

# **LIMITED REMOVAL ACTION FOR PCB IMPACTED SOIL**



**Suffolk Downs Racecourse  
525 William F. McClellan Highway  
Boston, Massachusetts 02128**

**Prepared For:**

Locke Lord LLP  
2200 Ross Avenue, Suite 2800  
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Attn: Ms. Elizabeth E. Mack, Esq.

**Prepared By:**

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**VERTEX Project No:** 43068

October 9, 2017



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October 9, 2017

Locke Lord LLP  
2200 Ross Avenue, Suite 2800  
Dallas, Texas 75201  
Attn: Ms. Elizabeth E. Mack, Esq.

**RE: Limited Removal Action for PCB-impacted Soil**  
Suffolk Downs Racecourse  
525 William F. McClellan Highway  
Boston, Massachusetts 02128  
**VERTEX Project No. 43068**

Dear Ms. Mack:

The Vertex Companies, Inc. (VERTEX) was retained to conduct a Limited Removal Action (LRA) at the above-referenced property (the Site), in accordance with the Massachusetts Contingency Plan (MCP) 310 CMR 40.0318. This report and its attachments present documentation of the LRA. Pursuant to the MCP 310 CMR 40.0318 (7), information documenting the LRA must be retained by the party undertaking the LRA for a period of at least five years.

VERTEX concludes that the LRA was successful in removing polychlorinated biphenyl (PCB) impacted soil located on the Access Road located in the southeastern corner of the Site. No further action regarding the identified release is warranted. Please do not hesitate to contact our office should you have any questions or require additional information.

Sincerely,

**The Vertex Companies, Inc.**

Kristen Sarson  
Assistant Project Manager

William Gibbons

PG, LSP  
Senior Project Manager

Frank Calandra, PE, LSP  
Division Manager – Remediation



## TABLE OF CONTENTS

1.0	INTRODUCTION .....	1
2.0	SOIL REMOVAL AND ASSESSMENT .....	3
3.0	SOIL REMOVAL ACTIVITIES .....	4
4.0	CONCLUSIONS .....	5
5.0	QUALIFICATIONS.....	6

## FIGURES

- Figure 1: Site Locus Map  
Figure 2: VERTEX February 2017 Sampling Locations  
Figure 3: VES-128 Delineation

## TABLES

- Table 1: Soil Disposal Characterization Analytical Results  
Table 2: Soil Sample Analytical Results

## APPENDICES

- Appendix A: Laboratory Analytical Reports  
Appendix B: Waste Disposal Documentation  
Appendix C: Photographic Documentation

## **Limited Removal Action Report for PCB-impacted Soil**

**Suffolk Downs Racecourse  
525 William F. McClellan Highway  
Boston, Massachusetts 02128  
VERTEX Project No. 43068**

### **1.0 INTRODUCTION**

VERTEX was retained by Locke Lord LLP to undertake a Limited Removal Action (LRA) to remove polychlorinated biphenyl (PCB) impacted soils detected in the southeastern portion of the Suffolk Downs Racecourse site at 525 William F. McClellan Highway in East Boston, Massachusetts (the site). Figure 1 is a Site locus map derived from the United States Geological Survey (USGS) 2012 Lynn, Massachusetts topographic quadrangle.

VERTEX completed an environmental due diligence investigation of the site prior to The McClellan Highway Development Company, LLC's purchase of the site on May 26, 2017. In February 2017, during the due diligence investigation, 23.1 milligrams per kilogram (mg/kg) of total PCBs were detected in one soil sample (VES-128 (1-2)) collected from soil boring VES-128. The detected PCB concentration exceeded the Massachusetts Contingency Plan (MCP) RCS-1 Reportable Concentration (1 mg/kg). The sample was collected from a depth of 1-2 feet below ground surface (bgs) in the unpaved access road adjacent to the track in the southeastern corner of the Site. As part of the due diligence investigation, soil sample VES-128 (1-2) was also analyzed for the following soil disposal characterization parameters: extractable petroleum hydrocarbons (EPH) and target polycyclic aromatic hydrocarbons (PAHs); volatile petroleum hydrocarbons (VPH); volatile organic compounds (VOCs); semi-VOCs; Resource Conservation and Recovery Act Eight metals (RCRA 8 Metals) (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver); and hazardous characteristics (cyanide and sulfide reactivity, corrosivity, and ignitability). The disposal characterization analyses detected benzo(a)pyrene and lead at concentrations exceeding MCP-RCS-1 Reportable Concentrations. However, the concentrations were consistent with concentrations of benzo(a)pyrene and lead that had been historically detected at multiple locations at the site for which a Response Action Outcome (RAO) Statement submitted to the Massachusetts Department of Environmental Protection (MassDEP) in 1998 had deemed to be a background condition for which notification to the MassDEP was not

required. (Rizzo Associates, Inc. “*Response Action Outcome Statement Report, Suffolk Downs, East Boston and Revere, Massachusetts, RTN 3-0014857*,” February 12, 1998).

The February 2017 soil sample analytical data is summarized on Table 1, and laboratory data sheets and chain-of-custody documentation is provided in Appendix A.

Based on the analytical results, additional assessment was conducted to determine the horizontal and vertical extent of PCB impacts. No additional PCBs in soil were identified. Pursuant to the requirements of the MCP, VERTEX concluded that the detected PCB concentration was reportable to the MassDEP within 120 days of The McClellan Highway Development Company, LLC’s purchase of the site on May 26, 2017, unless the reportable condition could be eliminated by a LRA of no more than 20 cubic yards of soil conducted no later than September 23, 2017. This report documents the timely LRA activities.

Figure 2 depicts an overview of the Suffolk Down racecourse property and the relative location of the LRA. Figure 3 depicts soil sample locations and the approximate limits of the LRA excavation.

## **2.0 SOIL REMOVAL AND ASSESSMENT**

On June 26, 2017, soil borings were manually advanced by a direct push drill rig at locations 5 feet north, northeast, east, southeast, south, southwest, west, and northwest of soil boring VES-128 to assess the horizontal and vertical extent of PCBs previously detected in soil sample VES-128 (1-2'). The soil borings were designated VES-128 (N), (NE), (E), (SE), (S), (SW), (W), and (NW). To evaluate the vertical extent, one soil boring was advanced at the location of prior boring VES-128 to a depth of 4 feet bgs, and a sample collected from a depth of 2 to 4 feet bgs (designated VES-128 (2-4)). Soil boring locations are shown on Figure 3. Soil samples were collected in laboratory-supplied pre-cleaned containers, stored on ice, and transferred under chain-of custody to Alpha Analytical Laboratory, Inc. (Alpha) of Westborough, Massachusetts for the laboratory analysis of PCBs by USEPA Method 8082 with Soxhlet extraction.

PCBs were not detected at concentrations exceeding the laboratory detection limits in the eight soil samples collected from 0 to 2 feet bgs in the soil borings advanced 5 feet from VES-128. Also, PCBs were not detected in the sample collected from 2 to 4 feet bgs at the location of boring VES-128. The analytical results are tabulated in Table 2, and chain of custody documentation and laboratory analytical results are provided in Appendix A. Based on the results of the sample analyses and the estimated 7 cubic yards of impacted soil, VERTEX recommended a LRA in accordance with 310 CMR 40.0318, consisting of soil excavation and off-site disposal to remove the impacted soil and to eliminate the reportable release condition at the Site.

On September 15, 2017, because total lead was detected at a concentration of 570 mg/kg in sample VES-128 (1-2) (i.e., greater than 20-times the RCRA toxicity characteristic limit of 5 milligrams per liter (mg/l), or 100 mg/kg), VERTEX collected a six-point composite sample from the area and depth of proposed LRA excavation for analysis of toxicity characteristic leaching procedure (TCLP) lead. TCLP lead was not detected at a concentration exceeding the applicable regulatory level of 5 mg/L; therefore, the soil did not meet regulatory criteria for classification as hazardous waste.

### **3.0 SOIL REMOVAL ACTIVITIES**

On September 20, 2017, VERTEX oversaw the excavation of the PCB-impacted soil. The limits of the excavation were determined by the Non-Detect (or ND) results of the delineation soil sampling/analysis performed in June 2017. Strategic Environmental Services (SES) of Warwick, Rhode Island excavated the soils and placed them directly into a lined roll-off container. A total of approximately 7 cubic yards of soil was excavated to a depth of 2 feet below surface grade. The completed excavation was backfilled to grade with imported clean fill.

On September 20, 2017, the roll-off was removed from the Site and transported by SES to the Waste Management Turnkey Landfill in Rochester, New Hampshire for disposal. The soil was shipped under a MassDEP Bill-of-Lading form BWSC-112 and Waste Management waste profile (Profile Tracking # 495599NH). A copy of the Bill-of-Lading, waste profile, landfill weight ticket, and completed bill-of-lading attestation are included in Appendix B. In accordance with the MCP; no MassDEP Release Tracking Number (RTN) was applicable to the Bill-of-Lading, and the Bill-of-Lading is not required to be submitted to the MassDEP because the soil shipped for disposal was generated from a LRA.

Photographs of the excavation areas are provided in Appendix C. Please refer to Tables 1 and 2 for a summary of soil analytical results and Appendix A for the laboratory report and chain-of-custody documentation. Please refer to Appendix B for the soil disposal package and the soil recycling receipt.

#### **4.0 CONCLUSIONS**

PCBs in soil at concentrations exceeding applicable MassDEP Reportable Concentrations were determined to be limited to a small area at the location of VERTEX soil boring VES-128 at a depth of 1-2 feet bgs. Laboratory analysis of soil samples confirmed that PCB concentrations exceeding Reportable Concentrations did not extend deeper than 2 feet bgs or beyond 5 feet laterally from boring VES-128. The reportable condition was successfully eliminated by the excavation and off-site disposal of approximately 7 cubic yards of soil. The LRA did not exceed the 20 cubic-yard limit applicable to LRAs for hazardous materials, and the LRA was completed within the 120-day MassDEP notification deadline that would otherwise have applied had the reportable condition not been eliminated.

Based on this information, the LRA meets the requirements of 310 CMR 40.0318, and no further action regarding this release is warranted. In accordance with the MCP, submittal of this LRA report to the MassDEP is not required; however, the report must be kept on file by The McClellan Highway Development Company, LLC for a minimum of five years.

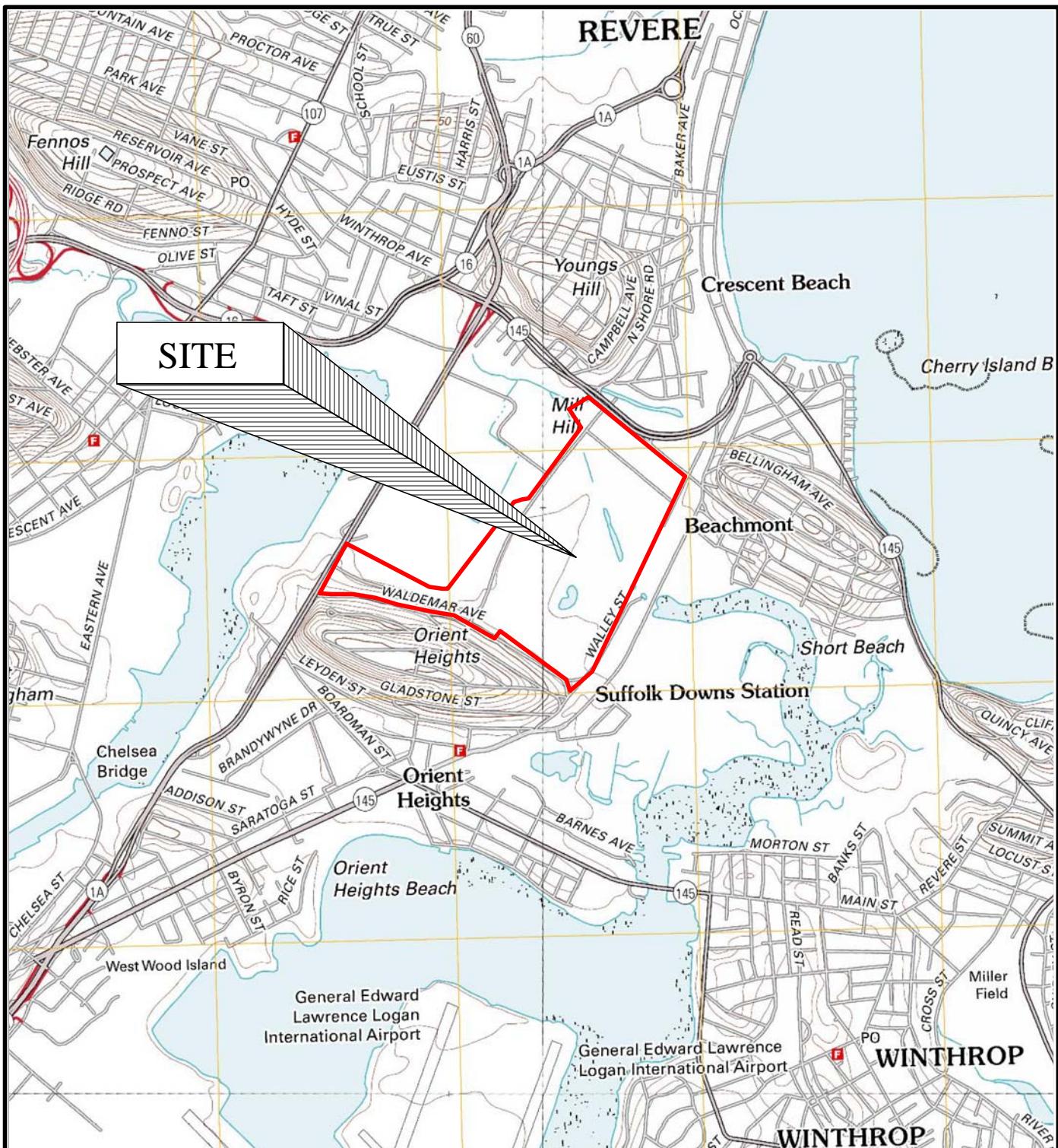
## **5.0 QUALIFICATIONS**

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This warranty is in lieu of all other warranties either expressed or implied. VERTEX is not responsible for the independent conclusions, opinions or recommendations made by others based on the records review, Site inspection, field exploration, and laboratory test data presented in this report.

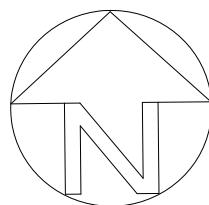
This report is for the exclusive use of Locke Lord LLP, The McClellan Highway Development Company, LLC, McClellan Highway Holdings, LLC, Cathexis – SD, LLC, Cathexis RE Holdings, LP, The Three Box Development Company, LLC, HYM Three Box Holdings, LLC, and The HYM Investment Group, LLC and their respective subsidiaries, affiliated and parent companies, and any lenders who assist these entities in the development or operation of the Site. No other party shall have the right to rely on any service provided by VERTEX without prior written consent. The scope of services performed in execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or re-use of this document or the findings, conclusions, or recommendations is at the risk of said other user.

## **FIGURES**

**VERTEX®**



USGS Topographic Map, 2012  
Lynn, MA Quadrangle  
Contour Interval: 10 Feet



**SITE LOCUS MAP**

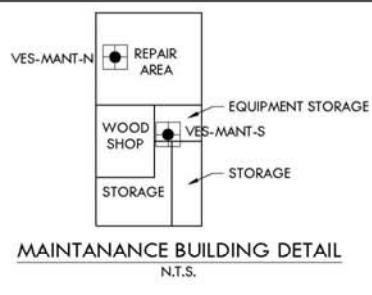
Suffolk Downs Racecourse  
525 William F. McCellan Highway  
Boston, Massachusetts

SCALE: 1:24,000

February 2017

VERTEX Proj. No. 43068

**FIGURE NO. 1**

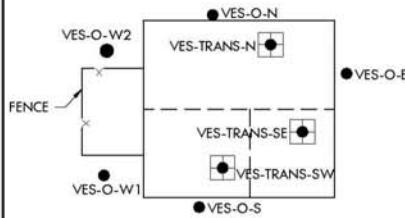


**LEGEND:**

- MONITORING WELL
  - SOIL BORING
  - SURFICIAL SOIL / STOCKPILE SAMPLE
  - CONCRETE SAMPLE
  - SS2 SEDIMENT SAMPLE
  - APPROXIMATE PCB LRA AREA  
(See Figure 3 for more detail)

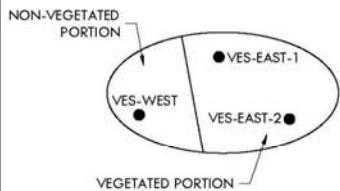
## MAINTANANCE BUILDING DETAIL

N.T.S.



## TRANSFORMER BUILDING DETAIL

N.T.S.



## SOIL STOCK PILE DETAIL

N.T.S



0 500 1000 1500

SCALE: 1" = 500'-0'  
(WHEN PRINTED AT 11x17)

#### NOTES:

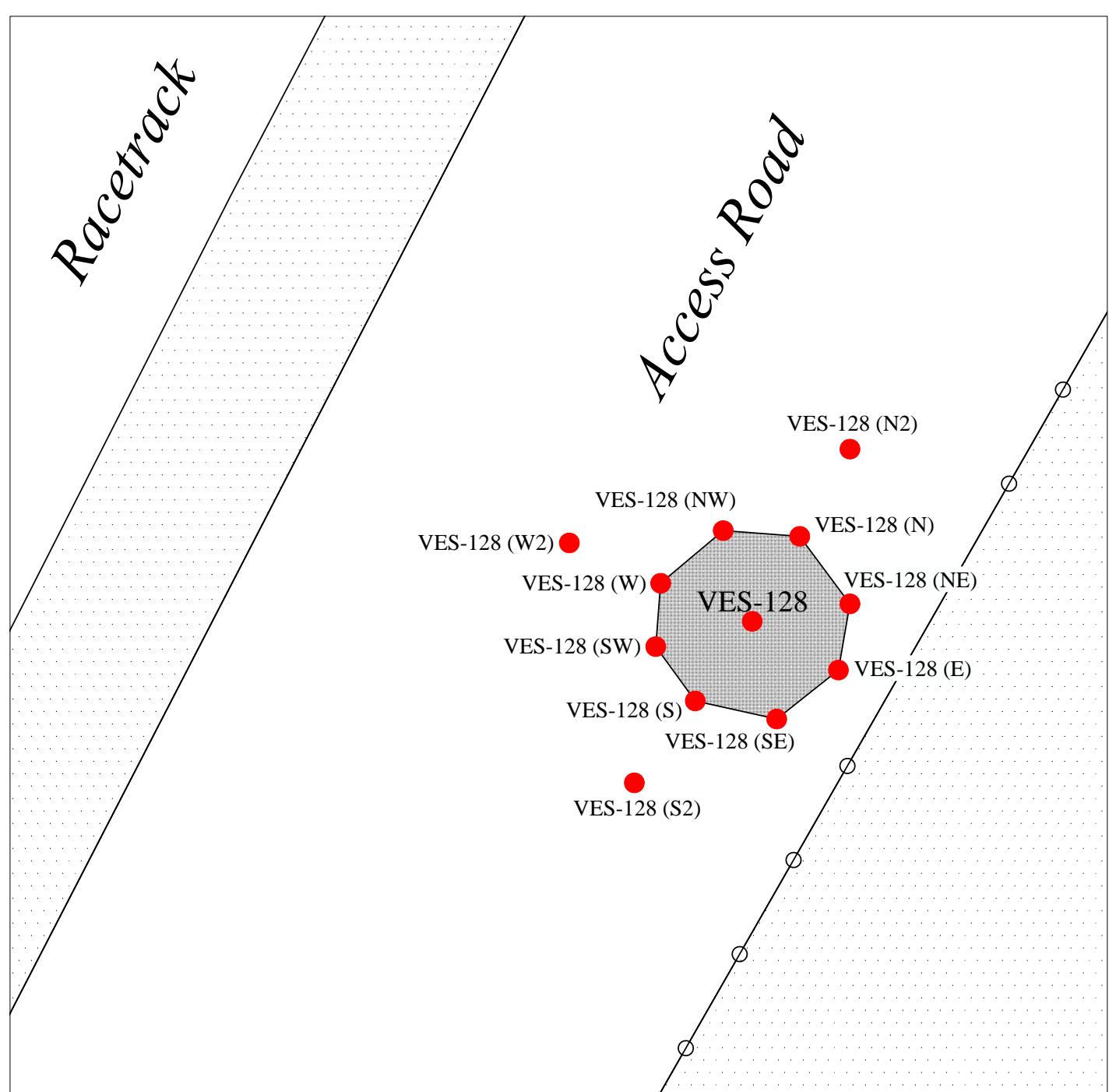
PLAN BASED OF ALTA SURVEY PREPARED BY NITSCH ENGINEERING OF BOSTON,  
MASSACHUSETTS COMPANY DATED JANUARY 2017.



VERTEX FEBRUARY 2017 SAMPLING LOCATIONS	
SUFFOLK DOWNS	525 WILLIAM F MCCLELLAN HIGHWAY
	EAST BOSTON AND REVERE, MASSACHUSETTS

**FIGURE**  
**2**

VIRTUE



0 7.5 15 22.5

SCALE: 1" = 7.5'

### LEGEND:

- VES-128 (W2) ● Approximate Boring Location
- Approximate Area of PCB Impact
- Fence
- Landscape/Grass/Trees

### VES-128 DELINEATION

SUFFOLK DOWNS  
525 William F McClellan Highway  
East Boston and Revere, Massachusetts

Date: 08/14/2017  
Drawn: KLNS  
Checked: WJC  
Job No.: 43068

FIGURE

3

**VERTEX®**

## **TABLES**

**VERTEX®**

**TABLE 1 - SUMMARY OF SOIL ANALYTICAL RESULTS: VES-128**  
**SUFFOLK DOWNS**  
**525 WILLIAM F. MCCLELLAN HIGHWAY**  
**BOSTON, MASSACHUSETTS 02128**  
**VERTEX PROJECT NO. 43068**

LOCATION	MCP Reportable Concentration RCS-1	MA Lined Landfill Criteria (LLF)	MA Unlined Landfill Criteria (ULF)	Units	VES-128 (1-2)
SAMPLING DATE					2/16/2017
LAB SAMPLE ID					L1704984-12
SAMPLE TYPE					SOIL
FILL OR NATIVE SOIL					FILL
SAMPLE DEPTH (FEET bgs)					1-2
<b>Extractable Petroleum Hydrocarbons (EPH)</b>					
C9-C18 Aliphatics	1000	NS	NS	mg/kg	8.12
C19-C36 Aliphatics	3000	NS	NS	mg/kg	20.7
C11-C22 Aromatics	1000	NS	NS	mg/kg	123
C11-C22 Aromatics, Adjusted	1000	NS	NS	mg/kg	83.3
Naphthalene	4	NS	NS	mg/kg	ND(0.358)
2-Methylnaphthalene	0.7	NS	NS	mg/kg	ND(0.358)
Acenaphthylene	1	NS	NS	mg/kg	ND(0.358)
Acenaphthene	4	NS	NS	mg/kg	ND(0.358)
Fluorene	1000	NS	NS	mg/kg	ND(0.358)
Phenanthrene	10	NS	NS	mg/kg	4
Anthracene	1000	NS	NS	mg/kg	1.08
Fluoranthene	1000	NS	NS	mg/kg	6.61
Pyrene	1000	NS	NS	mg/kg	6.15
Benzo(a)anthracene	7	NS	NS	mg/kg	3.58
Chrysene	70	NS	NS	mg/kg	3.82
Benzo(b)fluoranthene	7	NS	NS	mg/kg	2.98
Benzo(k)fluoranthene	70	NS	NS	mg/kg	2.85
Benzo(a)pyrene	2	NS	NS	mg/kg	3.56
Indeno(1,2,3-cd)Pyrene	7	NS	NS	mg/kg	2.42
Dibenzo(a,h)anthracene	0.7	NS	NS	mg/kg	0.418
Benzo(ghi)perylene	1000	NS	NS	mg/kg	2.28
<b>General Chemistry</b>					
Specific Conductance @ 25 C	NS	8000	4000	umhos/cm	59
Solids, Total	NS	NS	NS	%	88.8
pH (H)	NS	NS	NS	SU	7.6
Cyanide, Reactive	NS	NS	250	mg/kg	ND(10)
Sulfide, Reactive	NS	NS	500	mg/kg	ND(10)
<b>Ignitability of Solids</b>					
Ignitability	NS	NS	NS	NI	NI
<b>MCP Polychlorinated Biphenyls (PCBs)</b>					
Aroclor 1016	NS	NS	NS	mg/kg	ND(1.79)
Aroclor 1221	NS	NS	NS	mg/kg	ND(1.79)
Aroclor 1232	NS	NS	NS	mg/kg	ND(1.79)
Aroclor 1242	NS	NS	NS	mg/kg	ND(1.79)
Aroclor 1248	NS	NS	NS	mg/kg	ND(1.79)
Aroclor 1254	NS	NS	NS	mg/kg	12.3
Aroclor 1260	NS	NS	NS	mg/kg	10.8
Aroclor 1262	NS	NS	NS	mg/kg	ND(1.79)
Aroclor 1268	NS	NS	NS	mg/kg	ND(1.79)
PCBs, Total	1	2	2	mg/kg	23.1
<b>MCP Semi-Volatile Organic Compounds (SVOCs)</b>					
Acenaphthene	4	NS	NS	mg/kg	ND(0.15)
1,2,4-Trichlorobenzene	2	NS	NS	mg/kg	ND(0.18)
Hexachlorobenzene	0.7	NS	NS	mg/kg	ND(0.11)
Bis(2-chloroethyl)ether	0.7	NS	NS	mg/kg	ND(0.17)
2-Chloronaphthalene	1000	NS	NS	mg/kg	ND(0.18)
1,2-Dichlorobenzene	9	NS	NS	mg/kg	ND(0.18)
1,3-Dichlorobenzene	3	NS	NS	mg/kg	ND(0.18)
1,4-Dichlorobenzene	0.7	NS	NS	mg/kg	ND(0.18)
3,3'-Dichlorobenzidine	3	NS	NS	mg/kg	ND(0.18)
2,4-Dinitrotoluene	0.7	NS	NS	mg/kg	ND(0.18)
2,6-Dinitrotoluene	100	NS	NS	mg/kg	ND(0.18)
Azobenzene	50	NS	NS	mg/kg	ND(0.18)
Fluoranthene	1000	NS	NS	mg/kg	5.1
4-Bromophenyl phenyl ether	100	NS	NS	mg/kg	ND(0.18)
Bis(2-chloroisopropyl)ether	0.7	NS	NS	mg/kg	ND(0.22)
Bis(2-chloroethoxy)methane	500	NS	NS	mg/kg	ND(0.2)
Hexachlorobutadiene	30	NS	NS	mg/kg	ND(0.18)
Hexachloroethane	0.7	NS	NS	mg/kg	ND(0.15)
Isophorone	100	NS	NS	mg/kg	ND(0.17)
Naphthalene	4	NS	NS	mg/kg	0.19
Nitrobenzene	500	NS	NS	mg/kg	ND(0.17)
Bis(2-ethylhexyl)phthalate	90	NS	NS	mg/kg	ND(0.18)
Butyl benzyl phthalate	100	NS	NS	mg/kg	ND(0.18)
Di-n-butylphthalate	50	NS	NS	mg/kg	ND(0.18)
Di-n-octylphthalate	1000	NS	NS	mg/kg	ND(0.18)
Diethyl phthalate	10	NS	NS	mg/kg	ND(0.18)
Dimethyl phthalate	0.7	NS	NS	mg/kg	ND(0.18)
Benzo(a)anthracene	7	NS	NS	mg/kg	3.3
Benzo(a)pyrene	2	NS	NS	mg/kg	3.3

**TABLE 1 - SUMMARY OF SOIL ANALYTICAL RESULTS: VES-128**  
**SUFFOLK DOWNS**  
**525 WILLIAM F. MCCLELLAN HIGHWAY**  
**BOSTON, MASSACHUSETTS 02128**  
**VERTEX PROJECT NO. 43068**

LOCATION	MCP Reportable Concentration RCS-1	MA Lined Landfill Criteria (LLF)	MA Unlined Landfill Criteria (ULF)	Units	VES-128 (1-2)
SAMPLING DATE					2/16/2017
LAB SAMPLE ID					L1704984-12
SAMPLE TYPE					SOIL
FILL OR NATIVE SOIL					FILL
SAMPLE DEPTH (FEET bgs)					1-2
Benzo(b)fluoranthene	7	NS	NS	mg/kg	3.7
Benzo(k)fluoranthene	70	NS	NS	mg/kg	1.4
Chrysene	70	NS	NS	mg/kg	3.1
Acenaphthylene	1	NS	NS	mg/kg	0.15
Anthracene	1000	NS	NS	mg/kg	0.74
Benzo(ghi)perylene	1000	NS	NS	mg/kg	2.1
Fluorene	1000	NS	NS	mg/kg	ND(0.18)
Phenanthrene	10	NS	NS	mg/kg	2.3
Dibenzo(a,h)anthracene	0.7	NS	NS	mg/kg	0.49
Indeno(1,2,3-cd)pyrene	7	NS	NS	mg/kg	2.2
Pyrene	1000	NS	NS	mg/kg	5.2
Aniline	1000	NS	NS	mg/kg	ND(0.22)
4-Chloroaniline	1	NS	NS	mg/kg	ND(0.18)
Dibenzofuran	100	NS	NS	mg/kg	ND(0.18)
2-Methylnaphthalene	0.7	NS	NS	mg/kg	ND(0.22)
Acetophenone	1000	NS	NS	mg/kg	ND(0.18)
2,4,6-Trichlorophenol	0.7	NS	NS	mg/kg	ND(0.11)
2-Chlorophenol	0.7	NS	NS	mg/kg	ND(0.18)
2,4-Dichlorophenol	0.7	NS	NS	mg/kg	ND(0.17)
2,4-Dimethylphenol	0.7	NS	NS	mg/kg	ND(0.18)
2-Nitrophenol	100	NS	NS	mg/kg	ND(0.4)
4-Nitrophenol	100	NS	NS	mg/kg	ND(0.26)
2,4-Dinitrophenol	3	NS	NS	mg/kg	ND(0.89)
Pentachlorophenol	3	NS	NS	mg/kg	ND(0.37)
Phenol	1	NS	NS	mg/kg	ND(0.18)
2-Methylphenol	500	NS	NS	mg/kg	ND(0.18)
3-Methylphenol/4-Methylphenol	500	NS	NS	mg/kg	ND(0.27)
2,4,5-Trichlorophenol	4	NS	NS	mg/kg	ND(0.18)
Pyridine	500	NS	NS	mg/kg	ND(0.2)
SUM	NS	100	100	mg/kg	33.27
<b>MCP Total Metals</b>					
Arsenic, Total	20	40	40	mg/kg	20
Barium, Total	1000	NS	NS	mg/kg	250
Cadmium, Total	70	80	30	mg/kg	1.7
Chromium, Total	100	1000	1000	mg/kg	28
Lead, Total	200	2000	1000	mg/kg	570
Mercury, Total	20	10	10	mg/kg	1.53
Selenium, Total	400	NS	NS	mg/kg	ND(2.2)
Silver, Total	100	NS	NS	mg/kg	0.68
<b>TCLP Metals by EPA 1312</b>					
Lead, TCLP	NS			mg/L	NA
<b>MCP Volatile Organic Compounds (VOCs)</b>					
Methylene chloride	0.1	NS	NS	mg/kg	ND(0.01)
1,1-Dichloroethane	0.4	NS	NS	mg/kg	ND(0.0015)
Chloroform	0.2	NS	NS	mg/kg	ND(0.0015)
Carbon tetrachloride	5	NS	NS	mg/kg	ND(0.001)
1,2-Dichloropropane	0.1	NS	NS	mg/kg	ND(0.0035)
Dibromochloromethane	0.005	NS	NS	mg/kg	ND(0.001)
1,1,2-Trichloroethane	0.1	NS	NS	mg/kg	ND(0.0015)
Tetrachloroethene	1	NS	NS	mg/kg	ND(0.001)
Chlorobenzene	1	NS	NS	mg/kg	ND(0.001)
Trichlorofluoromethane	1000	NS	NS	mg/kg	ND(0.004)
1,2-Dichloroethane	0.1	NS	NS	mg/kg	ND(0.001)
1,1,1-Trichloroethane	30	NS	NS	mg/kg	ND(0.001)
Bromodichloromethane	0.1	NS	NS	mg/kg	ND(0.001)
trans-1,3-Dichloropropene	0.01	NS	NS	mg/kg	ND(0.001)
cis-1,3-Dichloropropene	0.01	NS	NS	mg/kg	ND(0.001)
1,3-Dichloropropene, Total	0.01	NS	NS	mg/kg	ND(0.001)
1,1-Dichloropropene	NS	NS	NS	mg/kg	ND(0.004)
Bromoform	0.1	NS	NS	mg/kg	ND(0.004)
1,1,2,2-Tetrachloroethane	0.005	NS	NS	mg/kg	ND(0.001)
Benzene	2	NS	NS	mg/kg	ND(0.001)
Toluene	30	NS	NS	mg/kg	ND(0.0015)
Ethylbenzene	40	NS	NS	mg/kg	ND(0.001)
Chloromethane	100	NS	NS	mg/kg	ND(0.004)
Bromomethane	0.5	NS	NS	mg/kg	ND(0.002)
Vinyl chloride	0.7	NS	NS	mg/kg	ND(0.002)
Chloroethane	100	NS	NS	mg/kg	ND(0.002)
1,1-Dichloroethene	3	NS	NS	mg/kg	ND(0.001)

**TABLE 1 - SUMMARY OF SOIL ANALYTICAL RESULTS: VES-128**  
**SUFFOLK DOWNS**  
**525 WILLIAM F. MCCLELLAN HIGHWAY**  
**BOSTON, MASSACHUSETTS 02128**  
**VERTEX PROJECT NO. 43068**

LOCATION	MCP Reportable Concentration RCS-1	MA Lined Landfill Criteria (LLF)	MA Unlined Landfill Criteria (ULF)	Units	VES-128 (1-2)
SAMPLING DATE					2/16/2017
LAB SAMPLE ID					L1704984-12
SAMPLE TYPE					SOIL
FILL OR NATIVE SOIL					FILL
SAMPLE DEPTH (FEET bgs)					1-2
trans-1,2-Dichloroethene	1	NS	NS	mg/kg	ND(0.0015)
Trichloroethene	0.3	NS	NS	mg/kg	ND(0.001)
1,2-Dichlorobenzene	9	NS	NS	mg/kg	ND(0.004)
1,3-Dichlorobenzene	3	NS	NS	mg/kg	ND(0.004)
1,4-Dichlorobenzene	0.7	NS	NS	mg/kg	ND(0.004)
Methyl tert butyl ether	0.1	NS	NS	mg/kg	ND(0.002)
p/m-Xylene	NS	NS	NS	mg/kg	ND(0.002)
o-Xylene	NS	NS	NS	mg/kg	ND(0.002)
Xylenes, Total	100	NS	NS	mg/kg	ND(0.002)
cis-1,2-Dichloroethene	0.1	NS	NS	mg/kg	ND(0.001)
1,2-Dichloroethene, Total	0.3	NS	NS	mg/kg	ND(0.001)
Dibromomethane	500	NS	NS	mg/kg	ND(0.004)
1,2,3-Trichloropropane	100	NS	NS	mg/kg	ND(0.004)
Styrene	3	NS	NS	mg/kg	ND(0.002)
Dichlorodifluoromethane	1000	NS	NS	mg/kg	ND(0.01)
Acetone	6	NS	NS	mg/kg	ND(0.036)
Carbon disulfide	100	NS	NS	mg/kg	ND(0.004)
Methyl ethyl ketone	4	NS	NS	mg/kg	ND(0.01)
Methyl isobutyl ketone	0.4	NS	NS	mg/kg	ND(0.01)
2-Hexanone	100	NS	NS	mg/kg	ND(0.01)
Bromoform	NS	NS	NS	mg/kg	ND(0.004)
Tetrahydrofuran	500	NS	NS	mg/kg	ND(0.004)
2,2-Dichloropropane	NS	NS	NS	mg/kg	ND(0.005)
1,2-Dibromoethane	0.1	NS	NS	mg/kg	ND(0.004)
1,3-Dichloropropane	500	NS	NS	mg/kg	ND(0.004)
1,1,1,2-Tetrachloroethane	0.1	NS	NS	mg/kg	ND(0.001)
Bromobenzene	100	NS	NS	mg/kg	ND(0.005)
n-Butylbenzene	NS	NS	NS	mg/kg	ND(0.001)
sec-Butylbenzene	NS	NS	NS	mg/kg	ND(0.001)
tert-Butylbenzene	100	NS	NS	mg/kg	ND(0.004)
o-Chlorotoluene	100	NS	NS	mg/kg	ND(0.004)
p-Chlorotoluene	NS	NS	NS	mg/kg	ND(0.004)
1,2-Dibromo-3-chloropropane	10	NS	NS	mg/kg	ND(0.004)
Hexachlorobutadiene	30	NS	NS	mg/kg	ND(0.004)
Isopropylbenzene	1000	NS	NS	mg/kg	ND(0.001)
p-Isopropyltoluene	100	NS	NS	mg/kg	ND(0.001)
Naphthalene	4	NS	NS	mg/kg	ND(0.004)
n-Propylbenzene	100	NS	NS	mg/kg	ND(0.001)
1,2,3-Trichlorobenzene	NS	NS	NS	mg/kg	ND(0.004)
1,2,4-Trichlorobenzene	2	NS	NS	mg/kg	ND(0.004)
1,3,5-Trimethylbenzene	10	NS	NS	mg/kg	ND(0.004)
1,2,4-Trimethylbenzene	1000	NS	NS	mg/kg	ND(0.004)
Diethyl ether	100	NS	NS	mg/kg	ND(0.005)
Diisopropyl Ether	100	NS	NS	mg/kg	ND(0.004)
Ethyl-Tert-Butyl-Ether	NS	NS	NS	mg/kg	ND(0.004)
Tertiary-Amyl Methyl Ether	NS	NS	NS	mg/kg	ND(0.004)
1,4-Dioxane	0.2	NS	NS	mg/kg	ND(0.04)
SUM	NS	10	4	mg/kg	NA
<b>Volatile Petroleum Hydrocarbons (VPH)</b>					
C5-C8 Aliphatics	100	NS	NS	mg/kg	ND(13.6)
C9-C12 Aliphatics	1000	NS	NS	mg/kg	ND(13.6)
C9-C10 Aromatics	100	NS	NS	mg/kg	ND(13.6)
C5-C8 Aliphatics, Adjusted	100	NS	NS	mg/kg	ND(13.6)
C9-C12 Aliphatics, Adjusted	1000	NS	NS	mg/kg	ND(13.6)

Notes:

- Units presented in milligrams per kilogram (mg/kg), unless otherwise noted
- Massachusetts Department of Environmental Protection (MassDEP) Policy # COMM-97-001 "Reuse and Disposal of Contaminated Soil at Massachusetts Landfills" August 15, 1997.
- For compounds not listed at 310 CMR 40.0996(6), a default UCL of 1,000 mg/kg was used (italicized)
- Reportable Concentrations obtained from 310 CMR 40.1600 dated April 2014
- N/A = Not Applicable
- ND = Not Detected above laboratory reporting limits shown in parentheses
- NA = Not Analyzed
- NS = No Standard
- Bold and highlighted values exceed the applicable standard
- Full analytical results, including QA/QC information and data flags, are detailed in the laboratory analytical report
- Soil samples collected by The Vertex Companies, Inc.

**TABLE 1 - SUMMARY OF SOIL ANALYTICAL RESULTS: VES-128**  
**SUFFOLK DOWNS**  
**525 WILLIAM F. MCCLELLAN HIGHWAY**  
**BOSTON, MASSACHUSETTS 02128**  
**VERTEX PROJECT NO. 43068**

LOCATION	MCP Reportable Concentration RCS-1	MA Lined Landfill Criteria (LLF)	MA Unlined Landfill Criteria (ULF)	Units	VES-128 (0-2)
SAMPLING DATE					9/15/2017
LAB SAMPLE ID					L1732917-01
SAMPLE TYPE					SOIL
FILL OR NATIVE SOIL					FILL
SAMPLE DEPTH (FEET bgs)					0-2
<b>Extractable Petroleum Hydrocarbons (EPH)</b>					
C9-C18 Aliphatics	1000	NS	NS	mg/kg	NA
C19-C36 Aliphatics	3000	NS	NS	mg/kg	NA
C11-C22 Aromatics	1000	NS	NS	mg/kg	NA
C11-C22 Aromatics, Adjusted	1000	NS	NS	mg/kg	NA
Naphthalene	4	NS	NS	mg/kg	NA
2-Methylnaphthalene	0.7	NS	NS	mg/kg	NA
Acenaphthylene	1	NS	NS	mg/kg	NA
Acenaphthene	4	NS	NS	mg/kg	NA
Fluorene	1000	NS	NS	mg/kg	NA
Phenanthrene	10	NS	NS	mg/kg	NA
Anthracene	1000	NS	NS	mg/kg	NA
Fluoranthene	1000	NS	NS	mg/kg	NA
Pyrene	1000	NS	NS	mg/kg	NA
Benzo(a)anthracene	7	NS	NS	mg/kg	NA
Chrysene	70	NS	NS	mg/kg	NA
Benzo(b)fluoranthene	7	NS	NS	mg/kg	NA
Benzo(k)fluoranthene	70	NS	NS	mg/kg	NA
Benzo(a)pyrene	2	NS	NS	mg/kg	NA
Indeno(1,2,3-cd)Pyrene	7	NS	NS	mg/kg	NA
Dibenzo(a,h)anthracene	0.7	NS	NS	mg/kg	NA
Benzo(ghi)perylene	1000	NS	NS	mg/kg	NA
<b>General Chemistry</b>					
Specific Conductance @ 25 C	NS	8000	4000	umhos/cm	NA
Solids, Total	NS	NS	NS	%	NA
pH (H)	NS	NS	NS	SU	NA
Cyanide, Reactive	NS	NS	250	mg/kg	NA
Sulfide, Reactive	NS	NS	500	mg/kg	NA
<b>Ignitability of Solids</b>					
Ignitability	NS	NS	NS	NI	NA
<b>MCP Polychlorinated Biphenyls (PCBs)</b>					
Aroclor 1016	NS	NS	NS	mg/kg	NA
Aroclor 1221	NS	NS	NS	mg/kg	NA
Aroclor 1232	NS	NS	NS	mg/kg	NA
Aroclor 1242	NS	NS	NS	mg/kg	NA
Aroclor 1248	NS	NS	NS	mg/kg	NA
Aroclor 1254	NS	NS	NS	mg/kg	NA
Aroclor 1260	NS	NS	NS	mg/kg	NA
Aroclor 1262	NS	NS	NS	mg/kg	NA
Aroclor 1268	NS	NS	NS	mg/kg	NA
PCBs, Total	1	2	2	mg/kg	NA
<b>MCP Semi-Volatile Organic Compounds (SVOCs)</b>					
Acenaphthene	4	NS	NS	mg/kg	NA
1,2,4-Trichlorobenzene	2	NS	NS	mg/kg	NA
Hexachlorobenzene	0.7	NS	NS	mg/kg	NA
Bis(2-chloroethyl)ether	0.7	NS	NS	mg/kg	NA
2-Chloronaphthalene	1000	NS	NS	mg/kg	NA
1,2-Dichlorobenzene	9	NS	NS	mg/kg	NA
1,3-Dichlorobenzene	3	NS	NS	mg/kg	NA
1,4-Dichlorobenzene	0.7	NS	NS	mg/kg	NA
3,3'-Dichlorobenzidine	3	NS	NS	mg/kg	NA
2,4-Dinitrotoluene	0.7	NS	NS	mg/kg	NA
2,6-Dinitrotoluene	100	NS	NS	mg/kg	NA
Azobenzene	50	NS	NS	mg/kg	NA
Fluoranthene	1000	NS	NS	mg/kg	NA
4-Bromophenyl phenyl ether	100	NS	NS	mg/kg	NA
Bis(2-chloroisopropyl)ether	0.7	NS	NS	mg/kg	NA
Bis(2-chloroethoxy)methane	500	NS	NS	mg/kg	NA
Hexachlorobutadiene	30	NS	NS	mg/kg	NA
Hexachloroethane	0.7	NS	NS	mg/kg	NA
Isophorone	100	NS	NS	mg/kg	NA
Naphthalene	4	NS	NS	mg/kg	NA
Nitrobenzene	500	NS	NS	mg/kg	NA
Bis(2-ethylhexyl)phthalate	90	NS	NS	mg/kg	NA
Butyl benzyl phthalate	100	NS	NS	mg/kg	NA
Di-n-butylphthalate	50	NS	NS	mg/kg	NA
Di-n-octylphthalate	1000	NS	NS	mg/kg	NA
Diethyl phthalate	10	NS	NS	mg/kg	NA
Dimethyl phthalate	0.7	NS	NS	mg/kg	NA
Benzo(a)anthracene	7	NS	NS	mg/kg	NA
Benzo(a)pyrene	2	NS	NS	mg/kg	NA

**TABLE 1 - SUMMARY OF SOIL ANALYTICAL RESULTS: VES-128**  
**SUFFOLK DOWNS**  
**525 WILLIAM F. MCCLELLAN HIGHWAY**  
**BOSTON, MASSACHUSETTS 02128**  
**VERTEX PROJECT NO. 43068**

LOCATION	MCP Reportable Concentration RCS-1	MA Lined Landfill Criteria (LLF)	MA Unlined Landfill Criteria (ULF)	Units	VES-128 (0-2)
SAMPLING DATE					9/15/2017
LAB SAMPLE ID					L1732917-01
SAMPLE TYPE					SOIL
FILL OR NATIVE SOIL					FILL
SAMPLE DEPTH (FEET bgs)					0-2
Benzo(b)fluoranthene	7	NS	NS	mg/kg	NA
Benzo(k)fluoranthene	70	NS	NS	mg/kg	NA
Chrysene	70	NS	NS	mg/kg	NA
Acenaphthylene	1	NS	NS	mg/kg	NA
Anthracene	1000	NS	NS	mg/kg	NA
Benzo(ghi)perylene	1000	NS	NS	mg/kg	NA
Fluorene	1000	NS	NS	mg/kg	NA
Phenanthrene	10	NS	NS	mg/kg	NA
Dibenzo(a,h)anthracene	0.7	NS	NS	mg/kg	NA
Indeno(1,2,3-cd)pyrene	7	NS	NS	mg/kg	NA
Pyrene	1000	NS	NS	mg/kg	NA
Aniline	1000	NS	NS	mg/kg	NA
4-Chloroaniline	1	NS	NS	mg/kg	NA
Dibenzofuran	100	NS	NS	mg/kg	NA
2-Methylnaphthalene	0.7	NS	NS	mg/kg	NA
Acetophenone	1000	NS	NS	mg/kg	NA
2,4,6-Trichlorophenol	0.7	NS	NS	mg/kg	NA
2-Chlorophenol	0.7	NS	NS	mg/kg	NA
2,4-Dichlorophenol	0.7	NS	NS	mg/kg	NA
2,4-Dimethylphenol	0.7	NS	NS	mg/kg	NA
2-Nitrophenol	100	NS	NS	mg/kg	NA
4-Nitrophenol	100	NS	NS	mg/kg	NA
2,4-Dinitrophenol	3	NS	NS	mg/kg	NA
Pentachlorophenol	3	NS	NS	mg/kg	NA
Phenol	1	NS	NS	mg/kg	NA
2-Methylphenol	500	NS	NS	mg/kg	NA
3-Methylphenol/4-Methylphenol	500	NS	NS	mg/kg	NA
2,4,5-Trichlorophenol	4	NS	NS	mg/kg	NA
Pyridine	500	NS	NS	mg/kg	NA
SUM	NS	100	100	mg/kg	NA
<b>MCP Total Metals</b>					
Arsenic, Total	20	40	40	mg/kg	NA
Barium, Total	1000	NS	NS	mg/kg	NA
Cadmium, Total	70	80	30	mg/kg	NA
Chromium, Total	100	1000	1000	mg/kg	NA
Lead, Total	200	2000	1000	mg/kg	NA
Mercury, Total	20	10	10	mg/kg	NA
Selenium, Total	400	NS	NS	mg/kg	NA
Silver, Total	100	NS	NS	mg/kg	NA
<b>TCLP Metals by EPA 1312</b>					
Lead, TCLP	NS			mg/L	ND(0.5)
<b>MCP Volatile Organic Compounds (VOCs)</b>					
Methylene chloride	0.1	NS	NS	mg/kg	NA
1,1-Dichloroethane	0.4	NS	NS	mg/kg	NA
Chloroform	0.2	NS	NS	mg/kg	NA
Carbon tetrachloride	5	NS	NS	mg/kg	NA
1,2-Dichloropropane	0.1	NS	NS	mg/kg	NA
Dibromochloromethane	0.005	NS	NS	mg/kg	NA
1,1,2-Trichloroethane	0.1	NS	NS	mg/kg	NA
Tetrachloroethene	1	NS	NS	mg/kg	NA
Chlorobenzene	1	NS	NS	mg/kg	NA
Trichlorofluoromethane	1000	NS	NS	mg/kg	NA
1,2-Dichloroethane	0.1	NS	NS	mg/kg	NA
1,1,1-Trichloroethane	30	NS	NS	mg/kg	NA
Bromodichloromethane	0.1	NS	NS	mg/kg	NA
trans-1,3-Dichloropropene	0.01	NS	NS	mg/kg	NA
cis-1,3-Dichloropropene	0.01	NS	NS	mg/kg	NA
1,3-Dichloropropene, Total	0.01	NS	NS	mg/kg	NA
1,1-Dichloropropene	NS	NS	NS	mg/kg	NA
Bromoform	0.1	NS	NS	mg/kg	NA
1,1,2,2-Tetrachloroethane	0.005	NS	NS	mg/kg	NA
Benzene	2	NS	NS	mg/kg	NA
Toluene	30	NS	NS	mg/kg	NA
Ethylbenzene	40	NS	NS	mg/kg	NA
Chloromethane	100	NS	NS	mg/kg	NA
Bromomethane	0.5	NS	NS	mg/kg	NA
Vinyl chloride	0.7	NS	NS	mg/kg	NA
Chloroethane	100	NS	NS	mg/kg	NA
1,1-Dichloroethene	3	NS	NS	mg/kg	NA

**TABLE 1 - SUMMARY OF SOIL ANALYTICAL RESULTS: VES-128**  
**SUFFOLK DOWNS**  
**525 WILLIAM F. MCCLELLAN HIGHWAY**  
**BOSTON, MASSACHUSETTS 02128**  
**VERTEX PROJECT NO. 43068**

LOCATION	MCP Reportable Concentration RCS-1	MA Lined Landfill Criteria (LLF)	MA Unlined Landfill Criteria (ULF)	Units	VES-128 (0-2)
SAMPLING DATE					9/15/2017
LAB SAMPLE ID					L1732917-01
SAMPLE TYPE					SOIL
FILL OR NATIVE SOIL					FILL
SAMPLE DEPTH (FEET bgs)					0-2
trans-1,2-Dichloroethene	1	NS	NS	mg/kg	NA
Trichloroethene	0.3	NS	NS	mg/kg	NA
1,2-Dichlorobenzene	9	NS	NS	mg/kg	NA
1,3-Dichlorobenzene	3	NS	NS	mg/kg	NA
1,4-Dichlorobenzene	0.7	NS	NS	mg/kg	NA
Methyl tert butyl ether	0.1	NS	NS	mg/kg	NA
p/m-Xylene	NS	NS	NS	mg/kg	NA
o-Xylene	NS	NS	NS	mg/kg	NA
Xylenes, Total	100	NS	NS	mg/kg	NA
cis-1,2-Dichloroethene	0.1	NS	NS	mg/kg	NA
1,2-Dichloroethene, Total	0.3	NS	NS	mg/kg	NA
Dibromomethane	500	NS	NS	mg/kg	NA
1,2,3-Trichloropropane	100	NS	NS	mg/kg	NA
Styrene	3	NS	NS	mg/kg	NA
Dichlorodifluoromethane	1000	NS	NS	mg/kg	NA
Acetone	6	NS	NS	mg/kg	NA
Carbon disulfide	100	NS	NS	mg/kg	NA
Methyl ethyl ketone	4	NS	NS	mg/kg	NA
Methyl isobutyl ketone	0.4	NS	NS	mg/kg	NA
2-Hexanone	100	NS	NS	mg/kg	NA
Bromoform	NS	NS	NS	mg/kg	NA
Tetrahydrofuran	500	NS	NS	mg/kg	NA
2,2-Dichloropropane	NS	NS	NS	mg/kg	NA
1,2-Dibromoethane	0.1	NS	NS	mg/kg	NA
1,3-Dichloropropane	500	NS	NS	mg/kg	NA
1,1,1,2-Tetrachloroethane	0.1	NS	NS	mg/kg	NA
Bromobenzene	100	NS	NS	mg/kg	NA
n-Butylbenzene	NS	NS	NS	mg/kg	NA
sec-Butylbenzene	NS	NS	NS	mg/kg	NA
tert-Butylbenzene	100	NS	NS	mg/kg	NA
o-Chlorotoluene	100	NS	NS	mg/kg	NA
p-Chlorotoluene	NS	NS	NS	mg/kg	NA
1,2-Dibromo-3-chloropropane	10	NS	NS	mg/kg	NA
Hexachlorobutadiene	30	NS	NS	mg/kg	NA
Isopropylbenzene	1000	NS	NS	mg/kg	NA
p-Isopropyltoluene	100	NS	NS	mg/kg	NA
Naphthalene	4	NS	NS	mg/kg	NA
n-Propylbenzene	100	NS	NS	mg/kg	NA
1,2,3-Trichlorobenzene	NS	NS	NS	mg/kg	NA
1,2,4-Trichlorobenzene	2	NS	NS	mg/kg	NA
1,3,5-Trimethylbenzene	10	NS	NS	mg/kg	NA
1,2,4-Trimethylbenzene	1000	NS	NS	mg/kg	NA
Diethyl ether	100	NS	NS	mg/kg	NA
Diisopropyl Ether	100	NS	NS	mg/kg	NA
Ethyl-Tert-Butyl-Ether	NS	NS	NS	mg/kg	NA
Tertiary-Amyl Methyl Ether	NS	NS	NS	mg/kg	NA
1,4-Dioxane	0.2	NS	NS	mg/kg	NA
SUM	NS	10	4	mg/kg	NA
<b>Volatile Petroleum Hydrocarbons (VPH)</b>					
C5-C8 Aliphatics	100	NS	NS	mg/kg	NA
C9-C12 Aliphatics	1000	NS	NS	mg/kg	NA
C9-C10 Aromatics	100	NS	NS	mg/kg	NA
C5-C8 Aliphatics, Adjusted	100	NS	NS	mg/kg	NA
C9-C12 Aliphatics, Adjusted	1000	NS	NS	mg/kg	NA

Notes:

- Units presented in milligrams per kilogram (mg/kg), unless otherwise noted
- Massachusetts Department of Environmental Protection (MassDEP) Policy # COMM-97-001 "Reuse and Disposal of Contaminated Soil at Massachusetts Landfills" August 15, 1997.
- For compounds not listed at 310 CMR 40.0996(6), a default UCL of 1,000 mg/kg was used (italicized)
- Reportable Concentrations obtained from 310 CMR 40.1600 dated April 2014
- N/A = Not Applicable
- ND = Not Detected above laboratory reporting limits shown in parentheses
- NA = Not Analyzed
- NS = No Standard
- Bold and highlighted values exceed the applicable standard
- Full analytical results, including QA/QC information and data flags, are detailed in the laboratory analytical report
- Soil samples collected by The Vertex Companies, Inc.

**TABLE 2 - SUMMARY OF PCB ANALYTICAL RESULTS: VES-128**  
**SUFFOLK DOWNS**  
**525 WILLIAM F. MCCLELLAN HIGHWAY**  
**BOSTON, MASSACHUSETTS 02128**  
**VERTEX PROJECT NO. 43068**

LOCATION	MCP Upper Concentration Limits (UCLs)	MCP Reportable Concentration RCS-1	VES-128 (2-4)	VES-128 (E) 0-2	VES-128 (SE) 0-2	VES-128 (S) 0-2	VES-128 (W) 0-2	VES-128 (SW) 0-2	VES-128 (NW) 0-2	VES-128 (N) 0-2	VES-128 (NE) 0-2
SAMPLING DATE			6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017
LAB SAMPLE ID			L1721774-01	L1721774-02	L1721774-03	L1721774-04	L1721774-05	L1721774-06	L1721774-07	L1721774-08	L1721774-09
SAMPLE DEPTH (ft.)			2-4	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
<b>Polychlorinated Biphenyls (PCBs)</b>											
Aroclor 1016	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1221	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1232	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1242	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1248	100	1	ND(0.0208)	ND(0.0177)	ND(0.0166)	ND(0.0138)	ND(0.0142)	ND(0.0189)	ND(0.0138)	ND(0.0136)	ND(0.0144)
Aroclor 1254	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1260	100	1	ND(0.0208)	ND(0.0177)	ND(0.0166)	ND(0.0138)	ND(0.0142)	ND(0.0189)	ND(0.0138)	ND(0.0136)	ND(0.0144)
Aroclor 1262	100	1	ND(0.0104)	ND(0.0088)	ND(0.0083)	ND(0.0069)	ND(0.0071)	ND(0.0094)	ND(0.0069)	ND(0.0068)	ND(0.0072)
Aroclor 1268	100	1	ND(0.0104)	ND(0.0088)	ND(0.0083)	ND(0.0069)	ND(0.0071)	ND(0.0094)	ND(0.0069)	ND(0.0068)	ND(0.0072)
PCBs, Total	100	1	ND(0.0104)	ND(0.0088)	ND(0.0083)	ND(0.0069)	ND(0.0071)	ND(0.0094)	ND(0.0069)	ND(0.0068)	ND(0.0072)

Notes:

- Units presented in milligrams per kilogram (mg/kg), unless otherwise noted
- Reportable Concentrations obtained from 310 CMR 40.1600 dated April 2014
- ND = Not Detected above laboratory reporting limits shown in parentheses
- Full analytical results, including QA/QC information and data flags, are detailed in the laboratory analytical report
- Soil samples collected by The Vertex Companies, Inc.

**APPENDIX A  
LABORATORY ANALYTICAL REPORTS**

**VERTEX®**



## ANALYTICAL REPORT

Lab Number:	L1704984
Client:	Vertex Environmental Services, Inc. 400 Libbey Pkwy Weymouth, MA 02184
ATTN:	Bill Gibbons
Phone:	(617) 830-1540
Project Name:	E. BOSTON
Project Number:	43068
Report Date:	02/21/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NH (2003), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

"Data pertaining to other samples not relevant to this LSP Opinion have been omitted."

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1704984-01	VES-131 (0-2)	SOIL	E. BOSTON	02/16/17 13:10	02/16/17
L1704984-02	VES-131 (3-5)	SOIL	E. BOSTON	02/16/17 13:15	02/16/17
L1704984-03	VES-130 (2-4)	SOIL	E. BOSTON	02/16/17 11:50	02/16/17
L1704984-04	VES-130 (3-10)	SOIL	E. BOSTON	02/16/17 11:55	02/16/17
L1704984-05	VES-134 (2-4)	SOIL	E. BOSTON	02/16/17 11:00	02/16/17
L1704984-06	VES-136 (0-2)	SOIL	E. BOSTON	02/16/17 09:15	02/16/17
L1704984-07	VES-136 (3-5)	SOIL	E. BOSTON	02/16/17 09:20	02/16/17
L1704984-08	VES-136 (10-12)	SOIL	E. BOSTON	02/16/17 09:25	02/16/17
L1704984-09	VES-107 (0-2)	SOIL	E. BOSTON	02/16/17 08:15	02/16/17
L1704984-10	VES-107 (2-4)	SOIL	E. BOSTON	02/16/17 08:20	02/16/17
L1704984-11	VES-105 (1-6)	SOIL	E. BOSTON	02/16/17 07:40	02/16/17
L1704984-12	VES-128 (1-2)	SOIL	E. BOSTON	02/16/17 12:00	02/16/17

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

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

<b>A response to questions G, H and I is required for "Presumptive Certainty" status</b>		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

**For any questions answered "No", please refer to the case narrative section on the following page(s).**

Please note that sample matrix information is located in the Sample Results section of this report.



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Case Narrative (continued)

#### MCP Related Narratives

##### Sample Receipt

##### In reference to question H:

A Matrix Spike was not submitted for the analysis of Metals.

#### Volatile Organics

##### In reference to question H:

L1704984-03: The internal standard (IS) response for 1,4-dichlorobenzene-d4 (45%) and the surrogate recovery for 1,2-dichloroethane-d4 (133%) were outside the acceptance criteria; however, re-analysis could not be performed because the other low-level vial was broken. The results of the original analysis are reported; however, since the IS response was below the method criteria, all associated compounds and surrogate recoveries are considered to have a potentially high bias. A high-level analysis was performed and those results are also reported.

The initial calibration, associated with L1704984-02 through -05, -07, -08, -10,-11, and -12, did not meet the method required minimum response factor on the lowest calibration standard for 1,4-dioxane (0.0014), as well as the average response factor for 1,4-dioxane. The initial calibration verification is outside acceptance criteria for dichlorodifluoromethane (66%) and carbon disulfide (66%), but within overall method criteria.

The continuing calibration standards, associated with L1704984-02 through -05, -07, -08, -10, -11, and -12, is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

#### Semivolatile Organics

##### In reference to question G:

L1704984-11: One or more of the target analytes did not achieve the requested CAM reporting limits.

#### VPH

##### In reference to question I:

All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Case Narrative (continued)

#### EPH

In reference to question G:

L1704984-11: One or more of the target analytes did not achieve the requested CAM reporting limits.

#### PCBs

In reference to question G:

L1704984-12: One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

L1704984-12: The surrogate recoveries are below the acceptance criteria for 2,4,5,6-tetrachloro-m-xylene (0%) and decachlorobiphenyl (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

#### Pesticides

A copy of the Degradation Standards for 4,4'-DDT and Endrin breakdown products is included as an addendum.

In reference to question G:

One or more of the target analytes did not achieve the requested CAM reporting limits.

#### Metals

In reference to question I:

All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

#### Non-MCP Related Narratives

#### Specific Conductance @ 25 C

The WG978620-2 Laboratory Duplicate RPD (56%), performed on L1704984-02, is above the acceptance criteria; however, the sample and duplicate results are less than five times the reporting limit. Therefore, the RPD is valid.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 02/21/17

# ORGANICS



# VOLATILES



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**SAMPLE RESULTS**

Lab ID: L1704984-12  
Client ID: VES-128 (1-2)  
Sample Location: E. BOSTON  
Matrix: Soil  
Analytical Method: 97,8260C  
Analytical Date: 02/17/17 19:49  
Analyst: PK  
Percent Solids: 89%

Date Collected: 02/16/17 12:00  
Date Received: 02/16/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>MCP Volatile Organics by 8260/5035 - Westborough Lab</b>						
Methylene chloride	ND	ug/kg	10	--	--	1
1,1-Dichloroethane	ND	ug/kg	1.5	--	--	1
Chloroform	ND	ug/kg	1.5	--	--	1
Carbon tetrachloride	ND	ug/kg	1.0	--	--	1
1,2-Dichloropropane	ND	ug/kg	3.5	--	--	1
Dibromochloromethane	ND	ug/kg	1.0	--	--	1
1,1,2-Trichloroethane	ND	ug/kg	1.5	--	--	1
Tetrachloroethene	ND	ug/kg	1.0	--	--	1
Chlorobenzene	ND	ug/kg	1.0	--	--	1
Trichlorofluoromethane	ND	ug/kg	4.0	--	--	1
1,2-Dichloroethane	ND	ug/kg	1.0	--	--	1
1,1,1-Trichloroethane	ND	ug/kg	1.0	--	--	1
Bromodichloromethane	ND	ug/kg	1.0	--	--	1
trans-1,3-Dichloropropene	ND	ug/kg	1.0	--	--	1
cis-1,3-Dichloropropene	ND	ug/kg	1.0	--	--	1
1,3-Dichloropropene, Total	ND	ug/kg	1.0	--	--	1
1,1-Dichloropropene	ND	ug/kg	4.0	--	--	1
Bromoform	ND	ug/kg	4.0	--	--	1
1,1,2,2-Tetrachloroethane	ND	ug/kg	1.0	--	--	1
Benzene	ND	ug/kg	1.0	--	--	1
Toluene	ND	ug/kg	1.5	--	--	1
Ethylbenzene	ND	ug/kg	1.0	--	--	1
Chloromethane	ND	ug/kg	4.0	--	--	1
Bromomethane	ND	ug/kg	2.0	--	--	1
Vinyl chloride	ND	ug/kg	2.0	--	--	1
Chloroethane	ND	ug/kg	2.0	--	--	1
1,1-Dichloroethene	ND	ug/kg	1.0	--	--	1
trans-1,2-Dichloroethene	ND	ug/kg	1.5	--	--	1
Trichloroethene	ND	ug/kg	1.0	--	--	1
1,2-Dichlorobenzene	ND	ug/kg	4.0	--	--	1



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**SAMPLE RESULTS**

Lab ID:	L1704984-12	Date Collected:	02/16/17 12:00			
Client ID:	VES-128 (1-2)	Date Received:	02/16/17			
Sample Location:	E. BOSTON	Field Prep:	Not Specified			
Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>MCP Volatile Organics by 8260/5035 - Westborough Lab</b>						
1,3-Dichlorobenzene	ND	ug/kg	4.0	--	1	
1,4-Dichlorobenzene	ND	ug/kg	4.0	--	1	
Methyl tert butyl ether	ND	ug/kg	2.0	--	1	
p/m-Xylene	ND	ug/kg	2.0	--	1	
o-Xylene	ND	ug/kg	2.0	--	1	
Xylenes, Total	ND	ug/kg	2.0	--	1	
cis-1,2-Dichloroethene	ND	ug/kg	1.0	--	1	
1,2-Dichloroethene, Total	ND	ug/kg	1.0	--	1	
Dibromomethane	ND	ug/kg	4.0	--	1	
1,2,3-Trichloropropane	ND	ug/kg	4.0	--	1	
Styrene	ND	ug/kg	2.0	--	1	
Dichlorodifluoromethane	ND	ug/kg	10	--	1	
Acetone	ND	ug/kg	36	--	1	
Carbon disulfide	ND	ug/kg	4.0	--	1	
Methyl ethyl ketone	ND	ug/kg	10	--	1	
Methyl isobutyl ketone	ND	ug/kg	10	--	1	
2-Hexanone	ND	ug/kg	10	--	1	
Bromochloromethane	ND	ug/kg	4.0	--	1	
Tetrahydrofuran	ND	ug/kg	4.0	--	1	
2,2-Dichloropropane	ND	ug/kg	5.0	--	1	
1,2-Dibromoethane	ND	ug/kg	4.0	--	1	
1,3-Dichloropropane	ND	ug/kg	4.0	--	1	
1,1,1,2-Tetrachloroethane	ND	ug/kg	1.0	--	1	
Bromobenzene	ND	ug/kg	5.0	--	1	
n-Butylbenzene	ND	ug/kg	1.0	--	1	
sec-Butylbenzene	ND	ug/kg	1.0	--	1	
tert-Butylbenzene	ND	ug/kg	4.0	--	1	
o-Chlorotoluene	ND	ug/kg	4.0	--	1	
p-Chlorotoluene	ND	ug/kg	4.0	--	1	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.0	--	1	
Hexachlorobutadiene	ND	ug/kg	4.0	--	1	
Isopropylbenzene	ND	ug/kg	1.0	--	1	
p-Isopropyltoluene	ND	ug/kg	1.0	--	1	
Naphthalene	ND	ug/kg	4.0	--	1	
n-Propylbenzene	ND	ug/kg	1.0	--	1	
1,2,3-Trichlorobenzene	ND	ug/kg	4.0	--	1	
1,2,4-Trichlorobenzene	ND	ug/kg	4.0	--	1	
1,3,5-Trimethylbenzene	ND	ug/kg	4.0	--	1	
1,2,4-Trimethylbenzene	ND	ug/kg	4.0	--	1	

Project Name: E. BOSTON

Lab Number: L1704984

Project Number: 43068

Report Date: 02/21/17

**SAMPLE RESULTS**

Lab ID: L1704984-12  
 Client ID: VES-128 (1-2)  
 Sample Location: E. BOSTON

Date Collected: 02/16/17 12:00  
 Date Received: 02/16/17  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260/5035 - Westborough Lab						
Diethyl ether	ND	ug/kg	5.0	--	--	1
Diisopropyl Ether	ND	ug/kg	4.0	--	--	1
Ethyl-Tert-Butyl-Ether	ND	ug/kg	4.0	--	--	1
Tertiary-Amyl Methyl Ether	ND	ug/kg	4.0	--	--	1
1,4-Dioxane	ND	ug/kg	40	--	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	115		70-130

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C  
Analytical Date: 02/17/17 10:44  
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260/5035 - Westborough Lab for sample(s): WG978923-5				02-05,07-08,10-12	Batch:
Methylene chloride	ND		ug/kg	10	--
1,1-Dichloroethane	ND		ug/kg	1.5	--
Chloroform	ND		ug/kg	1.5	--
Carbon tetrachloride	ND		ug/kg	1.0	--
1,2-Dichloropropane	ND		ug/kg	3.5	--
Dibromochloromethane	ND		ug/kg	1.0	--
1,1,2-Trichloroethane	ND		ug/kg	1.5	--
Tetrachloroethene	ND		ug/kg	1.0	--
Chlorobenzene	ND		ug/kg	1.0	--
Trichlorofluoromethane	ND		ug/kg	4.0	--
1,2-Dichloroethane	ND		ug/kg	1.0	--
1,1,1-Trichloroethane	ND		ug/kg	1.0	--
Bromodichloromethane	ND		ug/kg	1.0	--
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--
cis-1,3-Dichloropropene	ND		ug/kg	1.0	--
1,3-Dichloropropene, Total	ND		ug/kg	1.0	--
1,1-Dichloropropene	ND		ug/kg	4.0	--
Bromoform	ND		ug/kg	4.0	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.0	--
Benzene	ND		ug/kg	1.0	--
Toluene	ND		ug/kg	1.5	--
Ethylbenzene	ND		ug/kg	1.0	--
Chloromethane	ND		ug/kg	4.0	--
Bromomethane	ND		ug/kg	2.0	--
Vinyl chloride	ND		ug/kg	2.0	--
Chloroethane	ND		ug/kg	2.0	--
1,1-Dichloroethene	ND		ug/kg	1.0	--
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--
Trichloroethene	ND		ug/kg	1.0	--



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C  
Analytical Date: 02/17/17 10:44  
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260/5035 - Westborough Lab for sample(s): WG978923-5				02-05,07-08,10-12	Batch:
1,2-Dichlorobenzene	ND		ug/kg	4.0	--
1,3-Dichlorobenzene	ND		ug/kg	4.0	--
1,4-Dichlorobenzene	ND		ug/kg	4.0	--
Methyl tert butyl ether	ND		ug/kg	2.0	--
p/m-Xylene	ND		ug/kg	2.0	--
o-Xylene	ND		ug/kg	2.0	--
Xylenes, Total	ND		ug/kg	2.0	--
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--
Dibromomethane	ND		ug/kg	4.0	--
1,4-Dichlorobutane	ND		ug/kg	10	--
1,2,3-Trichloropropane	ND		ug/kg	4.0	--
Styrene	ND		ug/kg	2.0	--
Dichlorodifluoromethane	ND		ug/kg	10	--
Acetone	ND		ug/kg	36	--
Carbon disulfide	ND		ug/kg	4.0	--
Methyl ethyl ketone	ND		ug/kg	10	--
Methyl isobutyl ketone	ND		ug/kg	10	--
2-Hexanone	ND		ug/kg	10	--
Ethyl methacrylate	ND		ug/kg	10	--
Acrylonitrile	ND		ug/kg	4.0	--
Bromochloromethane	ND		ug/kg	4.0	--
Tetrahydrofuran	ND		ug/kg	4.0	--
2,2-Dichloropropane	ND		ug/kg	5.0	--
1,2-Dibromoethane	ND		ug/kg	4.0	--
1,3-Dichloropropane	ND		ug/kg	4.0	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.0	--
Bromobenzene	ND		ug/kg	5.0	--
n-Butylbenzene	ND		ug/kg	1.0	--



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C  
Analytical Date: 02/17/17 10:44  
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260/5035 - Westborough Lab for sample(s): WG978923-5				02-05,07-08,10-12	Batch:
sec-Butylbenzene	ND		ug/kg	1.0	--
tert-Butylbenzene	ND		ug/kg	4.0	--
o-Chlorotoluene	ND		ug/kg	4.0	--
p-Chlorotoluene	ND		ug/kg	4.0	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.0	--
Hexachlorobutadiene	ND		ug/kg	4.0	--
Isopropylbenzene	ND		ug/kg	1.0	--
p-Isopropyltoluene	ND		ug/kg	1.0	--
Naphthalene	ND		ug/kg	4.0	--
n-Propylbenzene	ND		ug/kg	1.0	--
1,2,3-Trichlorobenzene	ND		ug/kg	4.0	--
1,2,4-Trichlorobenzene	ND		ug/kg	4.0	--
1,3,5-Trimethylbenzene	ND		ug/kg	4.0	--
1,2,4-Trimethylbenzene	ND		ug/kg	4.0	--
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.0	--
Diethyl ether	ND		ug/kg	5.0	--
Diisopropyl Ether	ND		ug/kg	4.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	4.0	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	4.0	--
1,4-Dioxane	ND		ug/kg	40	--
2-Chloroethylvinyl ether	ND		ug/kg	20	--
Halothane	ND		ug/kg	40	--
Ethyl Acetate	ND		ug/kg	20	--
Freon-113	ND		ug/kg	20	--
Vinyl acetate	ND		ug/kg	10	--

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 97,8260C  
Analytical Date: 02/17/17 10:44  
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260/5035 - Westborough Lab for sample(s): 02-05,07-08,10-12 Batch: WG978923-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	109		70-130

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C  
Analytical Date: 02/20/17 09:18  
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 5035 High - Westborough Lab for sample(s):	03			Batch:	WG979473-5
Methylene chloride	ND		ug/kg	500	--
1,1-Dichloroethane	ND		ug/kg	75	--
Chloroform	ND		ug/kg	75	--
Carbon tetrachloride	ND		ug/kg	50	--
1,2-Dichloropropane	ND		ug/kg	180	--
Dibromochloromethane	ND		ug/kg	50	--
1,1,2-Trichloroethane	ND		ug/kg	75	--
Tetrachloroethene	ND		ug/kg	50	--
Chlorobenzene	ND		ug/kg	50	--
Trichlorofluoromethane	ND		ug/kg	200	--
1,2-Dichloroethane	ND		ug/kg	50	--
1,1,1-Trichloroethane	ND		ug/kg	50	--
Bromodichloromethane	ND		ug/kg	50	--
trans-1,3-Dichloropropene	ND		ug/kg	50	--
cis-1,3-Dichloropropene	ND		ug/kg	50	--
1,3-Dichloropropene, Total	ND		ug/kg	50	--
1,1-Dichloropropene	ND		ug/kg	200	--
Bromoform	ND		ug/kg	200	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	50	--
Benzene	ND		ug/kg	50	--
Toluene	ND		ug/kg	75	--
Ethylbenzene	ND		ug/kg	50	--
Chloromethane	ND		ug/kg	200	--
Bromomethane	ND		ug/kg	100	--
Vinyl chloride	ND		ug/kg	100	--
Chloroethane	ND		ug/kg	100	--
1,1-Dichloroethene	ND		ug/kg	50	--
trans-1,2-Dichloroethene	ND		ug/kg	75	--
Trichloroethene	ND		ug/kg	50	--



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C  
Analytical Date: 02/20/17 09:18  
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 5035 High - Westborough Lab for sample(s):	03			Batch:	WG979473-5
1,2-Dichlorobenzene	ND		ug/kg	200	--
1,3-Dichlorobenzene	ND		ug/kg	200	--
1,4-Dichlorobenzene	ND		ug/kg	200	--
Methyl tert butyl ether	ND		ug/kg	100	--
p/m-Xylene	ND		ug/kg	100	--
o-Xylene	ND		ug/kg	100	--
Xylenes, Total	ND		ug/kg	100	--
cis-1,2-Dichloroethene	ND		ug/kg	50	--
1,2-Dichloroethene, Total	ND		ug/kg	50	--
Dibromomethane	ND		ug/kg	200	--
1,2,3-Trichloropropane	ND		ug/kg	200	--
Styrene	ND		ug/kg	100	--
Dichlorodifluoromethane	ND		ug/kg	500	--
Acetone	ND		ug/kg	1800	--
Carbon disulfide	ND		ug/kg	200	--
Methyl ethyl ketone	ND		ug/kg	500	--
Methyl isobutyl ketone	ND		ug/kg	500	--
2-Hexanone	ND		ug/kg	500	--
Bromochloromethane	ND		ug/kg	200	--
Tetrahydrofuran	ND		ug/kg	200	--
2,2-Dichloropropane	ND		ug/kg	250	--
1,2-Dibromoethane	ND		ug/kg	200	--
1,3-Dichloropropane	ND		ug/kg	200	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	50	--
Bromobenzene	ND		ug/kg	250	--
n-Butylbenzene	ND		ug/kg	50	--
sec-Butylbenzene	ND		ug/kg	50	--
tert-Butylbenzene	ND		ug/kg	200	--
o-Chlorotoluene	ND		ug/kg	200	--



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C  
Analytical Date: 02/20/17 09:18  
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 5035 High - Westborough Lab for sample(s):	03			Batch:	WG979473-5
p-Chlorotoluene	ND		ug/kg	200	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	200	--
Hexachlorobutadiene	ND		ug/kg	200	--
Isopropylbenzene	ND		ug/kg	50	--
p-Isopropyltoluene	ND		ug/kg	50	--
Naphthalene	ND		ug/kg	200	--
n-Propylbenzene	ND		ug/kg	50	--
1,2,3-Trichlorobenzene	ND		ug/kg	200	--
1,2,4-Trichlorobenzene	ND		ug/kg	200	--
1,3,5-Trimethylbenzene	ND		ug/kg	200	--
1,2,4-Trimethylbenzene	ND		ug/kg	200	--
Diethyl ether	ND		ug/kg	250	--
Diisopropyl Ether	ND		ug/kg	200	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	200	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	200	--
1,4-Dioxane	ND		ug/kg	5000	--
2-Chloroethylvinyl ether	ND		ug/kg	1000	--
Halothane	ND		ug/kg	2000	--
Ethyl Acetate	ND		ug/kg	1000	--
Freon-113	ND		ug/kg	1000	--
Vinyl acetate	ND		ug/kg	500	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	100		70-130



# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260/5035 - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978923-3 WG978923-4								
Methylene chloride	113		119		70-130	5		20
1,1-Dichloroethane	112		108		70-130	4		20
Chloroform	114		110		70-130	4		20
Carbon tetrachloride	118		106		70-130	11		20
1,2-Dichloropropane	110		108		70-130	2		20
Dibromochloromethane	101		101		70-130	0		20
1,1,2-Trichloroethane	118		117		70-130	1		20
Tetrachloroethene	107		101		70-130	6		20
Chlorobenzene	108		103		70-130	5		20
Trichlorofluoromethane	128		100		70-130	25	Q	20
1,2-Dichloroethane	115		109		70-130	5		20
1,1,1-Trichloroethane	116		106		70-130	9		20
Bromodichloromethane	114		109		70-130	4		20
trans-1,3-Dichloropropene	98		97		70-130	1		20
cis-1,3-Dichloropropene	107		92		70-130	15		20
1,1-Dichloropropene	109		102		70-130	7		20
Bromoform	89		96		70-130	8		20
1,1,2,2-Tetrachloroethane	112		118		70-130	5		20
Benzene	112		107		70-130	5		20
Toluene	111		106		70-130	5		20
Ethylbenzene	111		105		70-130	6		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260/5035 - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978923-3 WG978923-4								
Chloromethane	113		89		70-130	24	Q	20
Bromomethane	110		91		70-130	19		20
Vinyl chloride	112		86		70-130	26	Q	20
Chloroethane	121		95		70-130	24	Q	20
1,1-Dichloroethene	100		94		70-130	6		20
trans-1,2-Dichloroethene	102		101		70-130	1		20
Trichloroethene	114		106		70-130	7		20
1,2-Dichlorobenzene	104		94		70-130	10		20
1,3-Dichlorobenzene	104		101		70-130	3		20
1,4-Dichlorobenzene	104		99		70-130	5		20
Methyl tert butyl ether	101		101		70-130	0		20
p/m-Xylene	114		107		70-130	6		20
o-Xylene	100		96		70-130	4		20
cis-1,2-Dichloroethene	106		103		70-130	3		20
Dibromomethane	112		108		70-130	4		20
1,4-Dichlorobutane	111		117		70-130	5		20
1,2,3-Trichloropropane	110		114		70-130	4		20
Styrene	99		97		70-130	2		20
Dichlorodifluoromethane	107		83		70-130	25	Q	20
Acetone	101		107		70-130	6		20
Carbon disulfide	130		152	Q	70-130	16		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260/5035 - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978923-3 WG978923-4								
Methyl ethyl ketone	86		88		70-130	2		20
Methyl isobutyl ketone	82		88		70-130	7		20
2-Hexanone	70		72		70-130	3		20
Ethyl methacrylate	75		75		70-130	0		20
Acrylonitrile	86		103		70-130	18		20
Bromochloromethane	111		107		70-130	4		20
Tetrahydrofuran	105		106		70-130	1		20
2,2-Dichloropropane	116		106		70-130	9		20
1,2-Dibromoethane	103		103		70-130	0		20
1,3-Dichloropropane	112		111		70-130	1		20
1,1,1,2-Tetrachloroethane	114		109		70-130	4		20
Bromobenzene	98		105		70-130	7		20
n-Butylbenzene	116		107		70-130	8		20
sec-Butylbenzene	109		104		70-130	5		20
tert-Butylbenzene	104		101		70-130	3		20
o-Chlorotoluene	110		111		70-130	1		20
p-Chlorotoluene	109		111		70-130	2		20
1,2-Dibromo-3-chloropropane	96		101		70-130	5		20
Hexachlorobutadiene	101		102		70-130	1		20
Isopropylbenzene	94		97		70-130	3		20
p-Isopropyltoluene	98		88		70-130	11		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260/5035 - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978923-3 WG978923-4								
Naphthalene	80		86		70-130	7		20
n-Propylbenzene	109		110		70-130	1		20
1,2,3-Trichlorobenzene	103		107		70-130	4		20
1,2,4-Trichlorobenzene	94		100		70-130	6		20
1,3,5-Trimethylbenzene	111		111		70-130	0		20
1,2,4-Trimethylbenzene	101		100		70-130	1		20
trans-1,4-Dichloro-2-butene	98		100		70-130	2		20
Diethyl ether	89		80		70-130	11		20
Diisopropyl Ether	100		102		70-130	2		20
Ethyl-Tert-Butyl-Ether	100		100		70-130	0		20
Tertiary-Amyl Methyl Ether	90		92		70-130	2		20
1,4-Dioxane	95		98		70-130	3		20
2-Chloroethylvinyl ether	84		82		70-130	2		20
Halothane	113		107		70-130	5		20
Ethyl Acetate	86		94		70-130	9		20
Freon-113	110		101		70-130	9		20
Vinyl acetate	92		93		70-130	1		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

<b>Parameter</b>	<i>LCS</i> <i>%Recovery</i>	<i>Qual</i>	<i>LCSD</i> <i>%Recovery</i>	<i>Qual</i>	<i>%Recovery</i> <i>Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> <i>Limits</i>
MCP Volatile Organics by 8260/5035 - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978923-3 WG978923-4								
<i>Surrogate</i>	<i>LCS</i> <i>%Recovery</i>	<i>Qual</i>	<i>LCSD</i> <i>%Recovery</i>	<i>Qual</i>	<i>Acceptance</i> <i>Criteria</i>			
1,2-Dichloroethane-d4	111		105		70-130			
Toluene-d8	107		107		70-130			
4-Bromofluorobenzene	98		109		70-130			
Dibromofluoromethane	108		106		70-130			

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG979473-3 WG979473-4								
Methylene chloride	127		111		70-130	13		20
1,1-Dichloroethane	102		97		70-130	5		20
Chloroform	99		96		70-130	3		20
Carbon tetrachloride	98		90		70-130	9		20
1,2-Dichloropropane	104		102		70-130	2		20
Dibromochloromethane	93		91		70-130	2		20
1,1,2-Trichloroethane	108		103		70-130	5		20
Tetrachloroethene	93		87		70-130	7		20
Chlorobenzene	100		95		70-130	5		20
Trichlorofluoromethane	83		73		70-130	13		20
1,2-Dichloroethane	98		98		70-130	0		20
1,1,1-Trichloroethane	99		93		70-130	6		20
Bromodichloromethane	100		98		70-130	2		20
trans-1,3-Dichloropropene	97		94		70-130	3		20
cis-1,3-Dichloropropene	90		91		70-130	1		20
1,1-Dichloropropene	101		92		70-130	9		20
Bromoform	84		82		70-130	2		20
1,1,2,2-Tetrachloroethane	102		100		70-130	2		20
Benzene	102		98		70-130	4		20
Toluene	105		96		70-130	9		20
Ethylbenzene	101		95		70-130	6		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG979473-3 WG979473-4								
Chloromethane	96		85		70-130	12		20
Bromomethane	82		75		70-130	9		20
Vinyl chloride	83		72		70-130	14		20
Chloroethane	87		80		70-130	8		20
1,1-Dichloroethene	92		84		70-130	9		20
trans-1,2-Dichloroethene	98		90		70-130	9		20
Trichloroethene	96		92		70-130	4		20
1,2-Dichlorobenzene	94		94		70-130	0		20
1,3-Dichlorobenzene	95		94		70-130	1		20
1,4-Dichlorobenzene	93		91		70-130	2		20
Methyl tert butyl ether	108		106		70-130	2		20
p/m-Xylene	102		96		70-130	6		20
o-Xylene	93		89		70-130	4		20
cis-1,2-Dichloroethene	100		96		70-130	4		20
Dibromomethane	97		100		70-130	3		20
1,2,3-Trichloropropane	102		100		70-130	2		20
Styrene	91		87		70-130	4		20
Dichlorodifluoromethane	77		66	Q	70-130	15		20
Acetone	130		122		70-130	6		20
Carbon disulfide	99		96		70-130	3		20
Methyl ethyl ketone	103		90		70-130	13		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG979473-3 WG979473-4								
Methyl isobutyl ketone	97		95		70-130	2		20
2-Hexanone	89		85		70-130	5		20
Bromochloromethane	98		98		70-130	0		20
Tetrahydrofuran	124		108		70-130	14		20
2,2-Dichloropropane	102		96		70-130	6		20
1,2-Dibromoethane	97		95		70-130	2		20
1,3-Dichloropropane	108		103		70-130	5		20
1,1,1,2-Tetrachloroethane	102		98		70-130	4		20
Bromobenzene	95		92		70-130	3		20
n-Butylbenzene	101		95		70-130	6		20
sec-Butylbenzene	99		93		70-130	6		20
tert-Butylbenzene	99		94		70-130	5		20
o-Chlorotoluene	100		96		70-130	4		20
p-Chlorotoluene	102		98		70-130	4		20
1,2-Dibromo-3-chloropropane	90		90		70-130	0		20
Hexachlorobutadiene	93		87		70-130	7		20
Isopropylbenzene	92		86		70-130	7		20
p-Isopropyltoluene	91		87		70-130	4		20
Naphthalene	82		82		70-130	0		20
n-Propylbenzene	100		93		70-130	7		20
1,2,3-Trichlorobenzene	96		97		70-130	1		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG979473-3 WG979473-4								
1,2,4-Trichlorobenzene	94		93		70-130	1		20
1,3,5-Trimethylbenzene	101		96		70-130	5		20
1,2,4-Trimethylbenzene	95		91		70-130	4		20
Diethyl ether	90		87		70-130	3		20
Diisopropyl Ether	108		105		70-130	3		20
Ethyl-Tert-Butyl-Ether	108		105		70-130	3		20
Tertiary-Amyl Methyl Ether	97		96		70-130	1		20
1,4-Dioxane	104		104		70-130	0		20
2-Chloroethylvinyl ether	86		91		70-130	6		20
Halothane	96		86		70-130	11		20
Ethyl Acetate	97		94		70-130	3		20
Freon-113	90		80		70-130	12		20
Vinyl acetate	94		93		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		99		70-130
Toluene-d8	110		107		70-130
4-Bromofluorobenzene	108		109		70-130
Dibromofluoromethane	100		100		70-130

# **SEMIVOLATILES**



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**SAMPLE RESULTS**

Lab ID: L1704984-12  
Client ID: VES-128 (1-2)  
Sample Location: E. BOSTON  
Matrix: Soil  
Analytical Method: 97,8270D  
Analytical Date: 02/18/17 22:13  
Analyst: RC  
Percent Solids: 89%

Date Collected: 02/16/17 12:00  
Date Received: 02/16/17  
Field Prep: Not Specified  
Extraction Method: EPA 3546  
Extraction Date: 02/17/17 01:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>MCP Semivolatile Organics - Westborough Lab</b>						
Acenaphthene	ND	ug/kg	150	--	--	1
1,2,4-Trichlorobenzene	ND	ug/kg	180	--	--	1
Hexachlorobenzene	ND	ug/kg	110	--	--	1
Bis(2-chloroethyl)ether	ND	ug/kg	170	--	--	1
2-Chloronaphthalene	ND	ug/kg	180	--	--	1
1,2-Dichlorobenzene	ND	ug/kg	180	--	--	1
1,3-Dichlorobenzene	ND	ug/kg	180	--	--	1
1,4-Dichlorobenzene	ND	ug/kg	180	--	--	1
3,3'-Dichlorobenzidine	ND	ug/kg	180	--	--	1
2,4-Dinitrotoluene	ND	ug/kg	180	--	--	1
2,6-Dinitrotoluene	ND	ug/kg	180	--	--	1
Azobenzene	ND	ug/kg	180	--	--	1
Fluoranthene	5100	ug/kg	110	--	--	1
4-Bromophenyl phenyl ether	ND	ug/kg	180	--	--	1
Bis(2-chloroisopropyl)ether	ND	ug/kg	220	--	--	1
Bis(2-chloroethoxy)methane	ND	ug/kg	200	--	--	1
Hexachlorobutadiene	ND	ug/kg	180	--	--	1
Hexachloroethane	ND	ug/kg	150	--	--	1
Isophorone	ND	ug/kg	170	--	--	1
Naphthalene	190	ug/kg	180	--	--	1
Nitrobenzene	ND	ug/kg	170	--	--	1
Bis(2-ethylhexyl)phthalate	ND	ug/kg	180	--	--	1
Butyl benzyl phthalate	ND	ug/kg	180	--	--	1
Di-n-butylphthalate	ND	ug/kg	180	--	--	1
Di-n-octylphthalate	ND	ug/kg	180	--	--	1
Diethyl phthalate	ND	ug/kg	180	--	--	1
Dimethyl phthalate	ND	ug/kg	180	--	--	1
Benzo(a)anthracene	3300	ug/kg	110	--	--	1
Benzo(a)pyrene	3300	ug/kg	150	--	--	1
Benzo(b)fluoranthene	3700	ug/kg	110	--	--	1



Project Name: E. BOSTON

Lab Number: L1704984

Project Number: 43068

Report Date: 02/21/17

**SAMPLE RESULTS**

Lab ID:	L1704984-12	Date Collected:	02/16/17 12:00
Client ID:	VES-128 (1-2)	Date Received:	02/16/17
Sample Location:	E. BOSTON	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>MCP Semivolatile Organics - Westborough Lab</b>						
Benzo(k)fluoranthene	1400	ug/kg	110	--	--	1
Chrysene	3100	ug/kg	110	--	--	1
Acenaphthylene	150	ug/kg	150	--	--	1
Anthracene	740	ug/kg	110	--	--	1
Benzo(ghi)perylene	2100	ug/kg	150	--	--	1
Fluorene	ND	ug/kg	180	--	--	1
Phenanthrene	2300	ug/kg	110	--	--	1
Dibenzo(a,h)anthracene	490	ug/kg	110	--	--	1
Indeno(1,2,3-cd)pyrene	2200	ug/kg	150	--	--	1
Pyrene	5200	ug/kg	110	--	--	1
Aniline	ND	ug/kg	220	--	--	1
4-Chloroaniline	ND	ug/kg	180	--	--	1
Dibenzofuran	ND	ug/kg	180	--	--	1
2-Methylnaphthalene	ND	ug/kg	220	--	--	1
Acetophenone	ND	ug/kg	180	--	--	1
2,4,6-Trichlorophenol	ND	ug/kg	110	--	--	1
2-Chlorophenol	ND	ug/kg	180	--	--	1
2,4-Dichlorophenol	ND	ug/kg	170	--	--	1
2,4-Dimethylphenol	ND	ug/kg	180	--	--	1
2-Nitrophenol	ND	ug/kg	400	--	--	1
4-Nitrophenol	ND	ug/kg	260	--	--	1
2,4-Dinitrophenol	ND	ug/kg	890	--	--	1
Pentachlorophenol	ND	ug/kg	370	--	--	1
Phenol	ND	ug/kg	180	--	--	1
2-Methylphenol	ND	ug/kg	180	--	--	1
3-Methylphenol/4-Methylphenol	ND	ug/kg	270	--	--	1
2,4,5-Trichlorophenol	ND	ug/kg	180	--	--	1
Pyridine	ND	ug/kg	200	--	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	56		30-130
Phenol-d6	57		30-130
Nitrobenzene-d5	84		30-130
2-Fluorobiphenyl	63		30-130
2,4,6-Tribromophenol	76		30-130
4-Terphenyl-d14	66		30-130

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8270D  
Analytical Date: 02/17/17 23:16  
Analyst: KV

Extraction Method: EPA 3546  
Extraction Date: 02/17/17 01:27

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 02-05,07-08,10-12 Batch: WG978622-1					
Acenaphthene	ND		ug/kg	130	--
1,2,4-Trichlorobenzene	ND		ug/kg	160	--
Hexachlorobenzene	ND		ug/kg	98	--
Bis(2-chloroethyl)ether	ND		ug/kg	150	--
2-Chloronaphthalene	ND		ug/kg	160	--
1,2-Dichlorobenzene	ND		ug/kg	160	--
1,3-Dichlorobenzene	ND		ug/kg	160	--
1,4-Dichlorobenzene	ND		ug/kg	160	--
3,3'-Dichlorobenzidine	ND		ug/kg	160	--
2,4-Dinitrotoluene	ND		ug/kg	160	--
2,6-Dinitrotoluene	ND		ug/kg	160	--
Azobenzene	ND		ug/kg	160	--
Fluoranthene	ND		ug/kg	98	--
4-Bromophenyl phenyl ether	ND		ug/kg	160	--
Bis(2-chloroisopropyl)ether	ND		ug/kg	200	--
Bis(2-chloroethoxy)methane	ND		ug/kg	180	--
Hexachlorobutadiene	ND		ug/kg	160	--
Hexachloroethane	ND		ug/kg	130	--
Isophorone	ND		ug/kg	150	--
Naphthalene	ND		ug/kg	160	--
Nitrobenzene	ND		ug/kg	150	--
Bis(2-ethylhexyl)phthalate	ND		ug/kg	160	--
Butyl benzyl phthalate	ND		ug/kg	160	--
Di-n-butylphthalate	ND		ug/kg	160	--
Di-n-octylphthalate	ND		ug/kg	160	--
Diethyl phthalate	ND		ug/kg	160	--
Dimethyl phthalate	ND		ug/kg	160	--
Benzo(a)anthracene	ND		ug/kg	98	--
Benzo(a)pyrene	ND		ug/kg	130	--



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8270D  
Analytical Date: 02/17/17 23:16  
Analyst: KV

Extraction Method: EPA 3546  
Extraction Date: 02/17/17 01:27

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 02-05,07-08,10-12 Batch: WG978622-1					
Benzo(b)fluoranthene	ND		ug/kg	98	--
Benzo(k)fluoranthene	ND		ug/kg	98	--
Chrysene	ND		ug/kg	98	--
Acenaphthylene	ND		ug/kg	130	--
Anthracene	ND		ug/kg	98	--
Benzo(ghi)perylene	ND		ug/kg	130	--
Fluorene	ND		ug/kg	160	--
Phenanthrene	ND		ug/kg	98	--
Dibenzo(a,h)anthracene	ND		ug/kg	98	--
Indeno(1,2,3-cd)pyrene	ND		ug/kg	130	--
Pyrene	ND		ug/kg	98	--
Aniline	ND		ug/kg	200	--
4-Chloroaniline	ND		ug/kg	160	--
Dibenzofuran	ND		ug/kg	160	--
2-Methylnaphthalene	ND		ug/kg	200	--
Acetophenone	ND		ug/kg	160	--
2,4,6-Trichlorophenol	ND		ug/kg	98	--
2-Chlorophenol	ND		ug/kg	160	--
2,4-Dichlorophenol	ND		ug/kg	150	--
2,4-Dimethylphenol	ND		ug/kg	160	--
2-Nitrophenol	ND		ug/kg	350	--
4-Nitrophenol	ND		ug/kg	230	--
2,4-Dinitrophenol	ND		ug/kg	790	--
Pentachlorophenol	ND		ug/kg	330	--
Phenol	ND		ug/kg	160	--
2-Methylphenol	ND		ug/kg	160	--
3-Methylphenol/4-Methylphenol	ND		ug/kg	240	--
2,4,5-Trichlorophenol	ND		ug/kg	160	--
Pyridine	ND		ug/kg	180	--



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### **Method Blank Analysis**

#### **Batch Quality Control**

Analytical Method: 97,8270D  
Analytical Date: 02/17/17 23:16  
Analyst: KV

Extraction Method: EPA 3546  
Extraction Date: 02/17/17 01:27

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 02-05,07-08,10-12 Batch: WG978622-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	81		30-130
Phenol-d6	87		30-130
Nitrobenzene-d5	83		30-130
2-Fluorobiphenyl	73		30-130
2,4,6-Tribromophenol	81		30-130
4-Terphenyl-d14	78		30-130

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978622-2 WG978622-3								
Acenaphthene	76		75		40-140	1		30
1,2,4-Trichlorobenzene	76		72		40-140	5		30
Hexachlorobenzene	79		80		40-140	1		30
Bis(2-chloroethyl)ether	85		81		40-140	5		30
2-Chloronaphthalene	79		77		40-140	3		30
1,2-Dichlorobenzene	76		72		40-140	5		30
1,3-Dichlorobenzene	75		72		40-140	4		30
1,4-Dichlorobenzene	75		71		40-140	5		30
3,3'-Dichlorobenzidine	56		51		40-140	9		30
2,4-Dinitrotoluene	89		90		40-140	1		30
2,6-Dinitrotoluene	91		90		40-140	1		30
Azobenzene	93		93		40-140	0		30
Fluoranthene	81		81		40-140	0		30
4-Bromophenyl phenyl ether	78		78		40-140	0		30
Bis(2-chloroisopropyl)ether	89		86		40-140	3		30
Bis(2-chloroethoxy)methane	90		87		40-140	3		30
Hexachlorobutadiene	73		70		40-140	4		30
Hexachloroethane	78		73		40-140	7		30
Isophorone	100		96		40-140	4		30
Naphthalene	79		76		40-140	4		30
Nitrobenzene	99		96		40-140	3		30

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978622-2 WG978622-3								
Bis(2-ethylhexyl)phthalate	84		83		40-140	1		30
Butyl benzyl phthalate	90		91		40-140	1		30
Di-n-butylphthalate	93		93		40-140	0		30
Di-n-octylphthalate	89		89		40-140	0		30
Diethyl phthalate	87		86		40-140	1		30
Dimethyl phthalate	90		88		40-140	2		30
Benzo(a)anthracene	78		77		40-140	1		30
Benzo(a)pyrene	86		84		40-140	2		30
Benzo(b)fluoranthene	84		83		40-140	1		30
Benzo(k)fluoranthene	84		82		40-140	2		30
Chrysene	74		73		40-140	1		30
Acenaphthylene	90		87		40-140	3		30
Anthracene	78		79		40-140	1		30
Benzo(ghi)perylene	78		77		40-140	1		30
Fluorene	77		76		40-140	1		30
Phenanthrene	75		75		40-140	0		30
Dibenz(a,h)anthracene	78		78		40-140	0		30
Indeno(1,2,3-cd)pyrene	77		78		40-140	1		30
Pyrene	81		81		40-140	0		30
Aniline	47		38	Q	40-140	21		30
4-Chloroaniline	49		40		40-140	20		30

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978622-2 WG978622-3								
Dibenzofuran	77		76		40-140	1		30
2-Methylnaphthalene	80		77		40-140	4		30
Acetophenone	98		94		40-140	4		30
2,4,6-Trichlorophenol	90		87		30-130	3		30
2-Chlorophenol	85		83		30-130	2		30
2,4-Dichlorophenol	88		86		30-130	2		30
2,4-Dimethylphenol	103		97		30-130	6		30
2-Nitrophenol	98		95		30-130	3		30
4-Nitrophenol	101		103		30-130	2		30
2,4-Dinitrophenol	55		62		30-130	12		30
Pentachlorophenol	71		74		30-130	4		30
Phenol	95		92		30-130	3		30
2-Methylphenol	92		88		30-130	4		30
3-Methylphenol/4-Methylphenol	94		91		30-130	3		30
2,4,5-Trichlorophenol	90		88		30-130	2		30
Pyridine	76		72		30-130	5		30

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

<b>Parameter</b>	<i>LCS</i> <b>%Recovery</b>	<i>LCSD</i> <b>%Recovery</b>	<b>%Recovery</b> <b>Limits</b>		<i>RPD</i>	<i>Qual</i>	<i>RPD</i> <b>Limits</b>
	<b>Qual</b>	<b>Qual</b>	<b>Limits</b>	<b>Qual</b>	<b>Qual</b>	<b>Qual</b>	
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978622-2 WG978622-3							
<b>Surrogate</b>	<i>LCS</i> <b>%Recovery</b>	<i>LCSD</i> <b>%Recovery</b>			<i>Acceptance</i> <b>Criteria</b>		
2-Fluorophenol	86	83			30-130		
Phenol-d6	92	88			30-130		
Nitrobenzene-d5	88	85			30-130		
2-Fluorobiphenyl	75	73			30-130		
2,4,6-Tribromophenol	92	90			30-130		
4-Terphenyl-d14	77	77			30-130		

# PETROLEUM HYDROCARBONS



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### SAMPLE RESULTS

Lab ID:	L1704984-12	Date Collected:	02/16/17 12:00
Client ID:	VES-128 (1-2)	Date Received:	02/16/17
Sample Location:	E. BOSTON	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	100,VPH-04-1.1		
Analytical Date:	02/17/17 19:36		
Analyst:	JM		
Percent Solids:	89%		

### Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Were samples received in methanol?	Yes (Covering the Soil)
Methanol ratio:	4.4:1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Petroleum Hydrocarbons - Westborough Lab</b>						
C5-C8 Aliphatics	ND		mg/kg	13.6	--	1
C9-C12 Aliphatics	ND		mg/kg	13.6	--	1
C9-C10 Aromatics	ND		mg/kg	13.6	--	1
C5-C8 Aliphatics, Adjusted	ND		mg/kg	13.6	--	1
C9-C12 Aliphatics, Adjusted	ND		mg/kg	13.6	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	99		70-130
2,5-Dibromotoluene-FID	103		70-130



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### SAMPLE RESULTS

Lab ID:	L1704984-12	Date Collected:	02/16/17 12:00
Client ID:	VES-128 (1-2)	Date Received:	02/16/17
Sample Location:	E. BOSTON	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	02/17/17 00:27
Analytical Date:	02/17/17 17:10	Cleanup Method1:	EPH-04-1
Analyst:	SR	Cleanup Date1:	02/17/17
Percent Solids:	89%		

### Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Extractable Petroleum Hydrocarbons - Westborough Lab</b>						
C9-C18 Aliphatics	8.12	mg/kg	7.15	--	1	
C19-C36 Aliphatics	20.7	mg/kg	7.15	--	1	
C11-C22 Aromatics	123	mg/kg	7.15	--	1	
C11-C22 Aromatics, Adjusted	83.3	mg/kg	7.15	--	1	
Naphthalene	ND	mg/kg	0.358	--	1	
2-Methylnaphthalene	ND	mg/kg	0.358	--	1	
Acenaphthylene	ND	mg/kg	0.358	--	1	
Acenaphthene	ND	mg/kg	0.358	--	1	
Fluorene	ND	mg/kg	0.358	--	1	
Phenanthrene	4.00	mg/kg	0.358	--	1	
Anthracene	1.08	mg/kg	0.358	--	1	
Fluoranthene	6.61	mg/kg	0.358	--	1	
Pyrene	6.15	mg/kg	0.358	--	1	
Benzo(a)anthracene	3.58	mg/kg	0.358	--	1	
Chrysene	3.82	mg/kg	0.358	--	1	
Benzo(b)fluoranthene	2.98	mg/kg	0.358	--	1	
Benzo(k)fluoranthene	2.85	mg/kg	0.358	--	1	
Benzo(a)pyrene	3.56	mg/kg	0.358	--	1	
Indeno(1,2,3-cd)Pyrene	2.42	mg/kg	0.358	--	1	
Dibenzo(a,h)anthracene	0.418	mg/kg	0.358	--	1	
Benzo(ghi)perylene	2.28	mg/kg	0.358	--	1	



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**SAMPLE RESULTS**

Lab ID:	L1704984-12	Date Collected:	02/16/17 12:00
Client ID:	VES-128 (1-2)	Date Received:	02/16/17
Sample Location:	E. BOSTON	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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**Extractable Petroleum Hydrocarbons - Westborough Lab**

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	67		40-140
o-Terphenyl	67		40-140
2-Fluorobiphenyl	62		40-140
2-Bromonaphthalene	64		40-140



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1  
Analytical Date: 02/17/17 11:06  
Analyst: SR

Extraction Method: EPA 3546  
Extraction Date: 02/17/17 00:27  
Cleanup Method: EPH-04-1  
Cleanup Date: 02/17/17

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): WG978610-1				03-05,07-08,10-12	Batch:
C9-C18 Aliphatics	ND		mg/kg	6.48	--
C19-C36 Aliphatics	ND		mg/kg	6.48	--
C11-C22 Aromatics	ND		mg/kg	6.48	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.48	--
Naphthalene	ND		mg/kg	0.324	--
2-Methylnaphthalene	ND		mg/kg	0.324	--
Acenaphthylene	ND		mg/kg	0.324	--
Acenaphthene	ND		mg/kg	0.324	--
Fluorene	ND		mg/kg	0.324	--
Phenanthrene	ND		mg/kg	0.324	--
Anthracene	ND		mg/kg	0.324	--
Fluoranthene	ND		mg/kg	0.324	--
Pyrene	ND		mg/kg	0.324	--
Benzo(a)anthracene	ND		mg/kg	0.324	--
Chrysene	ND		mg/kg	0.324	--
Benzo(b)fluoranthene	ND		mg/kg	0.324	--
Benzo(k)fluoranthene	ND		mg/kg	0.324	--
Benzo(a)pyrene	ND		mg/kg	0.324	--
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.324	--
Dibenzo(a,h)anthracene	ND		mg/kg	0.324	--
Benzo(ghi)perylene	ND		mg/kg	0.324	--

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1  
Analytical Date: 02/17/17 11:06  
Analyst: SR

Extraction Method: EPA 3546  
Extraction Date: 02/17/17 00:27  
Cleanup Method: EPH-04-1  
Cleanup Date: 02/17/17

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): WG978610-1				03-05,07-08,10-12	Batch:

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	58		40-140
o-Terphenyl	59		40-140
2-Fluorobiphenyl	74		40-140
2-Bromonaphthalene	75		40-140

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1  
Analytical Date: 02/21/17 10:53  
Analyst: SR

Extraction Method: EPA 3546  
Extraction Date: 02/20/17 11:48  
Cleanup Method: EPH-04-1  
Cleanup Date: 02/21/17

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s):	02		Batch:	WG979475-1	
C9-C18 Aliphatics	ND		mg/kg	6.36	--
C19-C36 Aliphatics	ND		mg/kg	6.36	--
C11-C22 Aromatics	ND		mg/kg	6.36	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.36	--
Naphthalene	ND		mg/kg	0.318	--
2-Methylnaphthalene	ND		mg/kg	0.318	--
Acenaphthylene	ND		mg/kg	0.318	--
Acenaphthene	ND		mg/kg	0.318	--
Fluorene	ND		mg/kg	0.318	--
Phenanthrene	ND		mg/kg	0.318	--
Anthracene	ND		mg/kg	0.318	--
Fluoranthene	ND		mg/kg	0.318	--
Pyrene	ND		mg/kg	0.318	--
Benzo(a)anthracene	ND		mg/kg	0.318	--
Chrysene	ND		mg/kg	0.318	--
Benzo(b)fluoranthene	ND		mg/kg	0.318	--
Benzo(k)fluoranthene	ND		mg/kg	0.318	--
Benzo(a)pyrene	ND		mg/kg	0.318	--
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.318	--
Dibenzo(a,h)anthracene	ND		mg/kg	0.318	--
Benzo(ghi)perylene	ND		mg/kg	0.318	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	76		40-140
o-Terphenyl	73		40-140
2-Fluorobiphenyl	76		40-140
2-Bromonaphthalene	78		40-140



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 100,VPH-04-1.1  
Analytical Date: 02/17/17 11:18  
Analyst: JM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 02-05,07-08,10-12 Batch: WG979575-3					
C5-C8 Aliphatics	ND		mg/kg	2.67	--
C9-C12 Aliphatics	ND		mg/kg	2.67	--
C9-C10 Aromatics	ND		mg/kg	2.67	--
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.67	--
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.67	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	102		70-130
2,5-Dibromotoluene-FID	107		70-130

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 03-05,07-08,10-12 Batch: WG978610-2 WG978610-3								
C9-C18 Aliphatics	63		57		40-140	10		25
C19-C36 Aliphatics	73		64		40-140	13		25
C11-C22 Aromatics	77		48		40-140	46	Q	25
Naphthalene	61		40		40-140	42	Q	25
2-Methylnaphthalene	63		41		40-140	42	Q	25
Acenaphthylene	64		41		40-140	44	Q	25
Acenaphthene	68		43		40-140	45	Q	25
Fluorene	72		44		40-140	48	Q	25
Phenanthrene	75		46		40-140	48	Q	25
Anthracene	78		48		40-140	48	Q	25
Fluoranthene	78		47		40-140	50	Q	25
Pyrene	78		48		40-140	48	Q	25
Benzo(a)anthracene	76		46		40-140	49	Q	25
Chrysene	79		48		40-140	49	Q	25
Benzo(b)fluoranthene	77		47		40-140	48	Q	25
Benzo(k)fluoranthene	80		49		40-140	48	Q	25
Benzo(a)pyrene	71		43		40-140	49	Q	25
Indeno(1,2,3-cd)Pyrene	75		45		40-140	50	Q	25
Dibenzo(a,h)anthracene	72		44		40-140	48	Q	25
Benzo(ghi)perylene	70		42		40-140	50	Q	25
Nonane (C9)	49		46		30-140	6		25

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 03-05,07-08,10-12 Batch: WG978610-2 WG978610-3								
Decane (C10)	54		52		40-140	4		25
Dodecane (C12)	56		54		40-140	4		25
Tetradecane (C14)	60		55		40-140	9		25
Hexadecane (C16)	67		58		40-140	14		25
Octadecane (C18)	71		62		40-140	14		25
Nonadecane (C19)	70		60		40-140	15		25
Eicosane (C20)	72		61		40-140	17		25
Docosane (C22)	71		61		40-140	15		25
Tetracosane (C24)	71		61		40-140	15		25
Hexacosane (C26)	71		61		40-140	15		25
Octacosane (C28)	70		61		40-140	14		25
Triacontane (C30)	70		60		40-140	15		25
Hexatriacontane (C36)	69		60		40-140	14		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	62		50		40-140
o-Terphenyl	78		49		40-140
2-Fluorobiphenyl	69		44		40-140
2-Bromonaphthalene	72		45		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 02 Batch: WG979475-2 WG979475-3								
C9-C18 Aliphatics	76		76		40-140	0		25
C19-C36 Aliphatics	85		89		40-140	5		25
C11-C22 Aromatics	75		80		40-140	6		25
Naphthalene	61		62		40-140	2		25
2-Methylnaphthalene	62		63		40-140	2		25
Acenaphthylene	65		67		40-140	3		25
Acenaphthene	65		68		40-140	5		25
Fluorene	68		72		40-140	6		25
Phenanthrene	70		75		40-140	7		25
Anthracene	75		80		40-140	6		25
Fluoranthene	73		78		40-140	7		25
Pyrene	73		80		40-140	9		25
Benzo(a)anthracene	73		79		40-140	8		25
Chrysene	76		82		40-140	8		25
Benzo(b)fluoranthene	73		80		40-140	9		25
Benzo(k)fluoranthene	78		84		40-140	7		25
Benzo(a)pyrene	70		76		40-140	8		25
Indeno(1,2,3-cd)Pyrene	70		78		40-140	11		25
Dibenzo(a,h)anthracene	73		81		40-140	10		25
Benzo(ghi)perylene	66		73		40-140	10		25
Nonane (C9)	61		60		30-140	2		25

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 02 Batch: WG979475-2 WG979475-3								
Decane (C10)	69		68		40-140	1		25
Dodecane (C12)	73		72		40-140	1		25
Tetradecane (C14)	75		76		40-140	1		25
Hexadecane (C16)	78		81		40-140	4		25
Octadecane (C18)	82		86		40-140	5		25
Nonadecane (C19)	82		86		40-140	5		25
Eicosane (C20)	83		87		40-140	5		25
Docosane (C22)	83		88		40-140	6		25
Tetracosane (C24)	84		88		40-140	5		25
Hexacosane (C26)	84		88		40-140	5		25
Octacosane (C28)	84		88		40-140	5		25
Triacontane (C30)	84		88		40-140	5		25
Hexatriacontane (C36)	82		88		40-140	7		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	62		64		40-140
o-Terphenyl	79		82		40-140
2-Fluorobiphenyl	72		75		40-140
2-Bromonaphthalene	75		78		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

<b>Parameter</b>	<i>LCS</i> <b>%Recovery</b>	<i>LCS</i> <b>%Recovery</b>	<i>%Recovery</i> <b>Limits</b>	<i>RPD</i> <b>Qual</b>	<i>RPD</i> <b>Limits</b>
	<b>Qual</b>	<b>Qual</b>	<b>Limits</b>	<b>Qual</b>	
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG979575-1 WG979575-2					
C5-C8 Aliphatics	101	103	70-130	2	25
C9-C12 Aliphatics	98	104	70-130	6	25
C9-C10 Aromatics	96	100	70-130	4	25
Benzene	92	98	70-130	7	25
Toluene	94	98	70-130	5	25
Ethylbenzene	95	98	70-130	4	25
p/m-Xylene	97	100	70-130	3	25
o-Xylene	98	100	70-130	3	25
Methyl tert butyl ether	92	102	70-130	10	25
Naphthalene	103	107	70-130	4	25
1,2,4-Trimethylbenzene	96	100	70-130	4	25
Pentane	95	96	70-130	1	25
2-Methylpentane	100	102	70-130	2	25
2,2,4-Trimethylpentane	104	106	70-130	2	25
n-Nonane	101	105	30-130	4	25
n-Decane	96	101	70-130	5	25
n-Butylcyclohexane	98	105	70-130	7	25

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG979575-1 WG979575-2

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	101		102		70-130
2,5-Dibromotoluene-FID	102		103		70-130

**PCBS**



Project Name: E. BOSTON

Lab Number: L1704984

Project Number: 43068

Report Date: 02/21/17

**SAMPLE RESULTS**

Lab ID: L1704984-12 D  
 Client ID: VES-128 (1-2)  
 Sample Location: E. BOSTON  
 Matrix: Soil  
 Analytical Method: 97,8082A  
 Analytical Date: 02/20/17 03:12  
 Analyst: HT  
 Percent Solids: 89%

Date Collected: 02/16/17 12:00  
 Date Received: 02/16/17  
 Field Prep: Not Specified  
 Extraction Method: EPA 3540C  
 Extraction Date: 02/17/17 04:58  
 Cleanup Method: EPA 3665A  
 Cleanup Date: 02/18/17  
 Cleanup Method: EPA 3660B  
 Cleanup Date: 02/18/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	1790	--	50	A
Aroclor 1221	ND		ug/kg	1790	--	50	A
Aroclor 1232	ND		ug/kg	1790	--	50	A
Aroclor 1242	ND		ug/kg	1790	--	50	A
Aroclor 1248	ND		ug/kg	1790	--	50	A
Aroclor 1254	12300		ug/kg	1790	--	50	A
Aroclor 1260	10800		ug/kg	1790	--	50	B
Aroclor 1262	ND		ug/kg	1790	--	50	A
Aroclor 1268	ND		ug/kg	1790	--	50	A
PCBs, Total	23100		ug/kg	1790	--	50	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8082A  
Analytical Date: 02/20/17 01:44  
Analyst: HT

Extraction Method: EPA 3540C  
Extraction Date: 02/17/17 04:58  
Cleanup Method: EPA 3665A  
Cleanup Date: 02/18/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 02/18/17

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 02-05,07-08,10-12 Batch: WG978634-1						
Aroclor 1016	ND		ug/kg	31.8	--	A
Aroclor 1221	ND		ug/kg	31.8	--	A
Aroclor 1232	ND		ug/kg	31.8	--	A
Aroclor 1242	ND		ug/kg	31.8	--	A
Aroclor 1248	ND		ug/kg	31.8	--	A
Aroclor 1254	ND		ug/kg	31.8	--	A
Aroclor 1260	ND		ug/kg	31.8	--	A
Aroclor 1262	ND		ug/kg	31.8	--	A
Aroclor 1268	ND		ug/kg	31.8	--	A
PCBs, Total	ND		ug/kg	31.8	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	83		30-150	A
Decachlorobiphenyl	94		30-150	A
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	81		30-150	B

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

<b>Parameter</b>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> <i>Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> <i>Limits</i>	<i>Column</i>
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978634-2 WG978634-3									
Aroclor 1016	58		67		40-140	14		30	A
Aroclor 1260	44		58		40-140	27		30	A

<b>Surrogate</b>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> <i>Criteria</i>	<i>Column</i>
2,4,5,6-Tetrachloro-m-xylene						
Decachlorobiphenyl	77		74		30-150	A
2,4,5,6-Tetrachloro-m-xylene	46		49		30-150	A
Decachlorobiphenyl	80		80		30-150	B
2,4,5,6-Tetrachloro-m-xylene	56		57		30-150	B

## METALS



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**SAMPLE RESULTS**

Lab ID: L1704984-12  
Client ID: VES-128 (1-2)  
Sample Location: E. BOSTON  
Matrix: Soil  
Percent Solids: 89%

Date Collected: 02/16/17 12:00  
Date Received: 02/16/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>MCP Total Metals - Mansfield Lab</b>											
Arsenic, Total	20		mg/kg	0.45	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS
Barium, Total	250		mg/kg	0.45	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS
Cadmium, Total	1.7		mg/kg	0.45	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS
Chromium, Total	28		mg/kg	0.45	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS
Lead, Total	570		mg/kg	2.2	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS
Mercury, Total	1.53		mg/kg	0.073	--	1	02/17/17 10:00	02/18/17 12:45	EPA 7471B	97,7471B	BV
Selenium, Total	ND		mg/kg	2.2	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS
Silver, Total	0.68		mg/kg	0.45	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

## Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 02-05,07-08,10-12 Batch: WG978654-1									
Mercury, Total	ND	mg/kg	0.083	--	1	02/17/17 10:00	02/18/17 12:12	97,7471B	BV

### Prep Information

Digestion Method: EPA 7471B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 02-05,07-08,10-12 Batch: WG978902-1									
Arsenic, Total	ND	mg/kg	0.40	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS
Barium, Total	ND	mg/kg	0.40	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS
Cadmium, Total	ND	mg/kg	0.40	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS
Chromium, Total	ND	mg/kg	0.40	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS
Lead, Total	ND	mg/kg	2.0	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS
Selenium, Total	ND	mg/kg	2.0	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS
Silver, Total	ND	mg/kg	0.40	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS

### Prep Information

Digestion Method: EPA 3050B

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978654-2 WG978654-3 SRM Lot Number: D091-540								
Mercury, Total	104		95		72-128	9		30
MCP Total Metals - Mansfield Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978902-2 WG978902-3 SRM Lot Number: D091-540								
Arsenic, Total	96		83		80-121	15		30
Barium, Total	91		96		84-117	5		30
Cadmium, Total	97		89		83-117	9		30
Chromium, Total	91		84		80-119	8		30
Lead, Total	96		82		82-118	16		30
Selenium, Total	90		84		79-121	7		30
Silver, Total	96		80		76-124	18		30

# **INORGANICS & MISCELLANEOUS**



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

## SAMPLE RESULTS

Lab ID: L1704984-12  
Client ID: VES-128 (1-2)  
Sample Location: E. BOSTON  
Matrix: Soil

Date Collected: 02/16/17 12:00  
Date Received: 02/16/17  
Field Prep: Not Specified

### Test Material Information

Source of Material: Unknown  
Description of Material: Non-Metallic - Damp Soil  
Particle Size: Coarse  
Preliminary Burning Time (sec): 120

Parameter	Result	Date Analyzed	Analytical Method	Analyst
Ignitability of Solids - Westborough Lab				
Ignitability	NI	02/17/17 13:02	1,1030	AB



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### SAMPLE RESULTS

Lab ID: L1704984-12  
Client ID: VES-128 (1-2)  
Sample Location: E. BOSTON  
Matrix: Soil

Date Collected: 02/16/17 12:00  
Date Received: 02/16/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Specific Conductance @ 25 C	59		umhos/cm	10	--	1	-	02/17/17 02:59	1,9050A	VB
Solids, Total	88.8	%		0.100	NA	1	-	02/17/17 13:31	121,2540G	RI
pH (H)	7.6	SU		-	NA	1	-	02/17/17 01:24	1,9045D	VB
Cyanide, Reactive	ND		mg/kg	10	--	1	02/18/17 18:45	02/18/17 20:50	1,7.3	RP
Sulfide, Reactive	ND		mg/kg	10	--	1	02/18/17 18:45	02/18/17 20:43	1,7.3	RP



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Method Blank Analysis**  
**Batch Quality Control**

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 02-05,07-08 Batch: WG979086-1									
Sulfide, Reactive	ND	mg/kg	10	--	1	02/18/17 16:35	02/18/17 17:33	1,7.3	RP
General Chemistry - Westborough Lab for sample(s): 02-05,07-08 Batch: WG979087-1									
Cyanide, Reactive	ND	mg/kg	10	--	1	02/18/17 16:35	02/18/17 17:38	1,7.3	RP
General Chemistry - Westborough Lab for sample(s): 10-12 Batch: WG979096-1									
Sulfide, Reactive	ND	mg/kg	10	--	1	02/18/17 18:45	02/18/17 20:40	1,7.3	RP
General Chemistry - Westborough Lab for sample(s): 10-12 Batch: WG979097-1									
Cyanide, Reactive	ND	mg/kg	10	--	1	02/18/17 18:45	02/18/17 20:46	1,7.3	RP



# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978615-1								
pH	101	-	-	-	99-101	-	-	-
General Chemistry - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978620-1								
Specific Conductance	100	-	-	-	99-101	-	-	-
General Chemistry - Westborough Lab Associated sample(s): 02-05,07-08 Batch: WG979086-2								
Sulfide, Reactive	82	-	-	-	60-125	-	-	40
General Chemistry - Westborough Lab Associated sample(s): 02-05,07-08 Batch: WG979087-2								
Cyanide, Reactive	42	-	-	-	30-125	-	-	40
General Chemistry - Westborough Lab Associated sample(s): 10-12 Batch: WG979096-2								
Sulfide, Reactive	102	-	-	-	60-125	-	-	40
General Chemistry - Westborough Lab Associated sample(s): 10-12 Batch: WG979097-2								
Cyanide, Reactive	65	-	-	-	30-125	-	-	40

**Lab Duplicate Analysis**  
Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-05,07-08,10-12 QC Batch ID: WG978620-2 QC Sample: L1704984-02 Client ID: VES-131 (3-5)						
Specific Conductance @ 25 C	18	32	umhos/cm	56	Q	20
General Chemistry - Westborough Lab Associated sample(s): 01-12 QC Batch ID: WG978745-1 QC Sample: L1704984-01 Client ID: VES-131 (0-2)						
Solids, Total	87.5	88.1	%	1		20

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Sample Receipt and Container Information

Were project specific reporting limits specified? YES

**Reagent H2O Preserved Vials Frozen on:** 02/16/2017 21:29

#### Cooler Information Custody Seal

##### Cooler

C Absent

#### Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1704984-01A	Glass 120ml/4oz unpreserved	C	N/A	2.5	Y	Absent	MCP-8081-10(14),TS(7)
L1704984-02A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-02B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-02C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-02D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-02E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-03A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260H-10(14),MCP-8260HLW-10(14)
L1704984-03B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260H-10(14),MCP-8260HLW-10(14)
L1704984-03C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260H-10(14),MCP-8260HLW-10(14)
L1704984-03D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-03E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)

\*Values in parentheses indicate holding time in days

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1704984-04A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-04B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-04C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-04D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-04E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-05A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-05B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-05C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-05D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-05E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-06A	Glass 120ml/4oz unpreserved	C	N/A	2.5	Y	Absent	MCP-8081-10(14),TS(7)
L1704984-07A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-07B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-07C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-07D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)

\*Values in parentheses indicate holding time in days

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1704984-07E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-08A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-08B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-08C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-08D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-08E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-09A	Glass 120ml/4oz unpreserved	C	N/A	2.5	Y	Absent	MCP-8081-10(14),TS(7)
L1704984-10A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-10B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-10C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-10D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-10E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-11A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-11B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-11C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)

\*Values in parentheses indicate holding time in days

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1704984-11D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-11E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-12A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-12B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-12C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-12D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-12E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)

\*Values in parentheses indicate holding time in days

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

## GLOSSARY

### **Acronyms**

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### **Footnotes**

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### **Terms**

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

### **Data Qualifiers**

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

**Report Format:** Data Usability Report



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Data Qualifiers**

reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

*Report Format:* Data Usability Report



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.
- 98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.
- 100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, July 2010.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at its own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

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**The following analytes are not included in our Primary NELAP Scope of Accreditation:**

**Westborough Facility**

EPA 624: m/p-xylene, o-xylene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide

EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

SM5310C: DW: Dissolved Organic Carbon

**Mansfield Facility**

SM 2540D: TSS

EPA 3005A NPW

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Biological Tissue Matrix**: EPA 3050B

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**The following analytes are included in our Massachusetts DEP Scope of Accreditation**

**Westborough Facility:**

**Drinking Water**

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C**, **SM4500CN-CE**, **EPA 180.1**,

**SM2130B**, **SM4500CI-D**, **SM2320B**, **SM2540C**, **SM4500H-B**

EPA 332: Perchlorate; **EPA 524.2**: THMs and VOCs; **EPA 504.1**: EDB, DBCP.

Microbiology: **SM9215B**; **SM9223-P/A**, **SM9223B-Colilert-QT**, **SM9222D**.

**Non-Potable Water**

**SM4500H,B**, **EPA 120.1**, **SM2510B**, **SM2540C**, **SM2320B**, **SM4500CL-E**, **SM4500F-BC**, **SM4500NH3-BH**, **EPA 350.1**: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, **SM4500NO3-F**, **EPA 353.2**: Nitrate-N, **EPA 351.1**, **SM4500P-E**, **SM4500P-B**, **E**, **SM4500SO4-E**, **SM5220D**, **EPA 410.4**, **SM5210B**, **SM5310C**, **SM4500CL-D**, **EPA 1664**, **EPA 420.1**, **SM4500-CN-CE**, **SM2540D**.

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.

Microbiology: **SM9223B-Colilert-QT**; **Enterolert-QT**, **SM9221E**.

**Mansfield Facility:**

**Drinking Water**

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8**: Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg**.

**Non-Potable Water**

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

EPA 245.1 Hg.

**SM2340B**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.



## CHAIN OF CUSTODY

PAGE 2 OF 2

8 Walkup Drive  
Westboro, MA 01581  
Tel: 508-898-9220

320 Forbes Blvd  
Mansfield, MA 02048  
Tel: 508-822-9300

## Client Information

Client: VERTEX

Address: one Congress St, 10th Flr  
Boston MA

Phone: 781-974-7595

Email: b51vonen@vertexeng.com

Additional Project Information:

## Project Information

Project Name: E. Boston

Project Location: E. Boston

Project #: 43068

Project Manager: D. Gibbons

ALPHA Quote #:

## Turn-Around Time

 Standard RUSH (only confirmed if pre-approved)

Date Due:

72-hour

Date Rec'd in Lab: 02/16/17

ALPHA Job #: L1704984

## Report Information - Data Deliverables

 ADEX  EMAIL

## Billing Information

 Same as Client info PO #:

## Regulatory Requirements &amp; Project Information Requirements

- Yes  No MA MCP Analytical Methods       Yes  No CT RCP Analytical Methods
- Yes  No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
- Yes  No GW1 Standards (Info Required for Metals & EPH with Targets)
- Yes  No NPDES RGP
- Other State/Fed Program \_\_\_\_\_ Criteria \_\_\_\_\_

ANALYSIS	Criteria										TOTAL #
	VOC: <input checked="" type="checkbox"/> 6260 <input type="checkbox"/> 624 <input type="checkbox"/> 524.2	SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH <input checked="" type="checkbox"/> PCB <input checked="" type="checkbox"/> 770	METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> MCP 15	EPH: <input type="checkbox"/> RCR45 <input checked="" type="checkbox"/> RCR48 <input type="checkbox"/> PPT3	VRH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	PPB: <input type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only	PCB: <input checked="" type="checkbox"/> PEST <input type="checkbox"/> Quant Only	Fingerprint: <input type="checkbox"/>	TPH: <input type="checkbox"/> Charides <input checked="" type="checkbox"/> Solvent <input checked="" type="checkbox"/> TDS <input type="checkbox"/> Recd		
VOC: <input checked="" type="checkbox"/> 6260 <input type="checkbox"/> 624 <input type="checkbox"/> 524.2	<input checked="" type="checkbox"/> PAH <input checked="" type="checkbox"/> PCB <input checked="" type="checkbox"/> 770	<input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> MCP 15	<input checked="" type="checkbox"/> RCR45 <input checked="" type="checkbox"/> RCR48 <input type="checkbox"/> PPT3	<input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	<input type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only	<input type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only	<input type="checkbox"/> PEST <input type="checkbox"/> Quant Only	<input type="checkbox"/> Fingerprint	<input checked="" type="checkbox"/> Charides <input checked="" type="checkbox"/> Solvent <input checked="" type="checkbox"/> TDS <input type="checkbox"/> Recd	5	
SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH <input checked="" type="checkbox"/> PCB <input checked="" type="checkbox"/> 770	<input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> MCP 15	<input checked="" type="checkbox"/> RCR45 <input checked="" type="checkbox"/> RCR48 <input type="checkbox"/> PPT3	<input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	<input type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only	<input type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only	<input type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only	<input type="checkbox"/> PEST <input type="checkbox"/> Quant Only	<input type="checkbox"/> Fingerprint	<input checked="" type="checkbox"/> Charides <input checked="" type="checkbox"/> Solvent <input checked="" type="checkbox"/> TDS <input type="checkbox"/> Recd	5	

## SAMPLE INFO

- Filtration  
 Field  
 Lab to do

- Preservation  
 Lab to do

Sample Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection	Sample Matrix	Sampler Initials
Date	Time			
0484	11 VES-103 (4-6)	2/16 7:40	S	XX
12	VES-128 (1-2)	2/16 1200	S KS	XX XX X X XX

5

5

"Data pertaining to other samples not relevant to this LSP Opinion have been omitted."

Container Type  
 P= Plastic  
 A= Amber glass  
 V= Vial  
 G= Glass  
 B= Bacteria cup  
 C= Cube  
 O= Other  
 E= Encore  
 D= BOD Bottle

Preservative  
 A= None  
 B= HCl  
 C= HNO<sub>3</sub>  
 D= H<sub>2</sub>SO<sub>4</sub>  
 E= NaOH  
 F= MeOH  
 G= NaHSO<sub>4</sub>  
 H= Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>  
 I= Ascorbic Acid  
 J= NH<sub>4</sub>Cl  
 K= Zn Acetate  
 O= Other

Container Type	V	A	A	V	A
Preservative	F	A	A	F	A

Relinquished By:	Date/Time	Received By:	Date/Time
Rob Maesto	2/16/17 11:15	Rob Maesto	2/16/17 15:35
Rob Maesto	2/16/17 15:35	Rob Maesto	2/16/17 15:35
Rob Maesto	2/16/17 19:20	CJ	2/16/17 18:20

All samples submitted are subject to Alpha's Terms and Conditions.

See reverse side.

FORM NO. 01-01 (rev. 12-Mar-2012)



## ANALYTICAL REPORT

Lab Number:	L1721774
Client:	Vertex Environmental Services, Inc. 400 Libbey Pkwy Weymouth, MA 02184
ATTN:	Bill Gibbons
Phone:	(617) 830-1540
Project Name:	SUFFOLK DOWNS
Project Number:	43068
Report Date:	07/05/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1721774-01	VES-128 (2-4)	SOIL	BOSTON, MA	06/26/17 13:00	06/27/17
L1721774-02	VES-128 (E) 0-2	SOIL	BOSTON, MA	06/26/17 13:10	06/27/17
L1721774-03	VES-128 (SE) 0-2	SOIL	BOSTON, MA	06/26/17 13:20	06/27/17
L1721774-04	VES-128 (S) 0-2	SOIL	BOSTON, MA	06/26/17 13:30	06/27/17
L1721774-05	VES-128 (W) 0-2	SOIL	BOSTON, MA	06/26/17 14:00	06/27/17
L1721774-06	VES-128 (SW) 0-2	SOIL	BOSTON, MA	06/26/17 13:50	06/27/17
L1721774-07	VES-128 (NW) 0-2	SOIL	BOSTON, MA	06/26/17 14:20	06/27/17
L1721774-08	VES-128 (N) 0-2	SOIL	BOSTON, MA	06/26/17 14:30	06/27/17
L1721774-09	VES-128 (NE) 0-2	SOIL	BOSTON, MA	06/26/17 14:50	06/27/17

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

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

<b>A response to questions G, H and I is required for "Presumptive Certainty" status</b>		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES

**For any questions answered "No", please refer to the case narrative section on the following page(s).**

Please note that sample matrix information is located in the Sample Results section of this report.



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### Case Narrative (continued)

#### MCP Related Narratives

#### Report Submission

All MCP required questions were answered with affirmative responses; therefore, there are no relevant protocol-specific QC and/or performance standard non-conformances to report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 07/05/17

# ORGANICS



**PCBS**



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-01  
Client ID: VES-128 (2-4)  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 19:51  
Analyst: AF  
Percent Solids: 63%

Date Collected: 06/26/17 13:00  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	31.2	--	1	A
Aroclor 1221	ND		ug/kg	31.2	--	1	A
Aroclor 1232	ND		ug/kg	31.2	--	1	A
Aroclor 1242	ND		ug/kg	31.2	--	1	A
Aroclor 1248	ND		ug/kg	20.8	--	1	A
Aroclor 1254	ND		ug/kg	31.2	--	1	A
Aroclor 1260	ND		ug/kg	20.8	--	1	A
Aroclor 1262	ND		ug/kg	10.4	--	1	A
Aroclor 1268	ND		ug/kg	10.4	--	1	A
PCBs, Total	ND		ug/kg	10.4	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	57		30-150	A
Decachlorobiphenyl	45		30-150	A
2,4,5,6-Tetrachloro-m-xylene	56		30-150	B
Decachlorobiphenyl	56		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-02  
Client ID: VES-128 (E) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 20:05  
Analyst: AF  
Percent Solids: 72%

Date Collected: 06/26/17 13:10  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	26.5	--	1	A
Aroclor 1221	ND		ug/kg	26.5	--	1	A
Aroclor 1232	ND		ug/kg	26.5	--	1	A
Aroclor 1242	ND		ug/kg	26.5	--	1	A
Aroclor 1248	ND		ug/kg	17.7	--	1	A
Aroclor 1254	ND		ug/kg	26.5	--	1	A
Aroclor 1260	ND		ug/kg	17.7	--	1	A
Aroclor 1262	ND		ug/kg	8.84	--	1	A
Aroclor 1268	ND		ug/kg	8.84	--	1	A
PCBs, Total	ND		ug/kg	8.84	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	52		30-150	A
Decachlorobiphenyl	40		30-150	A
2,4,5,6-Tetrachloro-m-xylene	56		30-150	B
Decachlorobiphenyl	48		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-03  
Client ID: VES-128 (SE) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 20:18  
Analyst: AF  
Percent Solids: 78%

Date Collected: 06/26/17 13:20  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	24.9	--	1	A
Aroclor 1221	ND		ug/kg	24.9	--	1	A
Aroclor 1232	ND		ug/kg	24.9	--	1	A
Aroclor 1242	ND		ug/kg	24.9	--	1	A
Aroclor 1248	ND		ug/kg	16.6	--	1	A
Aroclor 1254	ND		ug/kg	24.9	--	1	A
Aroclor 1260	ND		ug/kg	16.6	--	1	A
Aroclor 1262	ND		ug/kg	8.29	--	1	A
Aroclor 1268	ND		ug/kg	8.29	--	1	A
PCBs, Total	ND		ug/kg	8.29	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	69		30-150	A
Decachlorobiphenyl	43		30-150	A
2,4,5,6-Tetrachloro-m-xylene	73		30-150	B
Decachlorobiphenyl	56		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-04  
Client ID: VES-128 (S) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 20:32  
Analyst: AF  
Percent Solids: 94%

Date Collected: 06/26/17 13:30  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	20.6	--	1	A
Aroclor 1221	ND		ug/kg	20.6	--	1	A
Aroclor 1232	ND		ug/kg	20.6	--	1	A
Aroclor 1242	ND		ug/kg	20.6	--	1	A
Aroclor 1248	ND		ug/kg	13.8	--	1	A
Aroclor 1254	ND		ug/kg	20.6	--	1	A
Aroclor 1260	ND		ug/kg	13.8	--	1	A
Aroclor 1262	ND		ug/kg	6.88	--	1	A
Aroclor 1268	ND		ug/kg	6.88	--	1	A
PCBs, Total	ND		ug/kg	6.88	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	63		30-150	A
Decachlorobiphenyl	42		30-150	A
2,4,5,6-Tetrachloro-m-xylene	78		30-150	B
Decachlorobiphenyl	56		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-05  
Client ID: VES-128 (W) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 20:46  
Analyst: AF  
Percent Solids: 91%

Date Collected: 06/26/17 14:00  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	21.3	--	1	A
Aroclor 1221	ND		ug/kg	21.3	--	1	A
Aroclor 1232	ND		ug/kg	21.3	--	1	A
Aroclor 1242	ND		ug/kg	21.3	--	1	A
Aroclor 1248	ND		ug/kg	14.2	--	1	A
Aroclor 1254	ND		ug/kg	21.3	--	1	A
Aroclor 1260	ND		ug/kg	14.2	--	1	A
Aroclor 1262	ND		ug/kg	7.11	--	1	A
Aroclor 1268	ND		ug/kg	7.11	--	1	A
PCBs, Total	ND		ug/kg	7.11	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		30-150	A
Decachlorobiphenyl	47		30-150	A
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	54		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-06  
Client ID: VES-128 (SW) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 20:59  
Analyst: AF  
Percent Solids: 70%

Date Collected: 06/26/17 13:50  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	28.3	--	1	A
Aroclor 1221	ND		ug/kg	28.3	--	1	A
Aroclor 1232	ND		ug/kg	28.3	--	1	A
Aroclor 1242	ND		ug/kg	28.3	--	1	A
Aroclor 1248	ND		ug/kg	18.9	--	1	A
Aroclor 1254	ND		ug/kg	28.3	--	1	A
Aroclor 1260	ND		ug/kg	18.9	--	1	A
Aroclor 1262	ND		ug/kg	9.44	--	1	A
Aroclor 1268	ND		ug/kg	9.44	--	1	A
PCBs, Total	ND		ug/kg	9.44	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	65		30-150	A
Decachlorobiphenyl	48		30-150	A
2,4,5,6-Tetrachloro-m-xylene	58		30-150	B
Decachlorobiphenyl	56		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-07  
Client ID: VES-128 (NW) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 21:13  
Analyst: AF  
Percent Solids: 94%

Date Collected: 06/26/17 14:20  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	20.8	--	1	A
Aroclor 1221	ND		ug/kg	20.8	--	1	A
Aroclor 1232	ND		ug/kg	20.8	--	1	A
Aroclor 1242	ND		ug/kg	20.8	--	1	A
Aroclor 1248	ND		ug/kg	13.8	--	1	A
Aroclor 1254	ND		ug/kg	20.8	--	1	A
Aroclor 1260	ND		ug/kg	13.8	--	1	A
Aroclor 1262	ND		ug/kg	6.92	--	1	A
Aroclor 1268	ND		ug/kg	6.92	--	1	A
PCBs, Total	ND		ug/kg	6.92	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	62		30-150	A
Decachlorobiphenyl	46		30-150	A
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	57		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-08  
Client ID: VES-128 (N) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 21:27  
Analyst: AF  
Percent Solids: 95%

Date Collected: 06/26/17 14:30  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	20.4	--	1	A
Aroclor 1221	ND		ug/kg	20.4	--	1	A
Aroclor 1232	ND		ug/kg	20.4	--	1	A
Aroclor 1242	ND		ug/kg	20.4	--	1	A
Aroclor 1248	ND		ug/kg	13.6	--	1	A
Aroclor 1254	ND		ug/kg	20.4	--	1	A
Aroclor 1260	ND		ug/kg	13.6	--	1	A
Aroclor 1262	ND		ug/kg	6.79	--	1	A
Aroclor 1268	ND		ug/kg	6.79	--	1	A
PCBs, Total	ND		ug/kg	6.79	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	58		30-150	A
Decachlorobiphenyl	45		30-150	A
2,4,5,6-Tetrachloro-m-xylene	80		30-150	B
Decachlorobiphenyl	62		30-150	B

Project Name: SUFFOLK DOWNS

Lab Number: L1721774

Project Number: 43068

Report Date: 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-09  
 Client ID: VES-128 (NE) 0-2  
 Sample Location: BOSTON, MA

Matrix: Soil  
 Analytical Method: 97,8082A  
 Analytical Date: 07/01/17 21:41  
 Analyst: AF  
 Percent Solids: 87%

Date Collected: 06/26/17 14:50  
 Date Received: 06/27/17  
 Field Prep: Not Specified  
 Extraction Method: EPA 3540C  
 Extraction Date: 06/29/17 20:15  
 Cleanup Method: EPA 3665A  
 Cleanup Date: 06/30/17  
 Cleanup Method: EPA 3660B  
 Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	21.6	--	1	A
Aroclor 1221	ND		ug/kg	21.6	--	1	A
Aroclor 1232	ND		ug/kg	21.6	--	1	A
Aroclor 1242	ND		ug/kg	21.6	--	1	A
Aroclor 1248	ND		ug/kg	14.4	--	1	A
Aroclor 1254	ND		ug/kg	21.6	--	1	A
Aroclor 1260	ND		ug/kg	14.4	--	1	A
Aroclor 1262	ND		ug/kg	7.21	--	1	A
Aroclor 1268	ND		ug/kg	7.21	--	1	A
PCBs, Total	ND		ug/kg	7.21	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	70		30-150	A
Decachlorobiphenyl	48		30-150	A
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	54		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8082A  
Analytical Date: 07/02/17 16:56  
Analyst: AF

Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s):	01-09		Batch:	WG1018568-1		
Aroclor 1016	ND		ug/kg	19.8	--	A
Aroclor 1221	ND		ug/kg	19.8	--	A
Aroclor 1232	ND		ug/kg	19.8	--	A
Aroclor 1242	ND		ug/kg	19.8	--	A
Aroclor 1248	ND		ug/kg	13.2	--	A
Aroclor 1254	ND		ug/kg	19.8	--	A
Aroclor 1260	ND		ug/kg	13.2	--	A
Aroclor 1262	ND		ug/kg	6.60	--	A
Aroclor 1268	ND		ug/kg	6.60	--	A
PCBs, Total	ND		ug/kg	6.60	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	62		30-150	A
Decachlorobiphenyl	55		30-150	A
2,4,5,6-Tetrachloro-m-xylene	61		30-150	B
Decachlorobiphenyl	60		30-150	B

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 01-09 Batch: WG1018568-2 WG1018568-3									
Aroclor 1016	74		75		40-140	1		30	A
Aroclor 1260	72		75		40-140	4		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	71		76		30-150	A
Decachlorobiphenyl	64		67		30-150	A
2,4,5,6-Tetrachloro-m-xylene	67		72		30-150	B
Decachlorobiphenyl	68		75		30-150	B

# **INORGANICS & MISCELLANEOUS**



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID:	L1721774-01	Date Collected:	06/26/17 13:00
Client ID:	VES-128 (2-4)	Date Received:	06/27/17
Sample Location:	BOSTON, MA	Field Prep:	Not Specified
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	62.6		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-02  
Client ID: VES-128 (E) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 13:10  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	72.1		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-03  
Client ID: VES-128 (SE) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 13:20  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	78.0		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-04  
Client ID: VES-128 (S) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 13:30  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	94.2		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-05  
Client ID: VES-128 (W) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 14:00  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	91.3		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-06  
Client ID: VES-128 (SW) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 13:50  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	69.7		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-07  
Client ID: VES-128 (NW) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 14:20  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	94.4		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-08  
Client ID: VES-128 (N) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 14:30  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	95.2		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-09  
Client ID: VES-128 (NE) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 14:50  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	87.1		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

Serial\_No:07051712:32  
**Lab Number:** L1721774  
**Report Date:** 07/05/17

### **Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

#### **Cooler Information**

<b>Cooler</b>	<b>Custody Seal</b>
A	Absent

#### **Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L1721774-01A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-02A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-03A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-04A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-05A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-06A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-07A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-08A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-09A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)

\*Values in parentheses indicate holding time in days

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

## GLOSSARY

### **Acronyms**

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### **Footnotes**

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### **Terms**

- Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.
- Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.
- Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.
- Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.
- Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

### **Data Qualifiers**

- A - Spectra identified as "Aldol Condensation Product".
- B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related

**Report Format:** Data Usability Report



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**Data Qualifiers**

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

*Report Format:* Data Usability Report



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

## REFERENCES

- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at its own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

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**The following analytes are not included in our Primary NELAP Scope of Accreditation:**

**Westborough Facility**

EPA 624: m/p-xylene, o-xylene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide

EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

SM5310C: DW: Dissolved Organic Carbon

**Mansfield Facility**

SM 2540D: TSS

EPA 3005A NPW

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Biological Tissue Matrix**: EPA 3050B

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**The following analytes are included in our Massachusetts DEP Scope of Accreditation**

**Westborough Facility:**

**Drinking Water**

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C**, **SM4500CN-CE**, **EPA 180.1**,

**SM2130B**, **SM4500CI-D**, **SM2320B**, **SM2540C**, **SM4500H-B**

EPA 332: Perchlorate; **EPA 524.2**: THMs and VOCs; **EPA 504.1**: EDB, DBCP.

Microbiology: **SM9215B**; **SM9223-P/A**, **SM9223B-Colilert-QT**,**SM9222D**.

**Non-Potable Water**

**SM4500H,B**, **EPA 120.1**, **SM2510B**, **SM2540C**, **SM2320B**, **SM4500CL-E**, **SM4500F-BC**, **SM4500NH3-BH**, **EPA 350.1**: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, **SM4500NO3-F**, **EPA 353.2**: Nitrate-N, **EPA 351.1**, **SM4500P-E**, **SM4500P-B**, **E**, **SM4500SO4-E**, **SM5220D**, **EPA 410.4**, **SM5210B**, **SM5310C**, **SM4500CL-D**, **EPA 1664**, **EPA 420.1**, **SM4500-CN-CE**, **SM2540D**.

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.

Microbiology: **SM9223B-Colilert-QT**; **Enterolert-QT**, **SM9221E**.

**Mansfield Facility:**

**Drinking Water**

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8**: Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg**.

**Non-Potable Water**

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

EPA 245.1 Hg.

**SM2340B**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.





## ANALYTICAL REPORT

Lab Number:	L1732917
Client:	Vertex Environmental Services, Inc. 400 Libbey Pkwy Weymouth, MA 02184
ATTN:	Bill Gibbons
Phone:	(617) 830-1540
Project Name:	SUFFOLK DOWNS
Project Number:	43068
Report Date:	09/18/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

<b>Alpha</b> <b>Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L1732917-01	VES-128 (0-2)	SOIL	EAST BOSTON, MA	09/15/17 15:00	09/15/17

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

### MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

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

<b>A response to questions G, H and I is required for "Presumptive Certainty" status</b>		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES

**For any questions answered "No", please refer to the case narrative section on the following page(s).**

Please note that sample matrix information is located in the Sample Results section of this report.



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

**Case Narrative (continued)**

MCP Related Narratives

Sample Receipt

In reference to question A:

The sample was received at the laboratory above the required temperature range. The sample was delivered directly from the sampling site but was not preserved with ice.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 09/18/17

## METALS



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

**SAMPLE RESULTS**

Lab ID: L1732917-01  
Client ID: VES-128 (0-2)  
Sample Location: EAST BOSTON, MA  
Matrix: Soil

Date Collected: 09/15/17 15:00  
Date Received: 09/15/17  
Field Prep: Not Specified  
TCLP/SPLP Ext. Date: 09/15/17 21:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>TCLP Metals by EPA 1311 - Mansfield Lab</b>											
Lead, TCLP	ND		mg/l	0.500	--	1	09/18/17 11:08	09/18/17 13:06	EPA 3015	1,6010C	AB



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

## Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Mansfield Lab for sample(s): 01 Batch: WG1042760-1									
Lead, TCLP	ND	mg/l	0.500	--	1	09/18/17 11:08	09/18/17 12:09	1,6010C	AB

### Prep Information

Digestion Method: EPA 3015

TCLP/SPLP Extraction Date: 09/15/17 21:00



**Lab Control Sample Analysis**  
**Batch Quality Control**

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Mansfield Lab Associated sample(s): 01 Batch: WG1042760-2								
Lead, TCLP	99	-	-	-	75-125	-	-	20

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

Serial\_No:09181714:20  
**Lab Number:** L1732917  
**Report Date:** 09/18/17

**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

**Cooler Information**

<b>Cooler</b>	<b>Custody Seal</b>
A	Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L1732917-01A	Glass 500ml/16oz unpreserved	A	NA		19.3	Y	Absent		-
L1732917-01X	Plastic 120ml HNO3 preserved Extracts	A	NA		19.3	Y	Absent		PB-Cl(180)
L1732917-01X9	Tumble Vessel	A	NA		19.3	Y	Absent		-

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

## GLOSSARY

### **Acronyms**

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### **Footnotes**

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### **Terms**

- Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.
- Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.
- Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.
- Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.
- Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

### **Data Qualifiers**

- A - Spectra identified as "Aldol Condensation Product".
- B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related

**Report Format:** Data Usability Report



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

**Data Qualifiers**

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

*Report Format:* Data Usability Report



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at its own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

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**The following analytes are not included in our Primary NELAP Scope of Accreditation:**

**Westborough Facility**

EPA 624: m/p-xylene, o-xylene  
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.  
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.  
EPA 300: DW: Bromide  
EPA 6860: NPW and SCM: Perchlorate  
EPA 9010: NPW and SCM: Amenable Cyanide Distillation  
EPA 9012B: NPW: Total Cyanide  
EPA 9050A: NPW: Specific Conductance  
SM3500: NPW: Ferrous Iron  
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.  
SM5310C: DW: Dissolved Organic Carbon

**Mansfield Facility**

SM 2540D: TSS  
EPA 3005A NPW  
EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.  
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.  
Biological Tissue Matrix: EPA 3050B

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**The following analytes are included in our Massachusetts DEP Scope of Accreditation**

**Westborough Facility:**

**Drinking Water**

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C**, **SM4500CN-CE**, **EPA 180.1**, **SM2130B**, **SM4500CI-D**, **SM2320B**, **SM2540C**, **SM4500H-B**  
EPA 332: Perchlorate; **EPA 524.2**: THMs and VOCs; **EPA 504.1**: EDB, DBCP.  
Microbiology: **SM9215B**; **SM9223-P/A**, **SM9223B-Colilert-QT**,**SM9222D**.

**Non-Potable Water**

**SM4500H,B**, **EPA 120.1**, **SM2510B**, **SM2540C**, **SM2320B**, **SM4500CL-E**, **SM4500F-BC**, **SM4500NH3-BH**, **EPA 350.1**: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, **SM4500NO3-F**, **EPA 353.2**: Nitrate-N, **EPA 351.1**, **SM4500P-E**, **SM4500P-B**, **E**, **SM4500SO4-E**, **SM5220D**, **EPA 410.4**, **SM5210B**, **SM5310C**, **SM4500CL-D**, **EPA 1664**, **EPA 420.1**, **SM4500-CN-CE**, **SM2540D**.  
**EPA 624**: Volatile Halocarbons & Aromatics,  
**EPA 608**: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs  
**EPA 625**: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.  
Microbiology: **SM9223B-Colilert-QT**; **Enterolert-QT**, **SM9221E**.

**Mansfield Facility:**

**Drinking Water**

**EPA 200.7**: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8**: Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg**.

**Non-Potable Water**

**EPA 200.7**: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.  
**EPA 200.8**: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.  
**EPA 245.1 Hg**.  
**SM2340B**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.



## CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab:

9/15/17

ALPHA Job #: L1732917

8 Walkup Drive  
Westboro, MA 01581  
Tel: 508-898-9220

320 Forbes Blvd  
Mansfield, MA 02048  
Tel: 508-822-9300

## Client Information

Client: Vertex  
Address: One Congress St  
Boston, MA 02114  
Phone: 781-917-5360  
Email: kcarson@vertexeng.com  
bgibbons@vertexeng.com  
Additional Project Information:

## Project Information

Project Name: Suffolk Downs  
Project Location: East Boston, MA  
Project #: 430ca  
Project Manager: B. Gibbons  
ALPHA Quote #:

## Report Information - Data Deliverables

ADEX  EMAIL

## Billing Information

Same as Client info  PO #:

## Regulatory Requirements &amp; Project Information Requirements

Yes  No MA MCP Analytical Methods  Yes  No CT RCP Analytical Methods  
 Yes  No Matrix Spike Required on this SDG? (Required for MCP Inorganics)  Yes  No GW1 Standards (Info Required for Metals & EPH with Targets)  
 Yes  No NPDES RGP  Yes  No Other State /Fed Program Criteria

## Turn-Around Time

Standard

RUSH (only confirmed if pre-approved!)

Date Due:

72-hr

ANALYSIS	Sample Comments												TOTAL #	
	<input type="checkbox"/> 8260	<input type="checkbox"/> 624	<input type="checkbox"/> 524.2	<input type="checkbox"/> ABN	<input type="checkbox"/> PAH	<input type="checkbox"/> MCP 13	<input type="checkbox"/> MCP 14	<input type="checkbox"/> RCP 15	<input type="checkbox"/> Ranges & Targets	<input type="checkbox"/> Ranges Only	<input type="checkbox"/> PCB	<input type="checkbox"/> Ranges & Targets	<input type="checkbox"/> Ranges Only	
														X

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials
		Date	Time		
32917-01	VCS-128(0-2)	9/16/17	1500	S.1	KS

--	--	--	--	--	--	--	--	--	--	--	--	--	--

Container Type	Preservative
P= Plastic	A= None
A= Amber glass	B= HCl
V= Vial	C= HNO <sub>3</sub>
G= Glass	D= H <sub>2</sub> SO <sub>4</sub>
B= Bacteria cup	E= NaOH
C= Cube	F= MeOH
O= Other	G= NaHSO <sub>4</sub>
E= Encore	H= Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>
D= BOD Bottle	I= Ascorbic Acid
	J= NH <sub>4</sub> Cl
	K= Zn Acetate
	O= Other

Container Type				
Preservative				

Relinquished By:	Date/Time	Received By:	Date/Time	All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.
Warden	9/15/17 1700	am d	9/15/17 1700	

**DRAFT FOR DISCUSSION PURPOSES ONLY**

**APPENDIX B  
WASTE DISPOSAL DOCUMENTATION**



The Vertex Companies, Inc.  
One Congress Street, 10th Floor  
Boston, MA 02114  
PHONE 617.275.5407 | FAX 617.830.0298  
[www.vertexeng.com](http://www.vertexeng.com)

September 18, 2017

Waste Management – Turnkey Landfill  
90 Rochester Neck Road  
Rochester, New Hampshire 03839

**RE: Summary of Soil Analytical Results**  
PCB LRA – Suffolk Downs Racecourse  
525 William F. McClellan Highway  
East Boston and Revere, Massachusetts  
VERTEX Project No. 43068

To Whom It May Concern:

The Vertex Companies, Inc. (VERTEX) is pleased to submit this letter on behalf of McClellan Highway Development, LLC associated with the proposed export of soil excavated from the Suffolk Downs Racecourse located at 525 William F. McClellan Highway in East Boston and Revere, Massachusetts (the “Site”). Soil is being excavated from a location at the Site located in East Boston, as a Limited Removal Action (LRA) to remove polychlorinated biphenyl (PCB) impacted soil. The information provided in this letter includes a general Site history and summary of investigation activities and demonstrates that the soil proposed to be transported for disposal at the Waste Management Turnkey Landfill in Rochester, New Hampshire (the Facility) meets the Facility’s acceptance criteria.

### **Summary of General Site Information**

The Site consists of two adjoining parcels of land occupying a total of approximately 160 acres in Massachusetts. One parcel of land is in the City of Revere, and the other is in the City of Boston. The Site is improved with a horse racing track and associated buildings including a clubhouse/grandstand building, maintenance building, 33 horse barns, and various other miscellaneous buildings used for operating and maintaining the race track. The Site has been developed as a horse racing track since 1935. Prior to development as a horse racing track, the Site was marsh land.

The Site is abutted on the west by a bulk petroleum storage and distribution facility, commercial properties, and the William F. McClellan Highway (Massachusetts Route 1A); on the north by Winthrop Avenue and the Revere Beach Parkway, immediately beyond which is a commercial property; on the east by the Massachusetts Bay Transportation Authority (MBTA) Blue Line railroad tracks, immediately beyond which are residential and commercial properties and a park; and on the south by Waldemar Avenue, immediately beyond which are residential properties. The Beachmont MBTA station abuts the Site on the northeast and the Suffolk Downs MBTA station abuts the Site to the southeast. A site locus is attached as Figure 1.



## **Soil Characterization**

In March 2017, VERTEX collected soil samples throughout the Site during a Phase II Limited Subsurface Investigation (LSI) for analysis of the Massachusetts Department of Environmental Protection (MassDEP) policy COMM-97 disposal characterization parameters, in support of real estate transaction due diligence. A total PCB concentration of 23 milligrams per kilogram (mg/kg) was detected in soil sample (VES-128 (1-2)) collected from soil boring VES-128 at a depth of 1-2 feet below ground surface (bgs). Boring VES-128 was located the southeastern portion of the Site in a gravel access road adjacent to the racetrack. No buildings or structures, and no stationary oil-containing or PCB-containing equipment or materials are located at or within 100 feet of the boring location or historically have been. The source of the PCBs detected in the soil sample is unknown.

The detected concentration of PCBs exceeded the Massachusetts Contingency Plan (MCP) RCS-1 reportable concentration of 1 mg/kg. Total PCB concentrations exceeding the 1 mg/kg MCP reportable concentration were not detected in any of the 54 other soil samples or 5 concrete samples collected at the Site by VERTEX during the Phase II LSI.

Table 1, attached, summarizes the laboratory analytical results of the soil disposal characterization sample VES-128 (1-2), and laboratory data sheets and chain-of-custody documentation are attached. In addition to the PCBs, concentrations of benzo(a)pyrene, total arsenic, and total lead also exceeded applicable MCP RCS-1 reportable concentrations. The elevated concentrations of arsenic, lead, and polynuclear aromatic hydrocarbons (PAHs) are consistent with a 1998 Class B-1 Response Action Outcome Statement (RAO) submitted for MassDEP Release Tracking Number (RTN) 3-14857. The RAO, submitted for the Site as a whole, concluded that PAHs, total arsenic and lead at the Site are attributable to urban fill and are background conditions. No other analyte concentrations in the soil samples analyzed exceeded MassDEP RCS-1 reportable concentrations.

On June 26, 2017, VERTEX completed an additional nine soil borings and collected and analyzed an additional nine soil samples to horizontally and vertically delineate the extent of the PCBs in soil at the location of boring VES-128. PCBs were not detected at concentrations exceeding the laboratory detection limits (ranging from 0.0068 to 0.01014 mg/kg) in any of the other samples collected around the location of boring VES-128. All samples analyzed for PCBs were analyzed by United States Environmental Protection Agency (USEPA) Method 8082A with Soxhlet extraction. The results of the PCB delineation sample analyses are summarized on Table 2 and laboratory data sheets and chain-of-custody documentation are attached.

Because total lead was detected at a concentration of 570 mg/kg in sample VES-128 (1-2), on September 15, 2017, VERTEX collected a six-point composite sample from the area and depth of excavation for analysis of toxicity characteristic leaching procedure (TCLP) lead. Based on the analytical data, TCLP lead was not detected concentrations above the applicable regulatory level of 5 milligrams per liter (mg/L), therefore meeting facility disposal criteria.

Based on the analytical results, less than 20 cubic yards of soil is impacted with PCB concentrations exceeding 1 mg/kg; therefore, in accordance with the MCP, the PCB-impacted soil may be remediated as a LRA.

The physical characteristics of the soil samples were characterized using the modified Burmister classification system as fine to coarse sand, and were screened in the field for total volatile organic compounds (TVOC) using a photoionization detector (PID). Field observations identified the soil as fill material, including brick, ash, wood, glass, and asphalt. No visual or olfactory evidence of chemical impacts was identified.

VERTEX concludes that the source of the PCBs detected in the soil sample is not greater than 50 mg/kg and is not a Toxic Substances Control Act (TSCA) regulated waste because: no PCBs were detected in any other sample collected in the vicinity of boring VES-128; no PCBs were detected at concentrations exceeding 1 mg/kg in any of the 54 other soil samples or 5 concrete samples collected at the Site by VERTEX; and there are no current or historical buildings, electrical equipment, stationary oil-containing equipment, or identified source of PCBs in the area where the PCBs were detected.

The location of the soil to be excavated and transported for disposal at Waste Management – Turnkey Landfill is depicted on the attached Figures 2 and 3.

**Licensed Site Professional (LSP) Statement:** Mr. William J. Gibbons, PG, LSP, is familiar with the methods of characterizing wastes and contaminated media, Massachusetts and Federal Regulations applicable to the management of such materials. The analyses performed and submitted for review herewith are sufficient to adequately characterize the identity and concentrations of contaminants in the soil proposed for disposal at the Waste Management Turnkey Landfill. Based on his review of the attached data, it is his opinion as a LSP that the soil meets the disposal criteria for the Waste Management Turnkey Landfill.

Please do not hesitate to contact us should you have any questions or require additional information.

Sincerely,

**The Vertex Companies, Inc.**



Kristen Sarson  
Assistant Project Manager



William Gibbons, PG, LSP  
Senior Project Manager

## **ATTACHMENTS**

Waste Management Waste Profile

Figure 1-Site Locus

Figure 2-Site Plan

Figure 3 - LRA Area Detail

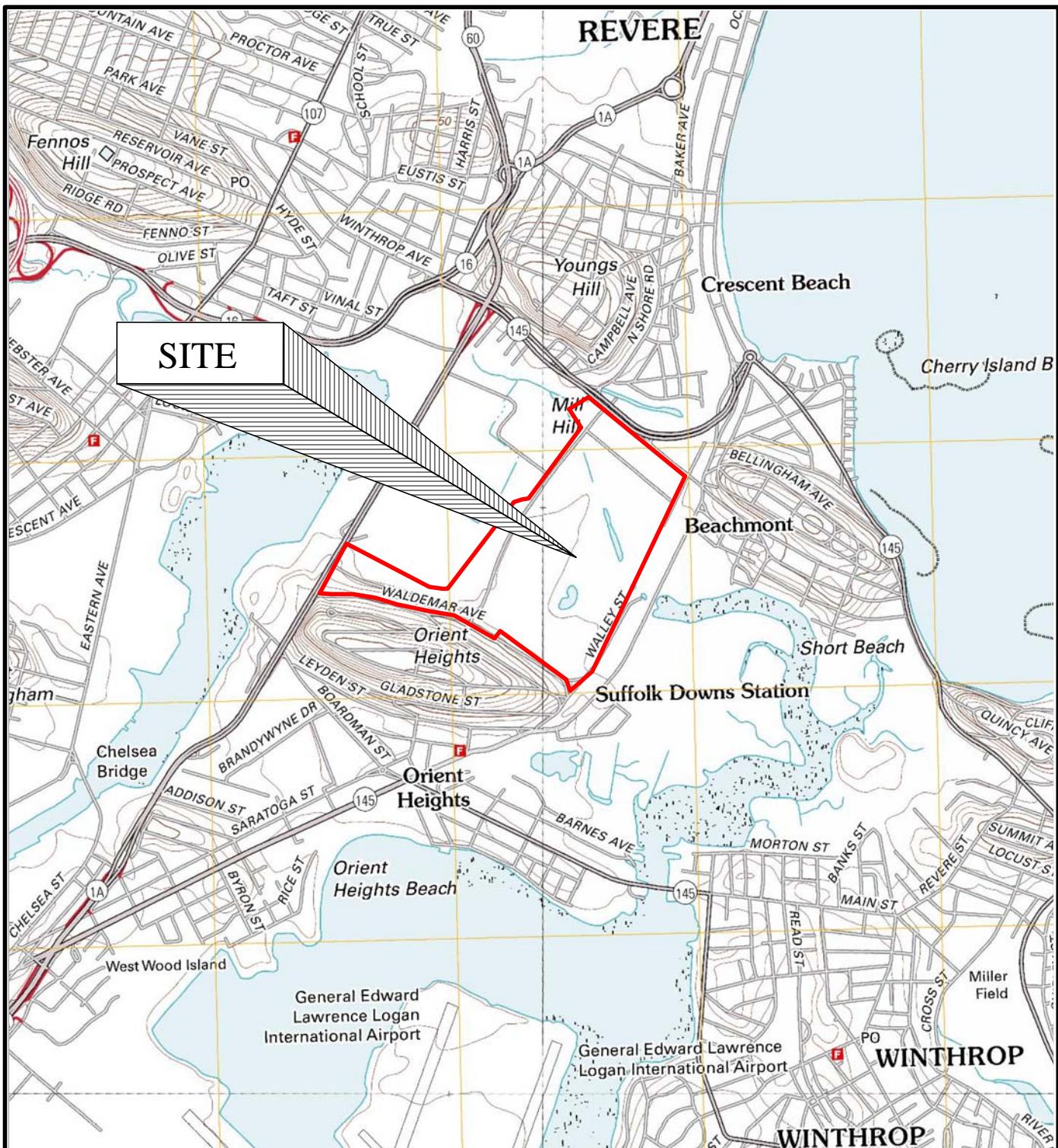
Table 1- Summary of Soil Analytical Data

Table 2 – Summary of PCB Delineation Analytical Data

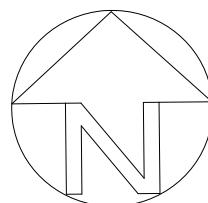
Bill of Lading

Laboratory Analytical Reports

## **FIGURES**



USGS Topographic Map, 2012  
Lynn, MA Quadrangle  
Contour Interval: 10 Feet



**SITE LOCUS MAP**

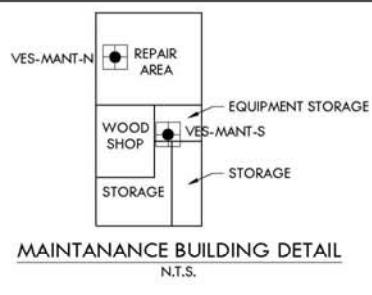
Suffolk Downs Racecourse  
525 William F. McCellan Highway  
Boston, Massachusetts

SCALE: 1:24,000

February, 2017

VERTEX Proj. No. 43068

**FIGURE NO. 1**

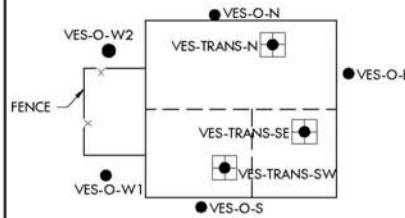


**LEGEND:**

-  MONITORING WELL
  -  SOIL BORING
  -  SURFICIAL SOIL / STOCKPILE SAMPLE
  -  CONCRETE SAMPLE
  -  SS2 SEDIMENT SAMPLE
  -  APPROXIMATE PCB LRA AREA  
*(See Figure 3 for more detail)*

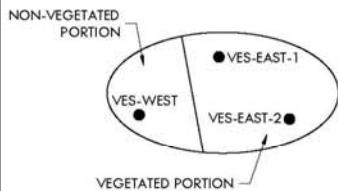
## MAINTANANCE BUILDING DETAIL

N.T.S.



## TRANSFORMER BUILDING DETAIL

N.T.S.



## SOIL STOCK PILE DETAIL

2



0 500 1000 1500

SCALE: 1" = 500'-0'  
(WHEN PRINTED AT 11x17)

#### NOTES:

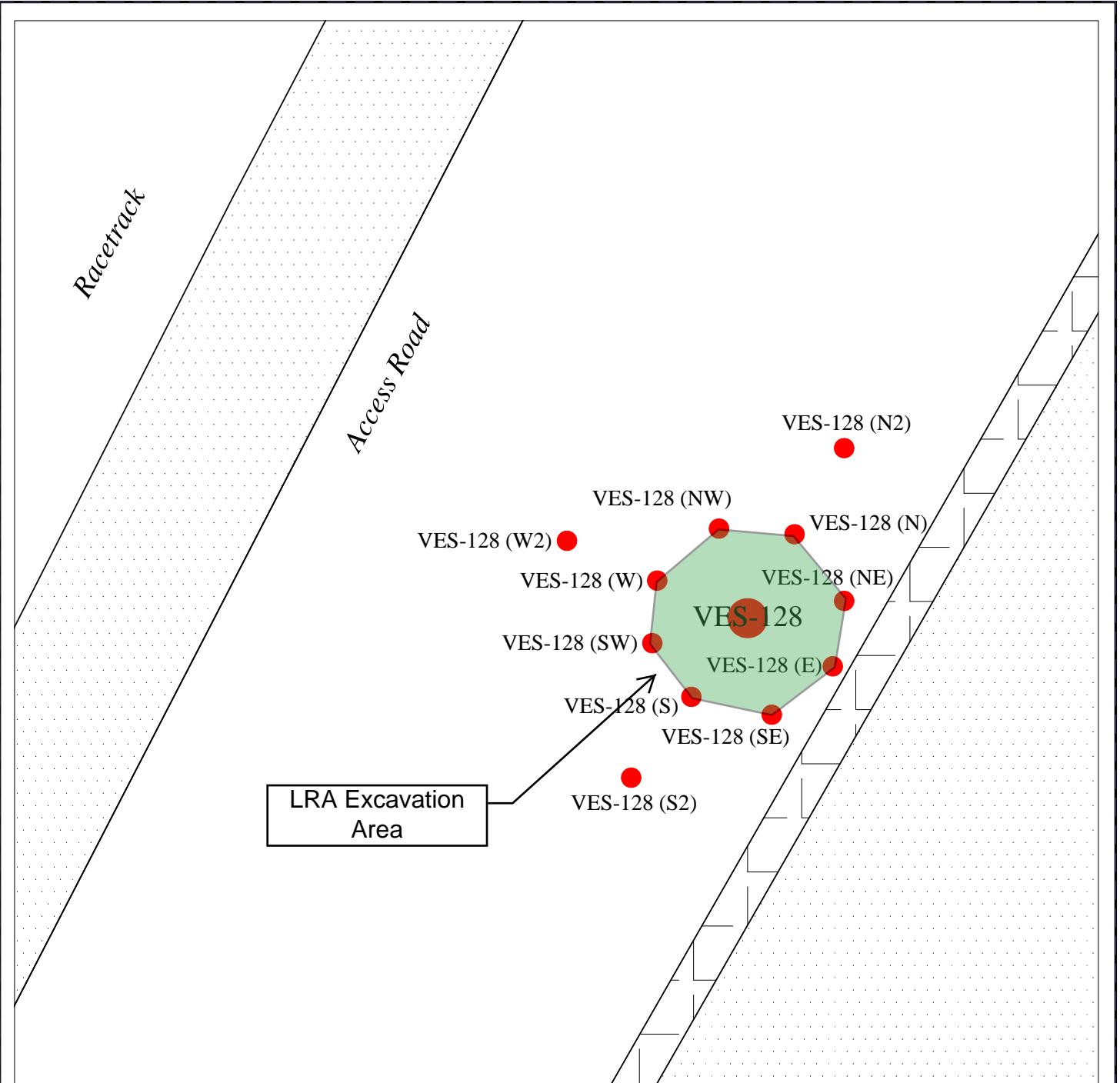
NOTES:  
PLAN BASED OF ALTA SURVEY PREPARED BY NITSCH ENGINEERING OF BOSTON,  
MASSACHUSETTS COMPANY DATED JANUARY 2017.



VERTEX FEBRUARY 2017 SAMPLING LOCATIONS	
SUFFOLK DOWNS	525 WILLIAM F MCCLELLAN HIGHWAY
	EAST BOSTON AND REVERE, MASSACHUSETTS

File No.:	43068	FIGURE
Date:	FEB. 2017	
Drawn:		AS
Checked:		LPV
Job No.:	43068	

VIRTUE



### LEGEND:

- VES-128 (W2) ● Approximate Boring Location
- [Fence] Fence
- [Landscape] Landscape

### NOTES:

SOURCE: VERTEX PHASE II LSI FIGURE 2, 2017



0 7.5 15 22.5



SCALE: 1" = 7.5'

### VES-128 DELINEATION

SUFFOLK DOWNS  
525 William F McClellan Highway  
East Boston and Revere, Massachusetts

Date: 07/07/2017  
Drawn: KLNS  
Checked: WJC  
Job No.: 43068

FIGURE

3

**VERTEX**

## **TABLES**

**TABLE 1 - SUMMARY OF SOIL ANALYTICAL RESULTS: VES-128**  
**SUFFOLK DOWNS**  
**525 WILLIAM F. MCCLELLAN HIGHWAY**  
**BOSTON, MASSACHUSETTS 02128**  
**VERTEX PROJECT NO. 43068**

LOCATION	MCP Upper Concentration Limits (UCLs)	MCP Reportable Concentration RCS-1	Units	VES-128 (1-2)	VES-128 (0-2)
SAMPLING DATE				2/16/2017	9/15/2017
LAB SAMPLE ID				L1704984-12	L1732917-01
SAMPLE TYPE				SOIL	SOIL
FILL OR NATIVE SOIL				FILL	FILL
SAMPLE DEPTH (FEET bgs)				1-2	0-2
<b>Extractable Petroleum Hydrocarbons (EPH)</b>					
C9-C18 Aliphatics	20000	1000	mg/kg	8.12	NA
C19-C36 Aliphatics	20000	3000	mg/kg	20.7	NA
C11-C22 Aromatics	10000	1000	mg/kg	123	NA
C11-C22 Aromatics, Adjusted	10000	1000	mg/kg	83.3	NA
Naphthalene	10000	4	mg/kg	ND(0.358)	NA
2-Methylnaphthalene	5000	0.7	mg/kg	ND(0.358)	NA
Acenaphthylene	10000	1	mg/kg	ND(0.358)	NA
Acenaphthene	10000	4	mg/kg	ND(0.358)	NA
Fluorene	10000	1000	mg/kg	ND(0.358)	NA
Phenanthrene	10000	10	mg/kg	4	NA
Anthracene	10000	1000	mg/kg	1.08	NA
Fluoranthene	10000	1000	mg/kg	6.61	NA
Pyrene	10000	1000	mg/kg	6.15	NA
Benzo(a)anthracene	3000	7	mg/kg	3.58	NA
Chrysene	10000	70	mg/kg	3.82	NA
Benzo(b)fluoranthene	3000	7	mg/kg	2.98	NA
Benzo(k)fluoranthene	10000	70	mg/kg	2.85	NA
Benzo(a)pyrene	300	2	mg/kg	3.56	NA
Indeno(1,2,3-cd)Pyrene	3000	7	mg/kg	2.42	NA
Dibenzo(a,h)anthracene	300	0.7	mg/kg	0.418	NA
Benzo(ghi)perylene	10000	1000	mg/kg	2.28	NA
<b>General Chemistry</b>					
Specific Conductance @ 25 C	NS	NS	umhos/cm	59	NA
Solids, Total	NS	NS	%	88.8	NA
pH (H)	NS	NS	SU	7.6	NA
Cyanide, Reactive	NS	NS	mg/kg	ND(10)	NA
Sulfide, Reactive	NS	NS	mg/kg	ND(10)	NA
<b>Ignitability of Solids</b>					
Ignitability	NS	NS	NI	NI	NA
<b>MCP Polychlorinated Biphenyls (PCBs)</b>					
Aroclor 1016	NS	NS	mg/kg	ND(1.79)	NA
Aroclor 1221	NS	NS	mg/kg	ND(1.79)	NA
Aroclor 1232	NS	NS	mg/kg	ND(1.79)	NA
Aroclor 1242	NS	NS	mg/kg	ND(1.79)	NA
Aroclor 1248	NS	NS	mg/kg	ND(1.79)	NA
Aroclor 1254	NS	NS	mg/kg	12.3	NA
Aroclor 1260	NS	NS	mg/kg	10.8	NA
Aroclor 1262	NS	NS	mg/kg	ND(1.79)	NA
Aroclor 1268	NS	NS	mg/kg	ND(1.79)	NA
PCBs, Total	100	1	mg/kg	23.1	NA
<b>MCP Semi-Volatile Organic Compounds (SVOCs)</b>					
Acenaphthene	10000	4	mg/kg	ND(0.15)	NA
1,2,4-Trichlorobenzene	10000	2	mg/kg	ND(0.18)	NA
Hexachlorobenzene	8	0.7	mg/kg	ND(0.11)	NA
Bis(2-chloroethyl)ether	800	0.7	mg/kg	ND(0.17)	NA
2-Chloronaphthalene	1000	1000	mg/kg	ND(0.18)	NA
1,2-Dichlorobenzene	10000	9	mg/kg	ND(0.18)	NA
1,3-Dichlorobenzene	5000	3	mg/kg	ND(0.18)	NA
1,4-Dichlorobenzene	10000	0.7	mg/kg	ND(0.18)	NA
3,3'-Dichlorobenzidine	1000	3	mg/kg	ND(0.18)	NA
2,4-Dinitrotoluene	800	0.7	mg/kg	ND(0.18)	NA
2,6-Dinitrotoluene	1000	100	mg/kg	ND(0.18)	NA
Azobenzene	1000	50	mg/kg	ND(0.18)	NA
Fluoranthene	10000	1000	mg/kg	5.1	NA
4-Bromophenyl phenyl ether	1000	100	mg/kg	ND(0.18)	NA
Bis(2-chloroisopropyl)ether	10000	0.7	mg/kg	ND(0.22)	NA
Bis(2-chloroethoxy)methane	1000	500	mg/kg	ND(0.2)	NA
Hexachlorobutadiene	1000	30	mg/kg	ND(0.18)	NA
Hexachloroethane	2000	0.7	mg/kg	ND(0.15)	NA
Isophorone	1000	100	mg/kg	ND(0.17)	NA
Naphthalene	10000	4	mg/kg	0.19	NA
Nitrobenzene	1000	500	mg/kg	ND(0.17)	NA
Bis(2-ethylhexyl)phthalate	10000	90	mg/kg	ND(0.18)	NA
Butyl benzyl phthalate	1000	100	mg/kg	ND(0.18)	NA
Di-n-butylphthalate	1000	50	mg/kg	ND(0.18)	NA
Di-n-octylphthalate	1000	1000	mg/kg	ND(0.18)	NA
Diethyl phthalate	10000	10	mg/kg	ND(0.18)	NA
Dimethyl phthalate	10000	0.7	mg/kg	ND(0.18)	NA
Benzo(a)anthracene	3000	7	mg/kg	3.3	NA
Benzo(a)pyrene	300	2	mg/kg	3.3	NA

**TABLE 1 - SUMMARY OF SOIL ANALYTICAL RESULTS: VES-128**  
**SUFFOLK DOWNS**  
**525 WILLIAM F. MCCLELLAN HIGHWAY**  
**BOSTON, MASSACHUSETTS 02128**  
**VERTEX PROJECT NO. 43068**

LOCATION	MCP Upper Concentration Limits (UCLs)	MCP Reportable Concentration RCS-1	Units	VES-128 (1-2)	VES-128 (0-2)
SAMPLING DATE				2/16/2017	9/15/2017
LAB SAMPLE ID				L1704984-12	L1732917-01
SAMPLE TYPE				SOIL	SOIL
FILL OR NATIVE SOIL				FILL	FILL
SAMPLE DEPTH (FEET bgs)				1-2	0-2
Benzo(b)fluoranthene	3000	7	mg/kg	3.7	NA
Benzo(k)fluoranthene	10000	70	mg/kg	1.4	NA
Chrysene	10000	70	mg/kg	3.1	NA
Acenaphthylene	10000	1	mg/kg	0.15	NA
Anthracene	10000	1000	mg/kg	0.74	NA
Benzo(ghi)perylene	10000	1000	mg/kg	2.1	NA
Fluorene	10000	1000	mg/kg	ND(0.18)	NA
Phenanthrene	10000	10	mg/kg	2.3	NA
Dibenzo(a,h)anthracene	300	0.7	mg/kg	0.49	NA
Indeno(1,2,3-cd)pyrene	3000	7	mg/kg	2.2	NA
Pyrene	10000	1000	mg/kg	5.2	NA
Aniline	1000	1000	mg/kg	ND(0.22)	NA
4-Chloroaniline	400	1	mg/kg	ND(0.18)	NA
Dibenzofuran	1000	100	mg/kg	ND(0.18)	NA
2-Methylnaphthalene	5000	0.7	mg/kg	ND(0.22)	NA
Acetophenone	1000	1000	mg/kg	ND(0.18)	NA
2,4,6-Trichlorophenol	4000	0.7	mg/kg	ND(0.11)	NA
2-Chlorophenol	3000	0.7	mg/kg	ND(0.18)	NA
2,4-Dichlorophenol	8000	0.7	mg/kg	ND(0.17)	NA
2,4-Dimethylphenol	10000	0.7	mg/kg	ND(0.18)	NA
2-Nitrophenol	1000	100	mg/kg	ND(0.4)	NA
4-Nitrophenol	1000	100	mg/kg	ND(0.26)	NA
2,4-Dinitrophenol	8000	3	mg/kg	ND(0.89)	NA
Pentachlorophenol	700	3	mg/kg	ND(0.37)	NA
Phenol	10000	1	mg/kg	ND(0.18)	NA
2-Methylphenol	1000	500	mg/kg	ND(0.18)	NA
3-Methylphenol/4-Methylphenol	1000	500	mg/kg	ND(0.27)	NA
2,4,5-Trichlorophenol	10000	4	mg/kg	ND(0.18)	NA
Pyridine	1000	500	mg/kg	ND(0.2)	NA
SUM	NS	NS	mg/kg	33.27	NA
<b>MCP Total Metals</b>					
Arsenic, Total	500	20	mg/kg	20	NA
Barium, Total	10000	1000	mg/kg	250	NA
Cadmium, Total	1000	70	mg/kg	1.7	NA
Chromium, Total	2000	100	mg/kg	28	NA
Lead, Total	6000	200	mg/kg	570	NA
Mercury, Total	300	20	mg/kg	1.53	NA
Selenium, Total	7000	400	mg/kg	ND(2.2)	NA
Silver, Total	2000	100	mg/kg	0.68	NA
<b>TCLP Metals by EPA 1312</b>					
Lead, TCLP	NS	NS	mg/L	NA	ND(0.5)
<b>MCP Volatile Organic Compounds (VOCs)</b>					
Methylene chloride	7000	0.1	mg/kg	ND(0.01)	NA
1,1-Dichloroethane	10000	0.4	mg/kg	ND(0.0015)	NA
Chloroform	10000	0.2	mg/kg	ND(0.0015)	NA
Carbon tetrachloride	10000	5	mg/kg	ND(0.001)	NA
1,2-Dichloropropane	10000	0.1	mg/kg	ND(0.0035)	NA
Dibromochloromethane	5000	0.005	mg/kg	ND(0.001)	NA
1,1,2-Trichloroethane	5000	0.1	mg/kg	ND(0.0015)	NA
Tetrachloroethene	10000	1	mg/kg	ND(0.001)	NA
Chlorobenzene	10000	1	mg/kg	ND(0.001)	NA
Trichlorofluoromethane	1000	1000	mg/kg	ND(0.004)	NA
1,2-Dichloroethane	9000	0.1	mg/kg	ND(0.001)	NA
1,1,1-Trichloroethane	10000	30	mg/kg	ND(0.001)	NA
Bromodichloromethane	5000	0.1	mg/kg	ND(0.001)	NA
trans-1,3-Dichloropropene	9000	0.01	mg/kg	ND(0.001)	NA
cis-1,3-Dichloropropene	9000	0.01	mg/kg	ND(0.001)	NA
1,3-Dichloropropene, Total	9000	0.01	mg/kg	ND(0.001)	NA
1,1-Dichloropropene	1000	NS	mg/kg	ND(0.004)	NA
Bromoform	10000	0.1	mg/kg	ND(0.004)	NA
1,1,2,2-Tetrachloroethane	4000	0.005	mg/kg	ND(0.001)	NA
Benzene	10000	2	mg/kg	ND(0.001)	NA
Toluene	10000	30	mg/kg	ND(0.0015)	NA
Ethylbenzene	10000	40	mg/kg	ND(0.001)	NA
Chloromethane	1000	100	mg/kg	ND(0.004)	NA
Bromomethane	6000	0.5	mg/kg	ND(0.002)	NA
Vinyl chloride	600	0.7	mg/kg	ND(0.002)	NA
Chloroethane	1000	100	mg/kg	ND(0.002)	NA
1,1-Dichloroethene	10000	3	mg/kg	ND(0.001)	NA

**TABLE 1 - SUMMARY OF SOIL ANALYTICAL RESULTS: VES-128**  
**SUFFOLK DOWNS**  
**525 WILLIAM F. MCCLELLAN HIGHWAY**  
**BOSTON, MASSACHUSETTS 02128**  
**VERTEX PROJECT NO. 43068**

LOCATION	MCP Upper Concentration Limits (UCLs)	MCP Reportable Concentration RCS-1	Units	VES-128 (1-2)	VES-128 (0-2)
SAMPLING DATE				2/16/2017	9/15/2017
LAB SAMPLE ID				L1704984-12	L1732917-01
SAMPLE TYPE				SOIL	SOIL
FILL OR NATIVE SOIL				FILL	FILL
SAMPLE DEPTH (FEET bgs)				1-2	0-2
trans-1,2-Dichloroethene	10000	1	mg/kg	ND(0.0015)	NA
Trichloroethene	600	0.3	mg/kg	ND(0.001)	NA
1,2-Dichlorobenzene	10000	9	mg/kg	ND(0.004)	NA
1,3-Dichlorobenzene	5000	3	mg/kg	ND(0.004)	NA
1,4-Dichlorobenzene	10000	0.7	mg/kg	ND(0.004)	NA
Methyl tert butyl ether	5000	0.1	mg/kg	ND(0.002)	NA
p/m-Xylene	NS	NS	mg/kg	ND(0.002)	NA
o-Xylene	NS	NS	mg/kg	ND(0.002)	NA
Xylenes, Total	10000	100	mg/kg	ND(0.002)	NA
cis-1,2-Dichloroethene	5000	0.1	mg/kg	ND(0.001)	NA
1,2-Dichloroethene, Total	1000	0.3	mg/kg	ND(0.001)	NA
Dibromomethane	1000	500	mg/kg	ND(0.004)	NA
1,2,3-Trichloropropane	1000	100	mg/kg	ND(0.004)	NA
Styrene	10000	3	mg/kg	ND(0.002)	NA
Dichlorodifluoromethane	1000	1000	mg/kg	ND(0.01)	NA
Acetone	10000	6	mg/kg	ND(0.036)	NA
Carbon disulfide	1000	100	mg/kg	ND(0.004)	NA
Methyl ethyl ketone	10000	4	mg/kg	ND(0.01)	NA
Methyl isobutyl ketone	10000	0.4	mg/kg	ND(0.01)	NA
2-Hexanone	1000	100	mg/kg	ND(0.01)	NA
Bromochloromethane	1000	NS	mg/kg	ND(0.004)	NA
Tetrahydrofuran	1000	500	mg/kg	ND(0.004)	NA
2,2-Dichloropropane	1000	NS	mg/kg	ND(0.005)	NA
1,2-Dibromoethane	400	0.1	mg/kg	ND(0.004)	NA
1,3-Dichloropropane	1000	500	mg/kg	ND(0.004)	NA
1,1,1,2-Tetrachloroethane	5000	0.1	mg/kg	ND(0.001)	NA
Bromobenzene	1000	100	mg/kg	ND(0.005)	NA
n-Butylbenzene	1000	NS	mg/kg	ND(0.001)	NA
sec-Butylbenzene	1000	NS	mg/kg	ND(0.001)	NA
tert-Butylbenzene	1000	100	mg/kg	ND(0.004)	NA
o-Chlorotoluene	1000	100	mg/kg	ND(0.004)	NA
p-Chlorotoluene	1000	NS	mg/kg	ND(0.004)	NA
1,2-Dibromo-3-chloropropane	1000	10	mg/kg	ND(0.004)	NA
Hexachlorobutadiene	1000	30	mg/kg	ND(0.004)	NA
Isopropylbenzene	1000	1000	mg/kg	ND(0.001)	NA
p-Isopropyltoluene	1000	100	mg/kg	ND(0.001)	NA
Naphthalene	10000	4	mg/kg	ND(0.004)	NA
n-Propylbenzene	1000	100	mg/kg	ND(0.001)	NA
1,2,3-Trichlorobenzene	1000	NS	mg/kg	ND(0.004)	NA
1,2,4-Trichlorobenzene	10000	2	mg/kg	ND(0.004)	NA
1,3,5-Trimethylbenzene	1000	10	mg/kg	ND(0.004)	NA
1,2,4-Trimethylbenzene	1000	1000	mg/kg	ND(0.004)	NA
Diethyl ether	1000	100	mg/kg	ND(0.005)	NA
Diisopropyl Ether	1000	100	mg/kg	ND(0.004)	NA
Ethyl-Tert-Butyl-Ether	1000	NS	mg/kg	ND(0.004)	NA
Tertiary-Amyl Methyl Ether	1000	NS	mg/kg	ND(0.004)	NA
1,4-Dioxane	5000	0.2	mg/kg	ND(0.04)	NA
SUM	NS	NS	mg/kg	NA	NA
<b>Volatile Petroleum Hydrocarbons (VPH)</b>					
C5-C8 Aliphatics	5000	100	mg/kg	ND(13.6)	NA
C9-C12 Aliphatics	20000	1000	mg/kg	ND(13.6)	NA
C9-C10 Aromatics	5000	100	mg/kg	ND(13.6)	NA
C5-C8 Aliphatics, Adjusted	5000	100	mg/kg	ND(13.6)	NA
C9-C12 Aliphatics, Adjusted	20000	1000	mg/kg	ND(13.6)	NA

Notes:

- Units presented in milligrams per kilogram (mg/kg), unless otherwise noted
- Upper Concentration Limits (UCLs) obtained from the Massachusetts Contingency Plan (MCP) 310 CMR 40.0996(6) dated April 2014
  - For compounds not listed at 310 CMR 40.0996(6), a default UCL of 1,000 mg/kg was used (italicized)
  - Reportable Concentrations obtained from 310 CMR 40.1600 dated April 2014
  - OOSLF = Out-of-State Landfill.
  - N/A = Not Applicable
  - ND = Not Detected above laboratory reporting limits shown in parentheses
  - NA = Not Analyzed
  - NS = No Standard
  - \* = One or more metals exceed 20 times the Toxicity Characteristics Leaching Procedure (TCLP) limit and will require TCLP analysis and may possibly be a characteristic hazardous waste.
  - Bold and highlighted values exceed the applicable standard
  - E = Estimated value; Compound exceeded the calibration range on the initial low level analysis but was ND on the high level analysis
  - Full analytical results, including QA/QC information and data flags, are detailed in the laboratory analytical report
  - Soil samples collected by The Vertex Companies, Inc.

**TABLE 2 - SUMMARY OF PCB ANALYTICAL RESULTS: VES-128**  
**SUFFOLK DOWNS**  
**525 WILLIAM F. MCCLELLAN HIGHWAY**  
**BOSTON, MASSACHUSETTS 02128**  
**VERTEX PROJECT NO. 43068**

LOCATION	MCP Upper Concentration Limits (UCLs)	MCP Reportable Concentration RCS-1	VES-128 (2-4)	VES-128 (E) 0-2	VES-128 (SE) 0-2	VES-128 (S) 0-2	VES-128 (W) 0-2	VES-128 (SW) 0-2	VES-128 (NW) 0-2	VES-128 (N) 0-2	VES-128 (NE) 0-2
SAMPLING DATE			6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017
LAB SAMPLE ID			L1721774-01	L1721774-02	L1721774-03	L1721774-04	L1721774-05	L1721774-06	L1721774-07	L1721774-08	L1721774-09
SAMPLE DEPTH (ft.)			2-4	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
<b>Polychlorinated Biphenyls (PCBs)</b>											
Aroclor 1016	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1221	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1232	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1242	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1248	100	1	ND(0.0208)	ND(0.0177)	ND(0.0166)	ND(0.0138)	ND(0.0142)	ND(0.0189)	ND(0.0138)	ND(0.0136)	ND(0.0144)
Aroclor 1254	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1260	100	1	ND(0.0208)	ND(0.0177)	ND(0.0166)	ND(0.0138)	ND(0.0142)	ND(0.0189)	ND(0.0138)	ND(0.0136)	ND(0.0144)
Aroclor 1262	100	1	ND(0.0104)	ND(0.0088)	ND(0.0083)	ND(0.0069)	ND(0.0071)	ND(0.0094)	ND(0.0069)	ND(0.0068)	ND(0.0072)
Aroclor 1268	100	1	ND(0.0104)	ND(0.0088)	ND(0.0083)	ND(0.0069)	ND(0.0071)	ND(0.0094)	ND(0.0069)	ND(0.0068)	ND(0.0072)
PCBs, Total	100	1	ND(0.0104)	ND(0.0088)	ND(0.0083)	ND(0.0069)	ND(0.0071)	ND(0.0094)	ND(0.0069)	ND(0.0068)	ND(0.0072)

Notes:

- Units presented in milligrams per kilogram (mg/kg), unless otherwise noted
- Reportable Concentrations obtained from 310 CMR 40.1600 dated April 2014
- ND = Not Detected above laboratory reporting limits shown in parentheses
- Full analytical results, including QA/QC information and data flags, are detailed in the laboratory analytical report
- Soil samples collected by The Vertex Companies, Inc.

**BILL OF  
LADING**

## **LABORATORY ANALYTICAL DATA**



## ANALYTICAL REPORT

Lab Number:	L1704984
Client:	Vertex Environmental Services, Inc. 400 Libbey Pkwy Weymouth, MA 02184
ATTN:	Bill Gibbons
Phone:	(617) 830-1540
Project Name:	E. BOSTON
Project Number:	43068
Report Date:	02/21/17

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NH (2003), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

"Data pertaining to other samples not relevant to this LSP Opinion have been omitted."

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1704984-01	VES-131 (0-2)	SOIL	E. BOSTON	02/16/17 13:10	02/16/17
L1704984-02	VES-131 (3-5)	SOIL	E. BOSTON	02/16/17 13:15	02/16/17
L1704984-03	VES-130 (2-4)	SOIL	E. BOSTON	02/16/17 11:50	02/16/17
L1704984-04	VES-130 (3-10)	SOIL	E. BOSTON	02/16/17 11:55	02/16/17
L1704984-05	VES-134 (2-4)	SOIL	E. BOSTON	02/16/17 11:00	02/16/17
L1704984-06	VES-136 (0-2)	SOIL	E. BOSTON	02/16/17 09:15	02/16/17
L1704984-07	VES-136 (3-5)	SOIL	E. BOSTON	02/16/17 09:20	02/16/17
L1704984-08	VES-136 (10-12)	SOIL	E. BOSTON	02/16/17 09:25	02/16/17
L1704984-09	VES-107 (0-2)	SOIL	E. BOSTON	02/16/17 08:15	02/16/17
L1704984-10	VES-107 (2-4)	SOIL	E. BOSTON	02/16/17 08:20	02/16/17
L1704984-11	VES-105 (1-6)	SOIL	E. BOSTON	02/16/17 07:40	02/16/17
L1704984-12	VES-128 (1-2)	SOIL	E. BOSTON	02/16/17 12:00	02/16/17

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

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

<b>A response to questions G, H and I is required for "Presumptive Certainty" status</b>		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

**For any questions answered "No", please refer to the case narrative section on the following page(s).**

Please note that sample matrix information is located in the Sample Results section of this report.



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Case Narrative (continued)

#### MCP Related Narratives

##### Sample Receipt

##### In reference to question H:

A Matrix Spike was not submitted for the analysis of Metals.

#### Volatile Organics

##### In reference to question H:

L1704984-03: The internal standard (IS) response for 1,4-dichlorobenzene-d4 (45%) and the surrogate recovery for 1,2-dichloroethane-d4 (133%) were outside the acceptance criteria; however, re-analysis could not be performed because the other low-level vial was broken. The results of the original analysis are reported; however, since the IS response was below the method criteria, all associated compounds and surrogate recoveries are considered to have a potentially high bias. A high-level analysis was performed and those results are also reported.

The initial calibration, associated with L1704984-02 through -05, -07, -08, -10,-11, and -12, did not meet the method required minimum response factor on the lowest calibration standard for 1,4-dioxane (0.0014), as well as the average response factor for 1,4-dioxane. The initial calibration verification is outside acceptance criteria for dichlorodifluoromethane (66%) and carbon disulfide (66%), but within overall method criteria.

The continuing calibration standards, associated with L1704984-02 through -05, -07, -08, -10, -11, and -12, is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

#### Semivolatile Organics

##### In reference to question G:

L1704984-11: One or more of the target analytes did not achieve the requested CAM reporting limits.

#### VPH

##### In reference to question I:

All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Case Narrative (continued)

#### EPH

In reference to question G:

L1704984-11: One or more of the target analytes did not achieve the requested CAM reporting limits.

#### PCBs

In reference to question G:

L1704984-12: One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

L1704984-12: The surrogate recoveries are below the acceptance criteria for 2,4,5,6-tetrachloro-m-xylene (0%) and decachlorobiphenyl (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

#### Pesticides

A copy of the Degradation Standards for 4,4'-DDT and Endrin breakdown products is included as an addendum.

In reference to question G:

One or more of the target analytes did not achieve the requested CAM reporting limits.

#### Metals

In reference to question I:

All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

#### Non-MCP Related Narratives

##### Specific Conductance @ 25 C

The WG978620-2 Laboratory Duplicate RPD (56%), performed on L1704984-02, is above the acceptance criteria; however, the sample and duplicate results are less than five times the reporting limit. Therefore, the RPD is valid.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 02/21/17

# ORGANICS



# VOLATILES



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**SAMPLE RESULTS**

Lab ID: L1704984-12  
Client ID: VES-128 (1-2)  
Sample Location: E. BOSTON  
Matrix: Soil  
Analytical Method: 97,8260C  
Analytical Date: 02/17/17 19:49  
Analyst: PK  
Percent Solids: 89%

Date Collected: 02/16/17 12:00  
Date Received: 02/16/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>MCP Volatile Organics by 8260/5035 - Westborough Lab</b>						
Methylene chloride	ND	ug/kg	10	--	--	1
1,1-Dichloroethane	ND	ug/kg	1.5	--	--	1
Chloroform	ND	ug/kg	1.5	--	--	1
Carbon tetrachloride	ND	ug/kg	1.0	--	--	1
1,2-Dichloropropane	ND	ug/kg	3.5	--	--	1
Dibromochloromethane	ND	ug/kg	1.0	--	--	1
1,1,2-Trichloroethane	ND	ug/kg	1.5	--	--	1
Tetrachloroethene	ND	ug/kg	1.0	--	--	1
Chlorobenzene	ND	ug/kg	1.0	--	--	1
Trichlorofluoromethane	ND	ug/kg	4.0	--	--	1
1,2-Dichloroethane	ND	ug/kg	1.0	--	--	1
1,1,1-Trichloroethane	ND	ug/kg	1.0	--	--	1
Bromodichloromethane	ND	ug/kg	1.0	--	--	1
trans-1,3-Dichloropropene	ND	ug/kg	1.0	--	--	1
cis-1,3-Dichloropropene	ND	ug/kg	1.0	--	--	1
1,3-Dichloropropene, Total	ND	ug/kg	1.0	--	--	1
1,1-Dichloropropene	ND	ug/kg	4.0	--	--	1
Bromoform	ND	ug/kg	4.0	--	--	1
1,1,2,2-Tetrachloroethane	ND	ug/kg	1.0	--	--	1
Benzene	ND	ug/kg	1.0	--	--	1
Toluene	ND	ug/kg	1.5	--	--	1
Ethylbenzene	ND	ug/kg	1.0	--	--	1
Chloromethane	ND	ug/kg	4.0	--	--	1
Bromomethane	ND	ug/kg	2.0	--	--	1
Vinyl chloride	ND	ug/kg	2.0	--	--	1
Chloroethane	ND	ug/kg	2.0	--	--	1
1,1-Dichloroethene	ND	ug/kg	1.0	--	--	1
trans-1,2-Dichloroethene	ND	ug/kg	1.5	--	--	1
Trichloroethene	ND	ug/kg	1.0	--	--	1
1,2-Dichlorobenzene	ND	ug/kg	4.0	--	--	1



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**SAMPLE RESULTS**

Lab ID:	L1704984-12	Date Collected:	02/16/17 12:00			
Client ID:	VES-128 (1-2)	Date Received:	02/16/17			
Sample Location:	E. BOSTON	Field Prep:	Not Specified			
Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>MCP Volatile Organics by 8260/5035 - Westborough Lab</b>						
1,3-Dichlorobenzene	ND	ug/kg	4.0	--	1	
1,4-Dichlorobenzene	ND	ug/kg	4.0	--	1	
Methyl tert butyl ether	ND	ug/kg	2.0	--	1	
p/m-Xylene	ND	ug/kg	2.0	--	1	
o-Xylene	ND	ug/kg	2.0	--	1	
Xylenes, Total	ND	ug/kg	2.0	--	1	
cis-1,2-Dichloroethene	ND	ug/kg	1.0	--	1	
1,2-Dichloroethene, Total	ND	ug/kg	1.0	--	1	
Dibromomethane	ND	ug/kg	4.0	--	1	
1,2,3-Trichloropropane	ND	ug/kg	4.0	--	1	
Styrene	ND	ug/kg	2.0	--	1	
Dichlorodifluoromethane	ND	ug/kg	10	--	1	
Acetone	ND	ug/kg	36	--	1	
Carbon disulfide	ND	ug/kg	4.0	--	1	
Methyl ethyl ketone	ND	ug/kg	10	--	1	
Methyl isobutyl ketone	ND	ug/kg	10	--	1	
2-Hexanone	ND	ug/kg	10	--	1	
Bromochloromethane	ND	ug/kg	4.0	--	1	
Tetrahydrofuran	ND	ug/kg	4.0	--	1	
2,2-Dichloropropane	ND	ug/kg	5.0	--	1	
1,2-Dibromoethane	ND	ug/kg	4.0	--	1	
1,3-Dichloropropane	ND	ug/kg	4.0	--	1	
1,1,1,2-Tetrachloroethane	ND	ug/kg	1.0	--	1	
Bromobenzene	ND	ug/kg	5.0	--	1	
n-Butylbenzene	ND	ug/kg	1.0	--	1	
sec-Butylbenzene	ND	ug/kg	1.0	--	1	
tert-Butylbenzene	ND	ug/kg	4.0	--	1	
o-Chlorotoluene	ND	ug/kg	4.0	--	1	
p-Chlorotoluene	ND	ug/kg	4.0	--	1	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.0	--	1	
Hexachlorobutadiene	ND	ug/kg	4.0	--	1	
Isopropylbenzene	ND	ug/kg	1.0	--	1	
p-Isopropyltoluene	ND	ug/kg	1.0	--	1	
Naphthalene	ND	ug/kg	4.0	--	1	
n-Propylbenzene	ND	ug/kg	1.0	--	1	
1,2,3-Trichlorobenzene	ND	ug/kg	4.0	--	1	
1,2,4-Trichlorobenzene	ND	ug/kg	4.0	--	1	
1,3,5-Trimethylbenzene	ND	ug/kg	4.0	--	1	
1,2,4-Trimethylbenzene	ND	ug/kg	4.0	--	1	

Project Name: E. BOSTON

Lab Number: L1704984

Project Number: 43068

Report Date: 02/21/17

**SAMPLE RESULTS**

Lab ID: L1704984-12  
 Client ID: VES-128 (1-2)  
 Sample Location: E. BOSTON

Date Collected: 02/16/17 12:00  
 Date Received: 02/16/17  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260/5035 - Westborough Lab						
Diethyl ether	ND	ug/kg	5.0	--	--	1
Diisopropyl Ether	ND	ug/kg	4.0	--	--	1
Ethyl-Tert-Butyl-Ether	ND	ug/kg	4.0	--	--	1
Tertiary-Amyl Methyl Ether	ND	ug/kg	4.0	--	--	1
1,4-Dioxane	ND	ug/kg	40	--	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	115		70-130

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C  
Analytical Date: 02/17/17 10:44  
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260/5035 - Westborough Lab for sample(s): WG978923-5				02-05,07-08,10-12	Batch:
Methylene chloride	ND		ug/kg	10	--
1,1-Dichloroethane	ND		ug/kg	1.5	--
Chloroform	ND		ug/kg	1.5	--
Carbon tetrachloride	ND		ug/kg	1.0	--
1,2-Dichloropropane	ND		ug/kg	3.5	--
Dibromochloromethane	ND		ug/kg	1.0	--
1,1,2-Trichloroethane	ND		ug/kg	1.5	--
Tetrachloroethene	ND		ug/kg	1.0	--
Chlorobenzene	ND		ug/kg	1.0	--
Trichlorofluoromethane	ND		ug/kg	4.0	--
1,2-Dichloroethane	ND		ug/kg	1.0	--
1,1,1-Trichloroethane	ND		ug/kg	1.0	--
Bromodichloromethane	ND		ug/kg	1.0	--
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--
cis-1,3-Dichloropropene	ND		ug/kg	1.0	--
1,3-Dichloropropene, Total	ND		ug/kg	1.0	--
1,1-Dichloropropene	ND		ug/kg	4.0	--
Bromoform	ND		ug/kg	4.0	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.0	--
Benzene	ND		ug/kg	1.0	--
Toluene	ND		ug/kg	1.5	--
Ethylbenzene	ND		ug/kg	1.0	--
Chloromethane	ND		ug/kg	4.0	--
Bromomethane	ND		ug/kg	2.0	--
Vinyl chloride	ND		ug/kg	2.0	--
Chloroethane	ND		ug/kg	2.0	--
1,1-Dichloroethene	ND		ug/kg	1.0	--
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--
Trichloroethene	ND		ug/kg	1.0	--



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C  
Analytical Date: 02/17/17 10:44  
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260/5035 - Westborough Lab for sample(s): WG978923-5				02-05,07-08,10-12	Batch:
1,2-Dichlorobenzene	ND		ug/kg	4.0	--
1,3-Dichlorobenzene	ND		ug/kg	4.0	--
1,4-Dichlorobenzene	ND		ug/kg	4.0	--
Methyl tert butyl ether	ND		ug/kg	2.0	--
p/m-Xylene	ND		ug/kg	2.0	--
o-Xylene	ND		ug/kg	2.0	--
Xylenes, Total	ND		ug/kg	2.0	--
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--
Dibromomethane	ND		ug/kg	4.0	--
1,4-Dichlorobutane	ND		ug/kg	10	--
1,2,3-Trichloropropane	ND		ug/kg	4.0	--
Styrene	ND		ug/kg	2.0	--
Dichlorodifluoromethane	ND		ug/kg	10	--
Acetone	ND		ug/kg	36	--
Carbon disulfide	ND		ug/kg	4.0	--
Methyl ethyl ketone	ND		ug/kg	10	--
Methyl isobutyl ketone	ND		ug/kg	10	--
2-Hexanone	ND		ug/kg	10	--
Ethyl methacrylate	ND		ug/kg	10	--
Acrylonitrile	ND		ug/kg	4.0	--
Bromochloromethane	ND		ug/kg	4.0	--
Tetrahydrofuran	ND		ug/kg	4.0	--
2,2-Dichloropropane	ND		ug/kg	5.0	--
1,2-Dibromoethane	ND		ug/kg	4.0	--
1,3-Dichloropropane	ND		ug/kg	4.0	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.0	--
Bromobenzene	ND		ug/kg	5.0	--
n-Butylbenzene	ND		ug/kg	1.0	--



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C  
Analytical Date: 02/17/17 10:44  
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260/5035 - Westborough Lab for sample(s): WG978923-5				02-05,07-08,10-12	Batch:
sec-Butylbenzene	ND		ug/kg	1.0	--
tert-Butylbenzene	ND		ug/kg	4.0	--
o-Chlorotoluene	ND		ug/kg	4.0	--
p-Chlorotoluene	ND		ug/kg	4.0	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.0	--
Hexachlorobutadiene	ND		ug/kg	4.0	--
Isopropylbenzene	ND		ug/kg	1.0	--
p-Isopropyltoluene	ND		ug/kg	1.0	--
Naphthalene	ND		ug/kg	4.0	--
n-Propylbenzene	ND		ug/kg	1.0	--
1,2,3-Trichlorobenzene	ND		ug/kg	4.0	--
1,2,4-Trichlorobenzene	ND		ug/kg	4.0	--
1,3,5-Trimethylbenzene	ND		ug/kg	4.0	--
1,2,4-Trimethylbenzene	ND		ug/kg	4.0	--
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.0	--
Diethyl ether	ND		ug/kg	5.0	--
Diisopropyl Ether	ND		ug/kg	4.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	4.0	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	4.0	--
1,4-Dioxane	ND		ug/kg	40	--
2-Chloroethylvinyl ether	ND		ug/kg	20	--
Halothane	ND		ug/kg	40	--
Ethyl Acetate	ND		ug/kg	20	--
Freon-113	ND		ug/kg	20	--
Vinyl acetate	ND		ug/kg	10	--

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 97,8260C  
Analytical Date: 02/17/17 10:44  
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260/5035 - Westborough Lab for sample(s): 02-05,07-08,10-12 Batch: WG978923-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	109		70-130

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C  
Analytical Date: 02/20/17 09:18  
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 5035 High - Westborough Lab for sample(s):	03			Batch:	WG979473-5
Methylene chloride	ND		ug/kg	500	--
1,1-Dichloroethane	ND		ug/kg	75	--
Chloroform	ND		ug/kg	75	--
Carbon tetrachloride	ND		ug/kg	50	--
1,2-Dichloropropane	ND		ug/kg	180	--
Dibromochloromethane	ND		ug/kg	50	--
1,1,2-Trichloroethane	ND		ug/kg	75	--
Tetrachloroethene	ND		ug/kg	50	--
Chlorobenzene	ND		ug/kg	50	--
Trichlorofluoromethane	ND		ug/kg	200	--
1,2-Dichloroethane	ND		ug/kg	50	--
1,1,1-Trichloroethane	ND		ug/kg	50	--
Bromodichloromethane	ND		ug/kg	50	--
trans-1,3-Dichloropropene	ND		ug/kg	50	--
cis-1,3-Dichloropropene	ND		ug/kg	50	--
1,3-Dichloropropene, Total	ND		ug/kg	50	--
1,1-Dichloropropene	ND		ug/kg	200	--
Bromoform	ND		ug/kg	200	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	50	--
Benzene	ND		ug/kg	50	--
Toluene	ND		ug/kg	75	--
Ethylbenzene	ND		ug/kg	50	--
Chloromethane	ND		ug/kg	200	--
Bromomethane	ND		ug/kg	100	--
Vinyl chloride	ND		ug/kg	100	--
Chloroethane	ND		ug/kg	100	--
1,1-Dichloroethene	ND		ug/kg	50	--
trans-1,2-Dichloroethene	ND		ug/kg	75	--
Trichloroethene	ND		ug/kg	50	--



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C  
Analytical Date: 02/20/17 09:18  
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 5035 High - Westborough Lab for sample(s):	03			Batch:	WG979473-5
1,2-Dichlorobenzene	ND		ug/kg	200	--
1,3-Dichlorobenzene	ND		ug/kg	200	--
1,4-Dichlorobenzene	ND		ug/kg	200	--
Methyl tert butyl ether	ND		ug/kg	100	--
p/m-Xylene	ND		ug/kg	100	--
o-Xylene	ND		ug/kg	100	--
Xylenes, Total	ND		ug/kg	100	--
cis-1,2-Dichloroethene	ND		ug/kg	50	--
1,2-Dichloroethene, Total	ND		ug/kg	50	--
Dibromomethane	ND		ug/kg	200	--
1,2,3-Trichloropropane	ND		ug/kg	200	--
Styrene	ND		ug/kg	100	--
Dichlorodifluoromethane	ND		ug/kg	500	--
Acetone	ND		ug/kg	1800	--
Carbon disulfide	ND		ug/kg	200	--
Methyl ethyl ketone	ND		ug/kg	500	--
Methyl isobutyl ketone	ND		ug/kg	500	--
2-Hexanone	ND		ug/kg	500	--
Bromochloromethane	ND		ug/kg	200	--
Tetrahydrofuran	ND		ug/kg	200	--
2,2-Dichloropropane	ND		ug/kg	250	--
1,2-Dibromoethane	ND		ug/kg	200	--
1,3-Dichloropropane	ND		ug/kg	200	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	50	--
Bromobenzene	ND		ug/kg	250	--
n-Butylbenzene	ND		ug/kg	50	--
sec-Butylbenzene	ND		ug/kg	50	--
tert-Butylbenzene	ND		ug/kg	200	--
o-Chlorotoluene	ND		ug/kg	200	--



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C  
Analytical Date: 02/20/17 09:18  
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 5035 High - Westborough Lab for sample(s):	03			Batch:	WG979473-5
p-Chlorotoluene	ND		ug/kg	200	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	200	--
Hexachlorobutadiene	ND		ug/kg	200	--
Isopropylbenzene	ND		ug/kg	50	--
p-Isopropyltoluene	ND		ug/kg	50	--
Naphthalene	ND		ug/kg	200	--
n-Propylbenzene	ND		ug/kg	50	--
1,2,3-Trichlorobenzene	ND		ug/kg	200	--
1,2,4-Trichlorobenzene	ND		ug/kg	200	--
1,3,5-Trimethylbenzene	ND		ug/kg	200	--
1,2,4-Trimethylbenzene	ND		ug/kg	200	--
Diethyl ether	ND		ug/kg	250	--
Diisopropyl Ether	ND		ug/kg	200	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	200	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	200	--
1,4-Dioxane	ND		ug/kg	5000	--
2-Chloroethylvinyl ether	ND		ug/kg	1000	--
Halothane	ND		ug/kg	2000	--
Ethyl Acetate	ND		ug/kg	1000	--
Freon-113	ND		ug/kg	1000	--
Vinyl acetate	ND		ug/kg	500	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	100		70-130



# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260/5035 - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978923-3 WG978923-4								
Methylene chloride	113		119		70-130	5		20
1,1-Dichloroethane	112		108		70-130	4		20
Chloroform	114		110		70-130	4		20
Carbon tetrachloride	118		106		70-130	11		20
1,2-Dichloropropane	110		108		70-130	2		20
Dibromochloromethane	101		101		70-130	0		20
1,1,2-Trichloroethane	118		117		70-130	1		20
Tetrachloroethene	107		101		70-130	6		20
Chlorobenzene	108		103		70-130	5		20
Trichlorofluoromethane	128		100		70-130	25	Q	20
1,2-Dichloroethane	115		109		70-130	5		20
1,1,1-Trichloroethane	116		106		70-130	9		20
Bromodichloromethane	114		109		70-130	4		20
trans-1,3-Dichloropropene	98		97		70-130	1		20
cis-1,3-Dichloropropene	107		92		70-130	15		20
1,1-Dichloropropene	109		102		70-130	7		20
Bromoform	89		96		70-130	8		20
1,1,2,2-Tetrachloroethane	112		118		70-130	5		20
Benzene	112		107		70-130	5		20
Toluene	111		106		70-130	5		20
Ethylbenzene	111		105		70-130	6		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260/5035 - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978923-3 WG978923-4								
Chloromethane	113		89		70-130	24	Q	20
Bromomethane	110		91		70-130	19		20
Vinyl chloride	112		86		70-130	26	Q	20
Chloroethane	121		95		70-130	24	Q	20
1,1-Dichloroethene	100		94		70-130	6		20
trans-1,2-Dichloroethene	102		101		70-130	1		20
Trichloroethene	114		106		70-130	7		20
1,2-Dichlorobenzene	104		94		70-130	10		20
1,3-Dichlorobenzene	104		101		70-130	3		20
1,4-Dichlorobenzene	104		99		70-130	5		20
Methyl tert butyl ether	101		101		70-130	0		20
p/m-Xylene	114		107		70-130	6		20
o-Xylene	100		96		70-130	4		20
cis-1,2-Dichloroethene	106		103		70-130	3		20
Dibromomethane	112		108		70-130	4		20
1,4-Dichlorobutane	111		117		70-130	5		20
1,2,3-Trichloropropane	110		114		70-130	4		20
Styrene	99		97		70-130	2		20
Dichlorodifluoromethane	107		83		70-130	25	Q	20
Acetone	101		107		70-130	6		20
Carbon disulfide	130		152	Q	70-130	16		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260/5035 - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978923-3 WG978923-4								
Methyl ethyl ketone	86		88		70-130	2		20
Methyl isobutyl ketone	82		88		70-130	7		20
2-Hexanone	70		72		70-130	3		20
Ethyl methacrylate	75		75		70-130	0		20
Acrylonitrile	86		103		70-130	18		20
Bromochloromethane	111		107		70-130	4		20
Tetrahydrofuran	105		106		70-130	1		20
2,2-Dichloropropane	116		106		70-130	9		20
1,2-Dibromoethane	103		103		70-130	0		20
1,3-Dichloropropane	112		111		70-130	1		20
1,1,1,2-Tetrachloroethane	114		109		70-130	4		20
Bromobenzene	98		105		70-130	7		20
n-Butylbenzene	116		107		70-130	8		20
sec-Butylbenzene	109		104		70-130	5		20
tert-Butylbenzene	104		101		70-130	3		20
o-Chlorotoluene	110		111		70-130	1		20
p-Chlorotoluene	109		111		70-130	2		20
1,2-Dibromo-3-chloropropane	96		101		70-130	5		20
Hexachlorobutadiene	101		102		70-130	1		20
Isopropylbenzene	94		97		70-130	3		20
p-Isopropyltoluene	98		88		70-130	11		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260/5035 - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978923-3 WG978923-4								
Naphthalene	80		86		70-130	7		20
n-Propylbenzene	109		110		70-130	1		20
1,2,3-Trichlorobenzene	103		107		70-130	4		20
1,2,4-Trichlorobenzene	94		100		70-130	6		20
1,3,5-Trimethylbenzene	111		111		70-130	0		20
1,2,4-Trimethylbenzene	101		100		70-130	1		20
trans-1,4-Dichloro-2-butene	98		100		70-130	2		20
Diethyl ether	89		80		70-130	11		20
Diisopropyl Ether	100		102		70-130	2		20
Ethyl-Tert-Butyl-Ether	100		100		70-130	0		20
Tertiary-Amyl Methyl Ether	90		92		70-130	2		20
1,4-Dioxane	95		98		70-130	3		20
2-Chloroethylvinyl ether	84		82		70-130	2		20
Halothane	113		107		70-130	5		20
Ethyl Acetate	86		94		70-130	9		20
Freon-113	110		101		70-130	9		20
Vinyl acetate	92		93		70-130	1		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

<b>Parameter</b>	<i>LCS</i> <i>%Recovery</i>	<i>Qual</i>	<i>LCSD</i> <i>%Recovery</i>	<i>Qual</i>	<i>%Recovery</i> <i>Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> <i>Limits</i>
	MCP Volatile Organics by 8260/5035 - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978923-3 WG978923-4							
<b>Surrogate</b>	<i>LCS</i> <i>%Recovery</i>	<i>Qual</i>	<i>LCSD</i> <i>%Recovery</i>	<i>Qual</i>	<i>Acceptance</i> <i>Criteria</i>			
1,2-Dichloroethane-d4	111		105		70-130			
Toluene-d8	107		107		70-130			
4-Bromofluorobenzene	98		109		70-130			
Dibromofluoromethane	108		106		70-130			

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG979473-3 WG979473-4								
Methylene chloride	127		111		70-130	13		20
1,1-Dichloroethane	102		97		70-130	5		20
Chloroform	99		96		70-130	3		20
Carbon tetrachloride	98		90		70-130	9		20
1,2-Dichloropropane	104		102		70-130	2		20
Dibromochloromethane	93		91		70-130	2		20
1,1,2-Trichloroethane	108		103		70-130	5		20
Tetrachloroethene	93		87		70-130	7		20
Chlorobenzene	100		95		70-130	5		20
Trichlorofluoromethane	83		73		70-130	13		20
1,2-Dichloroethane	98		98		70-130	0		20
1,1,1-Trichloroethane	99		93		70-130	6		20
Bromodichloromethane	100		98		70-130	2		20
trans-1,3-Dichloropropene	97		94		70-130	3		20
cis-1,3-Dichloropropene	90		91		70-130	1		20
1,1-Dichloropropene	101		92		70-130	9		20
Bromoform	84		82		70-130	2		20
1,1,2,2-Tetrachloroethane	102		100		70-130	2		20
Benzene	102		98		70-130	4		20
Toluene	105		96		70-130	9		20
Ethylbenzene	101		95		70-130	6		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG979473-3 WG979473-4								
Chloromethane	96		85		70-130	12		20
Bromomethane	82		75		70-130	9		20
Vinyl chloride	83		72		70-130	14		20
Chloroethane	87		80		70-130	8		20
1,1-Dichloroethene	92		84		70-130	9		20
trans-1,2-Dichloroethene	98		90		70-130	9		20
Trichloroethene	96		92		70-130	4		20
1,2-Dichlorobenzene	94		94		70-130	0		20
1,3-Dichlorobenzene	95		94		70-130	1		20
1,4-Dichlorobenzene	93		91		70-130	2		20
Methyl tert butyl ether	108		106		70-130	2		20
p/m-Xylene	102		96		70-130	6		20
o-Xylene	93		89		70-130	4		20
cis-1,2-Dichloroethene	100		96		70-130	4		20
Dibromomethane	97		100		70-130	3		20
1,2,3-Trichloropropane	102		100		70-130	2		20
Styrene	91		87		70-130	4		20
Dichlorodifluoromethane	77		66	Q	70-130	15		20
Acetone	130		122		70-130	6		20
Carbon disulfide	99		96		70-130	3		20
Methyl ethyl ketone	103		90		70-130	13		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG979473-3 WG979473-4								
Methyl isobutyl ketone	97		95		70-130	2		20
2-Hexanone	89		85		70-130	5		20
Bromochloromethane	98		98		70-130	0		20
Tetrahydrofuran	124		108		70-130	14		20
2,2-Dichloropropane	102		96		70-130	6		20
1,2-Dibromoethane	97		95		70-130	2		20
1,3-Dichloropropane	108		103		70-130	5		20
1,1,1,2-Tetrachloroethane	102		98		70-130	4		20
Bromobenzene	95		92		70-130	3		20
n-Butylbenzene	101		95		70-130	6		20
sec-Butylbenzene	99		93		70-130	6		20
tert-Butylbenzene	99		94		70-130	5		20
o-Chlorotoluene	100		96		70-130	4		20
p-Chlorotoluene	102		98		70-130	4		20
1,2-Dibromo-3-chloropropane	90		90		70-130	0		20
Hexachlorobutadiene	93		87		70-130	7		20
Isopropylbenzene	92		86		70-130	7		20
p-Isopropyltoluene	91		87		70-130	4		20
Naphthalene	82		82		70-130	0		20
n-Propylbenzene	100		93		70-130	7		20
1,2,3-Trichlorobenzene	96		97		70-130	1		20

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG979473-3 WG979473-4								
1,2,4-Trichlorobenzene	94		93		70-130	1		20
1,3,5-Trimethylbenzene	101		96		70-130	5		20
1,2,4-Trimethylbenzene	95		91		70-130	4		20
Diethyl ether	90		87		70-130	3		20
Diisopropyl Ether	108		105		70-130	3		20
Ethyl-Tert-Butyl-Ether	108		105		70-130	3		20
Tertiary-Amyl Methyl Ether	97		96		70-130	1		20
1,4-Dioxane	104		104		70-130	0		20
2-Chloroethylvinyl ether	86		91		70-130	6		20
Halothane	96		86		70-130	11		20
Ethyl Acetate	97		94		70-130	3		20
Freon-113	90		80		70-130	12		20
Vinyl acetate	94		93		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		99		70-130
Toluene-d8	110		107		70-130
4-Bromofluorobenzene	108		109		70-130
Dibromofluoromethane	100		100		70-130

# **SEMIVOLATILES**



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**SAMPLE RESULTS**

Lab ID: L1704984-12  
Client ID: VES-128 (1-2)  
Sample Location: E. BOSTON  
Matrix: Soil  
Analytical Method: 97,8270D  
Analytical Date: 02/18/17 22:13  
Analyst: RC  
Percent Solids: 89%

Date Collected: 02/16/17 12:00  
Date Received: 02/16/17  
Field Prep: Not Specified  
Extraction Method: EPA 3546  
Extraction Date: 02/17/17 01:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>MCP Semivolatile Organics - Westborough Lab</b>						
Acenaphthene	ND	ug/kg	150	--	--	1
1,2,4-Trichlorobenzene	ND	ug/kg	180	--	--	1
Hexachlorobenzene	ND	ug/kg	110	--	--	1
Bis(2-chloroethyl)ether	ND	ug/kg	170	--	--	1
2-Chloronaphthalene	ND	ug/kg	180	--	--	1
1,2-Dichlorobenzene	ND	ug/kg	180	--	--	1
1,3-Dichlorobenzene	ND	ug/kg	180	--	--	1
1,4-Dichlorobenzene	ND	ug/kg	180	--	--	1
3,3'-Dichlorobenzidine	ND	ug/kg	180	--	--	1
2,4-Dinitrotoluene	ND	ug/kg	180	--	--	1
2,6-Dinitrotoluene	ND	ug/kg	180	--	--	1
Azobenzene	ND	ug/kg	180	--	--	1
Fluoranthene	5100	ug/kg	110	--	--	1
4-Bromophenyl phenyl ether	ND	ug/kg	180	--	--	1
Bis(2-chloroisopropyl)ether	ND	ug/kg	220	--	--	1
Bis(2-chloroethoxy)methane	ND	ug/kg	200	--	--	1
Hexachlorobutadiene	ND	ug/kg	180	--	--	1
Hexachloroethane	ND	ug/kg	150	--	--	1
Isophorone	ND	ug/kg	170	--	--	1
Naphthalene	190	ug/kg	180	--	--	1
Nitrobenzene	ND	ug/kg	170	--	--	1
Bis(2-ethylhexyl)phthalate	ND	ug/kg	180	--	--	1
Butyl benzyl phthalate	ND	ug/kg	180	--	--	1
Di-n-butylphthalate	ND	ug/kg	180	--	--	1
Di-n-octylphthalate	ND	ug/kg	180	--	--	1
Diethyl phthalate	ND	ug/kg	180	--	--	1
Dimethyl phthalate	ND	ug/kg	180	--	--	1
Benzo(a)anthracene	3300	ug/kg	110	--	--	1
Benzo(a)pyrene	3300	ug/kg	150	--	--	1
Benzo(b)fluoranthene	3700	ug/kg	110	--	--	1



Project Name: E. BOSTON

Lab Number: L1704984

Project Number: 43068

Report Date: 02/21/17

**SAMPLE RESULTS**

Lab ID:	L1704984-12	Date Collected:	02/16/17 12:00
Client ID:	VES-128 (1-2)	Date Received:	02/16/17
Sample Location:	E. BOSTON	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>MCP Semivolatile Organics - Westborough Lab</b>						
Benzo(k)fluoranthene	1400	ug/kg	110	--	--	1
Chrysene	3100	ug/kg	110	--	--	1
Acenaphthylene	150	ug/kg	150	--	--	1
Anthracene	740	ug/kg	110	--	--	1
Benzo(ghi)perylene	2100	ug/kg	150	--	--	1
Fluorene	ND	ug/kg	180	--	--	1
Phenanthrene	2300	ug/kg	110	--	--	1
Dibenzo(a,h)anthracene	490	ug/kg	110	--	--	1
Indeno(1,2,3-cd)pyrene	2200	ug/kg	150	--	--	1
Pyrene	5200	ug/kg	110	--	--	1
Aniline	ND	ug/kg	220	--	--	1
4-Chloroaniline	ND	ug/kg	180	--	--	1
Dibenzofuran	ND	ug/kg	180	--	--	1
2-Methylnaphthalene	ND	ug/kg	220	--	--	1
Acetophenone	ND	ug/kg	180	--	--	1
2,4,6-Trichlorophenol	ND	ug/kg	110	--	--	1
2-Chlorophenol	ND	ug/kg	180	--	--	1
2,4-Dichlorophenol	ND	ug/kg	170	--	--	1
2,4-Dimethylphenol	ND	ug/kg	180	--	--	1
2-Nitrophenol	ND	ug/kg	400	--	--	1
4-Nitrophenol	ND	ug/kg	260	--	--	1
2,4-Dinitrophenol	ND	ug/kg	890	--	--	1
Pentachlorophenol	ND	ug/kg	370	--	--	1
Phenol	ND	ug/kg	180	--	--	1
2-Methylphenol	ND	ug/kg	180	--	--	1
3-Methylphenol/4-Methylphenol	ND	ug/kg	270	--	--	1
2,4,5-Trichlorophenol	ND	ug/kg	180	--	--	1
Pyridine	ND	ug/kg	200	--	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	56		30-130
Phenol-d6	57		30-130
Nitrobenzene-d5	84		30-130
2-Fluorobiphenyl	63		30-130
2,4,6-Tribromophenol	76		30-130
4-Terphenyl-d14	66		30-130

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8270D  
Analytical Date: 02/17/17 23:16  
Analyst: KV

Extraction Method: EPA 3546  
Extraction Date: 02/17/17 01:27

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 02-05,07-08,10-12 Batch: WG978622-1					
Acenaphthene	ND		ug/kg	130	--
1,2,4-Trichlorobenzene	ND		ug/kg	160	--
Hexachlorobenzene	ND		ug/kg	98	--
Bis(2-chloroethyl)ether	ND		ug/kg	150	--
2-Chloronaphthalene	ND		ug/kg	160	--
1,2-Dichlorobenzene	ND		ug/kg	160	--
1,3-Dichlorobenzene	ND		ug/kg	160	--
1,4-Dichlorobenzene	ND		ug/kg	160	--
3,3'-Dichlorobenzidine	ND		ug/kg	160	--
2,4-Dinitrotoluene	ND		ug/kg	160	--
2,6-Dinitrotoluene	ND		ug/kg	160	--
Azobenzene	ND		ug/kg	160	--
Fluoranthene	ND		ug/kg	98	--
4-Bromophenyl phenyl ether	ND		ug/kg	160	--
Bis(2-chloroisopropyl)ether	ND		ug/kg	200	--
Bis(2-chloroethoxy)methane	ND		ug/kg	180	--
Hexachlorobutadiene	ND		ug/kg	160	--
Hexachloroethane	ND		ug/kg	130	--
Isophorone	ND		ug/kg	150	--
Naphthalene	ND		ug/kg	160	--
Nitrobenzene	ND		ug/kg	150	--
Bis(2-ethylhexyl)phthalate	ND		ug/kg	160	--
Butyl benzyl phthalate	ND		ug/kg	160	--
Di-n-butylphthalate	ND		ug/kg	160	--
Di-n-octylphthalate	ND		ug/kg	160	--
Diethyl phthalate	ND		ug/kg	160	--
Dimethyl phthalate	ND		ug/kg	160	--
Benzo(a)anthracene	ND		ug/kg	98	--
Benzo(a)pyrene	ND		ug/kg	130	--



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8270D  
Analytical Date: 02/17/17 23:16  
Analyst: KV

Extraction Method: EPA 3546  
Extraction Date: 02/17/17 01:27

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 02-05,07-08,10-12 Batch: WG978622-1					
Benzo(b)fluoranthene	ND		ug/kg	98	--
Benzo(k)fluoranthene	ND		ug/kg	98	--
Chrysene	ND		ug/kg	98	--
Acenaphthylene	ND		ug/kg	130	--
Anthracene	ND		ug/kg	98	--
Benzo(ghi)perylene	ND		ug/kg	130	--
Fluorene	ND		ug/kg	160	--
Phenanthrene	ND		ug/kg	98	--
Dibenzo(a,h)anthracene	ND		ug/kg	98	--
Indeno(1,2,3-cd)pyrene	ND		ug/kg	130	--
Pyrene	ND		ug/kg	98	--
Aniline	ND		ug/kg	200	--
4-Chloroaniline	ND		ug/kg	160	--
Dibenzofuran	ND		ug/kg	160	--
2-Methylnaphthalene	ND		ug/kg	200	--
Acetophenone	ND		ug/kg	160	--
2,4,6-Trichlorophenol	ND		ug/kg	98	--
2-Chlorophenol	ND		ug/kg	160	--
2,4-Dichlorophenol	ND		ug/kg	150	--
2,4-Dimethylphenol	ND		ug/kg	160	--
2-Nitrophenol	ND		ug/kg	350	--
4-Nitrophenol	ND		ug/kg	230	--
2,4-Dinitrophenol	ND		ug/kg	790	--
Pentachlorophenol	ND		ug/kg	330	--
Phenol	ND		ug/kg	160	--
2-Methylphenol	ND		ug/kg	160	--
3-Methylphenol/4-Methylphenol	ND		ug/kg	240	--
2,4,5-Trichlorophenol	ND		ug/kg	160	--
Pyridine	ND		ug/kg	180	--



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### **Method Blank Analysis**

#### **Batch Quality Control**

Analytical Method: 97,8270D  
Analytical Date: 02/17/17 23:16  
Analyst: KV

Extraction Method: EPA 3546  
Extraction Date: 02/17/17 01:27

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 02-05,07-08,10-12 Batch: WG978622-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	81		30-130
Phenol-d6	87		30-130
Nitrobenzene-d5	83		30-130
2-Fluorobiphenyl	73		30-130
2,4,6-Tribromophenol	81		30-130
4-Terphenyl-d14	78		30-130

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978622-2 WG978622-3								
Acenaphthene	76		75		40-140	1		30
1,2,4-Trichlorobenzene	76		72		40-140	5		30
Hexachlorobenzene	79		80		40-140	1		30
Bis(2-chloroethyl)ether	85		81		40-140	5		30
2-Chloronaphthalene	79		77		40-140	3		30
1,2-Dichlorobenzene	76		72		40-140	5		30
1,3-Dichlorobenzene	75		72		40-140	4		30
1,4-Dichlorobenzene	75		71		40-140	5		30
3,3'-Dichlorobenzidine	56		51		40-140	9		30
2,4-Dinitrotoluene	89		90		40-140	1		30
2,6-Dinitrotoluene	91		90		40-140	1		30
Azobenzene	93		93		40-140	0		30
Fluoranthene	81		81		40-140	0		30
4-Bromophenyl phenyl ether	78		78		40-140	0		30
Bis(2-chloroisopropyl)ether	89		86		40-140	3		30
Bis(2-chloroethoxy)methane	90		87		40-140	3		30
Hexachlorobutadiene	73		70		40-140	4		30
Hexachloroethane	78		73		40-140	7		30
Isophorone	100		96		40-140	4		30
Naphthalene	79		76		40-140	4		30
Nitrobenzene	99		96		40-140	3		30

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978622-2 WG978622-3								
Bis(2-ethylhexyl)phthalate	84		83		40-140	1		30
Butyl benzyl phthalate	90		91		40-140	1		30
Di-n-butylphthalate	93		93		40-140	0		30
Di-n-octylphthalate	89		89		40-140	0		30
Diethyl phthalate	87		86		40-140	1		30
Dimethyl phthalate	90		88		40-140	2		30
Benzo(a)anthracene	78		77		40-140	1		30
Benzo(a)pyrene	86		84		40-140	2		30
Benzo(b)fluoranthene	84		83		40-140	1		30
Benzo(k)fluoranthene	84		82		40-140	2		30
Chrysene	74		73		40-140	1		30
Acenaphthylene	90		87		40-140	3		30
Anthracene	78		79		40-140	1		30
Benzo(ghi)perylene	78		77		40-140	1		30
Fluorene	77		76		40-140	1		30
Phenanthrene	75		75		40-140	0		30
Dibenz(a,h)anthracene	78		78		40-140	0		30
Indeno(1,2,3-cd)pyrene	77		78		40-140	1		30
Pyrene	81		81		40-140	0		30
Aniline	47		38	Q	40-140	21		30
4-Chloroaniline	49		40		40-140	20		30

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978622-2 WG978622-3								
Dibenzofuran	77		76		40-140	1		30
2-Methylnaphthalene	80		77		40-140	4		30
Acetophenone	98		94		40-140	4		30
2,4,6-Trichlorophenol	90		87		30-130	3		30
2-Chlorophenol	85		83		30-130	2		30
2,4-Dichlorophenol	88		86		30-130	2		30
2,4-Dimethylphenol	103		97		30-130	6		30
2-Nitrophenol	98		95		30-130	3		30
4-Nitrophenol	101		103		30-130	2		30
2,4-Dinitrophenol	55		62		30-130	12		30
Pentachlorophenol	71		74		30-130	4		30
Phenol	95		92		30-130	3		30
2-Methylphenol	92		88		30-130	4		30
3-Methylphenol/4-Methylphenol	94		91		30-130	3		30
2,4,5-Trichlorophenol	90		88		30-130	2		30
Pyridine	76		72		30-130	5		30

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

<b>Parameter</b>	<i>LCS</i> <b>%Recovery</b>	<i>LCS</i> <b>%Recovery</b>	<i>LCSD</i> <b>%Recovery</b>	<i>LCSD</i> <b>%Recovery</b>	<i>%Recovery</i> <b>Limits</b>	<i>RPD</i>	<i>RPD</i> <b>Qual</b>	<i>RPD</i> <b>Limits</b>
	<b>Qual</b>		<b>Qual</b>		<b>Limits</b>		<b>Qual</b>	
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978622-2 WG978622-3								
<b>Surrogate</b>	<i>LCS</i> <b>%Recovery</b>	<b>Qual</b>	<i>LCS</i> <b>%Recovery</b>	<b>Qual</b>	<i>Acceptance</i> <b>Criteria</b>			
2-Fluorophenol	86		83		30-130			
Phenol-d6	92		88		30-130			
Nitrobenzene-d5	88		85		30-130			
2-Fluorobiphenyl	75		73		30-130			
2,4,6-Tribromophenol	92		90		30-130			
4-Terphenyl-d14	77		77		30-130			

# PETROLEUM HYDROCARBONS



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### SAMPLE RESULTS

Lab ID:	L1704984-12	Date Collected:	02/16/17 12:00
Client ID:	VES-128 (1-2)	Date Received:	02/16/17
Sample Location:	E. BOSTON	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	100,VPH-04-1.1		
Analytical Date:	02/17/17 19:36		
Analyst:	JM		
Percent Solids:	89%		

### Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Were samples received in methanol?	Yes (Covering the Soil)
Methanol ratio:	4.4:1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Petroleum Hydrocarbons - Westborough Lab</b>						
C5-C8 Aliphatics	ND		mg/kg	13.6	--	1
C9-C12 Aliphatics	ND		mg/kg	13.6	--	1
C9-C10 Aromatics	ND		mg/kg	13.6	--	1
C5-C8 Aliphatics, Adjusted	ND		mg/kg	13.6	--	1
C9-C12 Aliphatics, Adjusted	ND		mg/kg	13.6	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	99		70-130
2,5-Dibromotoluene-FID	103		70-130



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### SAMPLE RESULTS

Lab ID:	L1704984-12	Date Collected:	02/16/17 12:00
Client ID:	VES-128 (1-2)	Date Received:	02/16/17
Sample Location:	E. BOSTON	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	02/17/17 00:27
Analytical Date:	02/17/17 17:10	Cleanup Method1:	EPH-04-1
Analyst:	SR	Cleanup Date1:	02/17/17
Percent Solids:	89%		

### Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Extractable Petroleum Hydrocarbons - Westborough Lab</b>						
C9-C18 Aliphatics	8.12	mg/kg	7.15	--	1	
C19-C36 Aliphatics	20.7	mg/kg	7.15	--	1	
C11-C22 Aromatics	123	mg/kg	7.15	--	1	
C11-C22 Aromatics, Adjusted	83.3	mg/kg	7.15	--	1	
Naphthalene	ND	mg/kg	0.358	--	1	
2-Methylnaphthalene	ND	mg/kg	0.358	--	1	
Acenaphthylene	ND	mg/kg	0.358	--	1	
Acenaphthene	ND	mg/kg	0.358	--	1	
Fluorene	ND	mg/kg	0.358	--	1	
Phenanthrene	4.00	mg/kg	0.358	--	1	
Anthracene	1.08	mg/kg	0.358	--	1	
Fluoranthene	6.61	mg/kg	0.358	--	1	
Pyrene	6.15	mg/kg	0.358	--	1	
Benzo(a)anthracene	3.58	mg/kg	0.358	--	1	
Chrysene	3.82	mg/kg	0.358	--	1	
Benzo(b)fluoranthene	2.98	mg/kg	0.358	--	1	
Benzo(k)fluoranthene	2.85	mg/kg	0.358	--	1	
Benzo(a)pyrene	3.56	mg/kg	0.358	--	1	
Indeno(1,2,3-cd)Pyrene	2.42	mg/kg	0.358	--	1	
Dibenzo(a,h)anthracene	0.418	mg/kg	0.358	--	1	
Benzo(ghi)perylene	2.28	mg/kg	0.358	--	1	



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**SAMPLE RESULTS**

Lab ID:	L1704984-12	Date Collected:	02/16/17 12:00
Client ID:	VES-128 (1-2)	Date Received:	02/16/17
Sample Location:	E. BOSTON	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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**Extractable Petroleum Hydrocarbons - Westborough Lab**

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	67		40-140
o-Terphenyl	67		40-140
2-Fluorobiphenyl	62		40-140
2-Bromonaphthalene	64		40-140

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1  
Analytical Date: 02/17/17 11:06  
Analyst: SR

Extraction Method: EPA 3546  
Extraction Date: 02/17/17 00:27  
Cleanup Method: EPH-04-1  
Cleanup Date: 02/17/17

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): WG978610-1				03-05,07-08,10-12	Batch:
C9-C18 Aliphatics	ND		mg/kg	6.48	--
C19-C36 Aliphatics	ND		mg/kg	6.48	--
C11-C22 Aromatics	ND		mg/kg	6.48	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.48	--
Naphthalene	ND		mg/kg	0.324	--
2-Methylnaphthalene	ND		mg/kg	0.324	--
Acenaphthylene	ND		mg/kg	0.324	--
Acenaphthene	ND		mg/kg	0.324	--
Fluorene	ND		mg/kg	0.324	--
Phenanthrene	ND		mg/kg	0.324	--
Anthracene	ND		mg/kg	0.324	--
Fluoranthene	ND		mg/kg	0.324	--
Pyrene	ND		mg/kg	0.324	--
Benzo(a)anthracene	ND		mg/kg	0.324	--
Chrysene	ND		mg/kg	0.324	--
Benzo(b)fluoranthene	ND		mg/kg	0.324	--
Benzo(k)fluoranthene	ND		mg/kg	0.324	--
Benzo(a)pyrene	ND		mg/kg	0.324	--
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.324	--
Dibenzo(a,h)anthracene	ND		mg/kg	0.324	--
Benzo(ghi)perylene	ND		mg/kg	0.324	--

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1  
Analytical Date: 02/17/17 11:06  
Analyst: SR

Extraction Method: EPA 3546  
Extraction Date: 02/17/17 00:27  
Cleanup Method: EPH-04-1  
Cleanup Date: 02/17/17

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): WG978610-1				03-05,07-08,10-12	Batch:

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	58		40-140
o-Terphenyl	59		40-140
2-Fluorobiphenyl	74		40-140
2-Bromonaphthalene	75		40-140

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1  
Analytical Date: 02/21/17 10:53  
Analyst: SR

Extraction Method: EPA 3546  
Extraction Date: 02/20/17 11:48  
Cleanup Method: EPH-04-1  
Cleanup Date: 02/21/17

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s):	02		Batch:	WG979475-1	
C9-C18 Aliphatics	ND		mg/kg	6.36	--
C19-C36 Aliphatics	ND		mg/kg	6.36	--
C11-C22 Aromatics	ND		mg/kg	6.36	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.36	--
Naphthalene	ND		mg/kg	0.318	--
2-Methylnaphthalene	ND		mg/kg	0.318	--
Acenaphthylene	ND		mg/kg	0.318	--
Acenaphthene	ND		mg/kg	0.318	--
Fluorene	ND		mg/kg	0.318	--
Phenanthrene	ND		mg/kg	0.318	--
Anthracene	ND		mg/kg	0.318	--
Fluoranthene	ND		mg/kg	0.318	--
Pyrene	ND		mg/kg	0.318	--
Benzo(a)anthracene	ND		mg/kg	0.318	--
Chrysene	ND		mg/kg	0.318	--
Benzo(b)fluoranthene	ND		mg/kg	0.318	--
Benzo(k)fluoranthene	ND		mg/kg	0.318	--
Benzo(a)pyrene	ND		mg/kg	0.318	--
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.318	--
Dibenzo(a,h)anthracene	ND		mg/kg	0.318	--
Benzo(ghi)perylene	ND		mg/kg	0.318	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	76		40-140
o-Terphenyl	73		40-140
2-Fluorobiphenyl	76		40-140
2-Bromonaphthalene	78		40-140



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 100,VPH-04-1.1  
Analytical Date: 02/17/17 11:18  
Analyst: JM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 02-05,07-08,10-12 Batch: WG979575-3					
C5-C8 Aliphatics	ND		mg/kg	2.67	--
C9-C12 Aliphatics	ND		mg/kg	2.67	--
C9-C10 Aromatics	ND		mg/kg	2.67	--
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.67	--
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.67	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	102		70-130
2,5-Dibromotoluene-FID	107		70-130

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 03-05,07-08,10-12 Batch: WG978610-2 WG978610-3								
C9-C18 Aliphatics	63		57		40-140	10		25
C19-C36 Aliphatics	73		64		40-140	13		25
C11-C22 Aromatics	77		48		40-140	46	Q	25
Naphthalene	61		40		40-140	42	Q	25
2-Methylnaphthalene	63		41		40-140	42	Q	25
Acenaphthylene	64		41		40-140	44	Q	25
Acenaphthene	68		43		40-140	45	Q	25
Fluorene	72		44		40-140	48	Q	25
Phenanthrene	75		46		40-140	48	Q	25
Anthracene	78		48		40-140	48	Q	25
Fluoranthene	78		47		40-140	50	Q	25
Pyrene	78		48		40-140	48	Q	25
Benzo(a)anthracene	76		46		40-140	49	Q	25
Chrysene	79		48		40-140	49	Q	25
Benzo(b)fluoranthene	77		47		40-140	48	Q	25
Benzo(k)fluoranthene	80		49		40-140	48	Q	25
Benzo(a)pyrene	71		43		40-140	49	Q	25
Indeno(1,2,3-cd)Pyrene	75		45		40-140	50	Q	25
Dibenzo(a,h)anthracene	72		44		40-140	48	Q	25
Benzo(ghi)perylene	70		42		40-140	50	Q	25
Nonane (C9)	49		46		30-140	6		25

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 03-05,07-08,10-12 Batch: WG978610-2 WG978610-3								
Decane (C10)	54		52		40-140	4		25
Dodecane (C12)	56		54		40-140	4		25
Tetradecane (C14)	60		55		40-140	9		25
Hexadecane (C16)	67		58		40-140	14		25
Octadecane (C18)	71		62		40-140	14		25
Nonadecane (C19)	70		60		40-140	15		25
Eicosane (C20)	72		61		40-140	17		25
Docosane (C22)	71		61		40-140	15		25
Tetracosane (C24)	71		61		40-140	15		25
Hexacosane (C26)	71		61		40-140	15		25
Octacosane (C28)	70		61		40-140	14		25
Triacontane (C30)	70		60		40-140	15		25
Hexatriacontane (C36)	69		60		40-140	14		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	62		50		40-140
o-Terphenyl	78		49		40-140
2-Fluorobiphenyl	69		44		40-140
2-Bromonaphthalene	72		45		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 02 Batch: WG979475-2 WG979475-3								
C9-C18 Aliphatics	76		76		40-140	0		25
C19-C36 Aliphatics	85		89		40-140	5		25
C11-C22 Aromatics	75		80		40-140	6		25
Naphthalene	61		62		40-140	2		25
2-Methylnaphthalene	62		63		40-140	2		25
Acenaphthylene	65		67		40-140	3		25
Acenaphthene	65		68		40-140	5		25
Fluorene	68		72		40-140	6		25
Phenanthrene	70		75		40-140	7		25
Anthracene	75		80		40-140	6		25
Fluoranthene	73		78		40-140	7		25
Pyrene	73		80		40-140	9		25
Benzo(a)anthracene	73		79		40-140	8		25
Chrysene	76		82		40-140	8		25
Benzo(b)fluoranthene	73		80		40-140	9		25
Benzo(k)fluoranthene	78		84		40-140	7		25
Benzo(a)pyrene	70		76		40-140	8		25
Indeno(1,2,3-cd)Pyrene	70		78		40-140	11		25
Dibenzo(a,h)anthracene	73		81		40-140	10		25
Benzo(ghi)perylene	66		73		40-140	10		25
Nonane (C9)	61		60		30-140	2		25

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 02 Batch: WG979475-2 WG979475-3								
Decane (C10)	69		68		40-140	1		25
Dodecane (C12)	73		72		40-140	1		25
Tetradecane (C14)	75		76		40-140	1		25
Hexadecane (C16)	78		81		40-140	4		25
Octadecane (C18)	82		86		40-140	5		25
Nonadecane (C19)	82		86		40-140	5		25
Eicosane (C20)	83		87		40-140	5		25
Docosane (C22)	83		88		40-140	6		25
Tetracosane (C24)	84		88		40-140	5		25
Hexacosane (C26)	84		88		40-140	5		25
Octacosane (C28)	84		88		40-140	5		25
Triacontane (C30)	84		88		40-140	5		25
Hexatriacontane (C36)	82		88		40-140	7		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	62		64		40-140
o-Terphenyl	79		82		40-140
2-Fluorobiphenyl	72		75		40-140
2-Bromonaphthalene	75		78		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

<b>Parameter</b>	<i>LCS</i> <b>%Recovery</b>	<i>LCS</i> <b>%Recovery</b>	<i>%Recovery</i> <b>Limits</b>	<i>RPD</i> <b>Qual</b>	<i>RPD</i> <b>Limits</b>
	<b>Qual</b>	<b>Qual</b>	<b>Limits</b>	<b>Qual</b>	
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG979575-1 WG979575-2					
C5-C8 Aliphatics	101	103	70-130	2	25
C9-C12 Aliphatics	98	104	70-130	6	25
C9-C10 Aromatics	96	100	70-130	4	25
Benzene	92	98	70-130	7	25
Toluene	94	98	70-130	5	25
Ethylbenzene	95	98	70-130	4	25
p/m-Xylene	97	100	70-130	3	25
o-Xylene	98	100	70-130	3	25
Methyl tert butyl ether	92	102	70-130	10	25
Naphthalene	103	107	70-130	4	25
1,2,4-Trimethylbenzene	96	100	70-130	4	25
Pentane	95	96	70-130	1	25
2-Methylpentane	100	102	70-130	2	25
2,2,4-Trimethylpentane	104	106	70-130	2	25
n-Nonane	101	105	30-130	4	25
n-Decane	96	101	70-130	5	25
n-Butylcyclohexane	98	105	70-130	7	25

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG979575-1 WG979575-2

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	101		102		70-130
2,5-Dibromotoluene-FID	102		103		70-130

**PCBS**



Project Name: E. BOSTON

Lab Number: L1704984

Project Number: 43068

Report Date: 02/21/17

**SAMPLE RESULTS**

Lab ID: L1704984-12 D  
 Client ID: VES-128 (1-2)  
 Sample Location: E. BOSTON  
 Matrix: Soil  
 Analytical Method: 97,8082A  
 Analytical Date: 02/20/17 03:12  
 Analyst: HT  
 Percent Solids: 89%

Date Collected: 02/16/17 12:00  
 Date Received: 02/16/17  
 Field Prep: Not Specified  
 Extraction Method: EPA 3540C  
 Extraction Date: 02/17/17 04:58  
 Cleanup Method: EPA 3665A  
 Cleanup Date: 02/18/17  
 Cleanup Method: EPA 3660B  
 Cleanup Date: 02/18/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	1790	--	50	A
Aroclor 1221	ND		ug/kg	1790	--	50	A
Aroclor 1232	ND		ug/kg	1790	--	50	A
Aroclor 1242	ND		ug/kg	1790	--	50	A
Aroclor 1248	ND		ug/kg	1790	--	50	A
Aroclor 1254	12300		ug/kg	1790	--	50	A
Aroclor 1260	10800		ug/kg	1790	--	50	B
Aroclor 1262	ND		ug/kg	1790	--	50	A
Aroclor 1268	ND		ug/kg	1790	--	50	A
PCBs, Total	23100		ug/kg	1790	--	50	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8082A  
Analytical Date: 02/20/17 01:44  
Analyst: HT

Extraction Method: EPA 3540C  
Extraction Date: 02/17/17 04:58  
Cleanup Method: EPA 3665A  
Cleanup Date: 02/18/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 02/18/17

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 02-05,07-08,10-12 Batch: WG978634-1						
Aroclor 1016	ND		ug/kg	31.8	--	A
Aroclor 1221	ND		ug/kg	31.8	--	A
Aroclor 1232	ND		ug/kg	31.8	--	A
Aroclor 1242	ND		ug/kg	31.8	--	A
Aroclor 1248	ND		ug/kg	31.8	--	A
Aroclor 1254	ND		ug/kg	31.8	--	A
Aroclor 1260	ND		ug/kg	31.8	--	A
Aroclor 1262	ND		ug/kg	31.8	--	A
Aroclor 1268	ND		ug/kg	31.8	--	A
PCBs, Total	ND		ug/kg	31.8	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	83		30-150	A
Decachlorobiphenyl	94		30-150	A
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	81		30-150	B

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

<b>Parameter</b>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> <i>Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> <i>Limits</i>	<i>Column</i>
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978634-2 WG978634-3									
Aroclor 1016	58		67		40-140	14		30	A
Aroclor 1260	44		58		40-140	27		30	A

<b>Surrogate</b>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> <i>Criteria</i>	<i>Column</i>
2,4,5,6-Tetrachloro-m-xylene						
Decachlorobiphenyl	77		74		30-150	A
2,4,5,6-Tetrachloro-m-xylene	46		49		30-150	A
Decachlorobiphenyl	80		80		30-150	B
2,4,5,6-Tetrachloro-m-xylene	56		57		30-150	B

## METALS



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**SAMPLE RESULTS**

Lab ID: L1704984-12 Date Collected: 02/16/17 12:00  
Client ID: VES-128 (1-2) Date Received: 02/16/17  
Sample Location: E. BOSTON Field Prep: Not Specified  
Matrix: Soil  
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>MCP Total Metals - Mansfield Lab</b>											
Arsenic, Total	20		mg/kg	0.45	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS
Barium, Total	250		mg/kg	0.45	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS
Cadmium, Total	1.7		mg/kg	0.45	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS
Chromium, Total	28		mg/kg	0.45	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS
Lead, Total	570		mg/kg	2.2	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS
Mercury, Total	1.53		mg/kg	0.073	--	1	02/17/17 10:00	02/18/17 12:45	EPA 7471B	97,7471B	BV
Selenium, Total	ND		mg/kg	2.2	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS
Silver, Total	0.68		mg/kg	0.45	--	1	02/17/17 20:15	02/20/17 21:28	EPA 3050B	97,6010C	PS



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

## Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 02-05,07-08,10-12 Batch: WG978654-1									
Mercury, Total	ND	mg/kg	0.083	--	1	02/17/17 10:00	02/18/17 12:12	97,7471B	BV

### Prep Information

Digestion Method: EPA 7471B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 02-05,07-08,10-12 Batch: WG978902-1									
Arsenic, Total	ND	mg/kg	0.40	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS
Barium, Total	ND	mg/kg	0.40	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS
Cadmium, Total	ND	mg/kg	0.40	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS
Chromium, Total	ND	mg/kg	0.40	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS
Lead, Total	ND	mg/kg	2.0	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS
Selenium, Total	ND	mg/kg	2.0	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS
Silver, Total	ND	mg/kg	0.40	--	1	02/17/17 20:15	02/20/17 17:37	97,6010C	PS

### Prep Information

Digestion Method: EPA 3050B

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978654-2 WG978654-3 SRM Lot Number: D091-540								
Mercury, Total	104		95		72-128	9		30
MCP Total Metals - Mansfield Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978902-2 WG978902-3 SRM Lot Number: D091-540								
Arsenic, Total	96		83		80-121	15		30
Barium, Total	91		96		84-117	5		30
Cadmium, Total	97		89		83-117	9		30
Chromium, Total	91		84		80-119	8		30
Lead, Total	96		82		82-118	16		30
Selenium, Total	90		84		79-121	7		30
Silver, Total	96		80		76-124	18		30

# **INORGANICS & MISCELLANEOUS**



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

## SAMPLE RESULTS

Lab ID: L1704984-12  
Client ID: VES-128 (1-2)  
Sample Location: E. BOSTON  
Matrix: Soil

Date Collected: 02/16/17 12:00  
Date Received: 02/16/17  
Field Prep: Not Specified

### Test Material Information

Source of Material: Unknown  
Description of Material: Non-Metallic - Damp Soil  
Particle Size: Coarse  
Preliminary Burning Time (sec): 120

Parameter	Result	Date Analyzed	Analytical Method	Analyst
Ignitability of Solids - Westborough Lab				
Ignitability	NI	02/17/17 13:02	1,1030	AB



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### SAMPLE RESULTS

Lab ID: L1704984-12  
Client ID: VES-128 (1-2)  
Sample Location: E. BOSTON  
Matrix: Soil

Date Collected: 02/16/17 12:00  
Date Received: 02/16/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Specific Conductance @ 25 C	59		umhos/cm	10	--	1	-	02/17/17 02:59	1,9050A	VB
Solids, Total	88.8	%		0.100	NA	1	-	02/17/17 13:31	121,2540G	RI
pH (H)	7.6	SU		-	NA	1	-	02/17/17 01:24	1,9045D	VB
Cyanide, Reactive	ND		mg/kg	10	--	1	02/18/17 18:45	02/18/17 20:50	1,7.3	RP
Sulfide, Reactive	ND		mg/kg	10	--	1	02/18/17 18:45	02/18/17 20:43	1,7.3	RP



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Method Blank Analysis**  
**Batch Quality Control**

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 02-05,07-08 Batch: WG979086-1									
Sulfide, Reactive	ND	mg/kg	10	--	1	02/18/17 16:35	02/18/17 17:33	1,7.3	RP
General Chemistry - Westborough Lab for sample(s): 02-05,07-08 Batch: WG979087-1									
Cyanide, Reactive	ND	mg/kg	10	--	1	02/18/17 16:35	02/18/17 17:38	1,7.3	RP
General Chemistry - Westborough Lab for sample(s): 10-12 Batch: WG979096-1									
Sulfide, Reactive	ND	mg/kg	10	--	1	02/18/17 18:45	02/18/17 20:40	1,7.3	RP
General Chemistry - Westborough Lab for sample(s): 10-12 Batch: WG979097-1									
Cyanide, Reactive	ND	mg/kg	10	--	1	02/18/17 18:45	02/18/17 20:46	1,7.3	RP



# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978615-1								
pH	101	-	-	-	99-101	-	-	-
General Chemistry - Westborough Lab Associated sample(s): 02-05,07-08,10-12 Batch: WG978620-1								
Specific Conductance	100	-	-	-	99-101	-	-	-
General Chemistry - Westborough Lab Associated sample(s): 02-05,07-08 Batch: WG979086-2								
Sulfide, Reactive	82	-	-	-	60-125	-	-	40
General Chemistry - Westborough Lab Associated sample(s): 02-05,07-08 Batch: WG979087-2								
Cyanide, Reactive	42	-	-	-	30-125	-	-	40
General Chemistry - Westborough Lab Associated sample(s): 10-12 Batch: WG979096-2								
Sulfide, Reactive	102	-	-	-	60-125	-	-	40
General Chemistry - Westborough Lab Associated sample(s): 10-12 Batch: WG979097-2								
Cyanide, Reactive	65	-	-	-	30-125	-	-	40

**Lab Duplicate Analysis**  
Batch Quality Control

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-05,07-08,10-12 QC Batch ID: WG978620-2 QC Sample: L1704984-02 Client ID: VES-131 (3-5)						
Specific Conductance @ 25 C	18	32	umhos/cm	56	Q	20
General Chemistry - Westborough Lab Associated sample(s): 01-12 QC Batch ID: WG978745-1 QC Sample: L1704984-01 Client ID: VES-131 (0-2)						
Solids, Total	87.5	88.1	%	1		20

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

### Sample Receipt and Container Information

Were project specific reporting limits specified? YES

**Reagent H2O Preserved Vials Frozen on:** 02/16/2017 21:29

#### Cooler Information Custody Seal

##### Cooler

C Absent

#### Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1704984-01A	Glass 120ml/4oz unpreserved	C	N/A	2.5	Y	Absent	MCP-8081-10(14),TS(7)
L1704984-02A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-02B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-02C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-02D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-02E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-03A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260H-10(14),MCP-8260HLW-10(14)
L1704984-03B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260H-10(14),MCP-8260HLW-10(14)
L1704984-03C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260H-10(14),MCP-8260HLW-10(14)
L1704984-03D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-03E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)

\*Values in parentheses indicate holding time in days

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1704984-04A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-04B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-04C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-04D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-04E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-05A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-05B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-05C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-05D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-05E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-06A	Glass 120ml/4oz unpreserved	C	N/A	2.5	Y	Absent	MCP-8081-10(14),TS(7)
L1704984-07A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-07B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-07C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-07D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)

\*Values in parentheses indicate holding time in days

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1704984-07E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-08A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-08B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-08C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-08D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-08E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-09A	Glass 120ml/4oz unpreserved	C	N/A	2.5	Y	Absent	MCP-8081-10(14),TS(7)
L1704984-10A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-10B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-10C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-10D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-10E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-11A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-11B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-11C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)

\*Values in parentheses indicate holding time in days

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1704984-11D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-11E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1704984-12A	Vial MeOH preserved	C	N/A	2.5	Y	Absent	VPH-10(28),MCP-8260HLW-10(14)
L1704984-12B	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-12C	Vial water preserved	C	N/A	2.5	Y	Absent	MCP-8260HLW-10(14)
L1704984-12D	Glass 500ml/16oz unpreserved	C	N/A	2.5	Y	Absent	IGNIT-1030(14),REACTS(14),MCP-8270-10(14),TS(7),MCP-8082-10-3540C(365),PH-9045(1),REACTCN(14),COND-9050(28),EPH-DELUX-10(14)
L1704984-12E	Metals Only - Glass 60mL/2oz unp	C	N/A	2.5	Y	Absent	MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)

\*Values in parentheses indicate holding time in days

**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

## GLOSSARY

### **Acronyms**

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### **Footnotes**

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### **Terms**

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

### **Data Qualifiers**

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

**Report Format:** Data Usability Report



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

**Data Qualifiers**

reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

*Report Format:* Data Usability Report



**Project Name:** E. BOSTON  
**Project Number:** 43068

**Lab Number:** L1704984  
**Report Date:** 02/21/17

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.
- 98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.
- 100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, July 2010.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at its own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

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**The following analytes are not included in our Primary NELAP Scope of Accreditation:**

**Westborough Facility**

EPA 624: m/p-xylene, o-xylene  
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.  
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.  
EPA 300: DW: Bromide  
EPA 6860: NPW and SCM: Perchlorate  
EPA 9010: NPW and SCM: Amenable Cyanide Distillation  
EPA 9012B: NPW: Total Cyanide  
EPA 9050A: NPW: Specific Conductance  
SM3500: NPW: Ferrous Iron  
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.  
SM5310C: DW: Dissolved Organic Carbon

**Mansfield Facility**

SM 2540D: TSS  
EPA 3005A NPW  
EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.  
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.  
Biological Tissue Matrix: EPA 3050B

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**The following analytes are included in our Massachusetts DEP Scope of Accreditation**

**Westborough Facility:**

**Drinking Water**

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C**, **SM4500CN-CE**, **EPA 180.1**, **SM2130B**, **SM4500CI-D**, **SM2320B**, **SM2540C**, **SM4500H-B**  
EPA 332: Perchlorate; **EPA 524.2**: THMs and VOCs; **EPA 504.1**: EDB, DBCP.  
Microbiology: **SM9215B**; **SM9223-P/A**, **SM9223B-Colilert-QT**,**SM9222D**.

**Non-Potable Water**

**SM4500H,B**, **EPA 120.1**, **SM2510B**, **SM2540C**, **SM2320B**, **SM4500CL-E**, **SM4500F-BC**, **SM4500NH3-BH**, **EPA 350.1**: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, **SM4500NO3-F**, **EPA 353.2**: Nitrate-N, **EPA 351.1**, **SM4500P-E**, **SM4500P-B**, **E**, **SM4500SO4-E**, **SM5220D**, **EPA 410.4**, **SM5210B**, **SM5310C**, **SM4500CL-D**, **EPA 1664**, **EPA 420.1**, **SM4500-CN-CE**, **SM2540D**.  
**EPA 624**: Volatile Halocarbons & Aromatics,  
**EPA 608**: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs  
**EPA 625**: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.  
Microbiology: **SM9223B-Colilert-QT**; **Enterolert-QT**, **SM9221E**.

**Mansfield Facility:**

**Drinking Water**

**EPA 200.7**: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8**: Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg**.

**Non-Potable Water**

**EPA 200.7**: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.  
**EPA 200.8**: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.  
**EPA 245.1 Hg**.  
**SM2340B**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.



## CHAIN OF CUSTODY

PAGE 2 OF 2

8 Walkup Drive  
Westboro, MA 01581  
Tel: 508-898-9220

320 Forbes Blvd  
Mansfield, MA 02048  
Tel: 508-822-9300

## Client Information

Client: VERTEX

Address: one Congress St, 10th Flr  
Boston MA

Phone: 781-974-7595

Email: b51vonen@vertexeng.com

Additional Project Information:

## Project Information

Project Name: E. Boston

Project Location: E. Boston

Project #: 43068

Project Manager: D. Gibbons

ALPHA Quote #:

## Turn-Around Time

 Standard RUSH (only confirmed if pre-approved)

Date Due:

72-hour

Date Rec'd in Lab: 02/16/17

ALPHA Job #: L1704984

## Report Information - Data Deliverables

 ADEX  EMAIL

## Billing Information

 Same as Client info PO #:

## Regulatory Requirements &amp; Project Information Requirements

- Yes  No MA MCP Analytical Methods       Yes  No CT RCP Analytical Methods
- Yes  No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
- Yes  No GW1 Standards (Info Required for Metals & EPH with Targets)
- Yes  No NPDES RGP
- Other State/Fed Program \_\_\_\_\_ Criteria \_\_\_\_\_

ANALYSIS	Criteria										TOTAL #
	VOC: <input checked="" type="checkbox"/> 6260 <input type="checkbox"/> 624 <input type="checkbox"/> 524.2	SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH <input checked="" type="checkbox"/> PCB <input checked="" type="checkbox"/> 70	METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> MCP 15	EPH: <input type="checkbox"/> RCR45 <input checked="" type="checkbox"/> RCR48 <input type="checkbox"/> PPT3	VRH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	PPB: <input type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only	PCB: <input checked="" type="checkbox"/> PEST <input type="checkbox"/> Quant Only	Fingerprint: <input type="checkbox"/> Charides <input checked="" type="checkbox"/> Sulfide <input checked="" type="checkbox"/> Trace <input type="checkbox"/> Ionizable <input type="checkbox"/> Recd			
VOC: <input checked="" type="checkbox"/> 6260 <input type="checkbox"/> 624 <input type="checkbox"/> 524.2	<input type="checkbox"/> ABN <input type="checkbox"/> PAH <input checked="" type="checkbox"/> PCB <input checked="" type="checkbox"/> 70	<input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> MCP 15	<input type="checkbox"/> RCR45 <input checked="" type="checkbox"/> RCR48 <input type="checkbox"/> PPT3	<input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	<input type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only	<input type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only	<input type="checkbox"/> PEST <input type="checkbox"/> Quant Only	<input type="checkbox"/> Fingerprint: <input checked="" type="checkbox"/> Charides <input checked="" type="checkbox"/> Sulfide <input checked="" type="checkbox"/> Trace <input type="checkbox"/> Ionizable <input type="checkbox"/> Recd			SAMPLE INFO
SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH <input checked="" type="checkbox"/> PCB <input checked="" type="checkbox"/> 70	<input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> MCP 15	<input type="checkbox"/> RCR45 <input checked="" type="checkbox"/> RCR48 <input type="checkbox"/> PPT3	<input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	<input type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only	<input type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only	<input type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only	<input type="checkbox"/> PEST <input type="checkbox"/> Quant Only	<input type="checkbox"/> Fingerprint: <input checked="" type="checkbox"/> Charides <input checked="" type="checkbox"/> Sulfide <input checked="" type="checkbox"/> Trace <input type="checkbox"/> Ionizable <input type="checkbox"/> Recd			Preservation

Sample Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials
		Date	Time		
0484	11 VES-103 (4-6)	2/16	7:40	S	XX
12	VES-128 (1-2)	2/16	1200	S	KS XX X X X XX

5

5

"Data pertaining to other samples not relevant to this LSP Opinion have been omitted."

Container Type  
 P= Plastic  
 A= Amber glass  
 V= Vial  
 G= Glass  
 B= Bacteria cup  
 C= Cube  
 O= Other  
 E= Encore  
 D= BOD Bottle

Preservative  
 A= None  
 B= HCl  
 C= HNO<sub>3</sub>  
 D= H<sub>2</sub>SO<sub>4</sub>  
 E= NaOH  
 F= MeOH  
 G= NaHSO<sub>4</sub>  
 H= Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>  
 I= Ascorbic Acid  
 J= NH<sub>4</sub>Cl  
 K= Zn Acetate  
 O= Other

Container Type	V	A	A	V	A
Preservative	F	A	A	F	A

Relinquished By:

Rob Maesto

Rob Maesto

Rob Maesto

Date/Time

2/16/17 14:15

2/16/17 15:35

2/16/17 19:20

Received By:

Rob Maesto

Rob Maesto

CJ

Date/Time

2/16/17 15:30

2/16/17 15:35

2/16/17 18:20

All samples submitted are subject to Alpha's Terms and Conditions.  
See reverse side.

FORM NO. 01-01 (rev. 12-Mar-2012)



## ANALYTICAL REPORT

Lab Number:	L1721774
Client:	Vertex Environmental Services, Inc. 400 Libbey Pkwy Weymouth, MA 02184
ATTN:	Bill Gibbons
Phone:	(617) 830-1540
Project Name:	SUFFOLK DOWNS
Project Number:	43068
Report Date:	07/05/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1721774-01	VES-128 (2-4)	SOIL	BOSTON, MA	06/26/17 13:00	06/27/17
L1721774-02	VES-128 (E) 0-2	SOIL	BOSTON, MA	06/26/17 13:10	06/27/17
L1721774-03	VES-128 (SE) 0-2	SOIL	BOSTON, MA	06/26/17 13:20	06/27/17
L1721774-04	VES-128 (S) 0-2	SOIL	BOSTON, MA	06/26/17 13:30	06/27/17
L1721774-05	VES-128 (W) 0-2	SOIL	BOSTON, MA	06/26/17 14:00	06/27/17
L1721774-06	VES-128 (SW) 0-2	SOIL	BOSTON, MA	06/26/17 13:50	06/27/17
L1721774-07	VES-128 (NW) 0-2	SOIL	BOSTON, MA	06/26/17 14:20	06/27/17
L1721774-08	VES-128 (N) 0-2	SOIL	BOSTON, MA	06/26/17 14:30	06/27/17
L1721774-09	VES-128 (NE) 0-2	SOIL	BOSTON, MA	06/26/17 14:50	06/27/17

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

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

<b>A response to questions G, H and I is required for "Presumptive Certainty" status</b>		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES

**For any questions answered "No", please refer to the case narrative section on the following page(s).**

Please note that sample matrix information is located in the Sample Results section of this report.



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### Case Narrative (continued)

#### MCP Related Narratives

#### Report Submission

All MCP required questions were answered with affirmative responses; therefore, there are no relevant protocol-specific QC and/or performance standard non-conformances to report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 07/05/17

# ORGANICS

**PCBS**



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-01  
Client ID: VES-128 (2-4)  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 19:51  
Analyst: AF  
Percent Solids: 63%

Date Collected: 06/26/17 13:00  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	31.2	--	1	A
Aroclor 1221	ND		ug/kg	31.2	--	1	A
Aroclor 1232	ND		ug/kg	31.2	--	1	A
Aroclor 1242	ND		ug/kg	31.2	--	1	A
Aroclor 1248	ND		ug/kg	20.8	--	1	A
Aroclor 1254	ND		ug/kg	31.2	--	1	A
Aroclor 1260	ND		ug/kg	20.8	--	1	A
Aroclor 1262	ND		ug/kg	10.4	--	1	A
Aroclor 1268	ND		ug/kg	10.4	--	1	A
PCBs, Total	ND		ug/kg	10.4	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	57		30-150	A
Decachlorobiphenyl	45		30-150	A
2,4,5,6-Tetrachloro-m-xylene	56		30-150	B
Decachlorobiphenyl	56		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-02  
Client ID: VES-128 (E) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 20:05  
Analyst: AF  
Percent Solids: 72%

Date Collected: 06/26/17 13:10  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	26.5	--	1	A
Aroclor 1221	ND		ug/kg	26.5	--	1	A
Aroclor 1232	ND		ug/kg	26.5	--	1	A
Aroclor 1242	ND		ug/kg	26.5	--	1	A
Aroclor 1248	ND		ug/kg	17.7	--	1	A
Aroclor 1254	ND		ug/kg	26.5	--	1	A
Aroclor 1260	ND		ug/kg	17.7	--	1	A
Aroclor 1262	ND		ug/kg	8.84	--	1	A
Aroclor 1268	ND		ug/kg	8.84	--	1	A
PCBs, Total	ND		ug/kg	8.84	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	52		30-150	A
Decachlorobiphenyl	40		30-150	A
2,4,5,6-Tetrachloro-m-xylene	56		30-150	B
Decachlorobiphenyl	48		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-03  
Client ID: VES-128 (SE) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 20:18  
Analyst: AF  
Percent Solids: 78%

Date Collected: 06/26/17 13:20  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	24.9	--	1	A
Aroclor 1221	ND		ug/kg	24.9	--	1	A
Aroclor 1232	ND		ug/kg	24.9	--	1	A
Aroclor 1242	ND		ug/kg	24.9	--	1	A
Aroclor 1248	ND		ug/kg	16.6	--	1	A
Aroclor 1254	ND		ug/kg	24.9	--	1	A
Aroclor 1260	ND		ug/kg	16.6	--	1	A
Aroclor 1262	ND		ug/kg	8.29	--	1	A
Aroclor 1268	ND		ug/kg	8.29	--	1	A
PCBs, Total	ND		ug/kg	8.29	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	69		30-150	A
Decachlorobiphenyl	43		30-150	A
2,4,5,6-Tetrachloro-m-xylene	73		30-150	B
Decachlorobiphenyl	56		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-04  
Client ID: VES-128 (S) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 20:32  
Analyst: AF  
Percent Solids: 94%

Date Collected: 06/26/17 13:30  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	20.6	--	1	A
Aroclor 1221	ND		ug/kg	20.6	--	1	A
Aroclor 1232	ND		ug/kg	20.6	--	1	A
Aroclor 1242	ND		ug/kg	20.6	--	1	A
Aroclor 1248	ND		ug/kg	13.8	--	1	A
Aroclor 1254	ND		ug/kg	20.6	--	1	A
Aroclor 1260	ND		ug/kg	13.8	--	1	A
Aroclor 1262	ND		ug/kg	6.88	--	1	A
Aroclor 1268	ND		ug/kg	6.88	--	1	A
PCBs, Total	ND		ug/kg	6.88	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	63		30-150	A
Decachlorobiphenyl	42		30-150	A
2,4,5,6-Tetrachloro-m-xylene	78		30-150	B
Decachlorobiphenyl	56		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-05  
Client ID: VES-128 (W) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 20:46  
Analyst: AF  
Percent Solids: 91%

Date Collected: 06/26/17 14:00  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	21.3	--	1	A
Aroclor 1221	ND		ug/kg	21.3	--	1	A
Aroclor 1232	ND		ug/kg	21.3	--	1	A
Aroclor 1242	ND		ug/kg	21.3	--	1	A
Aroclor 1248	ND		ug/kg	14.2	--	1	A
Aroclor 1254	ND		ug/kg	21.3	--	1	A
Aroclor 1260	ND		ug/kg	14.2	--	1	A
Aroclor 1262	ND		ug/kg	7.11	--	1	A
Aroclor 1268	ND		ug/kg	7.11	--	1	A
PCBs, Total	ND		ug/kg	7.11	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		30-150	A
Decachlorobiphenyl	47		30-150	A
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	54		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-06  
Client ID: VES-128 (SW) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 20:59  
Analyst: AF  
Percent Solids: 70%

Date Collected: 06/26/17 13:50  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	28.3	--	1	A
Aroclor 1221	ND		ug/kg	28.3	--	1	A
Aroclor 1232	ND		ug/kg	28.3	--	1	A
Aroclor 1242	ND		ug/kg	28.3	--	1	A
Aroclor 1248	ND		ug/kg	18.9	--	1	A
Aroclor 1254	ND		ug/kg	28.3	--	1	A
Aroclor 1260	ND		ug/kg	18.9	--	1	A
Aroclor 1262	ND		ug/kg	9.44	--	1	A
Aroclor 1268	ND		ug/kg	9.44	--	1	A
PCBs, Total	ND		ug/kg	9.44	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	65		30-150	A
Decachlorobiphenyl	48		30-150	A
2,4,5,6-Tetrachloro-m-xylene	58		30-150	B
Decachlorobiphenyl	56		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-07  
Client ID: VES-128 (NW) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 21:13  
Analyst: AF  
Percent Solids: 94%

Date Collected: 06/26/17 14:20  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	20.8	--	1	A
Aroclor 1221	ND		ug/kg	20.8	--	1	A
Aroclor 1232	ND		ug/kg	20.8	--	1	A
Aroclor 1242	ND		ug/kg	20.8	--	1	A
Aroclor 1248	ND		ug/kg	13.8	--	1	A
Aroclor 1254	ND		ug/kg	20.8	--	1	A
Aroclor 1260	ND		ug/kg	13.8	--	1	A
Aroclor 1262	ND		ug/kg	6.92	--	1	A
Aroclor 1268	ND		ug/kg	6.92	--	1	A
PCBs, Total	ND		ug/kg	6.92	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	62		30-150	A
Decachlorobiphenyl	46		30-150	A
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	57		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-08  
Client ID: VES-128 (N) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 21:27  
Analyst: AF  
Percent Solids: 95%

Date Collected: 06/26/17 14:30  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	20.4	--	1	A
Aroclor 1221	ND		ug/kg	20.4	--	1	A
Aroclor 1232	ND		ug/kg	20.4	--	1	A
Aroclor 1242	ND		ug/kg	20.4	--	1	A
Aroclor 1248	ND		ug/kg	13.6	--	1	A
Aroclor 1254	ND		ug/kg	20.4	--	1	A
Aroclor 1260	ND		ug/kg	13.6	--	1	A
Aroclor 1262	ND		ug/kg	6.79	--	1	A
Aroclor 1268	ND		ug/kg	6.79	--	1	A
PCBs, Total	ND		ug/kg	6.79	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	58		30-150	A
Decachlorobiphenyl	45		30-150	A
2,4,5,6-Tetrachloro-m-xylene	80		30-150	B
Decachlorobiphenyl	62		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**SAMPLE RESULTS**

Lab ID: L1721774-09  
Client ID: VES-128 (NE) 0-2  
Sample Location: BOSTON, MA

Matrix: Soil  
Analytical Method: 97,8082A  
Analytical Date: 07/01/17 21:41  
Analyst: AF  
Percent Solids: 87%

Date Collected: 06/26/17 14:50  
Date Received: 06/27/17  
Field Prep: Not Specified  
Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
<b>MCP Polychlorinated Biphenyls - Westborough Lab</b>							
Aroclor 1016	ND		ug/kg	21.6	--	1	A
Aroclor 1221	ND		ug/kg	21.6	--	1	A
Aroclor 1232	ND		ug/kg	21.6	--	1	A
Aroclor 1242	ND		ug/kg	21.6	--	1	A
Aroclor 1248	ND		ug/kg	14.4	--	1	A
Aroclor 1254	ND		ug/kg	21.6	--	1	A
Aroclor 1260	ND		ug/kg	14.4	--	1	A
Aroclor 1262	ND		ug/kg	7.21	--	1	A
Aroclor 1268	ND		ug/kg	7.21	--	1	A
PCBs, Total	ND		ug/kg	7.21	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	70		30-150	A
Decachlorobiphenyl	48		30-150	A
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	54		30-150	B

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### Method Blank Analysis Batch Quality Control

Analytical Method: 97,8082A  
Analytical Date: 07/02/17 16:56  
Analyst: AF

Extraction Method: EPA 3540C  
Extraction Date: 06/29/17 20:15  
Cleanup Method: EPA 3665A  
Cleanup Date: 06/30/17  
Cleanup Method: EPA 3660B  
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 01-09 Batch: WG1018568-1						
Aroclor 1016	ND		ug/kg	19.8	--	A
Aroclor 1221	ND		ug/kg	19.8	--	A
Aroclor 1232	ND		ug/kg	19.8	--	A
Aroclor 1242	ND		ug/kg	19.8	--	A
Aroclor 1248	ND		ug/kg	13.2	--	A
Aroclor 1254	ND		ug/kg	19.8	--	A
Aroclor 1260	ND		ug/kg	13.2	--	A
Aroclor 1262	ND		ug/kg	6.60	--	A
Aroclor 1268	ND		ug/kg	6.60	--	A
PCBs, Total	ND		ug/kg	6.60	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	62		30-150	A
Decachlorobiphenyl	55		30-150	A
2,4,5,6-Tetrachloro-m-xylene	61		30-150	B
Decachlorobiphenyl	60		30-150	B

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 01-09 Batch: WG1018568-2 WG1018568-3									
Aroclor 1016	74		75		40-140	1		30	A
Aroclor 1260	72		75		40-140	4		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	71		76		30-150	A
Decachlorobiphenyl	64		67		30-150	A
2,4,5,6-Tetrachloro-m-xylene	67		72		30-150	B
Decachlorobiphenyl	68		75		30-150	B

# **INORGANICS & MISCELLANEOUS**



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID:	L1721774-01	Date Collected:	06/26/17 13:00
Client ID:	VES-128 (2-4)	Date Received:	06/27/17
Sample Location:	BOSTON, MA	Field Prep:	Not Specified
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	62.6		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-02  
Client ID: VES-128 (E) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 13:10  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	72.1		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-03  
Client ID: VES-128 (SE) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 13:20  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	78.0		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-04  
Client ID: VES-128 (S) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 13:30  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	94.2		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-05  
Client ID: VES-128 (W) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 14:00  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	91.3		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-06  
Client ID: VES-128 (SW) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 13:50  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	69.7		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-07  
Client ID: VES-128 (NW) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 14:20  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	94.4		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-08  
Client ID: VES-128 (N) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 14:30  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	95.2		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

### SAMPLE RESULTS

Lab ID: L1721774-09  
Client ID: VES-128 (NE) 0-2  
Sample Location: BOSTON, MA  
Matrix: Soil

Date Collected: 06/26/17 14:50  
Date Received: 06/27/17  
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	87.1		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

Serial\_No:07051712:32  
**Lab Number:** L1721774  
**Report Date:** 07/05/17

### **Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

#### **Cooler Information**

<b>Cooler</b>	<b>Custody Seal</b>
A	Absent

#### **Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L1721774-01A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-02A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-03A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-04A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-05A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-06A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-07A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-08A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-09A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)

\*Values in parentheses indicate holding time in days

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

## GLOSSARY

### **Acronyms**

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### **Footnotes**

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### **Terms**

- Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.
- Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.
- Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.
- Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.
- Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

### **Data Qualifiers**

- A - Spectra identified as "Aldol Condensation Product".
- B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related

**Report Format:** Data Usability Report



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

**Data Qualifiers**

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

*Report Format:* Data Usability Report



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1721774  
**Report Date:** 07/05/17

## REFERENCES

- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at its own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

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**The following analytes are not included in our Primary NELAP Scope of Accreditation:**

**Westborough Facility**

EPA 624: m/p-xylene, o-xylene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide

EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

SM5310C: DW: Dissolved Organic Carbon

**Mansfield Facility**

SM 2540D: TSS

EPA 3005A NPW

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Biological Tissue Matrix**: EPA 3050B

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**The following analytes are included in our Massachusetts DEP Scope of Accreditation**

**Westborough Facility:**

**Drinking Water**

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C**, **SM4500CN-CE**, **EPA 180.1**,

**SM2130B**, **SM4500CI-D**, **SM2320B**, **SM2540C**, **SM4500H-B**

EPA 332: Perchlorate; **EPA 524.2**: THMs and VOCs; **EPA 504.1**: EDB, DBCP.

Microbiology: **SM9215B**; **SM9223-P/A**, **SM9223B-Colilert-QT**, **SM9222D**.

**Non-Potable Water**

**SM4500H,B**, **EPA 120.1**, **SM2510B**, **SM2540C**, **SM2320B**, **SM4500CL-E**, **SM4500F-BC**, **SM4500NH3-BH**, **EPA 350.1**: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, **SM4500NO3-F**, **EPA 353.2**: Nitrate-N, **EPA 351.1**, **SM4500P-E**, **SM4500P-B**, **E**, **SM4500SO4-E**, **SM5220D**, **EPA 410.4**, **SM5210B**, **SM5310C**, **SM4500CL-D**, **EPA 1664**, **EPA 420.1**, **SM4500-CN-CE**, **SM2540D**.

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.

Microbiology: **SM9223B-Colilert-QT**; **Enterolert-QT**, **SM9221E**.

**Mansfield Facility:**

**Drinking Water**

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8**: Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg**.

**Non-Potable Water**

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

EPA 245.1 Hg.

**SM2340B**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.



## CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab:

6/27/17

ALPHA Job #: L1721774

8 Walkup Drive  
Westboro, MA 01581  
Tel: 508-898-9220

320 Forbes Blvd  
Mansfield, MA 02048  
Tel: 508-822-9300

## Client Information

Client: VERTEX

Address: Congress St  
Boston MA 02114

Phone: 281-917-5360

Email: ksarson@vertexeng.com

b.gibbons@vertexeng.com

Additional Project Information:

## Project Information

Project Name: Suffolk Downs

Project Location: Boston MA

Project #: 43068

Project Manager: B. Gibbons

ALPHA Quote #:

## Turn-Around Time

 Standard RUSH (only confirmed if pre-approved!)

Date Due:

## Report Information - Data Deliverables

AADEEx

EMAIL

## Billing Information

 Same as Client info PO #:

## Regulatory Requirements &amp; Project Information Requirements

- Yes  No MA MCP Analytical Methods       Yes  No CT RCP Analytical Methods  
 Yes  No Matrix Spike Required on this SDG? (Required for MCP Inorganics)  
 Yes  No GW1 Standards (Info Required for Metals & EPH with Targets)  
 Yes  No NPDES RGP  
 Other State /Fed Program \_\_\_\_\_ Criteria \_\_\_\_\_

ANALYSIS	TESTS										TOTAL #
	VOC: <input type="checkbox"/> 8260	<input type="checkbox"/> 624	<input type="checkbox"/> 524.2	SVOC: <input type="checkbox"/> ABN	<input type="checkbox"/> PAH	METALS: <input type="checkbox"/> MCP 13	<input type="checkbox"/> MCP 14	<input type="checkbox"/> RCP 15	EPH: <input type="checkbox"/> RCR45	<input type="checkbox"/> RCR48	
VOC:	<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"/>	X
SVOC:	<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"/>	X
METALS:	<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"/>	X
EPH:	<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"/>	X
VRH:	<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"/>	X
PCB:	<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"/>	X
TPH:	<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"/>	X
PEST:	<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"/>	X
U/Soil/Soil	<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"/>	X
Fingerprint	<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"/>	

## SAMPLE INFO

- Filtration  
 Field  
 Lab to do  
  
 Preservation  
 Lab to do

Sample Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials							
		Date	Time									
21774-01	VES-128 (2-4)	6/26/17	1300	Soil	KS							1
2	VES-128(E)0-2		1310									1
3	VES-128 (SE)0-2		1320									1
4	VES-128 (S)0-2		1330									1
5	VES-128 (W)0-2		1400									1
6	VES-128 (SW)0-2		1350									1
7	VES-128 (NW)0-2		1420									1
8	VES-128 (N)0-2		1430									1
9	VES-128(NE)0-2		1450									1

## Container Type

P= Plastic

A= Amber glass

V= Vial

G= Glass

B= Bacteria cup

C= Cube

O= Other

E= Encore

D= BOD Bottle

## Preservative

A= None

B= HCl

C= HNO<sub>3</sub>D= H<sub>2</sub>SO<sub>4</sub>

E= NaOH

F= MeOH

G= NaHSO<sub>4</sub>H= Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>

I= Ascorbic Acid

J= NH<sub>4</sub>Cl

K= Zn Acetate

O= Other

## Container Type

A

## Preservative

A

Relinquished By:	Date/Time	Received By:	Date/Time
John Sengs AAL	6/27/17 10:25	John Sengs PAAL	6/27/17 10:25

All samples submitted are subject to  
Alpha's Terms and Conditions.  
See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)



## ANALYTICAL REPORT

Lab Number:	L1732917
Client:	Vertex Environmental Services, Inc. 400 Libbey Pkwy Weymouth, MA 02184
ATTN:	Bill Gibbons
Phone:	(617) 830-1540
Project Name:	SUFFOLK DOWNS
Project Number:	43068
Report Date:	09/18/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

<b>Alpha</b> <b>Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L1732917-01	VES-128 (0-2)	SOIL	EAST BOSTON, MA	09/15/17 15:00	09/15/17

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

### MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

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

<b>A response to questions G, H and I is required for "Presumptive Certainty" status</b>		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES

**For any questions answered "No", please refer to the case narrative section on the following page(s).**

Please note that sample matrix information is located in the Sample Results section of this report.



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

**Case Narrative (continued)**

MCP Related Narratives

Sample Receipt

In reference to question A:

The sample was received at the laboratory above the required temperature range. The sample was delivered directly from the sampling site but was not preserved with ice.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 09/18/17

## METALS



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

**SAMPLE RESULTS**

Lab ID: L1732917-01  
Client ID: VES-128 (0-2)  
Sample Location: EAST BOSTON, MA  
Matrix: Soil

Date Collected: 09/15/17 15:00  
Date Received: 09/15/17  
Field Prep: Not Specified  
TCLP/SPLP Ext. Date: 09/15/17 21:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>TCLP Metals by EPA 1311 - Mansfield Lab</b>											
Lead, TCLP	ND		mg/l	0.500	--	1	09/18/17 11:08	09/18/17 13:06	EPA 3015	1,6010C	AB



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

## Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Mansfield Lab for sample(s): 01 Batch: WG1042760-1									
Lead, TCLP	ND	mg/l	0.500	--	1	09/18/17 11:08	09/18/17 12:09	1,6010C	AB

### Prep Information

Digestion Method: EPA 3015

TCLP/SPLP Extraction Date: 09/15/17 21:00



# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

<b>Parameter</b>	<b>LCS</b>	<b>LCSD</b>	<b>%Recovery</b>		<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
	<b>%Recovery</b>	<b>Qual</b>	<b>%Recovery</b>	<b>Qual</b>			
TCLP Metals by EPA 1311 - Mansfield Lab Associated sample(s): 01 Batch: WG1042760-2							
Lead, TCLP	99	-	-	-	75-125	-	20

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

Serial\_No:09181714:20  
**Lab Number:** L1732917  
**Report Date:** 09/18/17

**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

**Cooler Information**

<b>Cooler</b>	<b>Custody Seal</b>
A	Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L1732917-01A	Glass 500ml/16oz unpreserved	A	NA		19.3	Y	Absent	-	
L1732917-01X	Plastic 120ml HNO3 preserved Extracts	A	NA		19.3	Y	Absent		PB-Cl(180)
L1732917-01X9	Tumble Vessel	A	NA		19.3	Y	Absent		-

**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

## GLOSSARY

### **Acronyms**

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### **Footnotes**

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### **Terms**

- Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.
- Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.
- Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.
- Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.
- Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

### **Data Qualifiers**

- A - Spectra identified as "Aldol Condensation Product".
- B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related

**Report Format:** Data Usability Report



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

**Data Qualifiers**

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

*Report Format:* Data Usability Report



**Project Name:** SUFFOLK DOWNS  
**Project Number:** 43068

**Lab Number:** L1732917  
**Report Date:** 09/18/17

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at its own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

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**The following analytes are not included in our Primary NELAP Scope of Accreditation:**

**Westborough Facility**

EPA 624: m/p-xylene, o-xylene  
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.  
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.  
EPA 300: DW: Bromide  
EPA 6860: NPW and SCM: Perchlorate  
EPA 9010: NPW and SCM: Amenable Cyanide Distillation  
EPA 9012B: NPW: Total Cyanide  
EPA 9050A: NPW: Specific Conductance  
SM3500: NPW: Ferrous Iron  
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.  
SM5310C: DW: Dissolved Organic Carbon

**Mansfield Facility**

SM 2540D: TSS  
EPA 3005A NPW  
EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.  
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.  
Biological Tissue Matrix: EPA 3050B

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**The following analytes are included in our Massachusetts DEP Scope of Accreditation**

**Westborough Facility:**

**Drinking Water**

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C**, **SM4500CN-CE**, **EPA 180.1**, **SM2130B**, **SM4500CI-D**, **SM2320B**, **SM2540C**, **SM4500H-B**  
EPA 332: Perchlorate; **EPA 524.2**: THMs and VOCs; **EPA 504.1**: EDB, DBCP.  
Microbiology: **SM9215B**; **SM9223-P/A**, **SM9223B-Colilert-QT**,**SM9222D**.

**Non-Potable Water**

**SM4500H,B**, **EPA 120.1**, **SM2510B**, **SM2540C**, **SM2320B**, **SM4500CL-E**, **SM4500F-BC**, **SM4500NH3-BH**, **EPA 350.1**: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, **SM4500NO3-F**, **EPA 353.2**: Nitrate-N, **EPA 351.1**, **SM4500P-E**, **SM4500P-B**, **E**, **SM4500SO4-E**, **SM5220D**, **EPA 410.4**, **SM5210B**, **SM5310C**, **SM4500CL-D**, **EPA 1664**, **EPA 420.1**, **SM4500-CN-CE**, **SM2540D**.  
**EPA 624**: Volatile Halocarbons & Aromatics,  
**EPA 608**: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs  
**EPA 625**: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.  
Microbiology: **SM9223B-Colilert-QT**; **Enterolert-QT**, **SM9221E**.

**Mansfield Facility:**

**Drinking Water**

**EPA 200.7**: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8**: Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg**.

**Non-Potable Water**

**EPA 200.7**: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.  
**EPA 200.8**: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.  
**EPA 245.1 Hg**.  
**SM2340B**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.



**APPENDIX B**  
**WASTE DISPOSAL DOCUMENTATION**

**VERTEX®**



**Massachusetts Department of Environmental Protection**  
**Bureau of Waste Site Cleanup**

**BWSC112**

Release Tracking Number

- LRA

**BILL OF LADING** (pursuant to 310 CMR 40.0030)

**A. LOCATION OF SITE OR DISPOSAL SITE WHERE REMEDIATION WASTE WAS GENERATED:**

1. Release Name/Location Aid: Soil Boring VES-128

2. Street Address: 525 William F. McClellan Highway

3. City/Town: East Boston

4. Zip Code: 02128

5. Check here if the disposal site that is the source of the release is Tier Classified. Check the current Tier Classification Category.

a. Tier I     b. Tier ID     c. Tier II

**B. THIS FORM IS BEING USED TO:** (check one: B1-B4):

1. Submit a **Bill of Lading (BOL)** to transport Remediation Waste to Temporary Storage or a Receiving Facility.

Response Actions associated with this BOL (check all that apply):

- |  |  |
|--|--|
| <input type="checkbox"/> a. Immediate Response Action (IRA)          | <input type="checkbox"/> e. Comprehensive Response Actions   |
| <input type="checkbox"/> b. Release Abatement Measure (RAM)          | <input checked="" type="checkbox"/> f. Limited Removal Action (LRA):<br>(must be retained pursuant to 310 CMR 40.0034(6); can't be submitted via eDEP) |
| <input type="checkbox"/> c. Downgradient Property Status (DPS)       | <input type="checkbox"/> g. Other _____  |
| <input type="checkbox"/> d. Utility Release Abatement Measure (URAM) |  |

2. Submit an Attestation of Completion of **Shipment to Temporary Storage** (Sections C, F and J are not required):

3. Submit an Attestation of Completion of **Shipment to a Receiving Facility** (Sections C, F and J are not required):

4. Certify that Remediation Waste Was Not Shipped, and the Bill of Lading is Void. (Sections C, D, E, and F are not required)

5. Date Bill of Lading submitted to the Department: \_\_\_\_\_ b. eDEP Transaction ID: \_\_\_\_\_  
(mm/dd/yyyy) \_\_\_\_\_

6. Period of Generation Associated with this Bill of Lading 09/18/2017 to 09/21/2017  
(mm/dd/yyyy) \_\_\_\_\_ (mm/dd/yyyy) \_\_\_\_\_

**(All sections of this transmittal form must be filled out unless otherwise noted)**

The Bill of Lading is not considered complete until the Attestation of Completion of Shipment is received by the Department.

**C. DESCRIPTION OF WASTE AND WASTE SOURCE:**

1. Contaminated Media /Debris (check all that apply):

- a. Soil     b. Groundwater     c. Surface Water     d. Sediment     e. Vegetation or Organic Debris  
 f. Demolition/Construction Waste     g. Inorganic Absorbent Materials     h. Other: \_\_\_\_\_

2. Uncontainerized Waste (check all that apply):

- a. Inorganic Absorbent Materials     b. Other: \_\_\_\_\_



**Massachusetts Department of Environmental Protection**  
**Bureau of Waste Site Cleanup**

**BWSC112**

Release Tracking Number

- LRA

**BILL OF LADING** (pursuant to 310 CMR 40.0030)

**C. DESCRIPTION OF WASTE AND WASTE SOURCE (cont.):**

3. Containerized Waste (check all that apply):

- a. Tank Bottoms/Sludges     b. Containers     c. Drums     d. Engineered Impoundments  
 e. Other: \_\_\_\_\_

4. Estimated Quantity: 10     Tons     Cu. Yds.     Gallons

5. Contaminant Source (check one):

- a. Transportation Accident     b. Underground Storage Tank     c. Brownfields Redevelopment  
 d. Other: \_\_\_\_\_

6. Type of Contaminant (check all that apply):

- a. Gasoline     b. Diesel Fuel     c. #2 Fuel Oil     d. #4 Fuel Oil     e. #6 Fuel Oil     f. Jet Fuel  
 g. Waste Oil     h. Kerosene     i. Chlorinated Solvents     j. Urban Fill     k. Other: Unknown

7. Constituents of Concern (check all that apply):

- a. As     b. Cd     c. Cr     d. Pb     e. Hg     f. EPH/TPH     g. VPH  
 h. PCBs     i. VOCs     j. SVOCs     k. Other: \_\_\_\_\_

8. If applicable, check the box for the Reportable Concentration Category of the site:

- a. RCS-1     b. RCS-2     c. RCGW-1     d. RCGW-2

9. Remediation Waste Characterization Documentation (check at least one):

- a. Site History Information     b. Sampling Analytical Methods and Procedures     c. Laboratory Data  
 d. Field Screening Data     e. Characterization Documentation previously submitted to the Department

i. Date submitted: \_\_\_\_\_ ii. Type of Documentation: \_\_\_\_\_  
(mm/dd/yyyy)

**D. TRANSPORTER OR COMMON CARRIER INFORMATION:**

1. Transporter/Common Carrier Name: Strategic Environmental Services, Inc.

2. Contact First Name: Paul 3. Last Name: Saccente

4. Street: 362 Putnam Hill Road 5. Title: \_\_\_\_\_

6. City/Town: Sutton 7. State: MA 8. Zip Code: 01590

9. Telephone: 860-266-2616 10. Ext: \_\_\_\_\_ 11. Email: mharris@strategic-es.com



Massachusetts Department of Environmental Protection  
Bureau of Waste Site Cleanup

BWSC112

Release Tracking Number

- LRA

**BILL OF LADING** (pursuant to 310 CMR 40.0030)

**E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION:**

1. Operator/Facility Name: Waste Management - Turnkey Landfill
2. Contact First Name: Ellen 3. Last Name: Bellio
4. Street: 90 Rochester Neck Road 5. Title: Waste Approvals Manager
6. City/Town: Rochester 7. State: NH 8. Zip Code: 03839
9. Telephone: 866-909-4458 10. Ext: \_\_\_\_\_ 11. Email: \_\_\_\_\_
12. Type of Facility: (Check one)
  - a. Temporary Storage i. Period of Temporary Storage: \_\_\_\_\_ to \_\_\_\_\_  
(mm/dd/yyyy) (mm/dd/yyyy)
  - ii. Reason for Temporary Storage: \_\_\_\_\_

b. Asphalt Batch/Hot Mix  c. Landfill/Disposal  d. Landfill/Structural Fill  e. Landfill/Daily Cover  
 f. Asphalt Batch/Cold Mix  g. Thermal Processing  h. Incinerator  i. Other: \_\_\_\_\_
13. Division of Hazardous Waste/Class A Permit Number: \_\_\_\_\_
14. Division of Solid Waste Permit Number: DES-SW-SP-95001
15. EPA Identification Number: \_\_\_\_\_

**F. LSP SIGNATURE AND STAMP:**

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this submittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief, the assessment action(s) undertaken to characterize the Remediation Waste which is (are) the subject of this submittal for acceptance at the facility identified in this submittal comply with applicable provisions of 310 CMR 40.0000, and such facility is permitted to accept Remediation Waste having the characteristics described in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 5217

2. First Name: William 3. Last Name: Gibbons

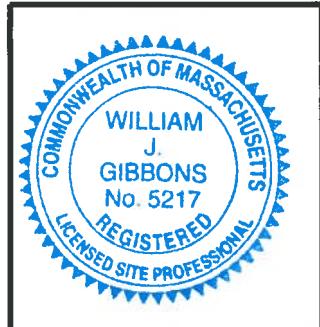
4. Telephone: 617-275-5407 5. Ext. \_\_\_\_\_

6. Email: bgiibbons@vertexeng.com

7. Signature: William J. Gibbons

8. Date: 09/18/2017  
(mm/dd/yyyy)

9. LSP Stamp:





**Massachusetts Department of Environmental Protection**  
*Bureau of Waste Site Cleanup*

**BWSC112**

**BILL OF LADING** (pursuant to 310 CMR 40.0030)

Release Tracking Number  
[ ] - LRA

**G. PERSON SUBMITTING BILL OF LADING:**

1. Check all that apply:  a. change in contact name  b. Change of address  c. change in person undertaking response actions
2. Name of Organization: The McClellan Highway Development Company, LLC
3. Contact First Name: Thomas 4. Last Name: O'Brien
5. Street: 525 William F. McClellan Highway 6. Title: Authorized Signatory
7. City/Town: East Boston 8. State: MA 9. Zip Code: 02128
10. Telephone: 617-248-8905 11. Ext: \_\_\_\_\_ 12. Email: tobrien@hyminvestments.com

**H. RELATIONSHIP TO SITE OF PERSON SUBMITTING BILL OF LADING:**

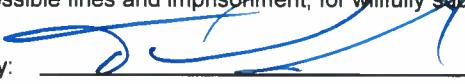
Check here to change relationship

1. RP or PRP:  a. Owner  b. Operator  c. Generator  d. Transporter  
 e. Other RP or PRP Specify: \_\_\_\_\_
2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c.21E, s.2): \_\_\_\_\_
3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c.21E, s.5(j)): \_\_\_\_\_
4. Any Other person Undertaking Response Actions: Specify Relationship: \_\_\_\_\_

**I. REQUIRED ATTACHMENTS AND SUBMITTALS :**

1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approvals issued by DEP or EPA. If the box is checked, you must attach a statement identifying the applicable provisions thereof.
2. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to [BWSC.eDEP@state.ma.us](mailto:BWSC.eDEP@state.ma.us)
3. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

**J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING :**

1. I, Thomas N. O'Brien, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.  

2. By: [Signature] 3. Title: Authorized Signatory
4. For: The McClellan Highway Development Company, LLC  
(Name of person or entity recorded in Section H) 5. Date: 09/19/2017  
(mm/dd/yyyy)



**Massachusetts Department of Environmental Protection**  
**Bureau of Waste Site Cleanup**

**BWSC112**

**BILL OF LADING** (pursuant to 310 CMR 40.0030)

Release Tracking Number  
 - LRA

**J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING (cont.) :**

6. Check here if the address of the person providing certification is different from address recorded in Section H.

7. Street: \_\_\_\_\_

8. City/Town: \_\_\_\_\_ 9. State: \_\_\_\_\_ 10. Zip Code: \_\_\_\_\_

11. Telephone: \_\_\_\_\_ 12. Ext: \_\_\_\_\_ 13. Email: \_\_\_\_\_

**YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER  
BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT  
SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT  
AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.**

Date Stamp (MassDEP USE ONLY):



# **Massachusetts Department of Environmental Protection**

## *Bureau of Waste Site Cleanup*

BWSC112A

**BILL OF LADING** (pursuant to 310 CMR 40.0030)

**Release Tracking Number**

**SUMMARY OF SHIPMENT SHEET** **OF**

- LRA

**A. SUMMARY OF SHIPMENT (To be filled out by the receiving facility upon receipt of Remediation Waste):**

**5. Totals Recorded on this Summary of Shipment Sheet:**

B.  Check here if additional BWSC112A BOL Summary of Shipment Sheets are needed.



**Massachusetts Department of Environmental Protection**  
**Bureau of Waste Site Cleanup**

**BWSC112B**

Release Tracking Number

- LRA

**BILL OF LADING (pursuant to 310 CMR 40.0030)**  
**SUMMARY SHEET SIGNATURE PAGE**

**A. ACKNOWLEDGEMENT OF RECEIPT OF REMEDIATION WASTE AT RECEIVING FACILITY OR TEMPORARY STORAGE:**

1. I, \_\_\_\_\_, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: \_\_\_\_\_ 3. Title: \_\_\_\_\_

4. For: \_\_\_\_\_ 5. Date: \_\_\_\_\_  
(mm/dd/yyyy)

6. Date of Final Shipment associated with this Bill of Lading: \_\_\_\_\_  
(mm/dd/yyyy)

**B. ACKNOWLEDGEMENT OF SHIPMENT AND RECEIPT OF REMEDIATION WASTE BY PERSON CONDUCTING RESPONSE ACTIONS ASSOCIATED WITH THIS BILL OF LADING:**

1. I, \_\_\_\_\_, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: \_\_\_\_\_ 3. Title: \_\_\_\_\_

4. For: \_\_\_\_\_  
(Name of person or entity recorded in Section G) 5. Date: \_\_\_\_\_  
(mm/dd/yyyy)

6. Check here if the address of the person providing certification is different from address recorded in BWSC112 Section H.

7. Street: \_\_\_\_\_

8. City/Town: \_\_\_\_\_ 9. State: \_\_\_\_\_ 10. Zip Code: \_\_\_\_\_

11. Telephone: \_\_\_\_\_ 12. Ext: \_\_\_\_\_ 13. Email: \_\_\_\_\_

14. Check here if attaching optional supporting documentation such as copies of Load Information Summary Sheets

Requested Facility: Turnkey LF Unsure   Profile Number: \_\_\_\_\_ Multiple Generator Locations (Attach Locations)    Request Certificate of Disposal    Renewal? Original Profile Number: \_\_\_\_\_**A. GENERATOR INFORMATION (MATERIAL ORIGIN)**

1. Generator Name: The McClellan Highway Development Co, LLC
2. Site Address: 525 William F. McClellan Highway:  
(City, State, ZIP) E. Boston, MA
3. County: Suffolk
4. Contact Name: Thomas O'Brien, Authorized Signatory
5. Email: tobrien@hyminvestments.com
6. Phone: 617-248-8905   7. Fax: \_\_\_\_\_
8. Generator EPA ID: \_\_\_\_\_  N/A
9. State ID: \_\_\_\_\_  N/A

**C. MATERIAL INFORMATION**

1. Common Name: Soil

Describe Process Generating Material:  See Attached

Contaminated soil removal. PCB source is unknown

2. Material Composition and Contaminants:  See Attached

1. Soil	-100
2. PCBs	23.1 mg/kg
3. see analytical	
4.	

Total comp. must be equal to or greater than 100% ≥100%

3. State Waste Codes: \_\_\_\_\_  N/A
4. Color: Brown
5. Physical State at 70°F:  Solid  Liquid  Other: \_\_\_\_\_
6. Free Liquid Range Percentage: \_\_\_\_\_ to \_\_\_\_\_  N/A
7. pH: \_\_\_\_\_ to \_\_\_\_\_  N/A
8. Strong Odor:  Yes  No   Describe: \_\_\_\_\_
9. Flash Point:  <140°F  140°–199°F  ≥200°  N/A

**E. ANALYTICAL AND OTHER REPRESENTATIVE INFORMATION**

1. Analytical attached  Yes

Please identify applicable samples and/or lab reports:

L1704984-12, and L1732917-01

2. Other information attached (such as MSDS)?  Yes

**G. GENERATOR CERTIFICATION (PLEASE READ AND CERTIFY BY SIGNATURE)**

By signing this EZ Profile™ form, I hereby certify that all information submitted in this and all attached documents contain true and accurate descriptions of this material, and that all relevant information necessary for proper material characterization and to identify known and suspected hazards has been provided. Any analytical data attached was derived from a sample that is representative as defined in 40 CFR 261 - Appendix 1 or by using an equivalent method. All changes occurring in the character of the material (i.e., changes in the process or new analytical) will be identified by the Generator and be disclosed to Waste Management prior to providing the material to Waste Management.

If I am an agent signing on behalf of the Generator, I have confirmed with the Generator that information contained in this Profile is accurate and complete.

Name (Print): Thomas N. O'Brien Date: 9/19/2017  
Title: Authorized Signatory  
Company: The McClellan Highway Development Co, Inc.

**Certification Signature**



# EZ Profile™ Addendum



Only complete this Addendum if prompted by responses on EZ Profile™ (page 1) or to provide additional information. Sections and question numbers correspond to EZ Profile™.

Profile Number: \_\_\_\_\_

## C. MATERIAL INFORMATION

Describe Process Generating Material (Continued from page 1):

If more space is needed, please attach additional pages.

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Material Composition and Contaminants (Continued from page 1):

If more space is needed, please attach additional pages.

5.	
6.	
7.	
8.	
9.	

Total composition must be equal to or greater than 100% ≥100%

## D. REGULATORY INFORMATION

Only questions with a "Yes" response in Section D on the EZ Profile™ form (page 1) need to be answered here.

1. EPA Hazardous Waste

a. Please list all USEPA listed and characteristic waste code numbers:

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b. Is the material subject to the Alternative Debris standards (40 CFR 268.45)?  Yes  No

c. Is the material subject to the Alternative Soil standards (40 CFR 268.49)? → If Yes, complete question 4.  Yes  No

d. Is the material exempt from Subpart CC Controls (40 CFR 264.1083)?  Yes  No

→ If Yes, please check one of the following:

Waste meets LDR or treatment exemptions for organics (40 CFR 264.1082(c)(2) or (c)(4))

Waste contains VOCs that average <500 ppmw (CFR 264.1082(c)(1)) – will require annual update.

2. State Hazardous Waste → Please list all state waste codes: \_\_\_\_\_

3. For material that is Treated, Delisted, or Excluded → Please indicate the category, below:

Delisted Hazardous Waste  Excluded Waste under 40 CFR 261.4 → Specify Exclusion: \_\_\_\_\_

Treated Hazardous Waste Debris  Treated Characteristic Hazardous Waste → If checked, complete question 4.

4. Underlying Hazardous Constituents → Please list all Underlying Hazardous Constituents:

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5. Industries regulated under Benzene NESHAP include petroleum refineries, chemical manufacturing plants, coke by-product recovery plants, and TSDFs.

a. Are you a TSDF? → If yes, please complete Benzene NESHAP questionnaire. If not, continue.  Yes  No

b. Does this material contain benzene?  Yes  No

1. If yes, what is the flow weighted average concentration? \_\_\_\_\_ ppmw

c. What is your facility's current total annual benzene quantity in Megagrams?  <1 Mg  1–9.99 Mg  ≥10 Mg

d. Is this waste soil from a remediation?  Yes  No

1. If yes, what is the benzene concentration in remediation waste? \_\_\_\_\_ ppmw

e. Does the waste contain >10% water/moisture?  Yes  No

f. Has material been treated to remove 99% of the benzene or to achieve <10 ppmw?  Yes  No

g. Is material exempt from controls in accordance with 40 CFR 61.342?  Yes  No

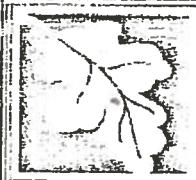
→ If yes, specify exemption: \_\_\_\_\_

h. Based on your knowledge of your waste and the BWON regulations, do you believe that this waste stream is subject to treatment and control requirements at an off-site TSDF?  Yes  No

6. 40 CFR 63 GGGGG → Does the material contain <500 ppmw VOHAPs at the point of determination?  Yes  No

7. CERCLA or State-Mandated clean up → Please submit the Record of Decision or other documentation with process information to assist others in the evaluation for proper disposal. A "Determination of Acceptability" may be needed for CERCLA wastes not going to a CERCLA approved facility.

8. NRC or state regulated radioactive or NORM Waste → Please identify Isotopes and pCi/g: \_\_\_\_\_



Massachusetts Department of Environmental Protection  
Bureau of Waste Site Cleanup

282 Pro # 495599NH

BILL OF LADING Transport Log Sheet

Page \_\_\_\_\_ OF \_\_\_\_\_

Release Tracking Number

- LRA

0159

I. LOAD INFORMATION:		Signature of Transporter Representative: 	Receiving Facility/Temporary Storage Representative: 
Load 1:	Date of Shipment:	Time of Shipment: 9/21/17 6:00 <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM	Date of Receipt: 9/21/17 <input type="checkbox"/> AM <input type="checkbox"/> PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):	
Load 2:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:	
Date of Shipment:	Time of Shipment: <input type="checkbox"/> AM <input type="checkbox"/> PM	Date of Receipt:	Time of Receipt: <input type="checkbox"/> AM <input type="checkbox"/> PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):	
Load 3:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:	
Date of Shipment:	Time of Shipment: <input type="checkbox"/> AM <input type="checkbox"/> PM	Date of Receipt:	Time of Receipt: <input type="checkbox"/> AM <input type="checkbox"/> PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):	
Load 4:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:	
Date of Shipment:	Time of Shipment: <input type="checkbox"/> AM <input type="checkbox"/> PM	Date of Receipt:	Time of Receipt: <input type="checkbox"/> AM <input type="checkbox"/> PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):	
Load 5:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:	
Date of Shipment:	Time of Shipment: <input type="checkbox"/> AM <input type="checkbox"/> PM	Date of Receipt:	Time of Receipt: <input type="checkbox"/> AM <input type="checkbox"/> PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):	
Load 6:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:	
Date of Shipment:	Time of Shipment: <input type="checkbox"/> AM <input type="checkbox"/> PM	Date of Receipt:	Time of Receipt: <input type="checkbox"/> AM <input type="checkbox"/> PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):	
J. LOG SHEET VOLUME INFORMATION:		Total Volume Recorded This Page (cu. yds./tons)	
		Total Carried Forward (cu. yds./tons):	
		Total Carried Forward and This Page (cu. yds./tons):	



Turnkey Landfill  
30 Rochester Neck Rd  
Rochester, NH, 03839  
Ph: (800) 963-4776

Original  
Ticket# 1183472

Customer Name STRATEGICENVIRONMENTAL STRATE Carrier GRAF GRAF  
Ticket Date 09/21/2017 Vehicle# 282 Volume  
Payment Type Credit Account Container  
Manual Ticket# Driver  
Hauling Ticket# Check#  
Route Billing # 0113496  
State Waste Code Gen EPA ID NOT REQUIRED  
Manifest + PO  
Destination Profile 495599NH (CONTAMINATED SOIL (DISPO  
Generator NE-THEMCLELLANHWYDEVELOPMENT Operator Name Paula Bain

Time	Scale	Operator	Inbound	Gross	51100 lb
In 09/21/2017 06:52:0	scale 1 in eric metzler		Tare	34640 lb	
Out 09/21/2017 07:17:0	scale 2 ou Paula Bain		Net	16460 lb	
			Tons	8.23	

Comments

Product	LD%	Qty	UOM	Rate	Fee	Amount	Origin
1 Cont Soil Met-Tons	100	8.23	Tons				MA
2 EVF-P-Standard Env	100		%				MA
3 RCR-P-Regulatory C	100		%				MA
4 FUEL-Fuel Surcharg	100		%				MA

Total Fees  
Total Ticket

SOLID WASTE TRANSPORTER DECLARATION: I certify under penalty of perjury that  
the information provided is true and correct to the best of my knowledge and belief.  
TO THE BEST OF MY KNOWLEDGE THIS TRUCK CONTAINS NO HAZARDOUS OR UNACCEPTABLE WASTE.

Driver's Signature



**APPENDIX C**  
**PHOTOGRAPHIC DOCUMENTATION**

**VERTEX®**

**Photographic Documentation  
Suffolk Downs  
525 William F. McClellan Highway  
Boston, Massachusetts  
Project No. 43068**

**Photograph: 1**

**Description:**

Area of Limited Removal Action (LRA) Excavation,  
September 20, 2017



**Photograph: 2**

**Description:**

Extent of LRA Excavation,  
September 20, 2017



Photographs taken by Elizabeth Phelps on September 20, 2017



**Photographic Documentation  
Suffolk Downs  
525 William F. McClellan Highway  
Boston, Massachusetts  
Project No. 43068**

**Photograph: 3**

**Description:**

Backfilling of LRA  
Excavation Area,  
September 20, 2017



**Photograph: 4**

**Description:**

Restored LRA Area,  
September 20, 2017



Photographs taken by Elizabeth Phelps on September 20, 2017