ANALYTICAL REPORT

Lab Number:	L1609539
Client:	Apex labs 12232 SW Garden Place Tigard, OR 97223
ATTN:	Philip Nerenberg
Phone:	(503) 718-2323
Project Name:	A6C1076
Project Number:	Not Specified
Report Date:	04/22/16

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), ME (MA00030), PA (68-02089), VA (460194), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), USFWS (Permit #LE2069641), USDA (Permit #P330-11-00109), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1609539-01	5237-160328-DC-SED063	SEDIMENT	Not Specified	03/28/16 10:30	04/01/16
L1609539-02	5237-160328-DC-SED065	SEDIMENT	Not Specified	03/28/16 11:00	04/01/16
L1609539-03	5237-160328-DC-SED068	SEDIMENT	Not Specified	03/28/16 11:30	04/01/16
L1609539-04	5237-160328-DC-SED070	SEDIMENT	Not Specified	03/28/16 12:05	04/01/16
L1609539-05	5237-160328-DC-SED072	SEDIMENT	Not Specified	03/28/16 12:30	04/01/16
L1609539-06	5237-160328-DC-SED075	SEDIMENT	Not Specified	03/28/16 12:50	04/01/16
L1609539-07	5237-160328-DC-SED077	SEDIMENT	Not Specified	03/28/16 12:50	04/01/16
L1609539-08	5237-160328-DC-SED077D	SEDIMENT	Not Specified	03/28/16 13:15	04/01/16
L1609539-09	5237-160328-DC-SED082	SEDIMENT	Not Specified	03/28/16 13:45	04/01/16
L1609539-10	5237-160328-DC-SED085	SEDIMENT	Not Specified	03/28/16 14:15	04/01/16
L1609539-11	5237-160328-DC-SED087	SEDIMENT	Not Specified	03/28/16 14:45	04/01/16

Project Name: A6C1076 **Lab Number:** L1609539
Project Number: Not Specified **Report Date:** 04/22/16

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: A6C1076 **Lab Number:** L1609539
Project Number: Not Specified **Report Date:** 04/22/16

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

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: Elizabeth Porta

Title: Technical Director/Representative Date: 04/22/16

INORGANICS
&
MISCELLANEOUS

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

SAMPLE RESULTS

Lab ID: L1609539-01
Client ID: 5237-160328-DC-SED063
Sample Location: Not Specified
Matrix: Sediment

Date Collected: 03/28/16 10:30
Date Received: 04/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 2)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 3)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 4)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Average)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

SAMPLE RESULTS

Lab ID: L1609539-02
Client ID: 5237-160328-DC-SED065
Sample Location: Not Specified
Matrix: Sediment

Date Collected: 03/28/16 11:00
Date Received: 04/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.050		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 2)	0.055		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 3)	0.058		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 4)	0.064		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Average)	0.057		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

SAMPLE RESULTS

Lab ID: L1609539-03
Client ID: 5237-160328-DC-SED068
Sample Location: Not Specified
Matrix: Sediment

Date Collected: 03/28/16 11:30
Date Received: 04/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.078		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 2)	0.112		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 3)	0.083		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 4)	0.094		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Average)	0.092		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

SAMPLE RESULTS

Lab ID: L1609539-04
Client ID: 5237-160328-DC-SED070
Sample Location: Not Specified
Matrix: Sediment

Date Collected: 03/28/16 12:05
Date Received: 04/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 2)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 3)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 4)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Average)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

SAMPLE RESULTS

Lab ID: L1609539-05
Client ID: 5237-160328-DC-SED072
Sample Location: Not Specified
Matrix: Sediment

Date Collected: 03/28/16 12:30
Date Received: 04/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 2)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 3)	0.053		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 4)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Average)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

SAMPLE RESULTS

Lab ID: L1609539-06
Client ID: 5237-160328-DC-SED075
Sample Location: Not Specified
Matrix: Sediment

Date Collected: 03/28/16 12:50
Date Received: 04/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 2)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 3)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 4)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Average)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

SAMPLE RESULTS

Lab ID: L1609539-07
Client ID: 5237-160328-DC-SED077
Sample Location: Not Specified
Matrix: Sediment

Date Collected: 03/28/16 12:50
Date Received: 04/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 2)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 3)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 4)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Average)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

SAMPLE RESULTS

Lab ID: L1609539-08
Client ID: 5237-160328-DC-SED077D
Sample Location: Not Specified
Matrix: Sediment

Date Collected: 03/28/16 13:15
Date Received: 04/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 2)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 3)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 4)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Average)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

SAMPLE RESULTS

Lab ID: L1609539-09
Client ID: 5237-160328-DC-SED082
Sample Location: Not Specified
Matrix: Sediment

Date Collected: 03/28/16 13:45
Date Received: 04/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 2)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 3)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 4)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Average)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

SAMPLE RESULTS

Lab ID: L1609539-10
Client ID: 5237-160328-DC-SED085
Sample Location: Not Specified
Matrix: Sediment

Date Collected: 03/28/16 14:15
Date Received: 04/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM
% Soot (Rep 2)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM
% Soot (Rep 3)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM
% Soot (Rep 4)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM
% Soot (Average)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

SAMPLE RESULTS

Lab ID: L1609539-11
Client ID: 5237-160328-DC-SED087
Sample Location: Not Specified
Matrix: Sediment

Date Collected: 03/28/16 14:45
Date Received: 04/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM
% Soot (Rep 2)	0.051		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM
% Soot (Rep 3)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM
% Soot (Rep 4)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM
% Soot (Average)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM

Project Name: A6C1076 **Lab Number:** L1609539

Project Number: Not Specified **Report Date:** 04/22/16

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab for sample(s): 01-09 Batch: WG886298-1										
% Soot (Rep 1)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 2)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 3)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Rep 4)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
% Soot (Average)	ND		%	0.050	NA	1	-	04/21/16 10:26	91,-	CM
General Chemistry - Mansfield Lab for sample(s): 10-11 Batch: WG886401-1										
% Soot (Rep 1)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM
% Soot (Rep 2)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM
% Soot (Rep 3)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM
% Soot (Rep 4)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM
% Soot (Average)	ND		%	0.050	NA	1	-	04/22/16 11:17	91,-	CM

Matrix Spike Analysis
Batch Quality Control

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG886298-4 QC Sample: L1609563-03 Client ID: MS Sample												
% Soot (Rep 1)	ND	0.929	0.934	100		-	-		75-125	-		25
% Soot (Rep 2)	ND	0.793	0.812	102		-	-		75-125	-		25
% Soot (Rep 3)	ND	0.885	0.892	101		-	-		75-125	-		25
% Soot (Rep 4)	ND	1.1	1.10	100		-	-		75-125	-		25
General Chemistry - Mansfield Lab Associated sample(s): 10-11 QC Batch ID: WG886401-4 QC Sample: L1609539-11 Client ID: 5237-160328-DC-SED087												
% Soot (Rep 1)	ND	0.73	0.767	105		-	-		75-125	-		25
% Soot (Rep 2)	0.051	0.577	0.672	108		-	-		75-125	-		25
% Soot (Rep 3)	ND	0.63	0.741	118		-	-		75-125	-		25
% Soot (Rep 4)	ND	0.865	0.988	114		-	-		75-125	-		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG886298-3 QC Sample: L1609563-03 Client ID: DUP Sample						
% Soot (Rep 1)	ND	ND	%	NC		25
% Soot (Rep 2)	ND	ND	%	NC		25
% Soot (Rep 3)	ND	ND	%	NC		25
% Soot (Rep 4)	ND	ND	%	NC		25
% Soot (Average)	ND	ND	%	NC		25
General Chemistry - Mansfield Lab Associated sample(s): 10-11 QC Batch ID: WG886401-3 QC Sample: L1609539-11 Client ID: 5237-160328-DC-SED087						
% Soot (Rep 1)	ND	ND	%	NC		25
% Soot (Rep 2)	0.051	ND	%	NC		25
% Soot (Rep 3)	ND	ND	%	NC		25
% Soot (Rep 4)	ND	ND	%	NC		25
% Soot (Average)	ND	ND	%	NC		25

Project Name: A6C1076 **Lab Number:** L1609539

Project Number: Not Specified **Report Date:** 04/22/16

S.R.M. Standard Quality Control

Standard Reference Material (SRM): WG886298-2

Parameter	% Recovery	Qual	QC Criteria
% Soot (Rep 1)	104		75-125
% Soot (Rep 2)	113		75-125
% Soot (Rep 3)	98		75-125
% Soot (Rep 4)	106		75-125

Project Name: A6C1076 **Lab Number:** L1609539

Project Number: Not Specified **Report Date:** 04/22/16

S.R.M. Standard Quality Control

Standard Reference Material (SRM): WG886401-2

Parameter	% Recovery	Qual	QC Criteria
% Soot (Rep 1)	95		75-125
% Soot (Rep 2)	115		75-125
% Soot (Rep 3)	113		75-125
% Soot (Rep 4)	116		75-125

Project Name: A6C1076
Project Number: Not Specified

Lab Number: L1609539
Report Date: 04/22/16

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1609539-01A	Glass 120ml/4oz unpreserved	A	N/A	5.4	Y	Absent	A2-SOOT-LK-4REPS(14)
L1609539-02A	Glass 120ml/4oz unpreserved	A	N/A	5.4	Y	Absent	A2-SOOT-LK-4REPS(14)
L1609539-03A	Glass 120ml/4oz unpreserved	A	N/A	5.4	Y	Absent	A2-SOOT-LK-4REPS(14)
L1609539-04A	Glass 120ml/4oz unpreserved	A	N/A	5.4	Y	Absent	A2-SOOT-LK-4REPS(14)
L1609539-05A	Glass 120ml/4oz unpreserved	A	N/A	5.4	Y	Absent	A2-SOOT-LK-4REPS(14)
L1609539-06A	Glass 120ml/4oz unpreserved	A	N/A	5.4	Y	Absent	A2-SOOT-LK-4REPS(14)
L1609539-07A	Glass 120ml/4oz unpreserved	A	N/A	5.4	Y	Absent	A2-SOOT-LK-4REPS(14)
L1609539-08A	Glass 120ml/4oz unpreserved	A	N/A	5.4	Y	Absent	A2-SOOT-LK-4REPS(14)
L1609539-09A	Glass 120ml/4oz unpreserved	A	N/A	5.4	Y	Absent	A2-SOOT-LK-4REPS(14)
L1609539-10A	Glass 120ml/4oz unpreserved	A	N/A	5.4	Y	Absent	A2-SOOT-LK-4REPS(14)
L1609539-11A	Glass 120ml/4oz unpreserved	A	N/A	5.4	Y	Absent	A2-SOOT-LK-4REPS(14)

*Values in parentheses indicate holding time in days

Project Name:	A6C1076	**Lab Number:**	L1609539
Project Number:	Not Specified	**Report Date:**	04/22/16

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.

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

Report Format: DU Report with 'J' Qualifiers

Project Name:	A6C1076	**Lab Number:**	L1609539
Project Number:	Not Specified	**Report Date:**	04/22/16

Data Qualifiers

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. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

91 Analysis of Soot following ES&T publications by Accardi-Dey and Gschwend, 2003; and Gustafsson (et. al.), 1997.

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 it's 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

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

Westborough Facility
EPA 524.2: 1,2-Dibromo-3-chloropropane, 1,2-Dibromoethane, m/p-xylene, o-xylene
EPA 624: 2-Butanone (MEK), 1,4-Dioxane, tert-Amylmethyl Ether, tert-Butyl Alcohol, m/p-xylene, o-xylene
EPA 625: Aniline, Benzoic Acid, Benzyl Alcohol, 4-Chloroaniline, 3-Methylphenol, 4-Methylphenol.
EPA 1010A: NPW: Ignitability
EPA 6010C: NPW: Strontium; SCM: Strontium
EPA 8151A: NPW: 2,4-DB, Dicamba, Dichloroprop, MCPA, MCPP; SCM: 2,4-DB, Dichloroprop, MCPA, MCPP
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene, Isopropanol; SCM: Iodomethane (methyl iodide), Methyl methacrylate (soil); 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Pentachloronitrobenzene, 1-Methylnaphthalene, Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Pentachloronitrobenzene, 1-Methylnaphthalene, Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 9010: NPW: Amenable Cyanide Distillation, Total Cyanide Distillation
EPA 9038: NPW: Sulfate
EPA 9050A: NPW: Specific Conductance
EPA 9056: NPW: Chloride, Nitrate, Sulfate
EPA 9065: NPW: Phenols
EPA 9251: NPW: Chloride
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
EPA 8270D: NPW: Biphenyl; SCM: Biphenyl, Caprolactam
EPA 8270D-SIM Isotope Dilution: SCM: 1,4-Dioxane
SM 2540D: TSS
SM2540G: SCM: Percent Solids
EPA 1631E: SCM: Mercury
EPA 7474: SCM: Mercury
EPA 8081B: NPW and SCM: Mirex, Hexachlorobenzene.
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA 8270-SIM: NPW and SCM: Alkylated PAHs.
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, n-Butylbenzene, n-Propylbenzene, sec-Butylbenzene, tert-Butylbenzene.
Biological Tissue Matrix: ***8270D-SIM; 3050B; 3051A; 7471B; 8081B; 8082A; 6020A:*** Lead***; 8270D:*** bis(2-ethylhexyl)phthalate, Butylbenzylphthalate, Diethyl phthalate, Dimethyl phthalate, Di-n-butyl phthalate, Di-n-octyl phthalate, Fluoranthene, Pentachlorophenol.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water
EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7**: Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;
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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

Non-Potable Water
EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;
EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;
EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F,**
EPA 353.2: Nitrate-N**, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, 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, SM9222D-MF**.

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

L1609539

LD 3/31/16

SUBCONTRACT ORDER

Apex Laboratories

A6C1076

SENDING LABORATORY:

Apex Laboratories
12232 S.W. Garden Place
Tigard, OR 97223
Phone: (503) 718-2323
Fax: (503) 718-0333
Project Manager: Philip Nerenberg

RECEIVING LABORATORY:

Alpha Analytical, INC
320 Forbes Boulevard
Mansfield, MA 02048
Phone :(508) 822-9300
Fax:

09539

Sediment 0 to 6 bgs

Sample Name: 5237-160328-DC-SED063 **Sedimen** **Sampled: 03/28/16 10:30** (A6C1076-02)

.01

Analysis	Due	Expires	Comments
Subcontract Outside	04/11/16 17:00	09/24/16 10:30	Carbon Black-Alpha Analytical Level IV DP needed
Containers Supplied: (F)4 oz Glass Jar			

Sediment 0 to 6 bgs

Sample Name: 5237-160328-DC-SED065 **Sedimen** **Sampled: 03/28/16 11:00** (A6C1076-04)

.02

Analysis	Due	Expires	Comments
Subcontract Outside	04/11/16 17:00	09/24/16 11:00	Carbon Black-Alpha Analytical Level IV DP needed
Containers Supplied: (F)4 oz Glass Jar			

Sediment 0 to 6 bgs

Sample Name: 5237-160328-DC-SED068 **Sedimen** **Sampled: 03/28/16 11:30** (A6C1076-06)

.03

Analysis	Due	Expires	Comments
Subcontract Outside	04/11/16 17:00	09/24/16 11:30	Carbon Black-Alpha Analytical Level IV DP needed
Containers Supplied: (D)4 oz Glass Jar			

Sediment 0 to 6 bgs

Sample Name: 5237-160328-DC-SED070 **Sedimen** **Sampled: 03/28/16 12:05** (A6C1076-08)

.04

Analysis	Due	Expires	Comments
Subcontract Outside	04/11/16 17:00	09/24/16 12:05	Carbon Black-Alpha Analytical Level IV DP needed
Containers Supplied: (D)4 oz Glass Jar			

Standard TAT

Level IV DP

Marissa Kapa 3/31/16
Released By Date

UPS (Shipper)
Received By Date

UPS (Shipper)
Released By Date

Kim Parker - AAL 4/1/16 13:30
Received By Date

SUBCONTRACT ORDER

Apex Laboratories

A6C1076

L1609539

Sample Name: 5237-160328-DC-SED072		Sedimen	Sampled: Sediment 0 to 6 bgs 03/28/16 12:30	(A6C1076-10)
.05 Analysis	Due	Expires	Comments	
Subcontract Outside	04/11/16 17:00	09/24/16 12:30	Carbon Black-Alpha Analytical Level IV DP needed	
Containers Supplied: (D)4 oz Glass Jar				

Sample Name: 5237-160328-DC-SED075		Sedimen	Sampled: Sediment 0 to 6 bgs 03/28/16 12:50	(A6C1076-12)
.06 Analysis	Due	Expires	Comments	
Subcontract Outside	04/11/16 17:00	09/24/16 12:50	Carbon Black-Alpha Analytical Level IV DP needed	
Containers Supplied: (D)4 oz Glass Jar				

Sample Name: 5237-160328-DC-SED077		Sedimen	Sampled: Sediment 0 to 6 bgs 03/28/16 12:50	(A6C1076-14)
.07 Analysis	Due	Expires	Comments	
Subcontract Outside	04/11/16 17:00	09/24/16 12:50	Carbon Black-Alpha Analytical Level IV DP needed	
Containers Supplied: (D)4 oz Glass Jar				

Sample Name: 5237-160328-DC-SED077D		Sedimen	Sampled: Sediment 0 to 6 bgs 03/28/16 13:15	(A6C1076-16)
.08 Analysis	Due	Expires	Comments	
Subcontract Outside	04/11/16 17:00	09/24/16 13:15	Carbon Black-Alpha Analytical Level IV DP needed	
Containers Supplied: (D)4 oz Glass Jar				

Sample Name: 5237-160328-DC-SED082		Sedimen	Sampled: Sediment 0 to 6 bgs 03/28/16 13:45	(A6C1076-18)
.09 Analysis	Due	Expires	Comments	
Subcontract Outside	04/11/16 17:00	09/24/16 13:45	Carbon Black-Alpha Analytical Level IV DP needed	
Containers Supplied: (D)4 oz Glass Jar				

Released By	Date	Received By	Date
Chrissa Kyn	3/31/16	UPS (Shipper)	
UPS (Shipper)		Kim Barkley -AAL	4/1/16 13:32

SUBCONTRACT ORDER

Apex Laboratories

A6C1076

L1609589

Sediment 0 to 6 bgs

Sample Name: 5237-160328-DC-SED085 **Sedimen** **Sampled: 03/28/16 14:15** (A6C1076-20)

.10

Analysis	Due	Expires	Comments
Subcontract Outside	04/11/16 17:00	09/24/16 14:15	Carbon Black-Alpha Analytical Level IV DP needed
Containers Supplied: (D)4 oz Glass Jar			

Sediment 0 to 6 bgs

Sample Name: 5237-160328-DC-SED087 **Sedimen** **Sampled: 03/28/16 14:45** (A6C1076-22)

.11

Analysis	Due	Expires	Comments
Subcontract Outside	04/11/16 17:00	09/24/16 14:45	Carbon Black-Alpha Analytical Level IV DP needed
Containers Supplied: (F)4 oz Glass Jar			

Marissa Keya 3/31/16 — UPS (Shipper)

Released By Date Received By Date

UPS (Shipper) — [signature] 4/1/16 13:32

Released By Date Received By Date