



## ANALYTICAL REPORT

Lab Number:	L1528896
Client:	CES, Inc. 465 South Main Street Brewer, ME 04412
ATTN:	Chris Bagley
Phone:	(207) 989-4824
Project Name:	AIM-ARUNDEL
Project Number:	10778.019
Report Date:	11/13/15

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Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), VA (460195), MD (348), IL (200077), NC (666), TX (T104704476), DOD (L2217), USDA (Permit #P-330-11-00240).

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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:** AIM-ARUNDEL  
**Project Number:** 10778.019

**Lab Number:** L1528896  
**Report Date:** 11/13/15

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L1528896-01	CONTAINER COMPOSITE #1	SOIL	ARUNDEL, MAINE	11/04/15 13:45	11/06/15

**Project Name:** AIM-ARUNDEL  
**Project Number:** 10778.019

**Lab Number:** L1528896  
**Report Date:** 11/13/15

### 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 all of the requirements of NELAC, for all NELAC accredited parameters. 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.

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:

 Cristin Walker

Title: Technical Director/Representative

Date: 11/13/15

## METALS

Project Name: AIM-ARUNDEL

Lab Number: L1528896

Project Number: 10778.019

Report Date: 11/13/15

## SAMPLE RESULTS

Lab ID: L1528896-01

Date Collected: 11/04/15 13:45

Client ID: CONTAINER COMPOSITE #1

Date Received: 11/06/15

Sample Location: ARUNDEL, MAINE

Field Prep: Not Specified

Matrix: Soil

TCLP/SPLP Ext. Date: 11/10/15 16:03

Percent Solids: 68%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Westborough Lab											
Chromium, TCLP	ND		mg/l	0.20	--	1	11/11/15 13:13	11/11/15 17:57	EPA 3015	1,6010C	PS
Lead, TCLP	0.54		mg/l	0.50	--	1	11/11/15 13:13	11/11/15 17:57	EPA 3015	1,6010C	PS



Project Name: AIM-ARUNDEL

Lab Number: L1528896

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## 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 - Westborough Lab for sample(s): 01 Batch: WG839572-1									
Chromium, TCLP	ND	mg/l	0.20	--	1	11/11/15 13:13	11/11/15 17:13	1,6010C	PS
Lead, TCLP	ND	mg/l	0.50	--	1	11/11/15 13:13	11/11/15 17:13	1,6010C	PS

### Prep Information

Digestion Method: EPA 3015

TCLP/SPLP Extraction Date: 11/10/15 16:03

## Lab Control Sample Analysis

Batch Quality Control

Project Name: AIM-ARUNDEL

Project Number: 10778.019

Lab Number: L1528896

Report Date: 11/13/15

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
TCLP Metals by EPA 1311 - Westborough Lab Associated sample(s): 01 Batch: WG839572-2								
Chromium, TCLP	90		-		75-125	-		20
Lead, TCLP	98		-		75-125	-		20

### Matrix Spike Analysis Batch Quality Control

**Project Name:** AIM-ARUNDEL  
**Project Number:** 10778.019

**Lab Number:** L1528896  
**Report Date:** 11/13/15

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
TCLP Metals by EPA 1311 - Westborough Lab Associated sample(s): 01    QC Batch ID: WG839572-4    QC Sample: L1528921-01    Client ID: MS Sample												
Chromium, TCLP	ND	2	1.8	90	-	-	-	-	75-125	-	-	20
Lead, TCLP	0.65	5.1	5.6	97	-	-	-	-	75-125	-	-	20

## Lab Duplicate Analysis

Batch Quality Control

Project Name: AIM-ARUNDEL

Project Number: 10778.019

Lab Number: L1528896

Report Date: 11/13/15

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Westborough Lab Associated sample(s): 01 QC Batch ID: WG839572-3 QC Sample: L1528921-01 Client ID: DUP Sample						
Chromium, TCLP	ND	ND	mg/l	NC		20
Lead, TCLP	0.65	0.62	mg/l	5		20

# **INORGANICS & MISCELLANEOUS**

Project Name: AIM-ARUNDEL

Lab Number: L1528896

Project Number: 10778.019

Report Date: 11/13/15

**SAMPLE RESULTS**

Lab ID: L1528896-01  
 Client ID: CONTAINER COMPOSITE #1  
 Sample Location: ARUNDEL, MAINE  
 Matrix: Soil

Date Collected: 11/04/15 13:45  
 Date Received: 11/06/15  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	68.1		%	0.100	NA	1	-	11/09/15 23:55	30,2540G	RT



## Lab Duplicate Analysis

Batch Quality Control

Project Name: AIM-ARUNDEL

Project Number: 10778.019

Lab Number: L1528896

Report Date: 11/13/15

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG838974-1 QC Sample: L1529083-01 Client ID: DUP Sample						
Solids, Total	46.1	50.8	%	10		20

**Project Name:** AIM-ARUNDEL**Lab Number:** L1528896**Project Number:** 10778.019**Report Date:** 11/13/15**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(*)
L1528896-01A	Glass 120ml/4oz unpreserved	A	N/A	5.7	Y	Absent	ME-TS-2540(7)
L1528896-01X	Plastic 120ml HNO3 preserved spl	A	<2	5.7	Y	Absent	PB-CI(180),CR-CI(180)
L1528896-01X9	Tumble Vessel	A	N/A	5.7	Y	Absent	-

\*Values in parentheses indicate holding time in days

**Project Name:** AIM-ARUNDEL  
**Project Number:** 10778.019

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## 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.
LCS D	- 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.
MS D	- 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:** Data Usability Report



**Project Name:** AIM-ARUNDEL  
**Project Number:** 10778.019

**Lab Number:** L1528896  
**Report Date:** 11/13/15

#### **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. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

**Project Name:** AIM-ARUNDEL  
**Project Number:** 10778.019

**Lab Number:** L1528896  
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## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

## 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 8260C:** 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; Iodomethane (methyl iodide) (soil); Methyl methacrylate (soil); Azobenzene.

**EPA 8270D:** Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**EPA 625:** 4-Chloroaniline, 4-Methylphenol.

**SM4500:** Soil: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**EPA 8270D:** Biphenyl.

**EPA 2540D:** TSS

**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.

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, SM4500CI-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.





## ANALYTICAL REPORT

Lab Number:	L1524550
Client:	CES, Inc. 465 South Main Street Brewer, ME 04412
ATTN:	Chris Bagley
Phone:	(207) 989-4824
Project Name:	AIM-ARUNDEL 2244 PORTLAND RD.
Project Number:	10778.019
Report Date:	10/07/15

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**Project Name:** AIM-ARUNDEL 2244 PORTLAND RD.  
**Project Number:** 10778.019

**Lab Number:** L1524550  
**Report Date:** 10/07/15

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L1524550-01	SS-1	SOIL	ARUNDEL, MAINE	09/29/15 09:22	09/30/15

**Project Name:** AIM-ARUNDEL 2244 PORTLAND RD.  
**Project Number:** 10778.019

**Lab Number:** L1524550  
**Report Date:** 10/07/15

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

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:

 Kara Lindquist

Title: Technical Director/Representative

Date: 10/07/15

## METALS

**Project Name:** AIM-ARUNDEL 2244 PORTLAND RD.  
**Project Number:** 10778.019

**Lab Number:** L1524550  
**Report Date:** 10/07/15

**SAMPLE RESULTS**

Lab ID: L1524550-01  
 Client ID: SS-1  
 Sample Location: ARUNDEL, MAINE  
 Matrix: Soil  
 Percent Solids: 93%

Date Collected: 09/29/15 09:22  
 Date Received: 09/30/15  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Westborough Lab</b>											
Arsenic, Total	2.2		mg/kg	0.40	--	1	10/01/15 09:45	10/06/15 05:57	EPA 3050B	1,6010C	JH



**Project Name:** AIM-ARUNDEL 2244 PORTLAND RD.  
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## Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01 Batch: WG826802-1									
Arsenic, Total	ND	mg/kg	0.40	--	1	10/01/15 09:45	10/06/15 05:49	1,6010C	JH

### Prep Information

Digestion Method: EPA 3050B

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** AIM-ARUNDEL 2244 PORTLAND RD.  
**Project Number:** 10778.019

**Lab Number:** L1524550  
**Report Date:** 10/07/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01 Batch: WG826802-2 SRM Lot Number: D088-540								
Arsenic, Total	96		-		79-121	-		

**Matrix Spike Analysis**  
Batch Quality Control

**Project Name:** AIM-ARUNDEL 2244 PORTLAND RD.  
**Project Number:** 10778.019

**Lab Number:** L1524550  
**Report Date:** 10/07/15

<b>Parameter</b>	<b>Native Sample</b>	<b>MS Added</b>	<b>MS Found</b>	<b>MS %Recovery</b>	<b>Qual</b>	<b>MSD Found</b>	<b>MSD %Recovery</b>	<b>Qual</b>	<b>Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG826802-4 QC Sample: L1524506-01 Client ID: MS Sample												
Arsenic, Total	1.2	14.3	15	96		-	-		75-125	-		20

## Lab Duplicate Analysis

Batch Quality Control

**Project Name:** AIM-ARUNDEL 2244 PORTLAND RD.  
**Project Number:** 10778.019

**Lab Number:** L1524550  
**Report Date:** 10/07/15

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG826802-3 QC Sample: L1524506-01 Client ID: DUP Sample						
Arsenic, Total	1.2	1.8	mg/kg	40	Q	20

# **INORGANICS & MISCELLANEOUS**

**Project Name:** AIM-ARUNDEL 2244 PORTLAND RD.  
**Project Number:** 10778.019

**Lab Number:** L1524550  
**Report Date:** 10/07/15

**SAMPLE RESULTS**

**Lab ID:** L1524550-01  
**Client ID:** SS-1  
**Sample Location:** ARUNDEL, MAINE  
**Matrix:** Soil

**Date Collected:** 09/29/15 09:22  
**Date Received:** 09/30/15  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.1		%	0.100	NA	1	-	10/01/15 00:01	30,2540G	RT



## Lab Duplicate Analysis

Batch Quality Control

**Project Name:** AIM-ARUNDEL 2244 PORTLAND RD.  
**Project Number:** 10778.019

**Lab Number:** L1524550  
**Report Date:** 10/07/15

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG826662-1 QC Sample: L1524550-01 Client ID: SS-1						
Solids, Total	93.1	92.9	%	0		20

**Project Name:** AIM-ARUNDEL 2244 PORTLAND RD.**Lab Number:** L1524550**Project Number:** 10778.019**Report Date:** 10/07/15**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

**Cooler Information Custody Seal****Cooler**

A Absent

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1524550-01A	Glass 120ml/4oz unpreserved	A	N/A	2.3	Y	Absent	AS-TI(180),ME-TS-2540(7)

**Container Comments**

L1524550-01A

\*Values in parentheses indicate holding time in days

**Project Name:** AIM-ARUNDEL 2244 PORTLAND RD.  
**Project Number:** 10778.019

**Lab Number:** L1524550  
**Report Date:** 10/07/15

## 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.
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).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

Report Format: Data Usability Report



**Project Name:** AIM-ARUNDEL 2244 PORTLAND RD.  
**Project Number:** 10778.019

**Lab Number:** L1524550  
**Report Date:** 10/07/15

#### **Data Qualifiers**

- 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.

**Project Name:** AIM-ARUNDEL 2244 PORTLAND RD.  
**Project Number:** 10778.019

**Lab Number:** L1524550  
**Report Date:** 10/07/15

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

## 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

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

### Westborough Facility

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

**EPA 8270D:** Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**EPA 625:** 4-Chloroaniline, 4-Methylphenol.

**SM4500:** Soil: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**EPA 8270D:** Biphenyl.

**EPA 2540D:** TSS

**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.

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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, SM4500CI-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.**

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

