NEWMOA
NORTHEAST WASTE MANAGEMENT OFFICIALS' ASSOCIATION

What Regulators Want: Quality Site Assessments & Investigations Using the Conceptual Site Model Approach

May 17, 2023 – Portland, Maine

Understanding Collected Data

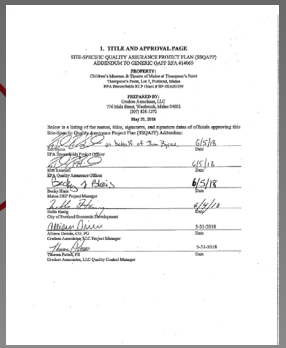
Presented by:
Allison Drouin, PG, LG
Rick Vandenberg, PG, LG

Community Economy Environment
CREDERE ASSOCIATES, LLC

Framework

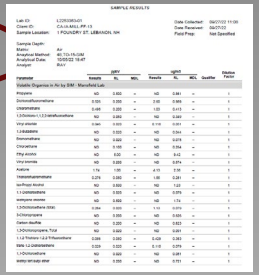
Initial Site Assessment

Site Investigation Planning

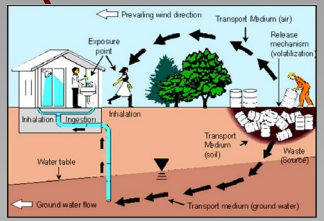


Implementation & Understanding Data

Data Usability and Presentation



Evolving the CSM



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Presentation Overview

- Field Implementation & Documentation – steps for ensuring quality
- Demobilization/Data Verification
- Field Documentation and some lessons learned
- Navigating Lab Reports and some Red Flags

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Field Implementation

- Field Preparation
  - Review the Work Plan. What are the objectives?
  - Order field equipment and sample containers
  - Coordinate subcontractors (drillers, geophysics)
  - Special considerations for certain parameters
- Field Implementation
  - Documentation
  - Communication
  - Decision Process

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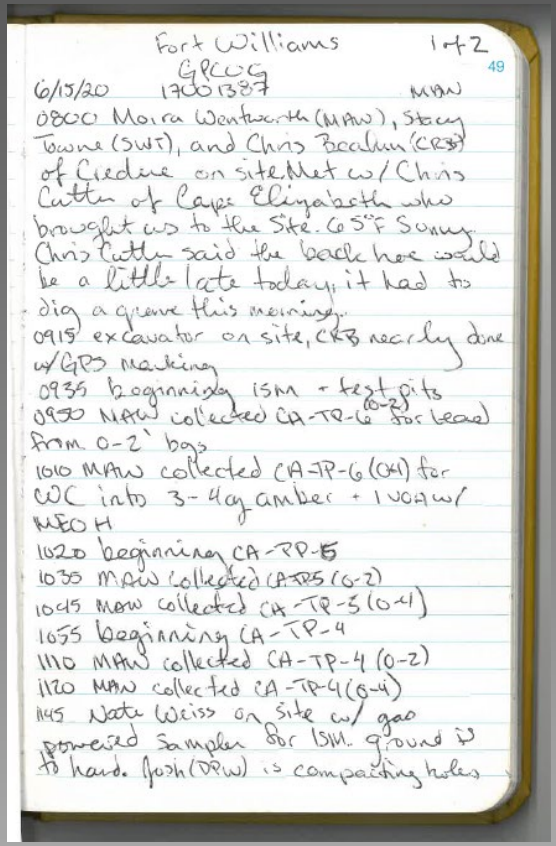
Field Implementation

Sample Summary Table					
Matrix	Location ID	Justification	QC Samples	Field Analyses	Analyses
Soil	SB-1	To assess VOC source area, depth of greatest contamination	Duplicate	PID	VOCs (8260) VPH (MassDEP)
	SB-2	To assess surface soil	MS/MSD	PID	VOCs (8260) VPH (MassDEP) PAHs (8270) Metals (6020)
Aqueous	MW-1	To assess extent of plume	None	DO, ORP, pH, sp. cond, temp, turbidity	VOCs (8260) VPH (MassDEP)
	MW-2		Duplicate, MS/MSD		VOCs (8260) VPH (MassDEP)

Field Notes/Forms

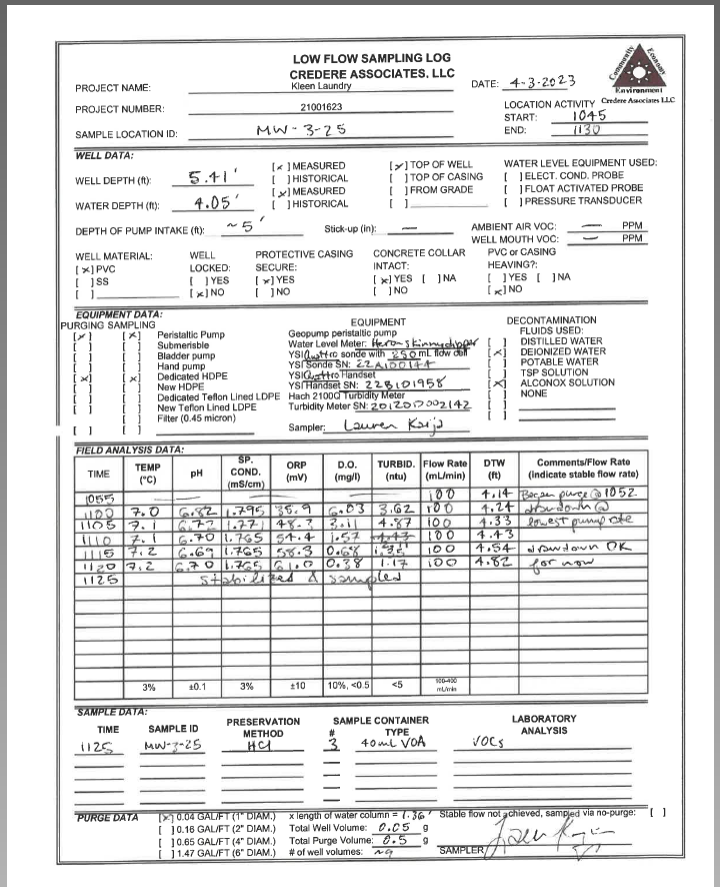
Field Logbook

- Date
- Times
- Personnel & subcontractors
- Weather
- Calibration details
- Types of equipment
- Objectives
- Health and safety notes
- Deviations from the Work Plan
- Sample details (times, ID, **QC samples**, bottleware, preservation)


Fort Williams 1 of 2
GPCLOG
6/15/20 1700 1387 MAW
0800 Moira Wentworth (MAW), Stacy Towne (SWT), and Chris Bradun (CRB) of Credere on site. Met w/ Chris Cutler of Cape Elizabeth who brought us to the site. 65°F Sunny. Chris Cutler said the beach here would be a little late today, it had to dig a grave this morning.
0915 excavator on site, CRB nearly done w/ GPS marking
0935 beginning ISM + test pits
0950 MAW collected CA-TP-6 (0-2) for lead from 0-2' bags
1010 MAW collected CA-TP-6 (OH) for QC into 3-4g amber + 1 VOA w/ MEOH
1020 beginning CA-TP-5
1035 MAW collected CA-TP5 (0-2)
1045 MAW collected CA-TP-3 (0-4)
1055 beginning CA-TP-4
1110 MAW collected CA-TP-4 (0-2)
1120 MAW collected CA-TP-4 (0-4)
1145 Nate Weiss on site w/ gas powered sampler for ISM. ground is to hard. Josh (DPW) is compacting holes
49

Field Notes/Forms

Field Forms



LOW FLOW SAMPLING LOG
CREDERE ASSOCIATES, LLC

PROJECT NAME: Kleen Laundry
DATE: 4-3-2023
PROJECT NUMBER: 21001623
LOCATION ACTIVITY START: 1045 END: 1130
SAMPLE LOCATION ID: MW-3-25

WELL DATA:

WELL DEPTH (ft): 5.41' [x] MEASURED [ ] HISTORICAL — [x] TOP OF WELL [ ] TOP OF CASING [ ] FROM GRADE
WATER DEPTH (ft): 4.05' [x] MEASURED [ ] HISTORICAL
WATER LEVEL EQUIPMENT USED: [ ] ELECT. COND. PROBE [ ] FLOAT ACTIVATED PROBE [ ] PRESSURE TRANSDUCER
DEPTH OF PUMP INTAKE (ft): ~5' Stick-up (in): — AMBIENT AIR VOC: — PPM WELL MOUTH VOC: — PPM

WELL MATERIAL: [x] PVC [ ] SS [ ] ____
WELL LOCKED: [ ] YES [x] NO
PROTECTIVE CASING SECURE: [x] YES [ ] NO
CONCRETE COLLAR INTACT: [x] YES [ ] NA [ ] NO
PVC or CASING HEAVING?: [ ] YES [ ] NA [x] NO

EQUIPMENT DATA:

PURGING: [ ] Peristaltic Pump; [ ] Submersible; [ ] Bladder pump; [ ] Hand pump; [x] Dedicated HDPE; [ ] New HDPE; [ ] Dedicated Teflon Lined LDPE; [ ] New Teflon Lined LDPE; [ ] Filter (0.45 micron); [ ] ____
SAMPLING: [x] Peristaltic Pump; [ ] Submersible; [ ] Bladder pump; [ ] Hand pump; [ ] Dedicated HDPE; [x] New HDPE; [ ] Dedicated Teflon Lined LDPE; [ ] New Teflon Lined LDPE; [ ] Filter (0.45 micron); [ ] ____
EQUIPMENT: Geopump peristaltic pump; Water Level Meter: Heron Slimmy Dipper; YSI Quatro sonde with 250 mL flow cell; YSI Sonde SN: 22A101744; YSI Quatro Handset; YSI Handset SN: 22B101958; Hach 2100Q Turbidity Meter; Turbidity Meter SN: 201200002142
DECONTAMINATION FLUIDS USED: [ ] DISTILLED WATER; [x] DEIONIZED WATER; [ ] POTABLE WATER; [ ] TSP SOLUTION; [x] ALCONOX SOLUTION; [ ] NONE
Sampler: Lauren Koiji

FIELD ANALYSIS DATA:

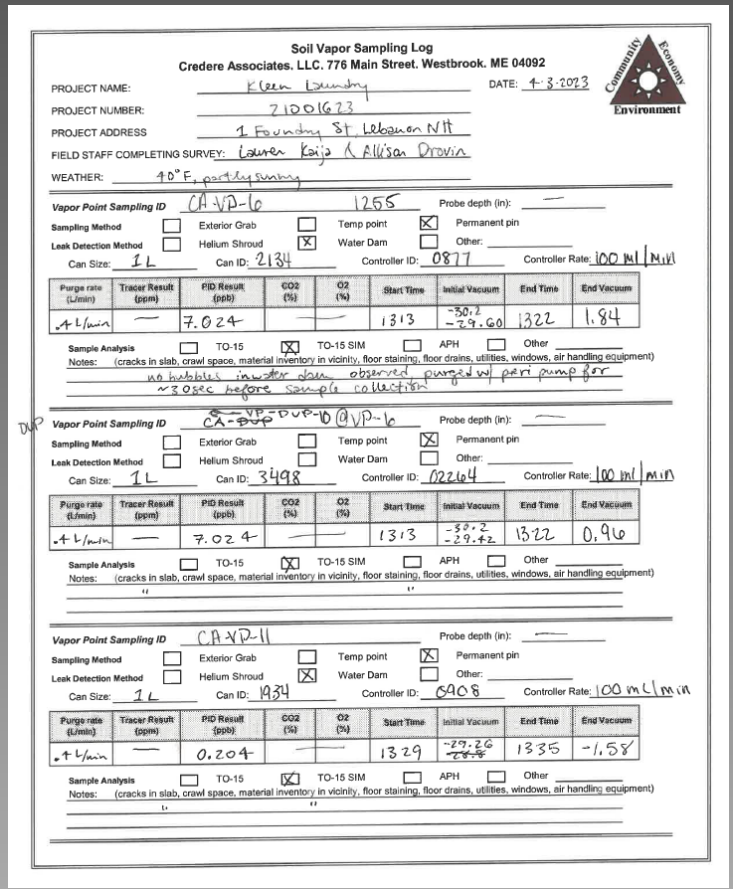
TIME	TEMP (°C)	pH	SP. COND. (mS/cm)	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (Indicate stable flow rate)
1055							100	4.14	Began purge @1052
1100	7.0	6.82	1.795	55.9	6.03	3.62	100	4.24	drawdown
1105	7.1	6.73	1.771	48.7	2.11	1.87	100	4.33	lowest pump rate
1110	7.1	6.70	1.765	51.4	1.57	1.43	100	4.43	
1115	7.2	6.69	1.765	55.3	0.68	1.26	100	4.54	drawdown OK
1120	7.2	6.70	1.765	61.0	0.28	1.17	100	4.82	for now
1125			stabilized & sampled						
	3%	±0.1	3%	±10	10%, <0.5	<5	100-400 mL/min		

SAMPLE DATA:

TIME	SAMPLE ID	PRESERVATION METHOD	SAMPLE CONTAINER #	SAMPLE CONTAINER TYPE	LABORATORY ANALYSIS
1125	MW-3-25	HCl	3	40mL VOA	VOCs

PURGE DATA

[x] 0.04 GAL/FT (1" DIAM.) x length of water column = 1.36'
[ ] 0.16 GAL/FT (2" DIAM.) Total Well Volume: 0.05 g
[ ] 0.65 GAL/FT (4" DIAM.) Total Purge Volume: 0.5 g
[ ] 1.47 GAL/FT (6" DIAM.) # of well volumes: ~7
Stable flow not achieved, sampled via no-purge: [ ]
SAMPLER



Soil Vapor Sampling Log
Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Kleen Laundry
DATE: 4-3-2023
PROJECT NUMBER: 21001623
PROJECT ADDRESS: 1 Foundry St. Lebanon NH
FIELD STAFF COMPLETING SURVEY: Lauren Koiji & Allisan Provin
WEATHER: 40°F, partly sunny

Vapor Point Sampling ID CA-VP-6 1255 Probe depth (in): —
Sampling Method: [ ] Exterior Grab [ ] Temp point [x] Permanent pin
Leak Detection Method: [ ] Helium Shroud [x] Water Dam [ ] Other: ____
Can Size: 1L Can ID: 2134 Controller ID: 0877 Controller Rate: 100 mL/min

Purge rate (L/min)	Tracer Result (ppm)	PID Result (ppb)	CO2 (%)	O2 (%)	Start Time	Initial Vacuum	End Time	End Vacuum
.1 L/min	—	7.024	—	—	1313	-30.2 -29.60	1322	1.84

Sample Analysis: [ ] TO-15 [x] TO-15 SIM [ ] APH [ ] Other ____
Notes: (cracks in slab, crawl space, material inventory in vicinity, floor staining, floor drains, utilities, windows, air handling equipment)
no bubbles in water dam observed purged w/ peri pump for ~30sec before sample collection

DUP **Vapor Point Sampling ID** ~~CA-VP-DUP-6~~ CA-VP-DUP-6 @VP-6 Probe depth (in): —
Sampling Method: [ ] Exterior Grab [ ] Temp point [x] Permanent pin
Leak Detection Method: [ ] Helium Shroud [ ] Water Dam [ ] Other: ____
Can Size: 1L Can ID: 3498 Controller ID: 022664 Controller Rate: 100 ml/min

Purge rate (L/min)	Tracer Result (ppm)	PID Result (ppb)	CO2 (%)	O2 (%)	Start Time	Initial Vacuum	End Time	End Vacuum
.1 L/min	—	7.024	—	—	1313	-30.2 -29.42	1322	0.96

Sample Analysis: [ ] TO-15 [x] TO-15 SIM [ ] APH [ ] Other ____
Notes: (cracks in slab, crawl space, material inventory in vicinity, floor staining, floor drains, utilities, windows, air handling equipment)
" "

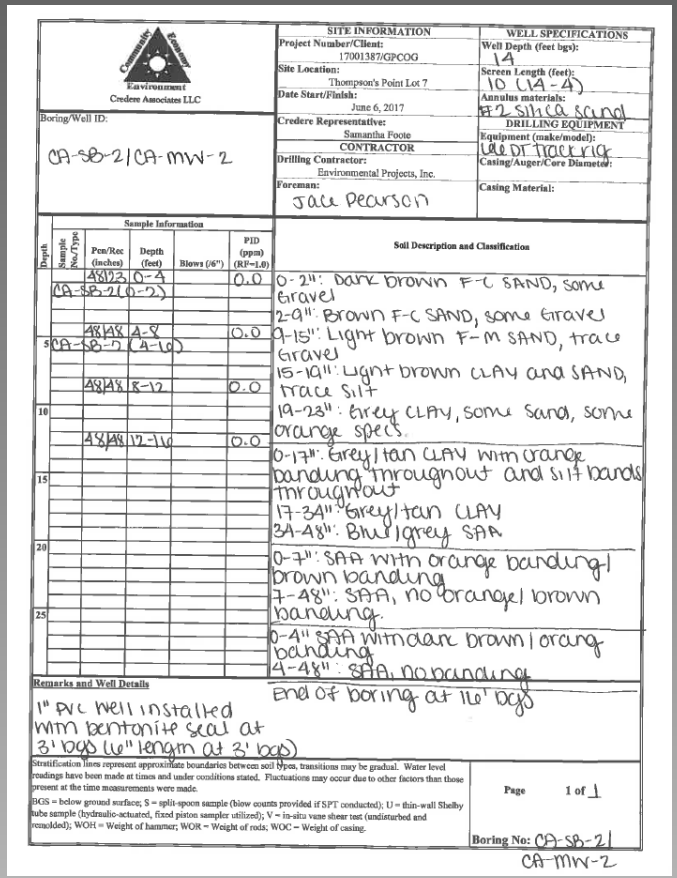
Vapor Point Sampling ID CA-VP-11 Probe depth (in): —
Sampling Method: [ ] Exterior Grab [ ] Temp point [x] Permanent pin
Leak Detection Method: [ ] Helium Shroud [x] Water Dam [ ] Other: ____
Can Size: 1L Can ID: 1934 Controller ID: 5908 Controller Rate: 100 mL/min

Purge rate (L/min)	Tracer Result (ppm)	PID Result (ppb)	CO2 (%)	O2 (%)	Start Time	Initial Vacuum	End Time	End Vacuum
.1 L/min	—	0.204	—	—	1329	-29.26 -28.76	1335	-1.58

Sample Analysis: [ ] TO-15 [x] TO-15 SIM [ ] APH [ ] Other ____
Notes: (cracks in slab, crawl space, material inventory in vicinity, floor staining, floor drains, utilities, windows, air handling equipment)
" "

Field Notes/Forms

Field Forms



Community Economy Environment
Credere Associates LLC

Boring/Well ID: CA-SB-2/CA-MW-2

SITE INFORMATION

Project Number/Client: 17001387/GPCOG
Site Location: Thompson's Point Lot 7
Date Start/Finish: June 6, 2017
Credere Representative: Samantha Foote
CONTRACTOR
Drilling Contractor: Environmental Projects, Inc.
Foreman: Jace Pearson

WELL SPECIFICATIONS

Well Depth (feet bgs): 14
Screen Length (feet): 10 (14-4)
Annulus materials: #2 silica sand
DRILLING EQUIPMENT
Equipment (make/model): Lab DT track rig
Casing/Auger/Core Diameter:
Casing Material:

Sample Information

Depth	Sample No./Type	Pen/Rec (inches)	Depth (feet)	Blows (/6")	PID (ppm) (RF=1.0)	Soil Description and Classification
		48/23	0-4		0.0	0-2": Dark brown F-C SAND, some Gravel 2-9": Brown F-C SAND, some Gravel
	CA-SB-2(0-2)					
		48/48	4-8		0.0	9-15": Light brown F-M SAND, trace Gravel
5	CA-SB-2 (4-6)					15-19": Light brown CLAY and SAND, trace Silt
		48/48	8-12		0.0	19-23": Grey CLAY, some Sand, some orange specs
10						
		48/48	12-16		0.0	0-17": Grey/tan CLAY with orange banding throughout and silt bands throughout 17-34": Grey/tan CLAY 34-48": Blue/grey SAA
15						
20						0-7": SAA with orange banding/brown banding 7-48": SAA, no orange/brown banding.
25						0-4" SAA with clear brown/orange banding 4-48": SAA, no banding

End of boring at 16' bgs

Remarks and Well Details

1" PVC well installed with bentonite seal at 3' bgs (6" length at 3' bgs)

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BGS = below ground surface; S = split-spoon sample (blow counts provided if SPT conducted); U = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WOH = Weight of hammer; WOR = Weight of rods; WOC = Weight of casing.

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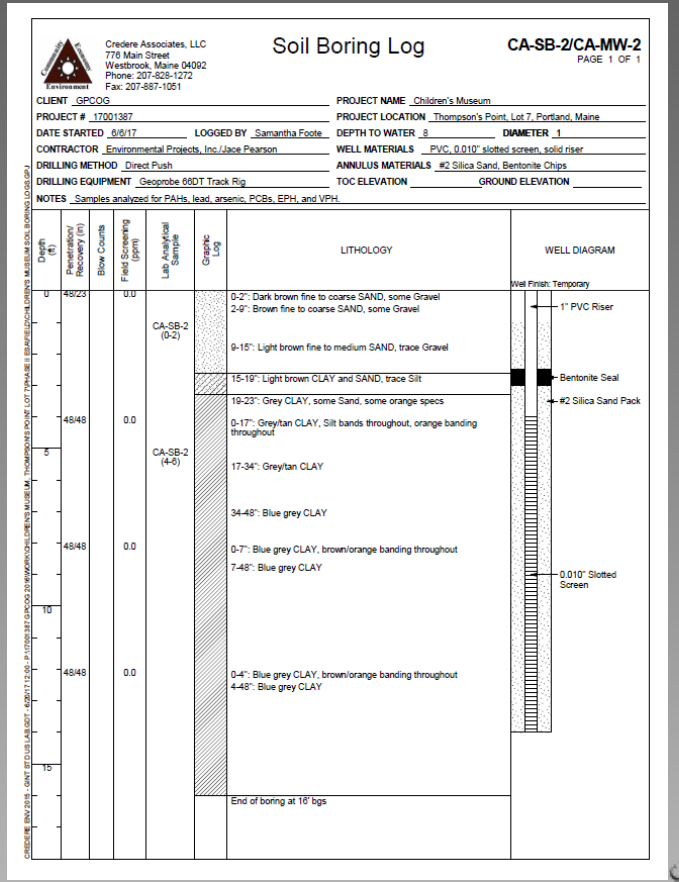
Boring No: CA-SB-2/CA-MW-2



Credere Associates, LLC
776 Main Street
Westbrook, Maine 04092
Phone: 207-828-1272
Fax: 207-887-1051

Soil Boring Log

CA-SB-2/CA-MW-2
PAGE 1 OF 1

CLIENT GPCOG — PROJECT NAME Children's Museum
PROJECT # 17001387 — PROJECT LOCATION Thompson's Point, Lot 7, Portland, Maine
DATE STARTED 6/6/17 — LOGGED BY Samantha Foote — DEPTH TO WATER 8 — DIAMETER 1
CONTRACTOR Environmental Projects, Inc./Jace Pearson — WELL MATERIALS PVC, 0.010" slotted screen, solid riser
DRILLING METHOD Direct Push — ANNULUS MATERIALS #2 Silica Sand, Bentonite Chips
DRILLING EQUIPMENT Geoprobe 66DT Track Rig — TOC ELEVATION — GROUND ELEVATION
NOTES Samples analyzed for PAHs, lead, arsenic, PCBs, EPH, and VPH.

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	48/23		0.0	CA-SB-2 (0-2)		0-2": Dark brown fine to coarse SAND, some Gravel 2-9": Brown fine to coarse SAND, some Gravel	Well Finish: Temporary 1" PVC Riser
						9-15": Light brown fine to medium SAND, trace Gravel	
						15-19": Light brown CLAY and SAND, trace Silt	Bentonite Seal
5	48/48		0.0	CA-SB-2 (4-6)		19-23": Grey CLAY, some Sand, some orange specs	#2 Silica Sand Pack
						0-17": Grey/tan CLAY, Silt bands throughout, orange banding throughout	
						17-34": Grey/tan CLAY	
						34-48": Blue grey CLAY	
10	48/48		0.0			0-7": Blue grey CLAY, brown/orange banding throughout 7-48": Blue grey CLAY	0.010" Slotted Screen
15	48/48		0.0			0-4": Blue grey CLAY, brown/orange banding throughout 4-48": Blue grey CLAY	
						End of boring at 16' bgs	

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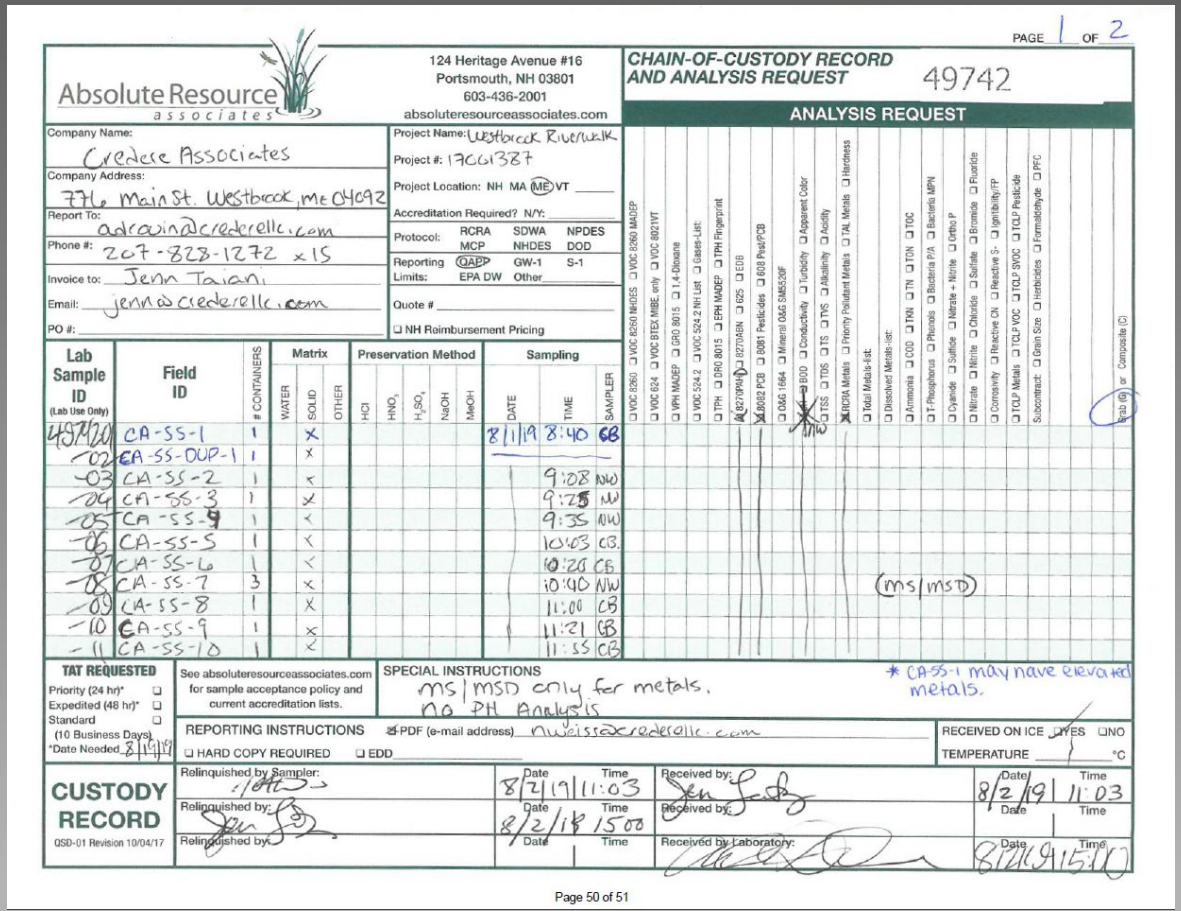
Field Notes/Forms

Chain of Custody



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Absolute Resource associates

124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST 49742

Company Name: Credere Associates
Company Address: 776 Main St. Westbrook, ME 04092
Report To: adrouin@crederellc.com
Phone #: 207-828-1272 x15
Invoice to: Jenn Taiani
Email: jenn@crederellc.com
PO #:

Project Name: Westbrook Riverwalk
Project #: 17061387
Project Location: NH MA (ME) VT
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: QAPP GW-1 S-1 EPA DW Other
Quote #
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

☐ VOC 8260 NHDES ☐ VOC 8260 MADEP ☐ VOC BTEX MBE only ☐ VOC 8021VT ☐ VOC 624 ☐ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List: ☐ TPH ☐ DRO 8015 ☐ EPH MADEP ☐ TPH Fingerprint ☐ 8270PAH ☐ 8270ABN ☐ 625 ☐ EDB ☐ 8082 PCB ☐ 8081 Pest/PCB ☐ 608 Pest/PCB ☐ OA6 1664 ☐ Mineral OA6 SM5520F ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color ☐ TSS ☐ TDS ☐ TVS ☐ Alkalinity ☐ Acidity ☐ RCRA Metals ☐ PAL Metals ☐ Hardness ☐ Priority Pollutant Metals ☐ Total Metals-list: ☐ Dissolved Metals-list: ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TOC ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide ☐ Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC ☐ Lab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER
459420-01	CA-SS-1	1		X							8/1/19	8:40	CB
-02	CA-SS-DUP-1	1		X									
-03	CA-SS-2	1		X								9:08	NW
-04	CA-SS-3	1		X								9:25	NW
-05	CA-SS-4	1		X								9:35	NW
-06	CA-SS-5	1		X								10:03	CB
-07	CA-SS-6	1		X								10:20	CB
-08	CA-SS-7	3		X								10:40	NW
-09	CA-SS-8	1		X								11:00	CB
-10	CA-SS-9	1		X								11:21	CB
-11	CA-SS-10	1		X								11:55	CB

(MS/MSD)

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard (10 Business Days) ☐
*Date Needed 8/14/19

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
MS/MSD only for metals.
No PH Analysis

* CA-SS-1 may have elevated metals.

REPORTING INSTRUCTIONS ☒ PDF (e-mail address) nweiss@crederellc.com
☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐ YES ☐ NO
TEMPERATURE °C

CUSTODY RECORD
OSD-01 Revision 10/04/17

	Date	Time		Date	Time
Relinquished by Sampler:	8/2/19	11:03	Received by:	8/2/19	11:03
Relinquished by:	8/2/19	1500	Received by:		
Relinquished by:			Received by Laboratory:	8/2/19	15:10

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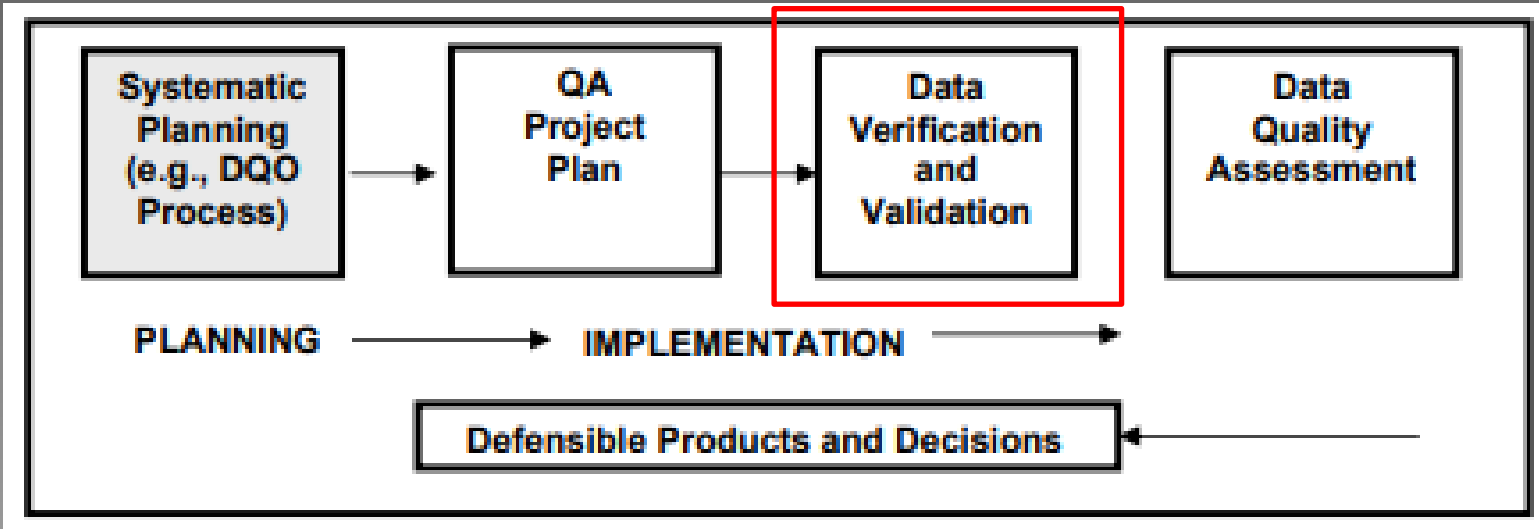
Demobilization

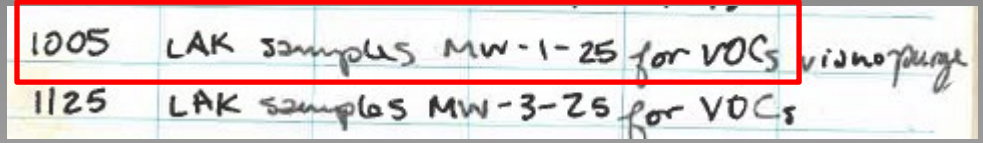
Not just packing up and driving home

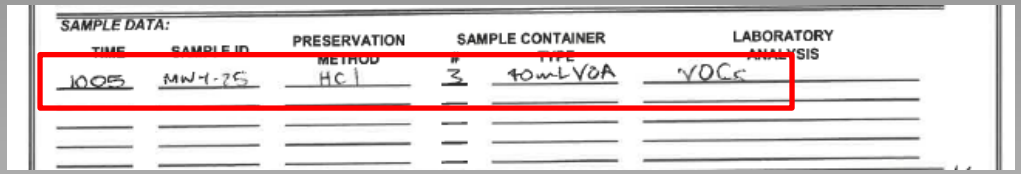


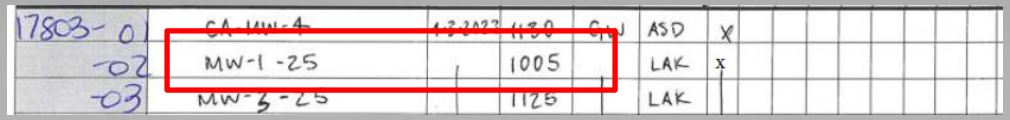
Data Verification

Field Documentation Completeness

- Review field forms to ensure all form fields are completed
- Review field notes for completeness and consistency with field forms
- Review chain of custody for consistency with field forms and logs







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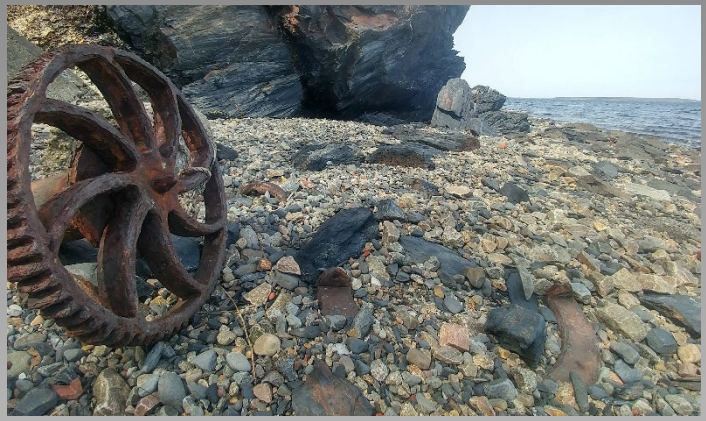
Data Verification

Input Completeness

- Review complete field documentation package to ensure compliance with the Work Plan.
  - Did all the planned samples get collected?
  - If not, were the deviations well documented?
  - Were all the required analyses and QC samples requested on the chain of custody?



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Field Documentation - Lesson Learned #1

Field Duplicate Correlation – Building Materials

- 100+ PCB samples were submitted of bulk products (building materials) with numerous field duplicates for QC.
- Field crew took field notes and wrote down duplicate pairs in the field notes.

Sample Location	Matrix	Sample ID	Total PCBs (mg/kg)
PCB-12	Red paint	PCB-12	10,600
		DUP-1	11.2
PCB-42	Gray paint	PCB-42	10.9
		DUP-7	11,200

- Results indicated a major difference in concentrations between these two duplicate pairs.

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Field Documentation - Lesson Learned #2

Field Duplicate Correlation – Soil Samples

- 25 borings drilled on a remote island site in NE. 50 soil sample for a variety of analysis including metals. 5 duplicates.
- Field crew took field notes and wrote down duplicate pairs in the field notes.

Sample Location	Matrix	Sample ID	Total Lead (mg/kg)
Boring 12	Black Urban Fill	CA-SB-12 (0-2)	4,520
		SB-DUP-1	390
Boring 24	Black Urban Fill	CA-SB-24(0-2)	378
		SB-DUP-2	3,390

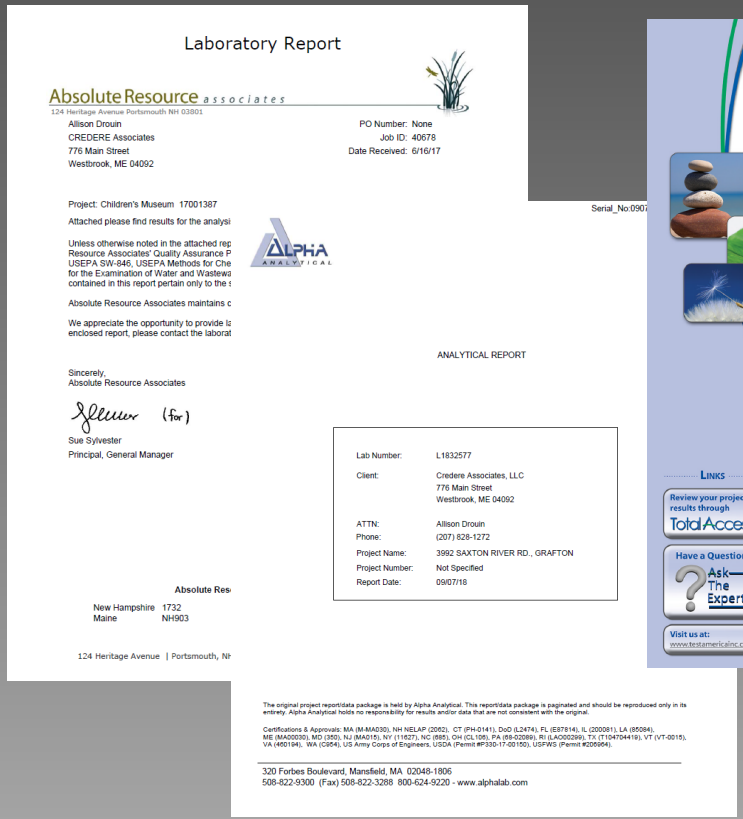
- Results indicated a major difference in concentrations between these two duplicate pairs. **NOW WHAT??**

Community Economy Environment

Laboratory Reports

Level	1	2	3	4
Analytical Result Forms	X	X	X	X
Case Narrative	X	X	X	X
Chain of Custody	X	X	X	X
Basic QC (blanks, LCS/LCSD, MS/MSD, dups)		X	X	X
Prep and lab logs			X	X
Tuning			X	X
Instrument calibration (ICV/CCV)				X
Raw data (analyst logs, chromatograms, sequences, etc.)				X

Parts of a Laboratory Report


Laboratory Report

Absolute Resource associates

124 Heritage Avenue Portsmouth NH 03801

Allison Drouin
CREDERE Associates
776 Main Street
Westbrook, ME 04092

PO Number: None
Job ID: 40678
Date Received: 6/16/17

Project: Children's Museum 17001387

Attached please find results for the analysi

Unless otherwise noted in the attached rep
Resource Associates' Quality Assurance P
USEPA SW-846, USEPA Methods for Che
for the Examination of Water and Wastewa
contained in this report pertain only to the s

Absolute Resource Associates maintains c

We appreciate the opportunity to provide la
enclosed report, please contact the laborat

Sincerely,
Absolute Resource Associates

(for)

Sue Sylvester
Principal, General Manager

Absolute Res

New Hampshire 1732
Maine NH903

124 Heritage Avenue | Portsmouth, NH

Serial_No:0907

ALPHA ANALYTICAL

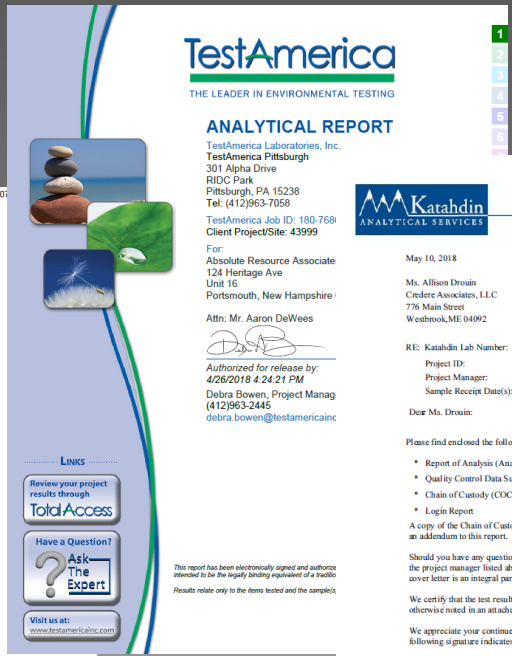
ANALYTICAL REPORT

Lab Number:	L1832577
Client:	Credere Associates, LLC 776 Main Street Westbrook, ME 04092
ATTN:	Allison Drouin
Phone:	(207) 828-1272
Project Name:	3992 SAXTON RIVER RD., GRAFTON
Project Number:	Not Specified
Report Date:	09/07/18

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-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (666), OH (CL108), PA (68-02089), RI (LA000299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

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


TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-768
Client Project/Site: 43999

For:
Absolute Resource Associate
124 Heritage Ave
Unit 16
Portsmouth, New Hampshire

Attn: Mr. Aaron DeWees

Authorized for release by:
4/26/2018 4:24:21 PM

Debra Bowen, Project Manag
(412)963-2445
debra.bowen@testamericainc

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorize intended to be the legally binding equivalent of a traditio

Results relate only to the items tested and the sample(s

Katahdin ANALYTICAL SERVICES

Lab ID: 3001(non-air)
Lab ID: 11123 (air only)

May 10, 2018

Ms. Allison Drouin
Credere Associates, LLC
776 Main Street
Westbrook,ME 04092

RE: Katahdin Lab Number: SL3573
Project ID: Children's Museum
Project Manager: Mr. Galen Nickerson
Sample Receipt Date(s): April 26, 2018

Dear Ms. Drouin:

Please find enclosed the following information:

- Report of Analysis (Analytical and/or Field)
- Quality Control Data Summary
- Chain of Custody (COC)
- Login Report

A copy of the Chain of Custody is included in the paginated report. If requested, the original COC is attached as an addendum to this report.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. The results contained in this report relate only to the submitted samples. This cover letter is an integral part of the ROA.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in an attached technical narrative or in the Report of Analysis.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Please go to http://www.katahdinlab.com/cert for copies of Katahdin Analytical Services Inc. current certificates and analyte lists.

Sincerely,
KATAHDIN ANALYTICAL SERVICES

Leslie Dimond

Leslie Dimond - Quality Assurance Officer

05/10/2018
Date

P.O. Box 540, Scarborough, ME 04070 • Tel: (207) 874-2400 • Fax: (207) 775-4029 • 600 Technology Way, Scarborough, ME 04074
www.katahdinlab.com

Katahdin Analytical Services 0000001

Cover Page

Community Economy Environment

Parts of a Lab Report

Sample Association or Summary

Sample ID and Lab ID

Field ID	Matrix	Date-Time Sampled	Lab#	Analysis
WC-CMT-1	Solid	4/13/2018 11:10	43999-001	Pesticides in soil by 8081 PCBs in soil by 8082 Acid & Base/Neutral Extractables in solid by 8270 EPH in solids by MADEP Method Solid Digestion for ICP Analysis Silver in solids by 6020 Arsenic in solids by 6020 Barium in solids by 6020 Cadmium in solids by 6020 Chromium in solids by 6020 Mercury in solids by 7471 Lead in solids by 6020 Selenium in solids by 6020 Percent Dry Matter for Sample Calc by SM2540B,G Herbicides (subcontract) VOCs in solids by 8260 VPH in solids by MA DEP Method Total cyanide in solids by 9014 Ignitability of Solid Samples by SW1010 pH in solids by SW9045C Sulfide-soluble in solid by SM4500-S2 D+F
WC-CMT-2	Solid	4/13/2018 11:25	43999-002	Pesticides in soil by 8081 PCBs in soil by 8082 Acid & Base/Neutral Extractables in solid by 8270 EPH in solids by MADEP Method

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2317803-01	CA-MW-4	WATER	1 FOUNDRY ST, LEBANON, NH	04/03/23 11:30	04/05/23
L2317803-02	MW-1-25	WATER	1 FOUNDRY ST, LEBANON, NH	04/03/23 10:05	04/05/23
L2317803-03	MW-3-25	WATER	1 FOUNDRY ST, LEBANON, NH	04/03/23 11:25	04/05/23
L2317803-04	MW-4	WATER	1 FOUNDRY ST, LEBANON, NH	04/03/23 12:25	04/05/23
L2317803-05	MW-6-25	WATER	1 FOUNDRY ST, LEBANON, NH	04/03/23 12:50	04/05/23
L2317803-06	MW-2-25	WATER	1 FOUNDRY ST, LEBANON, NH	04/03/23 13:45	04/05/23
L2317803-07	MW-2-25-DUP	WATER	1 FOUNDRY ST, LEBANON, NH	04/03/23 13:45	04/05/23
L2317803-08	TRIP BLANK	WATER	1 FOUNDRY ST, LEBANON, NH	04/03/23 00:00	04/05/23

Community Economy Environment

Parts of a Lab Report

Case Narrative

Absolute Resource associates

Case Narrative
Lab # 43999

Sample Receiving and Chain of Custody Discrepancies
Samples were received in acceptable condition, on day of sampling, at 8 degrees C, on ice, and in accordance with sample handling, preservation and integrity guidelines.

Calibration
No exceptions noted.

Method Blank
No exceptions noted.

Surrogate Recoveries
No exceptions noted.

Laboratory Control Sample Results
VOC: The MLCS10595 did not meet the acceptance criteria for dichlorodifluoromethane and carbon disulfide. Since <10% of the compounds were outside of the acceptance criteria, reanalysis is not required.
EPH: The LCS10585 did not meet the acceptance criteria for naphthalene. The relative percent difference between the LCS and LCSD10585 was outside the acceptance criteria for naphthalene. Since <10% of the compounds were outside of the acceptance criteria, reanalysis is not required. The relative percent difference between the LCS and LCSD10585 was outside the acceptance criteria for 2-methylnaphthalene, acenaphthene, and acenaphthylene. The percent recovery for these analytes in each QC parameter was within the acceptance criteria. No impact to the data suspected.
SVOC: The LCS/D10593 did not meet the acceptance criteria for pentachlorophenol. Since <10% of the compounds were outside of the acceptance criteria, reanalysis is not required.

Matrix Spike/Matrix Spike Duplicate/Duplicate Results
No exceptions noted.

Other
Reporting Limits: Dilutions performed during the analysis are noted on the result pages.

No other exceptions noted.

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. 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 Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data 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.

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 Alpha Project Manager 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 Project Management at 800-624-9220 with any questions.

Community Economy Environment

Parts of a Lab Report

Sample Results

Project Number: 21001623 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2317803-01
Client ID: CA-MW-4
Sample Location: 1 FOUNDRY ST, LEBANON, NH

Date Collected: 04/03/23 11:30
Date Received: 04/05/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 04/12/23 03:39
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	3.0	--	1
1,1-Dichloroethane	ND		ug/l	0.75	--	1
Chloroform	ND		ug/l	0.75	--	1
Carbon tetrachloride	ND		ug/l	0.50	--	1
1,2-Dichloropropane	ND		ug/l	1.8	--	1
Dibromochloromethane	ND		ug/l	0.50	--	1
1,1,2-Trichloroethane	ND		ug/l	0.75	--	1
Tetrachloroethene	14		ug/l	0.50	--	1
Chlorobenzene	ND		ug/l	0.50	--	1
Trichlorofluoromethane	ND		ug/l	2.5	--	1
1,2-Dichloroethane	ND		ug/l	0.50	--	1
1,1,1-Trichloroethane	ND		ug/l	0.50	--	1
Bromodichloromethane	ND		ug/l	0.50	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.5	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Benzene	3.6		ug/l	0.50	--	1
Toluene	ND		ug/l	0.75	--	1
Ethylbenzene	ND		ug/l	0.50	--	1
Chloromethane	ND		ug/l	2.5	--	1
Bromomethane	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	0.50	--	1
trans-1,2-Dichloroethene	ND		ug/l	0.75	--	1

Project ID: CMT @ TP 16001326
Job ID: 43999

Sample#: 43999-001
Sample ID: WC-CMT-1
Matrix: Solid Percent Dry: 89.7% Results expressed on a dry weight basis.
Sampled: 4/13/18 11:10

Parameter	Result	Reporting Limit	Units	Instr Dil'n Factor	Analyst	Prep Date	Batch	Analysis Date	Time	Reference
Arsenic	5.9	2.3	ug/g	5	AGN	4/19/18	10591	4/21/18	3:30	SW3051A6020A
Barium	35	5	ug/g	5	AGN	4/19/18	10591	4/26/18	17:16	SW3051A6020A
Cadmium	< 0.5	0.5	ug/g	5	AGN	4/19/18	10591	4/21/18	3:30	SW3051A6020A
Chromium	14	5	ug/g	5	AGN	4/19/18	10591	4/21/18	3:30	SW3051A6020A
Lead	26	2.3	ug/g	5	AGN	4/19/18	10591	4/21/18	3:30	SW3051A6020A
Mercury	< 0.13	0.13	ug/g	1	AJD	4/16/18	10573	4/17/18	12:09	SW7471B
Selenium	< 5	5	ug/g	5	AGN	4/19/18	10591	4/21/18	3:30	SW3051A6020A
Silver	< 2.3	2.3	ug/g	5	AGN	4/19/18	10591	4/21/18	3:30	SW3051A6020A

Sample#: 43999-002
Sample ID: WC-CMT-2
Matrix: Solid Percent Dry: 85.7% Results expressed on a dry weight basis.
Sampled: 4/13/18 11:25

Parameter	Result	Reporting Limit	Units	Instr Dil'n Factor	Analyst	Prep Date	Batch	Analysis Date	Time	Reference
Arsenic	4.1	1.9	ug/g	5	AGN	4/19/18	10591	4/21/18	3:37	SW3051A6020A
Barium	30	4	ug/g	5	AGN	4/19/18	10591	4/26/18	17:23	SW3051A6020A
Cadmium	< 0.4	0.4	ug/g	5	AGN	4/19/18	10591	4/21/18	3:37	SW3051A6020A
Chromium	10	4	ug/g	5	AGN	4/19/18	10591	4/21/18	3:37	SW3051A6020A
Lead	45	1.9	ug/g	5	AGN	4/19/18	10591	4/21/18	3:37	SW3051A6020A
Mercury	< 0.16	0.16	ug/g	1	AJD	4/16/18	10573	4/17/18	12:11	SW7471B
Selenium	< 4	4	ug/g	5	AGN	4/19/18	10591	4/21/18	3:37	SW3051A6020A
Silver	< 1.9	1.9	ug/g	5	AGN	4/19/18	10591	4/21/18	3:37	SW3051A6020A

Community Economy Environment

Parts of a Lab Report

Sample Results - Lab Qualifiers

Job ID: 64965

Sample#: 64965-008
Sample ID: CA-DU-1A
Matrix: Solid
Percent Dry: 99.2% Results expressed on a dry weight basis.
Sampled: 4/5/23 8:10

Parameter	Result	Reporting Limit	Units	Instr Dil'n Factor	Analyst	Prep Date	Batch	Analysis Date	Time	Reference
diethyl phthalate	< 0.50	0.50	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
4-chlorophenyl phenyl ether	< 0.50	0.50	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
4-nitroaniline	< 0.50	0.50	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
4,6-dinitro-2-methylphenol	< 2.0M	2.0	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
azobenzene	< 0.20	0.20	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
N-nitrosodiphenylamine	< 0.20	0.20	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
4-bromophenyl phenyl ether	< 0.20	0.20	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
hexachlorobenzene	< 0.20	0.20	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
pentachlorophenol	< 1.00	1.00	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
phenanthrene	1.2D	0.050	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
anthracene	0.34D	0.050	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
carbazole	< 0.20	0.20	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
di-n-butylphthalate	< 0.50	0.50	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
fluoranthene	1.9D	0.050	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
benzidine	< 3.0M	3.0	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
pyrene	2.4D	0.050	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
butyl benzyl phthalate	< 0.50	0.50	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
benzo(a)anthracene	1.1D	0.050	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
chrysene	1.2D	0.050	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
3,3'-dichlorobenzidine	< 3.0	3.0	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
bis(2-ethylhexyl)phthalate	0.69	0.50	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
di-n-octyl phthalate	0.53	0.50	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
benzo(b)fluoranthene	0.81D	0.050	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
benzo(k)fluoranthene	0.85D	0.050	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
benzo(a)pyrene	1.1D	0.050	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
indeno(1,2,3-cd)pyrene	0.68D	0.050	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
dibenzo(a,h)anthracene	0.25D	0.050	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
benzo(g,h,i)perylene	0.92D	0.050	ug/g	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
Surrogate Recovery		**Limits**								
2-fluorophenol SUR	62	21-100	%	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
phenol-D5 SUR	70	10-102	%	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
2,4,6-tribromophenol SUR	65	10-123	%	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
nitrobenzene-D5 SUR	62	35-114	%	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
2-fluorobiphenyl SUR	71	43-116	%	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E
p-terphenyl-D14 SUR	98	33-141	%	1	CL	4/12/23	16154	4/18/23	6:12	SW3546/8270E

D = The RPD for the sample duplicate was outside the acceptance range.
M = The percent recovery in the matrix spike was outside acceptance criteria.

- Lab qualifiers are NOT validation qualifiers
- Should be reviewed by a third-party chemist (i.e., not the lab)

Community Economy Environment

Parts of a Lab Report

Basic QC

- Blanks
- Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- Lab Control Sample/Lab Control Sample Duplicate (LCS/LCSD)
- Lab duplicates
- Non-conformance callouts

Lab Control Sample Analysis
Batch Quality Control

Project Name: KLEEN LAUNDRY
Project Number: 21001623
Lab Number: L2317803
Report Date: 04/12/23

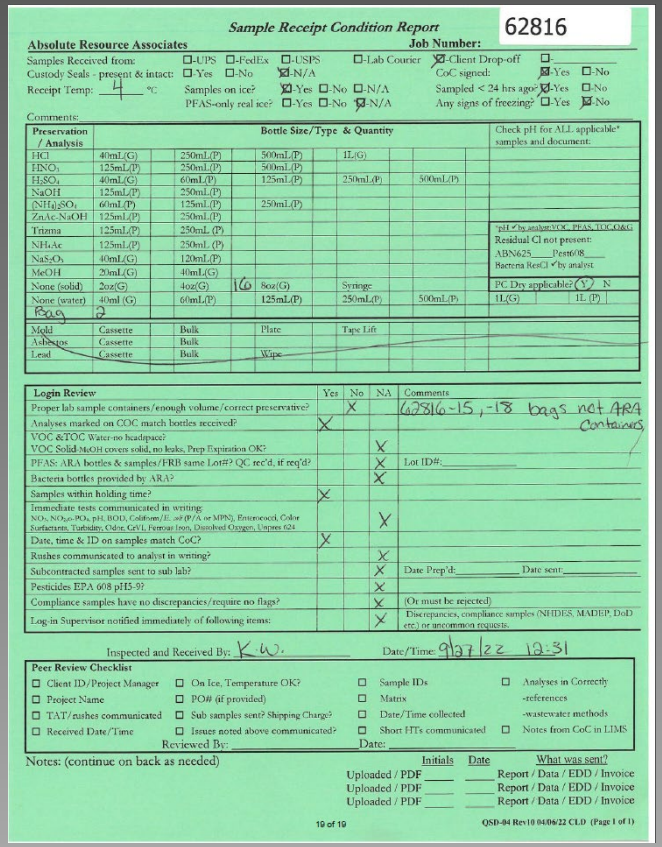
Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-04,08 Batch: WG1765236-3 WG1765236-4								
2,2-Dichloropropane	110		110		63-133	0		20
1,2-Dibromoethane	86		88		70-130	2		20
1,1,1,2-Tetrachloroethane	90		92		64-130	2		20
Bromobenzene	94		94		70-130	0		20
n-Butylbenzene	99		96		53-136	3		20
sec-Butylbenzene	97		95		70-130	2		20
tert-Butylbenzene	95		94		70-130	1		20
o-Chlorotoluene	96		94		70-130	2		20
p-Chlorotoluene	96		94		70-130	2		20
1,2-Dibromo-3-chloropropane	89		87		41-144	3		20
Hexachlorobutadiene	96		93		63-130	3		20
Isopropylbenzene	96		96		70-130	0		20
p-Isopropyltoluene	96		94		70-130	2		20
Naphthalene	76		80		70-130	5		20
n-Propylbenzene	98		96		69-130	2		20
1,2,3-Trichlorobenzene	85		86		70-130	1		20
1,2,4-Trichlorobenzene	90		88		70-130	2		20
1,3,5-Trimethylbenzene	95		94		64-130	1		20
1,3,5-Trichlorobenzene	98		95		70-130	3		20
1,2,4-Trimethylbenzene	96		94		70-130	2		20
Ethyl ether	100		100		59-134	0		20
Isopropyl Ether	100		100		70-130	0		20
Tert-Butyl Alcohol	64	Q	70		70-130	9		20

Method	QC ID	Parameter	Associated Sample	Result	LOQ	LOD	DL	Units	Added	%R	Limits	RPD	RPD Limit
E300.0A	BLK2203243	Chloride		0.40 U	0.50	0.40	0.088	mg/L					
E300.0A	LCS2203243	Chloride		9.4	0.50	0.40	0.088	mg/L	10	94	90 110		
E300.0A	LCSD2203243	Chloride		9.4	0.50	0.40	0.088	mg/L	10	94	90 110	0	10
E300.0A	MS2203243	Chloride	63149-006	54	0.60	0.48	0.11	mg/L	20	103	90 110		
E300.0A	MS2203243	Chloride	63196-001	440	3.0	2.4	0.53	mg/L	100	96	90 110		
E300.0A	MSD2203243	Chloride	63196-001	480	3.0	2.4	0.53	mg/L	100	127 *	90 110	7	10

Parts of a Lab Report

Chain of Custody

- Chain of custody
- Lab login form that documents cooler temperature, preservative confirmation, and any sample damage or compromise



Sample Receipt Condition Report 62816

Absolute Resource Associates **Job Number:**

Samples Received from: ☐-UPS ☐-FedEx ☐-USPS ☐-Lab Courier ☒-Client Drop-off ☐-_____

Custody Seals - present & intact: ☐-Yes ☐-No ☒-N/A CoC signed: ☒-Yes ☐-No

Receipt Temp: 4 °C Samples on ice? ☒-Yes ☐-No ☐-N/A Sampled < 24 hrs ago? ☒-Yes ☐-No

PFAS-only real ice? ☐-Yes ☐-No ☒-N/A Any signs of freezing? ☐-Yes ☒-No

Comments:

Preservation / Analysis	Bottle Size/Type & Quantity						Check pH for ALL applicable* samples and document.
HCl	40mL(G)	250mL(P)	500mL(P)	1L(G)			
HNO_3	125mL(P)	250mL(P)	500mL(P)				
H_2SO_4	40mL(G)	60mL(P)	125mL(P)	250mL(P)	500mL(P)		
NaOH	125mL(P)	250mL(P)					
$(NH_4)_2SO_4$	60mL(P)	125mL(P)	250mL(P)				
ZnAc-NaOH	125mL(P)	250mL(P)					
Trizma	125mL(P)	250mL (P)					*pH ✓ by analyst VOC, PFAS, TOC,O&G
NH_4Ac	125mL(P)	250mL (P)					Residual Cl not present:
NaS_2O_3	40mL(G)	120mL(P)					ABN625____Pest608____
MeOH	20mL(G)	40mL(G)					Bacteria ResCl ✓ by analyst
None (solid)	2oz(G)	4oz(G)	16 8oz(G)	Syringe			PC Dry applicable? (Y) N
None (water)	40ml (G)	60mL(P)	125mL(P)	250mL(P)	500mL(P)	1L(G) 1L (P)	
Foam							
Mold	Cassette	Bulk	Plate	Tape Lift			
Asbestos	Cassette	Bulk					
Lead	Cassette	Bulk	Wipe				

Login Review	Yes	No	NA	Comments
Proper lab sample containers/enough volume/correct preservative?		X		62816-15, -18 bags not ARA containers
Analyses marked on COC match bottles received?	X			
VOC &TOC Water-no headspace?				
VOC Solid-MeOH covers solid, no leaks, Prep Expiration OK?			X	
PFAS: ARA bottles & samples/FRB same Lot#? QC rec'd, if req'd?			X	Lot ID#:_____
Bacteria bottles provided by ARA?			X	
Samples within holding time?	X			
Immediate tests communicated in writing: NO_3-NO_2-PO_4, pH, BOD, Coliform/E. coli (P/A or MPN), Enterococci, Color Surfactants, Turbidity, Odor, Cr VI, Ferrous Iron, Dissolved Oxygen, Duprex 624			X	
Date, time & ID on samples match CoC?	X			
Rushes communicated to analyst in writing?			X	
Subcontracted samples sent to sub lab?			X	Date Prep'd:_____ Date sent:_____
Pesticides EPA 608 pH5-9?			X	
Compliance samples have no discrepancies/require no flags?			X	(Or must be rejected)
Log-in Supervisor notified immediately of following items:			X	Discrepancies, compliance samples (NHDES, MADEP, DoD etc.) or uncommon requests.

Inspected and Received By: K.W. Date/Time: 9/27/22 12:31

Peer Review Checklist

☐ Client ID/Project Manager ☐ On Ice, Temperature OK? ☐ Sample IDs ☐ Analyses in Correctly

☐ Project Name ☐ PO# (if provided) ☐ Matrix -references

☐ TAT/rushes communicated ☐ Sub samples sent? Shipping Charge? ☐ Date/Time collected -wastewater methods

☐ Received Date/Time ☐ Issues noted above communicated? ☐ Short HTs communicated ☐ Notes from CoC in LIMS

Reviewed By: _____ Date: _____

Notes: (continue on back as needed)

	Initials	Date	What was sent?
Uploaded / PDF	____	____	Report / Data / EDD / Invoice
Uploaded / PDF	____	____	Report / Data / EDD / Invoice
Uploaded / PDF	____	____	Report / Data / EDD / Invoice

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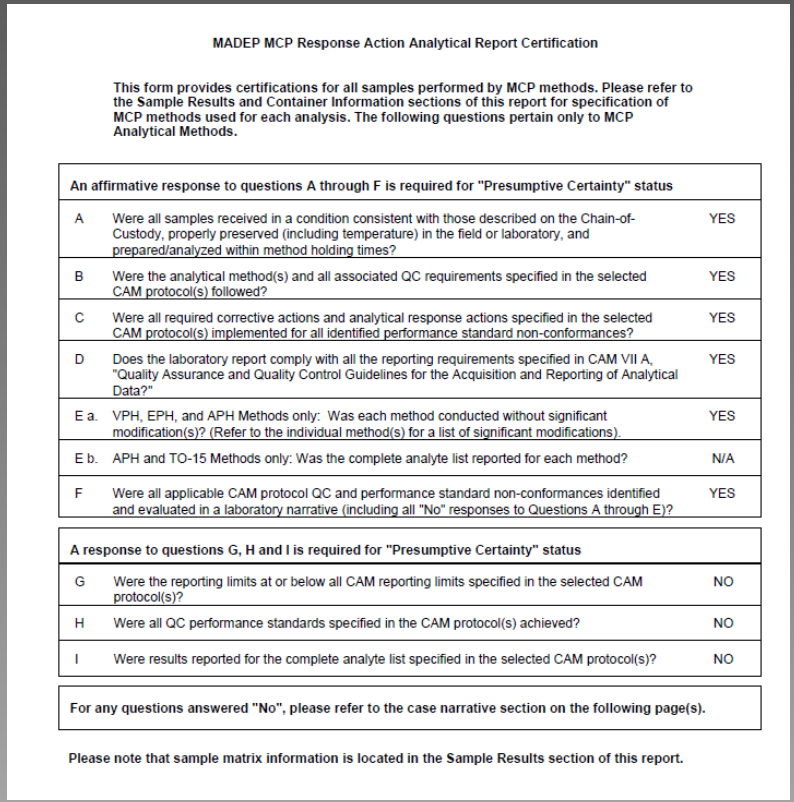
Parts of a Lab Report

Presumptive Certainty

- Massachusetts Contingency Plan (MCP) requires labs to certify on 'Presumptive Certainty' regarding the scientific defensibility, precision and accuracy and reporting of analytical data.



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.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
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

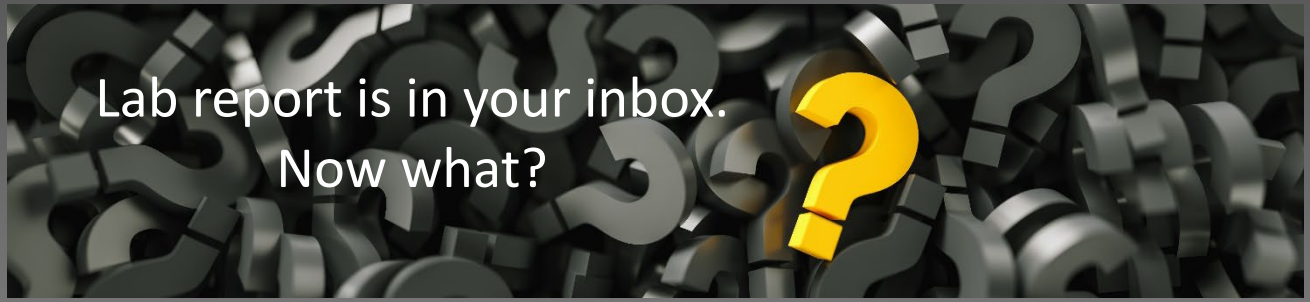
A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported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

Community Economy Environment

What to look out for?



Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	98.2	--	1	A
Aroclor 1221	ND		ug/kg	98.2	--	1	A
Aroclor 1232	ND		ug/kg	98.2	--	1	A
Aroclor 1242	ND						
Aroclor 1248	ND						
Aroclor 1254	ND						
Aroclor 1260	ND						
Aroclor 1262	ND						
Aroclor 1268	ND						
PCBs, Total	ND						

Parameter	Result	Qu
Polychlorinated Biphenyls by GC - Westborough Lab		
Aroclor 1016	ND	
Aroclor 1221	ND	
Aroclor 1232	ND	
Aroclor 1242	ND	
Aroclor 1248	ND	
Aroclor 1254	117	
Aroclor 1260	ND	
Aroclor 1262	ND	
Aroclor 1268	ND	
PCBs, Total	117	

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	54300	--	100	A
Aroclor 1221	ND		ug/kg	54300	--	100	A
Aroclor 1232	ND		ug/kg	54300	--	100	A
Aroclor 1242	ND		ug/kg	27200	--	100	A
Aroclor 1248	1420000		ug/kg	54300	--	100	A
Aroclor 1254	1480000		ug/kg	54300	--	100	B
Aroclor 1260	ND		ug/kg	54300	--	100	A
Aroclor 1262	ND		ug/kg	54300	--	100	A
Aroclor 1268	ND		ug/kg	27200	--	100	A
PCBs, Total	2900000		ug/kg	27200	--	100	B

What to look out for?

All other pages are non-detect/U results, but one page looks like this….

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	160		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	2.2		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	1.3		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1

Community Economy Environment

What to look out for?

You will see PAHs everywhere, but these concentrations are different….

Sample#: 39861-012
Sample ID: CA-SS-19
Matrix: Solid Percent Dry: 88% Results expres
Sampled: 4/14/17 12:35

Parameter	Result	Reporting Limit	Units
diethyl phthalate	< 2.8	2.8	ug/g
4-chlorophenyl phenyl ether	< 2.8	2.8	ug/g
4-nitroaniline	< 2.8	2.8	ug/g
4,6-dinitro-2-methylphenol	< 11	11	ug/g
azobenzene	< 1.1	1.1	ug/g
N-nitrosodiphenylamine	< 1.1	1.1	ug/g
4-bromophenyl phenyl ether	< 1.1	1.1	ug/g
hexachlorobenzene	< 1.1	1.1	ug/g
pentachlorophenol	< 5.5	5.5	ug/g
phenanthrene	2.5	0.28	ug/g
anthracene	0.93	0.28	ug/g
carbazole	< 1.1	1.1	ug/g
di-n-butylphthalate	< 2.8	2.8	ug/g
fluoranthene	17	0.28	ug/g
benzidine	< 17	17	ug/g
pyrene	20	0.28	ug/g
butyl benzyl phthalate	< 2.8	2.8	ug/g
benzo(a)anthracene	8.8	0.28	ug/g
chrysene	7.9	0.28	ug/g
3,3'-dichlorobenzidine	< 17	17	ug/g
bis(2-ethylhexyl)phthalate	< 2.8	2.8	ug/g
di-n-octyl phthalate	< 2.8	2.8	ug/g
benzo(b)fluoranthene	11	0.28	ug/g
benzo(k)fluoranthene	6.8	0.28	ug/g
benzo(a)pyrene	11	0.28	ug/g
indeno(1,2,3-cd)pyrene	4.2	0.28	ug/g
dibenzo(a,h)anthracene	1.8	0.28	ug/g
benzo(g,h,i)perylene	4.0	0.28	ug/g

Sample#: 39861-011
Sample ID: CA-SS-DUP
Matrix: Solid Percent Dry: 81.3% Resu
Sampled: 4/14/17 0:00

Parameter	Result	Reporting Limit
diethyl phthalate	< 0.58	0.58
4-chlorophenyl phenyl ether	< 0.58	0.58
4-nitroaniline	< 0.58	0.58
4,6-dinitro-2-methylphenol	< 2.3	2.3
azobenzene	< 0.23	0.23
N-nitrosodiphenylamine	< 0.23	0.23
4-bromophenyl phenyl ether	< 0.23	0.23
hexachlorobenzene	< 0.23	0.23
pentachlorophenol	< 1.2	1.2
phenanthrene	0.41	0.058
anthracene	0.084	0.058
carbazole	< 0.23	0.23
di-n-butylphthalate	< 0.58	0.58
fluoranthene	0.66	0.058
benzidine	< 3.5	3.5
pyrene	0.64	0.058
butyl benzyl phthalate	< 0.58	0.58
benzo(a)anthracene	0.38	0.058
chrysene	0.34	0.058
3,3'-dichlorobenzidine	< 3.5	3.5
bis(2-ethylhexyl)phthalate	< 0.58	0.58
di-n-octyl phthalate	< 0.58	0.58
benzo(b)fluoranthene	0.43	0.058
benzo(k)fluoranthene	0.20	0.058
benzo(a)pyrene	0.31	0.058
indeno(1,2,3-cd)pyrene	0.15	0.058
dibenzo(a,h)anthracene	0.061	0.058
benzo(g,h,i)perylene	0.17	0.058

Sample#: 39861-010
Sample ID: CA-SS-21
Matrix: Solid Percent Dry: 43.5% Resu
Sampled: 4/14/17 11:35

Parameter	Result	Reporting Limit
diethyl phthalate	< 22	22
4-chlorophenyl phenyl ether	< 22	22
4-nitroaniline	< 22	22
4,6-dinitro-2-methylphenol	< 89	89
azobenzene	< 8.9	8.9
N-nitrosodiphenylamine	< 8.9	8.9
4-bromophenyl phenyl ether	< 8.9	8.9
hexachlorobenzene	< 8.9	8.9
pentachlorophenol	< 44	44
phenanthrene	110	2.2
anthracene	35	2.2
carbazole	< 8.9	8.9
di-n-butylphthalate	< 22	22
fluoranthene	440	5.6
benzidine	< 130	130
pyrene	460	5.6
butyl benzyl phthalate	< 22	22
benzo(a)anthracene	270	2.2
chrysene	250	2.2
3,3'-dichlorobenzidine	< 130	130
bis(2-ethylhexyl)phthalate	< 22	22
di-n-octyl phthalate	< 22	22
benzo(b)fluoranthene	320	2.2
benzo(k)fluoranthene	280	2.2
benzo(a)pyrene	260	2.2
indeno(1,2,3-cd)pyrene	70	2.2
dibenzo(a,h)anthracene	24	2.2
benzo(g,h,i)perylene	62	2.2

Economy
Environment

What to look out for?

Uncommon notes from the lab like this….

Sample#: 39365-009
Sample ID: CA-SS-1
Matrix: Solid Percent Dry: 57.1% Results expressed on a dry weight basis.
Sampled: 2/22/17 12:55

Parameter	Result	Reporting Limit	Units	Instr Dil'n Factor	Analyst	Prep Date	Batch	Analysis Date	Analysis Time	Reference
TPH C10-C36	**150000**	1700	ug/g	10	JZL	2/24/17	9437	2/28/17	4:35	SW3550C8100m
Surrogate Recovery		**Limits**								
2-fluorobiphenyl SUR	**DOR**	40-140	%	10	JZL	2/24/17	9437	2/28/17	4:35	SW3550C8100m
o-terphenyl SUR	**DOR**	40-140	%	10	JZL	2/24/17	9437	2/28/17	4:35	SW3550C8100m

DOR = Diluted out of range.
Note: The reported concentration does not resemble a petroleum product.

…don't be afraid to give the lab a call.

Thank You

Allison Drouin, PG, LG

Senior Project Manager

adrouin@crederellc.com

207-828-1272 x15

Rick Vandenberg, PG, LG

Senior Project Manager

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207-828-1272 x30