total TCDD	ND	----	2.4	1,2,3,7,8-PeCDD-13C	2.00	65
				1,2,3,4,7,8-HxCDF-13C	2.00	131
1,2,3,7,8-PeCDF	0.92	----	0.68 J	1,2,3,6,7,8-HxCDF-13C	2.00	128
2,3,4,7,8-PeCDF	----	1.4	1.1 I	2,3,4,6,7,8-HxCDF-13C	2.00	127
Total PeCDF	32	----	0.90	1,2,3,7,8,9-HxCDF-13C	2.00	126
				1,2,3,4,7,8-HxCDD-13C	2.00	134
1,2,3,7,8-PeCDD	2.1	----	0.67 J	1,2,3,6,7,8-HxCDD-13C	2.00	106
Total PeCDD	8.3	----	0.67	1,2,3,4,6,7,8-HpCDF-13C	2.00	92 Y
				1,2,3,4,7,8,9-HpCDF-13C	2.00	83 Y
1,2,3,4,7,8-HxCDF	2.3	----	1.00 J	1,2,3,4,6,7,8-HpCDD-13C	2.00	104 Y
1,2,3,6,7,8-HxCDF	3.0	----	0.40 J	OCDD-13C	4.00	67 Y
2,3,4,6,7,8-HxCDF	1.9	----	0.19 J			
1,2,3,7,8,9-HxCDF	1.3	----	0.26 J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	38	----	0.46	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.3	----	0.15 J	2,3,7,8-TCDD-37Cl4	0.20	59
1,2,3,6,7,8-HxCDD	2.3	----	0.41 J			
1,2,3,7,8,9-HxCDD	0.94	----	0.18 J			
Total HxCDD	25	----	0.25			
1,2,3,4,6,7,8-HpCDF	18	----	0.78	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	2.1	----	0.61 J	Equivalence: 13 ng/Kg		
Total HpCDF	36	----	0.70	(Mid-bound - Using MADEP Factors)		
1,2,3,4,6,7,8-HpCDD	28	----	0.58			
Total HpCDD	51	----	0.58			
OCDF	22	----	1.7			
OCDD	280	----	1.6			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

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J = Estimated value
I = Interference present
Y = Calculated using average of daily RFs

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Tel: 612-607-1700
Fax: 612-607-6444

Method 8290 Sample Analysis Results

Client - TRC Solutions

Client's Sample ID	RB-3 (0-1')		
Lab Sample ID	10436963005-R		
Filename	Y180712B_08		
Injected By	SMT		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	3.1	Dilution	5
Dry Weight Extracted	10.1 g	Collected	06/21/2018 11:53
ICAL ID	Y180204	Received	06/22/2018 09:46
CCal Filename(s)	Y180712B_03 & Y180712B_19	Extracted	07/03/2018 17:15
Method Blank ID	BLANK-63270	Analyzed	07/12/2018 14:05

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	3.0 D		2,3,7,8-TCDF-13C	2.00	59 D
Total TCDF	22	----	3.0 D		2,3,7,8-TCDD-13C	2.00	61 D
					1,2,3,7,8-PeCDF-13C	2.00	60 D
2,3,7,8-TCDD	ND	----	1.8 D		2,3,4,7,8-PeCDF-13C	2.00	58 D
Total TCDD	6.6	----	1.8 D		1,2,3,7,8-PeCDD-13C	2.00	67 D
					1,2,3,4,7,8-HxCDF-13C	2.00	76 D
1,2,3,7,8-PeCDF	----	7.3	2.0 PJD		1,2,3,6,7,8-HxCDF-13C	2.00	64 D
2,3,4,7,8-PeCDF	4.6	----	2.7 JD		2,3,4,6,7,8-HxCDF-13C	2.00	65 D
Total PeCDF	69	----	2.4 D		1,2,3,7,8,9-HxCDF-13C	2.00	61 D
					1,2,3,4,7,8-HxCDD-13C	2.00	75 D
1,2,3,7,8-PeCDD	6.4	----	4.0 JD		1,2,3,6,7,8-HxCDD-13C	2.00	53 D
Total PeCDD	29	----	4.0 D		1,2,3,4,6,7,8-HpCDF-13C	2.00	50 D
					1,2,3,4,7,8,9-HpCDF-13C	2.00	47 D
1,2,3,4,7,8-HxCDF	9.4	----	3.6 JD		1,2,3,4,6,7,8-HpCDD-13C	2.00	51 D
1,2,3,6,7,8-HxCDF	10	----	6.5 JD		OCDD-13C	4.00	29 RD
2,3,4,6,7,8-HxCDF	6.9	----	5.1 JD				
1,2,3,7,8,9-HxCDF	ND	----	3.1 D		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	100	----	4.6 D		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	4.8	3.2 IJD		2,3,7,8-TCDD-37Cl4	0.20	62 D
1,2,3,6,7,8-HxCDD	----	6.8	2.6 IJD				
1,2,3,7,8,9-HxCDD	11	----	3.0 JD				
Total HxCDD	61	----	2.9 D				
1,2,3,4,6,7,8-HpCDF	93	----	2.0 D		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	1.9 D		Equivalence: 39 ng/Kg		
Total HpCDF	140	----	1.9 D		(Mid-bound - Using MADEP Factors)		
1,2,3,4,6,7,8-HpCDD	67	----	3.2 D				
Total HpCDD	150	----	3.2 D				
OCDF	51	----	4.1 D				
OCDD	420	----	2.2 D				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.

J = Estimated value
R = Recovery outside target range
P = PCDE Interference
I = Interference present
D = Result obtained from analysis of diluted sample

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 Minneapolis, MN 55414

Tel: 612-607-1700
 Fax: 612-607-6444

Method 8290 Sample Analysis Results

Client - TRC Solutions

Client's Sample ID	RB-4 (0-1')		
Lab Sample ID	10436963006-R		
Filename	U180711B_13		
Injected By	SMT		
Total Amount Extracted	10.5 g	Matrix	Solid
% Moisture	3.8	Dilution	NA
Dry Weight Extracted	10.1 g	Collected	06/21/2018 13:30
ICAL ID	U180405	Received	06/22/2018 09:46
CCal Filename(s)	U180711B_02 & U180711B_17	Extracted	07/03/2018 17:15
Method Blank ID	BLANK-63270	Analyzed	07/11/2018 20:30

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.4	2,3,7,8-TCDF-13C	2.00	54
Total TCDF	35	----	1.4	2,3,7,8-TCDD-13C	2.00	46
				1,2,3,7,8-PeCDF-13C	2.00	51
2,3,7,8-TCDD	ND	----	1.5	2,3,4,7,8-PeCDF-13C	2.00	47
Total TCDD	14	----	1.5	1,2,3,7,8-PeCDD-13C	2.00	53
				1,2,3,4,7,8-HxCDF-13C	2.00	119
1,2,3,7,8-PeCDF	3.8	----	0.94 J	1,2,3,6,7,8-HxCDF-13C	2.00	115
2,3,4,7,8-PeCDF	5.7	----	0.78	2,3,4,6,7,8-HxCDF-13C	2.00	117
Total PeCDF	72	----	0.86	1,2,3,7,8,9-HxCDF-13C	2.00	115
				1,2,3,4,7,8-HxCDD-13C	2.00	116
1,2,3,7,8-PeCDD	6.9	----	1.2	1,2,3,6,7,8-HxCDD-13C	2.00	89
Total PeCDD	41	----	1.2	1,2,3,4,6,7,8-HpCDF-13C	2.00	93 Y
				1,2,3,4,7,8,9-HpCDF-13C	2.00	88 Y
1,2,3,4,7,8-HxCDF	9.3	----	0.32	1,2,3,4,6,7,8-HpCDD-13C	2.00	99 Y
1,2,3,6,7,8-HxCDF	10	----	0.29	OCDD-13C	4.00	76 Y
2,3,4,6,7,8-HxCDF	5.7	----	0.32			
1,2,3,7,8,9-HxCDF	1.9	----	0.20 J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	99	----	0.28	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	5.4	----	0.21	2,3,7,8-TCDD-37Cl4	0.20	51
1,2,3,6,7,8-HxCDD	6.3	----	0.27			
1,2,3,7,8,9-HxCDD	2.9	----	0.16 J			
Total HxCDD	85	----	0.21			
1,2,3,4,6,7,8-HpCDF	48	----	0.36	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	3.5	----	0.71 J	Equivalence: 32 ng/Kg		
Total HpCDF	70	----	0.54	(Mid-bound - Using MADEP Factors)		
1,2,3,4,6,7,8-HpCDD	60	----	0.32			
Total HpCDD	130	----	0.32			
OCDF	22	----	1.6			
OCDD	270	----	1.2			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
 EMPC = Estimated Maximum Possible Concentration
 EDL = Estimated Detection Limit

ND = Not Detected
 NA = Not Applicable
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 Y = Calculated using average of daily RFs

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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 8290 Sample Analysis Results

Client - TRC Solutions

Client's Sample ID	PSS-1 (0-1')		
Lab Sample ID	10436963007-R		
Filename	U180711B_14		
Injected By	SMT		
Total Amount Extracted	10.6 g	Matrix	Solid
% Moisture	5.4	Dilution	NA
Dry Weight Extracted	10.0 g	Collected	06/21/2018 10:10
ICAL ID	U180405	Received	06/22/2018 09:46
CCal Filename(s)	U180711B_02 & U180711B_17	Extracted	07/03/2018 17:15
Method Blank ID	BLANK-63270	Analyzed	07/11/2018 21:15

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	38	----	2.7	2,3,7,8-TCDF-13C	2.00	57
Total TCDF	350	----	2.7	2,3,7,8-TCDD-13C	2.00	50
				1,2,3,7,8-PeCDF-13C	2.00	40
2,3,7,8-TCDD	12	----	3.5	2,3,4,7,8-PeCDF-13C	2.00	35 R
Total TCDD	210	----	3.5	1,2,3,7,8-PeCDD-13C	2.00	39 R
				1,2,3,4,7,8-HxCDF-13C	2.00	74
1,2,3,7,8-PeCDF	----	52	2.9 P	1,2,3,6,7,8-HxCDF-13C	2.00	69
2,3,4,7,8-PeCDF	38	----	1.9	2,3,4,6,7,8-HxCDF-13C	2.00	58
Total PeCDF	380	----	2.4	1,2,3,7,8,9-HxCDF-13C	2.00	52
				1,2,3,4,7,8-HxCDD-13C	2.00	63
1,2,3,7,8-PeCDD	71	----	0.95	1,2,3,6,7,8-HxCDD-13C	2.00	51
Total PeCDD	480	----	0.95	1,2,3,4,6,7,8-HpCDF-13C	2.00	36 RY
				1,2,3,4,7,8,9-HpCDF-13C	2.00	34 RY
1,2,3,4,7,8-HxCDF	85	----	0.97	1,2,3,4,6,7,8-HpCDD-13C	2.00	40 Y
1,2,3,6,7,8-HxCDF	99	----	1.0	OCDD-13C	4.00	31 RY
2,3,4,6,7,8-HxCDF	52	----	0.83			
1,2,3,7,8,9-HxCDF	13	----	0.58	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	950	----	0.86	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	53	----	1.1	2,3,7,8-TCDD-37Cl4	0.20	55
1,2,3,6,7,8-HxCDD	74	----	1.2			
1,2,3,7,8,9-HxCDD	61	----	0.73			
Total HxCDD	1000	----	1.00			
1,2,3,4,6,7,8-HpCDF	390	----	3.1	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	26	----	3.0	Equivalence: 290 ng/Kg		
Total HpCDF	410	----	3.0	(Mid-bound - Using MADEP Factors)		
1,2,3,4,6,7,8-HpCDD	460	----	2.7			
Total HpCDD	910	----	2.7			
OCDF	110	----	7.9			
OCDD	1200	----	7.1			

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EMPC = Estimated Maximum Possible Concentration
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NC = Not Calculated

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P = PCDE Interference
Y = Calculated using average of daily RFs

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Method 8290 Sample Analysis Results

Client - TRC Solutions

Client's Sample ID	PSS-1 (1-3')		
Lab Sample ID	10436963008-R		
Filename	U180711B_15		
Injected By	SMT		
Total Amount Extracted	10.8 g	Matrix	Solid
% Moisture	6.2	Dilution	NA
Dry Weight Extracted	10.1 g	Collected	06/21/2018 10:10
ICAL ID	U180405	Received	06/22/2018 09:46
CCal Filename(s)	U180711B_02 & U180711B_17	Extracted	07/03/2018 17:15
Method Blank ID	BLANK-63270	Analyzed	07/11/2018 22:01

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	2.8	----	1.3	2,3,7,8-TCDF-13C	2.00	67
Total TCDF	56	----	1.3	2,3,7,8-TCDD-13C	2.00	58
				1,2,3,7,8-PeCDF-13C	2.00	56
2,3,7,8-TCDD	1.7	----	1.6	2,3,4,7,8-PeCDF-13C	2.00	52
Total TCDD	29	----	1.6	1,2,3,7,8-PeCDD-13C	2.00	55
				1,2,3,4,7,8-HxCDF-13C	2.00	82
1,2,3,7,8-PeCDF	6.1	----	1.4	1,2,3,6,7,8-HxCDF-13C	2.00	79
2,3,4,7,8-PeCDF	6.9	----	0.90	2,3,4,6,7,8-HxCDF-13C	2.00	70
Total PeCDF	72	----	1.1	1,2,3,7,8,9-HxCDF-13C	2.00	61
				1,2,3,4,7,8-HxCDD-13C	2.00	79
1,2,3,7,8-PeCDD	10	----	0.80	1,2,3,6,7,8-HxCDD-13C	2.00	68
Total PeCDD	66	----	0.80	1,2,3,4,6,7,8-HpCDF-13C	2.00	49 Y
				1,2,3,4,7,8,9-HpCDF-13C	2.00	45 Y
1,2,3,4,7,8-HxCDF	12	----	0.61	1,2,3,4,6,7,8-HpCDD-13C	2.00	49 Y
1,2,3,6,7,8-HxCDF	13	----	0.61	OCDD-13C	4.00	28 RY
2,3,4,6,7,8-HxCDF	7.6	----	0.53			
1,2,3,7,8,9-HxCDF	2.4	----	0.74 J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	130	----	0.62	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	7.8	----	0.42	2,3,7,8-TCDD-37Cl4	0.20	62
1,2,3,6,7,8-HxCDD	11	----	0.48			
1,2,3,7,8,9-HxCDD	8.5	----	0.59			
Total HxCDD	140	----	0.50			
1,2,3,4,6,7,8-HpCDF	59	----	1.6	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	3.6	----	0.89 J	Equivalence: 46 ng/Kg		
Total HpCDF	89	----	1.3	(Mid-bound - Using MADEP Factors)		
1,2,3,4,6,7,8-HpCDD	93	----	1.4			
Total HpCDD	250	----	1.4			
OCDF	32	----	3.3			
OCDD	400	----	4.1			

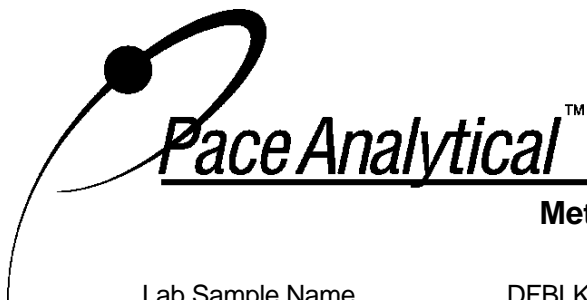
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
R = Recovery outside target range
Y = Calculated using average of daily Rf's

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
 1700 Elm Street - Suite 200
 Minneapolis, MN 55414

Tel: 612-607-1700
 Fax: 612-607-6444

Method 8290 Blank Analysis Results

Lab Sample Name	DFBLKPU	Matrix	Solid/Wipe
Lab Sample ID	BLANK-63270	Dilution	NA
Filename	Y180710A_11	Extracted	07/03/2018 17:15
Total Amount Extracted	20.0 g	Analyzed	07/10/2018 14:11
ICAL ID	Y180204	Injected By	SMT
CCal Filename(s)	Y180710A_02 & Y180710A_18		

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.037	2,3,7,8-TCDF-13C	2.00	54
Total TCDF	0.045	----	0.037 J	2,3,7,8-TCDD-13C	2.00	65
				1,2,3,7,8-PeCDF-13C	2.00	80
2,3,7,8-TCDD	ND	----	0.043	2,3,4,7,8-PeCDF-13C	2.00	79
Total TCDD	ND	----	0.043	1,2,3,7,8-PeCDD-13C	2.00	96
				1,2,3,4,7,8-HxCDF-13C	2.00	71
1,2,3,7,8-PeCDF	ND	----	0.030	1,2,3,6,7,8-HxCDF-13C	2.00	69
2,3,4,7,8-PeCDF	ND	----	0.043	2,3,4,6,7,8-HxCDF-13C	2.00	67
Total PeCDF	ND	----	0.036	1,2,3,7,8,9-HxCDF-13C	2.00	65
				1,2,3,4,7,8-HxCDD-13C	2.00	78
1,2,3,7,8-PeCDD	ND	----	0.098	1,2,3,6,7,8-HxCDD-13C	2.00	64
Total PeCDD	ND	----	0.098	1,2,3,4,6,7,8-HpCDF-13C	2.00	77
				1,2,3,4,7,8,9-HpCDF-13C	2.00	77
1,2,3,4,7,8-HxCDF	ND	----	0.085	1,2,3,4,6,7,8-HpCDD-13C	2.00	85
1,2,3,6,7,8-HxCDF	ND	----	0.046	OCDD-13C	4.00	62
2,3,4,6,7,8-HxCDF	ND	----	0.068			
1,2,3,7,8,9-HxCDF	ND	----	0.10	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.076	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.11	2,3,7,8-TCDD-37Cl4	0.20	57
1,2,3,6,7,8-HxCDD	ND	----	0.099			
1,2,3,7,8,9-HxCDD	ND	----	0.096			
Total HxCDD	ND	----	0.10			
1,2,3,4,6,7,8-HpCDF	ND	----	0.032	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.035	Equivalence: 0.10 ng/Kg		
Total HpCDF	ND	----	0.033	(Mid-bound - Using MADEP Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.034			
Total HpCDD	ND	----	0.034			
OCDF	ND	----	0.065			
OCDD	----	0.41	0.096 I			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

EDL = Estimated Detection Limit

Results reported on a total weight basis and are valid to no more than 2 significant figures.

J = Estimated value

I = Interference present

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
 1700 Elm Street - Suite 200
 Minneapolis, MN 55414

Tel: 612-607-1700
 Fax: 612-607-6444

Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCS-63271	Matrix	Solid/Wipe
Filename	Y180710A_09	Dilution	NA
Total Amount Extracted	20.3 g	Extracted	07/03/2018 17:15
ICAL ID	Y180204	Analyzed	07/10/2018 12:44
CCal Filename(s)	Y180710A_02 & Y180710A_18	Injected By	SMT
Method Blank ID	BLANK-63270		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.16	81	2,3,7,8-TCDF-13C	2.0	69
Total TCDF				2,3,7,8-TCDD-13C	2.0	67
				1,2,3,7,8-PeCDF-13C	2.0	75
2,3,7,8-TCDD	0.20	0.18	90	2,3,4,7,8-PeCDF-13C	2.0	74
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	86
				1,2,3,4,7,8-HxCDF-13C	2.0	75
1,2,3,7,8-PeCDF	1.0	0.89	89	1,2,3,6,7,8-HxCDF-13C	2.0	71
2,3,4,7,8-PeCDF	1.0	0.92	92	2,3,4,6,7,8-HxCDF-13C	2.0	71
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	70
				1,2,3,4,7,8-HxCDD-13C	2.0	81
1,2,3,7,8-PeCDD	1.0	0.83	83	1,2,3,6,7,8-HxCDD-13C	2.0	69
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	82
				1,2,3,4,7,8,9-HpCDF-13C	2.0	84
1,2,3,4,7,8-HxCDF	1.0	1.0	100	1,2,3,4,6,7,8-HpCDD-13C	2.0	95
1,2,3,6,7,8-HxCDF	1.0	0.99	99	OCDD-13C	4.0	71
2,3,4,6,7,8-HxCDF	1.0	0.96	96			
1,2,3,7,8,9-HxCDF	1.0	0.93	93	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	0.92	92	2,3,7,8-TCDD-37Cl4	0.20	59
1,2,3,6,7,8-HxCDD	1.0	0.92	92			
1,2,3,7,8,9-HxCDD	1.0	0.84	84			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	0.92	92			
1,2,3,4,7,8,9-HpCDF	1.0	0.84	84			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	0.85	85			
Total HpCDD						
OCDF	2.0	1.8	89			
OCDD	2.0	1.9	95			

Qs = Quantity Spiked
 Qm = Quantity Measured
 Rec. = Recovery (Expressed as Percent)
 R = Recovery outside of target range

Y = RF averaging used in calculations
 Nn = Value obtained from additional analysis
 NA = Not Applicable
 * = See Discussion

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APPENDIX B

PHOTOLOG



Photo 1: Boundary between Lawrence and Methuen. Rail trail construction ongoing on Methuen side of project. (looking north).



Photo 2: View of Project Corridor between Manchester Street and Methuen Town Line (looking south).



Photo 3: View of Project Corridor near Bourgoin Park (looking south).



Photo 4: View of Project Corridor near Lowell Street Bridge (looking north).

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**BEST MANAGEMENT PRACTICES FOR
CONTROLLING EXPOSURE TO SOIL
DURING THE DEVELOPMENT OF RAIL TRAILS**

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 EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

MITT ROMNEY
 Governor

KERRY HEALEY
 Lieutenant Governor

ELLEN ROY HERZFELDER
 Secretary

ROBERT W. GOLLEDGE, Jr.
 Commissioner

Best Management Practices for Controlling Exposure to Soil during the Development of Rail Trails

This document summarizes **Best Management Practices (“BMPs”)** that should be considered before, during, and after former railroad lines are converted to recreation trails. These BMPs have been developed to eliminate or minimize potential exposures to residual oil or hazardous materials commonly found along railroad rights-of-way being converted to rail trails. This document also identifies locations and conditions for which the application of BMPs alone may not be sufficiently protective of public health and the environment.

These BMPs have been developed specifically for situations where a municipality has acquired a property interest in a rail corridor from the Massachusetts Bay Transportation Authority (MBTA) in order to convert the corridor to a rail trail¹. This fact sheet is relevant to municipalities: (1) with specific knowledge of a release of oil or hazardous materials through testing or other means and/or (2) without specific knowledge of a release, that seek to prevent the exposure of persons to oil or hazardous materials that may be present in such corridor until a responsible person conducts response action under MGL Chapter 21E.

Background Information

The waxing and waning of railroad activity in Massachusetts over the past century has left the Commonwealth a legacy of under-utilized rights-of-way that may be redeveloped for new rail service (such as the Amtrak Downeaster and the Greenbush line) or recreational trails (such as the Minuteman Trail or the Mass Central Rail-Trail).

When active, these railroad lines were important transportation corridors serving the citizens and industries of Massachusetts. Now many communities are actively seeking to convert former railroad lines to create new links -- trails that link:

- commuter’s homes to workplaces;
- children’s schools to the playgrounds;
- tourists’ curiosity to the region’s history; and
- communities to their neighbors.

¹ More specifically, only for those situations addressed under Chapter 46 of the Acts of 2003

This information is available in alternate format. Call Debra Doherty, ADA Coordinator at 617-292-5565. TDD Service - 1-800-298-2207.

Many former rail lines were abandoned years ago and appear to be nearly reclaimed by nature. Other lines run parallel to active lines, or reveal rusted rails threading through industrial areas. In some instances adjacent industrial activities, historic loading practices, leaks during material transfers or storage, and repair activities have contaminated soil with oil or hazardous materials. In addition, residual contamination is often found along the length of the line, incidental to the maintenance and use of the railway itself.

Redevelopment of former rail lines to recreational trails can be accomplished in a way that protects public health and the environment. It requires recognizing potential problems and implementing actions to safeguard nearby residents, workers, and trail users throughout the life of the project.

Residual Contamination from Railroad Operations

Some historic railroad operations involved the use of chemicals that may have resulted in presence today of contamination. The most commonly reported contamination along rail lines includes metals, pesticides² (such as lead arsenate), and constituents of oil or fuel (petroleum products). These chemicals have been associated with normal railroad operations and are likely to be found anywhere along the line. For example, it would not be uncommon to find arsenic (up to ten times natural background levels) present in the soil along a right-of-way from old railroad ties dipped in an arsenic solution, arsenic weed-control sprays, and arsenic-laced slag used as railroad bed fill³. Lubricating oil and diesel that dripped from the trains are likely sources of the petroleum product found along the lines. Other sources of contaminants associated with historic railroad operation may include coal ash from engines, creosote from ties, and polynuclear aromatic hydrocarbons (“PAHs”) from the diesel exhaust.


The BMPs outlined in this document are specifically designed to be protective of public health and provide a practical alternative to extensively testing for and possibly removing these “typical” residues expected from the historic operation of a rail line⁴.

In some instances, a rail corridor may have been open for a relatively short time, during a period of time or in a region where chemicals were not used by the rail operator. Application of the BMPs would not provide any significant benefit in those instances. In the absence of good historic information, the only sure way to know whether residuals pose a risk to trail users is to collect environmental samples along the corridor. Location-specific sampling results may then be used to modify these measures or obviate the need for their use.

Elevated Contamination from Railroad Operations or Other Sources

Several potential sources of contamination along a rail line may pose significant health and environmental risks worthy of closer examination. These sources include operations at switching and repair yards, railroad accidents involving hazardous cargoes, and releases of chemicals on rail spurs and properties that abut rail lines, but which are unrelated to the railroad operations. The latter two examples may

² The application of pesticides consistent with their labeling is excluded from the definition of a “release” under M.G.L. Chapter 21E.

³ Sampling along the abandoned Greenbush Line in the Fall of 2003, prior to its rehabilitation for commuter rail service, indicates the presence of arsenic concentrations up to 205 mg/kg, with 16% of the results greater than the MCP S-1 soil standard of 30 mg/kg, and 25% greater than the *proposed* standard of 20 mg/kg. 

⁴ Consistent with Section 8C of Chapter 46 of the Acts of 2003 (<http://www.state.ma.us/legis/laws/seslaw03/sl030046.htm>), the BMPs described in this document suitably prevent access to the residual oil or hazardous materials expected to be present along a railroad right-of-way.

involve almost any chemical, such as the phosphorus trichloride released in an April 3, 1980, tank car incident in Somerville, or the asbestos released from the Zonolite processing plant in Easthampton. The contamination in rail yards is somewhat more predictable, including petroleum; metals; pesticides and organic compounds emanating from equipment cleaning areas; fueling areas; maintenance and repair activities; and the railroad beds themselves.

An MCP Phase 1⁵ level of investigation, tailored to the nature of the contaminant and source, would be appropriate to address these sources of elevated chemical contamination. A Phase 1 Preliminary Investigation would typically contain sufficient information in the following areas to determine the need for a Response Action or further detailed investigation:

- General Disposal Site Information (description of location and potential receptors in the area);
- Disposal Site Map (description of the property itself, with buildings, drains, and sampling locations noted);
- Disposal Site History (description of ownership, releases, chemical use, management of waste, compliance history);
- Site Hydrogeological Characteristics (description of groundwater flow, borings, wells, and the results of any investigations);
- Nature and Extent of Contamination (description of evidence of releases, laboratory results, thickness of NAPL, approximate location of contamination);
- Migration Pathways and Exposure Potential (description of contamination in air, water, soil, and discussion of potential human and environmental receptors);
- Evaluation for Immediate Response Actions; and
- Conclusions.

The results of such an investigation would be used to determine appropriate measures to implement to eliminate or reduce current and future exposure to the contaminated soils. Such measures could be similar to the BMPs proposed in this guidance, more extensive than these BMPs, or less stringent, depending on the outcome of the investigation.

Identifying Areas of Concern

As described above, locations along rail corridors could exhibit a wide range of chemical contamination, depending on the use of the line and adjacent properties. Trail developers can conduct historic research to categorize segments of a rail corridor by level of concern.

DEP has identified four categories of interest for the purpose of implementing the soil BMPs. Any given rail-trail may be comprised of one or more of these areas.

Residential, undeveloped or rural rights-of-way

These are stretches along a rail line that border historically residential, undeveloped or rural properties. These areas are likely to have been affected only by the normal operation of the rail line, with a residual level of contamination. The BMPs outlined in this document are considered appropriate for these locations, absent evidence of a specific release.

⁵ The general content of a Phase I “Initial Site Investigation Report” is described in the Massachusetts Contingency Plan, 310 CMR 40.0483.

Stations and crossings

These relatively small stretches along a right-of-way would be expected to be associated with contamination elevated over the residual levels, due to more frequent/intense use of pesticides to improve sight lines and greater frequency/intensity of human activities. The BMPs outlined in this document are considered appropriate for these locations, absent evidence of a specific release.

Industrial corridors

Many rail-trails include segments that pass through industrial areas, even the predominantly rural trails of western and central Massachusetts. These stretches have a higher *potential* for contamination within the right-of-way that is unrelated to the historic railroad use. The BMPs outlined in this document may not be sufficiently protective of public health and the environment at these locations. A preliminary review is recommended in order to establish whether site-specific concerns indicate a need for further investigation, including soil testing. Absent a site-specific concern, the BMPs outlined in this document are considered appropriate for these locations.

Switching and Repair Yards

As discussed earlier, switching and repair yards have a greater range of potential contaminants of concern and a higher likelihood that the contaminants are present at significant levels. The BMPs outlined in this document are not considered sufficient by themselves to protect public health and the environment at these locations, absent further investigation.

Figure 1 outlines the decision-making steps trail developers should follow in identifying locations of interest along the corridor they are developing and whether the BMPs apply without the need for further site investigation, including soil testing.

Goals of Best Management Practices

DEP's goals in publishing BMPs for use in developing rail-trails include:

- promoting rail-trail conversions that are both health-protective and cost-effective⁶;
- recognizing the potential presence of oil or hazardous material along the right-of-way;
- recognizing the potential health and environmental risks associated with developing the right-of-way;
- expediting trail development to prevent (or minimize) risk to current users of "beaten paths" along inactive rail corridors;
- preventing (or minimizing) exposures to oil or hazardous material before, during, and after construction of rail-trails; and
- preventing (or minimizing) off-site migration of contaminants before, during, and after the construction of rail-trails.

These BMPs are intended to be applied to those rail corridor segments where residual contamination from historic railroad operations is assumed to be present. Trail developers always have the option to conduct soil testing to rule-out the presence of contamination and tailor soil management practices to actual site conditions.

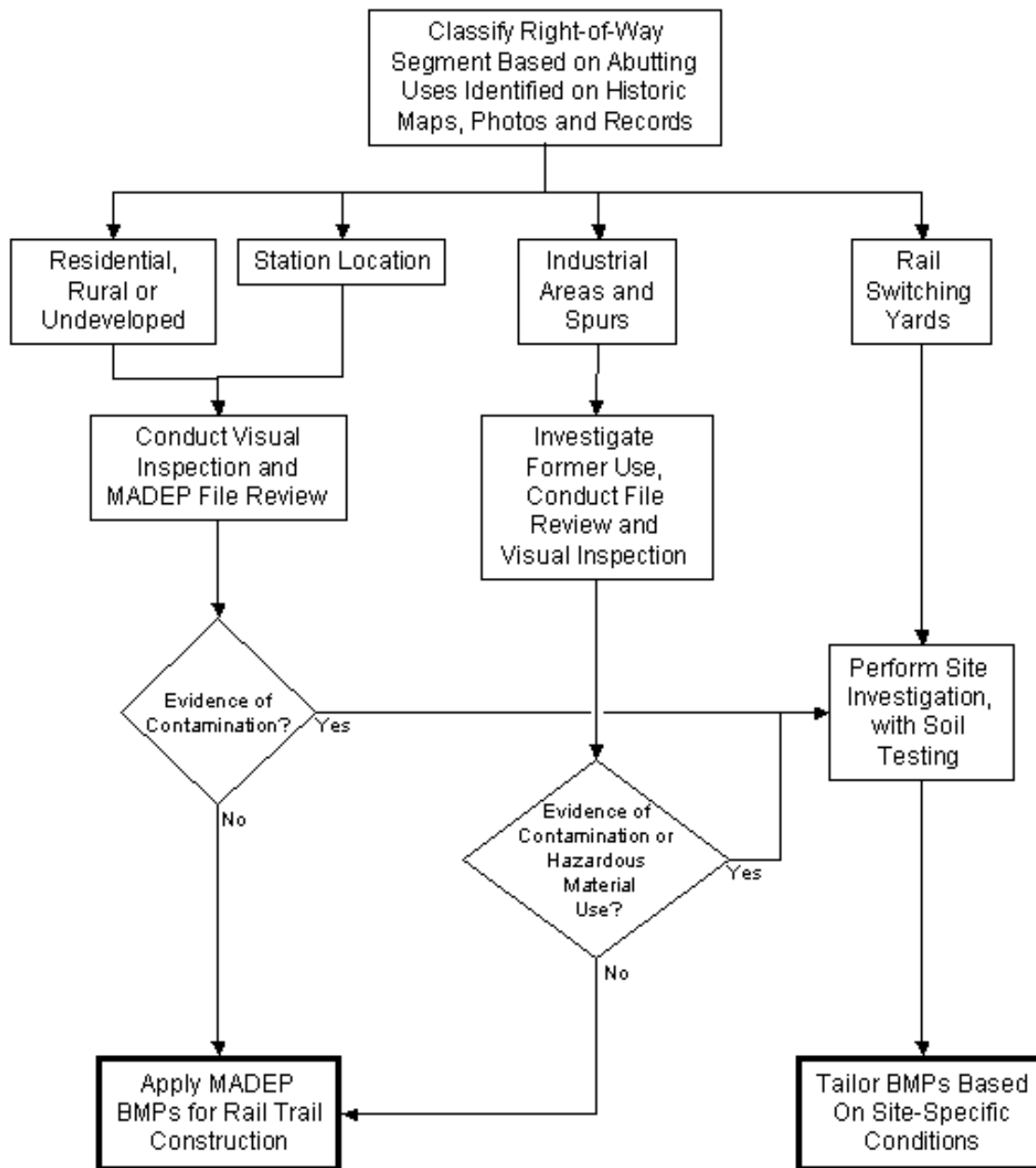
In addition to reducing risk of exposure to contaminants, the focus of this guidance, trails promote public health by encouraging active and healthy lifestyles.

The application of these BMPs to any portion of a rail corridor converted to residential use in conjunction with rail trail development is not appropriate. Only a site-specific investigation, including soil testing, can determine whether conversion to residential use is health protective.

Figure 1

Application of MADEP Best Management Practices at Rail Trail Conversions

(Pursuant to Section 8C of Chapter 46 of the Acts of 2003)



BMP Applicability

These BMPs were developed primarily for residential or rural rights-of-way, and stations and crossings. The BMPs will also be applicable in many industrial corridors, but those locations may need case-by-case review to determine the likelihood of contamination beyond the residual levels assumed here.

DEP does not believe that these BMPs are, by themselves, sufficient and appropriate for use without more extensive site investigation in industrial areas with known or likely non-railroad sources, or in rail yards.

Note that the focus of these BMPs is the potentially contaminated soil along the right-of-way and the human exposures and environmental exposures that may result from improperly managing that soil at or near the surface. This document is not intended to be a summary of all environmental requirements, such as wetlands permitting or Underground Storage Tank (UST) removal that may apply to a project. Municipalities developing rail trails are also obligated to contain the further release or threat of release of oil or hazardous materials from any structure or container within the corridor.

Phases of Project/Exposures of Concern

Rail-trail development occurs in three main phases, or time periods. Each phase has unique exposures that must be considered to identify appropriate BMPs. These phases are pre-construction, construction, and post-construction.

Pre-Construction Phase

The pre-construction phase covers the period up to the time construction actually begins. Depending on project finances and construction sequences, this phase may last several years as communities seek funds to develop a project. Trail design also occurs during the Pre-construction Phase.

While the right-of-way is not a designated rail-trail at this point, a potential may exist for people to be exposed to contaminated soil on or from the right-of-way. Dirt bikers, hikers, or children taking shortcuts, and adjacent residents may receive runoff or dust from the rail bed in its unimproved condition. Many future rail-trails also serve as utility corridors. Workers repairing or installing subsurface utilities (such as sewer lines) may have the highest potential for exposure, albeit short-term.

During trail design, developers should identify which soils will be handled during construction and plan the areas where people will congregate once the trail has been completed.

As the final grades are established, areas for playgrounds identified, and trailheads located, long-term exposures may be created to any contaminated soil remaining along the trail. By following the design guidelines provided below, designers can ensure that any long-term exposures are eliminated or minimized.

If any soil will be excavated from the right-of-way and reused off-site, the potential for exposure should also be considered.

Construction Phase

The construction phase has the potential to create significant exposures to contaminated soil as the old rail line is cleared, the right-of-way is prepared, and the trail is constructed. While construction activities may be sporadic and short-term on any given stretch of the line, the project itself may continue for many months, or even longer than a year.

The receptors of concern during the construction phase include:
 demolition workers (clearing the brush; and removing the rails, ties, ballast, and debris);
 construction workers (grading and shaping the trail; and creating, moving, and dissipating soil stockpiles);
 adjacent residents (inhaling dust generated from the project; exploring the partially-built trail; coming in contact with soil pushed onto their property, etc...); and
 environmentally sensitive areas/species.

Post –Construction Phase

After construction, trail managers must monitor activities along the trail corridor to ensure that the steps taken to reduce exposure remain effective. Trail managers should be involved in decisions to excavate material from the trail corridor to ensure that users are protected both during and after such excavation. Workers repairing or installing subsurface utilities (such as sewer lines) may have the highest potential for exposure, albeit short-term. Maintenance activities will be necessary to ensure the integrity of the trail surface, structures and landscaping that help serve to eliminate exposures.

Recommended BMPs

Absent analytical evidence to the contrary, all soil along the right-of-way should be presumed to have at least residual levels of lead, arsenic, and PAHs from historic railroad operations, as described above. The following BMPs should be considered for the pre-construction, construction, and post-construction phases of rail-trail development, as appropriate.

Pre-Construction

1. Conduct a thorough, pre-construction paper review of the right-of-way and adjacent properties.
 - Investigate the rail line history; locate old stations, crossings, spurs, and rail yards. The Valuation Plans and historic aerial photos for the properties abutting the rail line can provide much of this information⁷.
 - Investigate site use and the history of adjacent properties; identify commercial and industrial stretches. The Valuation Plans and Sanborn Insurance maps can provide much of the information for the snapshot in time when they were developed. Local historical societies may have information on leading local industrialists and their local businesses.
 - Review the existing list of known or suspected disposal sites to see if any are located along the right-of-way⁸

⁶Rails-to-Trails Conservancy provides additional guidance in its publication “Acquiring Rail Corridors” p 95-97. (http://www.trailsandgreenways.org/resources/development/acquis/arc_book.asp)

- Inquire with neighbors, fire department personnel or the local historical society for further information on train crashes, accidents, and other incidents that may have released chemicals.⁹
2. Conduct a thorough, visual inspection of the right-of-way, looking for:
 - contaminated soil as evidenced by discoloration, odors, differences in soil properties, pipes, or buried debris;
 - signs of illegal dumping of waste from businesses or industry (not simply household trash);
 - stressed vegetation or “dead zones”;
 - areas of soil run-off, both away from the right-of-way and toward the right-of-way;
 - signs of wind erosion sufficient to create a dust inhalation exposure;
 - signs of public use of the existing right-of-way (condoned or trespassing), such as dirt-bike trails, play forts, beverage cans, and fire pits.
 3. Control current (pre-construction) exposures to soil in areas of concern by implementing one or more of the following measures, as indicated by site conditions:
 - install signs to redirect people from areas of concern; or
 - strategically place barriers to control use in the areas of concern; or
 - implement other measures to eliminate contact with soils in areas of concern.

In the event these three measures do not prove successful, trail developers should consider covering areas of exposed soil or planting bushes (such as puckerbrush) to divert people away from areas of concern.

Design Guidelines to Reduce Exposure

While developing the design for the trail, the design engineer or architect should follow these guidelines in order to reduce potential exposures.

1. Within the tread way¹⁰ and in areas designated for recreational use along the trail (such as rest areas, picnic areas, and playgrounds), eliminate contact with potentially contaminated soil by implementing one or more measures, as appropriate:
 - Place potentially contaminated soil under pavement or an equivalent layer of compacted stone dust; or
 - Place potentially contaminated soil under at least 12 inches of clean fill and mark with a geosynthetic barrier immediately above the potentially contaminated soil; or
 - Remove and appropriately dispose of potentially contaminated soil off-site. Replace with clean material (soil, stone dust, wood chips, etc.) to establish the path and maintain grade.

⁷The Massachusetts DEP databases (<http://Mass.Gov/dep/cleanup/sites/sdown>) have spills information from the early 1980’s and list known and suspected locations of contamination by street address. If evidence exists that an off-site source may have contaminated the right-of-way, further investigation is needed. DEP files may contain sufficient information to determine whether the right-of-way has been affected.

⁸If evidence exists that an incident may have contaminated the right-of-way, further investigation is indicated. DEP files may contain sufficient information to determine the extent of the problem.

⁹The tread way includes any area intended for active use including jogging side paths and equestrian trails

2. Outside of the tread way, control contact with potentially contaminated soil by implementing one or more measures to minimize or eliminate contact with potential residual contamination, including:
 - Design landscaping, including the nature, location, and density of plantings, that channels recreational users of the trail to the tread way, disrupts the creation of informal tread ways (such as single track trails) and directs users away from potentially contaminated soil;
 - Create areas of congregation, such as benches, rest areas, and scenic areas, that draw recreational users of the trail and encourage congregation away from potentially contaminated soil;
 - Install signs informing users of upcoming congregation areas and/or advising users to remain on the path;
 - Stabilize the soil through plantings, grading, or other erosion control measures;
 - Install guardrails, curbing, or fences in areas to encourage users to stay the tread way; or
 - Implement other design features that would minimize or eliminate contact with residual contamination in the soil.

3. The design should identify areas where potentially contaminated soil will be removed and areas within the corridor where such soils can be safely stored temporarily so that the Construction Contractors can re-use as much material on-site as possible.

During Construction

The following BMPs presume the trail construction includes excavation, movement, placement and grading of soil. Trail construction activities that involve no movement of soil may be carried out with the application of standard dust control measures, such as spraying soil with water.

The following guidelines should be followed during construction involving soil grading and excavation and be incorporated into the construction bid documents in order to ensure the proper handling of soils during trail construction:

1. Hire an independent environmental monitor or task existing staff to oversee the Construction Contractor¹¹. The monitor will:
 - Verify that construction-related plans and training are in place before construction begins ;
 - Oversee all excavation,
 - Visually inspect material that will be moved, and
 - Ensure proper management of soil along the right-of-way and the implementation of BMPs.

During construction, the environmental monitor should be present whenever known contaminated soil will be excavated and should inspect construction-related BMPs several times each week.

¹⁰For example, a municipality may enter into an agreement with Mass Highway to manage a trail construction funded with federal transportation appropriations. The agreement should require that the construction contract include provisions requiring the contractor to follow the BMPs and the directions of the independent environmental monitor.

2. Minimize or eliminate exposure of construction workers to potentially contaminated soil.
 - Prepare site-specific soil management and health and safety plans.
 - Have employees and subcontractors complete a safety-training program covering the potential hazards associated with working with contaminated soil likely to be present along a rail line, before excavation work begins.
 - Educate employees and subcontractors in identifying contaminated soil and on handling and disposal procedures for contaminated soil.
 - Hold regular meetings to discuss and reinforce the health and safety procedures.
 - Prevent visible dust during excavation, transportation, and placement operations. Implement dust control measures, such as spraying soil with water, during excavation or grading operations. Exercise caution to prevent soil spillage during transport.
3. Minimize or eliminate exposure of adjacent residents and curious trespassers to potentially contaminated soil.
 - Prevent visible dust during excavation, transportation, and placement operations. Implement dust control measures, such as spraying soil with water, during excavation or grading operations. Exercise caution to prevent soil spillage during transport.
 - Install temporary signs and/or security fence to surround and secure areas where potentially contaminated soil may pose an Imminent Hazard to human health.
 - Avoid temporary stockpiling of potentially contaminated soils. Take the following precautions stockpiling, as necessary:
 - Identify long-term stockpile locations that are away from residences, schools or playgrounds;
 - Cover the stockpile with plastic sheeting or tarps to prevent dust generation and erosion;
 - Install a berm, hay bales, and/or silt fences around the stockpile to prevent runoff from leaving the area;
 - Do not stockpile in or near storm drains or watercourses; and
 - Clean-up materials should be staged near the storage area.
4. Minimize or eliminate the migration of potentially contaminated soil off-site.
 - Protect gutters, storm drains, catch basins, and other drainage system features on the site with hay bales and/or silt fences during construction. They should be cleaned following the completion of site work.
 - Prevent visible dust during excavation, transportation, and placement operations. Implement dust control measures, such as spraying soil with water, during excavation or grading operations.
 - Exercise caution to prevent soil spillage during transport.
 - Stabilize exposed areas of potentially contaminated soil and prevent run-off.
5. Prevent new leaks and spills and notify DEP, as appropriate, if they occur.
6. Transport and dispose potentially contaminated soil in accordance with the applicable rules and regulations of the United States Department of Transportation (USDOT), the United States Environmental Protection Agency (USEPA), and the Massachusetts Department of Environmental Protection (MADEP) (the specifications for the off-site management of contaminated soil supersede the procedures outlined in this BMP).

Post- Construction

1. Establish a protocol to ensure that future workers performing maintenance or construction within the right-of-way are made aware of the need for appropriate BMPs, including:
 - Posting of signage indicating that a permit from the trail manager is necessary before any excavation of the corridor begins.
 - Sending notice of the existence of such requirement to easement holders and the municipal engineer and/or public works department; and
 - Developing Standard Operating Procedures with local utilities, easement holders, DPWs, and other municipal offices for work in the right-of-way.
2. Establish a procedure for the trail manager to periodically travel the corridor and inspect the integrity of the trail surface, structures and landscaping and require appropriate action to correct any problems observed.

DEP Contact

For further information, please contact Paul Locke in the DEP Bureau of Waste Site Cleanup at (617) 556-1160 or Paul.Locke@state.ma.us.

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