



Sterling Environmental Engineering, P.C.

December 26, 2019

Mr. Daniel R. Lanners, P.E.
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C
625 Broadway, 11th Floor
Albany, New York 12233-7014

Subject: Groundwater Monitoring Report – Fourth Quarter, 2019
Apple Valley Shopping Center
Freedom Plains Road, Dutchess County, LaGrange, New York
Site No. 314084
STERLING File #23008

Dear Mr. Lanners,

This letter report provides results of the fourth quarter groundwater monitoring event for 2019 performed by Sterling Environmental Engineering, P.C. (STERLING) at the Apple Valley Shopping Center (AVSC, or the “Site”) in LaGrange, New York on December 10, 2019. This event marks the second groundwater sampling since the installation and startup of the replacement groundwater treatment system in May 2019.

Groundwater samples were collected from the residential well at Lot 6, recovery wells RW-1, RW-2, RW-3, AV-2, and from the groundwater treatment system effluent discharge AVS-EFF. Samples collected from the monitoring locations were analyzed for the following site-specific chlorinated volatile organic compounds (cVOC): tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (DCE), and vinyl chloride.

Treatment System Operations

For the period of September 12, 2019 (third quarter monitoring event) through December 10, 2019 (fourth quarter monitoring event), the treatment system recovered, treated, and discharged approximately 1,269,662 gallons of groundwater based on recorded system data. Quarterly maintenance and inspection was performed during the monitoring event and no deficiencies requiring corrective action were noted.

Groundwater Sampling and Analysis

Groundwater samples were collected from the sampling ports in the treatment system trailer directly into laboratory provided glassware. The sampling point for the residential well was allowed to run for a minimum of 10 minutes prior to collecting the sample. Samples were transported in a cooler with ice under chain of custody protocol to Alpha Analytical of Westborough, MA for analysis of site-specific cVOCs by USEPA Method 8260C.

“Serving our clients and the environment since 1993”

Groundwater Sampling and Laboratory Analytical Results

Analytical results for collected samples are summarized in Table 1 and the analytical report is included in Attachment A:

Table 1 - December 10, 2019 Groundwater Monitoring Sample Results

ANALYTE	Regulatory Standard µg/L	AV-2	RW-1	RW-2	RW-3	AVS-EFF	Lot 6
Tetrachloroethene (PCE)	5	45	370	450	540	0.41 J	3.7
Vinyl chloride	2	0.07 U	0.18 U	0.36 U	0.36 U	0.07 U	0.07 U
Trichloroethene (TCE)	5	6.2	80	9.6	72	0.18 U	0.51
cis-1,2-Dichloroethene (DCE)	5	6.6	17	5.2 J	51	0.7 U	0.92 J
Total VOCs	--	57.8	467	464.8	663	0.41	5.13

Notes: Regulatory Standard is New York TOGS 1.1.1 Ambient Water Quality Standards, June 2004

Bold and highlighted concentrations exceed applicable regulatory standard.

J – Concentration is above the laboratory method detection limit but below the reporting limit and is estimated.

U – Not Detected (ND). The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

Recovery Wells – Concentrations of PCE, TCE, and DCE were detected above the Technical and Operational Guidance Series (TOGS 1.1.1) Water Quality Standards and Guidance Values of 5 µg/l in groundwater samples from AV-2, RW-1, RW-2, and RW-3.

Effluent Discharge – Concentrations of site-specific cVOCs were all below TOGS 1.1.1 Water Quality Standards and Guidance Values for sample AVS-EFF indicating proper operation of the treatment system.

Residential Well – Concentrations of site-specific cVOCs were all below TOGS 1.1.1 Water Quality Standards and Guidance Values for sample from Lot 6. Monitoring of residential water supply wells initially included seven lots. With the exception of Lot 6, all residential wells previously monitored have gained access to municipal water and have since been removed from the monitoring program through approved amendments.

Conclusions and Discussion

Site-specific cVOCs exist at concentrations above the TOGS 1.1.1 Water Quality Standards and Guidance values at each of the groundwater recovery wells, which is consistent with prior monitoring events.

The effluent discharge sample (AVS-EFF) contained no cVOC concentrations above the TOGS 1.1.1 Water Quality Standards and Guidance Values confirming that the treatment system is functioning properly.

The next monitoring is scheduled for the first quarter of 2020 consisting of the following:

- Sampling of RW-1, RW-2, RW-3, AV-2, and AVS-EFF.
- Onsite maintenance and cleaning of the treatment system.

Please contact me should you have any questions.

Very Truly Yours,

STERLING ENVIRONMENTAL ENGINEERING, P.C.



Mark P. Millspaugh, P.E.

President

Mark.Millspaugh@sterlingenvironmental.com

MPM/am

Via Email

Attachments: Figure 1 – Site Location Map
Figure 2 – Selected Site Features
Attachment A – Laboratory Analytical Report

cc: Gezahegne Bushra, USEPA
David Engel, Esq.
James A. Klein, Apple Valley Corp.

S:\Sterling\Projects\2003 Projects\Apple Valley - 23008\Reports\Groundwater Monitoring Reports\2019_Q4 December GWM Report\2019-12-26 Q4 Groundwater Monitoring Report.doc

FIGURES



24 Wade Road ♦ Latham, New York 12110

DUTCHESS CO., N.Y.

PROJ. No.:	23008	DATE:	9/25/2019	SCALE:	1" = 2000'	DWG. NO.	23008001	FIGURE	1
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S:\Sterling\Projects\2003 Projects\Apple Valley - 23008\Drawings-Maps-Figures\CAD\23008023 - F3 - Selected Site Features Map.dwg CAD 10/4/2019 1:03 PM



* LOT 6 RESIDENCE IS NOT ON MUNICIPAL WATER SUPPLY AND OBTAINS WATER FROM
ONSITE WELL.

- MONITORING WELL
MW-5
- RECOVERY WELL
AV-2 RW-1
- PIEZOMETER
P-3

MAP REFERENCE: DISCOVER GIS DATA NY, 2016 ORTHOIMAGERY

STERLING

Sterling Environmental Engineering, P.C.

24 Wade Road • Latham, New York 12110

SELECTED SITE FEATURES MAP
APPLE VALLEY SHOPPING CENTER
FREEDOM PLAINS ROAD

TOWN OF LAGRANGE

DUTCHESS CO., NY

PROJ. No.: 23009 | DATE: 10/04/2019 | SCALE: 1" = 100' | DWG. NO. 23008023 | FIGURE 2

ATTACHMENT A

LABORATORY ANALYTICAL REPORT



ANALYTICAL REPORT

Lab Number:	L1959099
Client:	Sterling Environmental Eng 24 Wade Road Latham, NY 12110
ATTN:	Andrew Millspaugh
Phone:	(518) 456-4900
Project Name:	APPLE VALLEY SHOPPING CENTER
Project Number:	23008
Report Date:	12/17/19

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

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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



Project Name: APPLE VALLEY SHOPPING CENTER
Project Number: 23008

Lab Number: L1959099
Report Date: 12/17/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1959099-01	LOT 6 (LIPKA)	WATER	LAGRANGE, NY	12/10/19 10:45	12/10/19
L1959099-02	RW-1	WATER	LAGRANGE, NY	12/10/19 12:45	12/10/19
L1959099-03	RW-2	WATER	LAGRANGE, NY	12/10/19 12:50	12/10/19
L1959099-04	RW-3	WATER	LAGRANGE, NY	12/10/19 12:55	12/10/19
L1959099-05	AV-2	WATER	LAGRANGE, NY	12/10/19 13:00	12/10/19
L1959099-06	AVS-EFF	WATER	LAGRANGE, NY	12/10/19 13:15	12/10/19
L1959099-07	TB12102019	WATER	LAGRANGE, NY	12/10/19 00:00	12/10/19

Project Name: APPLE VALLEY SHOPPING CENTER
Project Number: 23008

Lab Number: L1959099
Report Date: 12/17/19

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.

Project Name: APPLE VALLEY SHOPPING CENTER
Project Number: 23008

Lab Number: L1959099
Report Date: 12/17/19

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: *Tiffani Morrissey* - Tiffani Morrissey

Title: Technical Director/Representative

Date: 12/17/19

ORGANICS

VOLATILES

Project Name: APPLE VALLEY SHOPPING CENTER
Project Number: 23008

Lab Number: L1959099
Report Date: 12/17/19

SAMPLE RESULTS

Lab ID: L1959099-01
 Client ID: LOT 6 (LIPKA)
 Sample Location: LAGRANGE, NY

Date Collected: 12/10/19 10:45
 Date Received: 12/10/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/15/19 14:38
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Tetrachloroethene	3.7		ug/l	0.50	0.18	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Trichloroethene	0.51		ug/l	0.50	0.18	1
cis-1,2-Dichloroethene	0.92	J	ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	104		70-130

Project Name: APPLE VALLEY SHOPPING CENTER
Project Number: 23008

Lab Number: L1959099
Report Date: 12/17/19

SAMPLE RESULTS

Lab ID: L1959099-02 D
 Client ID: RW-1
 Sample Location: LAGRANGE, NY

Date Collected: 12/10/19 12:45
 Date Received: 12/10/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/15/19 15:10
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Tetrachloroethene	370		ug/l	1.2	0.45	2.5
Vinyl chloride	ND		ug/l	2.5	0.18	2.5
Trichloroethene	80		ug/l	1.2	0.44	2.5
cis-1,2-Dichloroethene	17		ug/l	6.2	1.8	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	101		70-130

Project Name: APPLE VALLEY SHOPPING CENTER
Project Number: 23008

Lab Number: L1959099
Report Date: 12/17/19

SAMPLE RESULTS

Lab ID: L1959099-03 D
 Client ID: RW-2
 Sample Location: LAGRANGE, NY

Date Collected: 12/10/19 12:50
 Date Received: 12/10/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/17/19 11:34
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Tetrachloroethene	450		ug/l	2.5	0.90	5
Vinyl chloride	ND		ug/l	5.0	0.36	5
Trichloroethene	9.6		ug/l	2.5	0.88	5
cis-1,2-Dichloroethene	5.2	J	ug/l	12	3.5	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	96		70-130

Project Name: APPLE VALLEY SHOPPING CENTER
Project Number: 23008

Lab Number: L1959099
Report Date: 12/17/19

SAMPLE RESULTS

Lab ID: L1959099-04 D
 Client ID: RW-3
 Sample Location: LAGRANGE, NY

Date Collected: 12/10/19 12:55
 Date Received: 12/10/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 12/15/19 16:15
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Tetrachloroethene	540		ug/l	2.5	0.90	5
Vinyl chloride	ND		ug/l	5.0	0.36	5
Trichloroethene	72		ug/l	2.5	0.88	5
cis-1,2-Dichloroethene	51		ug/l	12	3.5	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	109		70-130

Project Name: APPLE VALLEY SHOPPING CENTER
Project Number: 23008

Lab Number: L1959099
Report Date: 12/17/19

SAMPLE RESULTS

Lab ID: L1959099-05
Client ID: AV-2
Sample Location: LAGRANGE, NY

Date Collected: 12/10/19 13:00
Date Received: 12/10/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/15/19 13:33
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Tetrachloroethene	45		ug/l	0.50	0.18	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Trichloroethene	6.2		ug/l	0.50	0.18	1
cis-1,2-Dichloroethene	6.6		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	110		70-130

Project Name: APPLE VALLEY SHOPPING CENTER
Project Number: 23008

Lab Number: L1959099
Report Date: 12/17/19

SAMPLE RESULTS

Lab ID: L1959099-06
Client ID: AVS-EFF
Sample Location: LAGRANGE, NY

Date Collected: 12/10/19 13:15
Date Received: 12/10/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/15/19 14:05
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Tetrachloroethene	0.41	J	ug/l	0.50	0.18	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Trichloroethene	ND		ug/l	0.50	0.18	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	79		70-130

Project Name: APPLE VALLEY SHOPPING CENTER
Project Number: 23008

Lab Number: L1959099
Report Date: 12/17/19

SAMPLE RESULTS

Lab ID: L1959099-07
Client ID: TB12102019
Sample Location: LAGRANGE, NY

Date Collected: 12/10/19 00:00
Date Received: 12/10/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/15/19 08:41
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Trichloroethene	ND		ug/l	0.50	0.18	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	108		70-130

Project Name: APPLE VALLEY SHOPPING CENTER
Project Number: 23008

Lab Number: L1959099
Report Date: 12/17/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 12/15/19 08:08
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02,04-07 Batch: WG1321435-5					
Tetrachloroethene	ND		ug/l	0.50	0.18
Vinyl chloride	ND		ug/l	1.0	0.07
Trichloroethene	ND		ug/l	0.50	0.18
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	109		70-130

Project Name: APPLE VALLEY SHOPPING CENTER
Project Number: 23008

Lab Number: L1959099
Report Date: 12/17/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 12/17/19 09:39
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1321772-5					
Tetrachloroethene	ND		ug/l	0.50	0.18
Vinyl chloride	ND		ug/l	1.0	0.07
Trichloroethene	ND		ug/l	0.50	0.18
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	96		70-130

Lab Control Sample Analysis**Batch Quality Control****Project Name:** APPLE VALLEY SHOPPING CENTER**Lab Number:** L1959099**Project Number:** 23008**Report Date:** 12/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02,04-07 Batch: WG1321435-3 WG1321435-4								
Tetrachloroethene	120		110		70-130	9		20
Vinyl chloride	96		92		55-140	4		20
Trichloroethene	120		110		70-130	9		20
cis-1,2-Dichloroethene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		99		70-130
Toluene-d8	109		106		70-130
4-Bromofluorobenzene	100		104		70-130
Dibromofluoromethane	103		104		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: APPLE VALLEY SHOPPING CENTER
Project Number: 23008

Lab Number: L1959099
Report Date: 12/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1321772-3 WG1321772-4								
Tetrachloroethene	110		100		70-130	10		20
Vinyl chloride	100		100		55-140	0		20
Trichloroethene	100		100		70-130	0		20
cis-1,2-Dichloroethene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		104		70-130
Toluene-d8	106		105		70-130
4-Bromofluorobenzene	104		104		70-130
Dibromofluoromethane	101		100		70-130

Project Name: APPLE VALLEY SHOPPING CENTER**Lab Number:** L1959099**Project Number:** 23008**Report Date:** 12/17/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1959099-01A	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-01B	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-01C	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-02A	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-02B	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-02C	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-03A	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-03B	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-03C	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-04A	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-04B	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-04C	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-05A	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-05B	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-05C	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-06A	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-06B	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-06C	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-07A	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)
L1959099-07B	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260-R2(14)

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GLOSSARY

Acronyms

DL	- 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 limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
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.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
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

Report Format: DU Report with 'J' Qualifiers



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

Terms

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

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- 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.
- 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.
- 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).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- 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.)

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Data Qualifiers

- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

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REFERENCES

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

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at 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.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

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Certification Information

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

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, 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, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B, SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** 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 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

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

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