Sterling Environmental Engineering, P.C.

October 17, 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 – Third 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 third 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 September 12, 2019. This event marks the first groundwater sampling since the installation and startup of the replacement groundwater treatment system in May 2019.

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

Depth to water was gauged at 13 monitoring wells to determine the groundwater drawdown due to operation of the groundwater treatment system.

Prior to field-mobilization, the Lot 6 owner was contacted to coordinate access for sampling of their water supply well. On the day of sampling, the residence was locked and repeated attempts to contact the owner were unsuccessful. Sampling of Lot 6 will be attempted during the fourth quarter monitoring event.

Groundwater Gauging and Drawdown Determination

Depth to water was gauged at 13 groundwater monitoring wells using an electronic water level indicator graduated in 0.01 foot intervals measured from the top of each monitoring well casing. Depth to water ranged from 15.47 feet at MW-6 to 35.35 feet at MW-3. Groundwater elevations were calculated by subtracting the measured depth to water from the top of casing elevation for each monitoring well and are represented on the attached Figure 2. At the time of depth gauging, the groundwater extraction and treatment system had been shut down for approximately 48 hours due to required maintenance, yet groundwater drawdown was still observed in the vicinity of the recovery wells. A Groundwater Contour Map is provided as Figure 3.

24 Wade Road ♦ Latham, New York 12110 ♦ Tel: 518-456-4900 ♦ Fax: 518-456-3532
E-mail: sterling@sterlingenvironmental.com ♦ Website: www.sterlingenvironmental.com

Treatment System Operations

Through the end of September 2019, the treatment system recovered, treated, and discharged approximately 1,542,122 gallons of groundwater since startup based on recorded system data. The system shut down on September 10, 2019 due to a control sensor error that required troubleshooting with the system vendor. Quarterly maintenance and cleaning was performed during the monitoring event and system operation was resumed.

Groundwater Sampling and Analysis

Groundwater samples were collected directly from the sampling ports in the treatment system trailer directly into laboratory provided glassware. Each recovery well was allowed to run for a minimum of ten (10) minutes before samples were taken. 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. Purge water collected during sampling was containerized into 5-gallon buckets and managed directly into the site groundwater treatment system.

Groundwater Sampling and Laboratory Analytical Results

Analytical results for collected samples are summarized in Table 1:

Table 1 - September 12, 2019 Groundwater Monitoring Sample Results

ANALYTE	Regulatory Standard µg/L	AV-2	RW-1	RW-2	RW-3	AVS-EFF
Tetrachloroethene (PCE)	5	**220**	**200**	**110**	**890**	0.5
Vinyl chloride	2	0.17J	<0.14	<0.07	<0.36	<0.07
Trichloroethene (TCE)	5	**21**	**9.2**	**12**	**100**	<0.18
cis-1,2-Dichloroethene (DCE)	5	**29**	**5.1**	**8.3**	**86**	<0.7
Total VOCs	--	270.17	214.3	240.3	1076	0.5

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.

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.

The laboratory analytical report is provided as Attachment A.

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 VOC concentrations above the TOGS 1.1.1 Water Quality Standards and Guidance Values confirming that the treatment system is functioning properly. Groundwater drawdown was observed in the vicinity of the recovery wells confirming that the recovery wells are providing an inward gradient toward the site to prevent offsite plume migration. Drawdown conditions continued even after not operating the treatment system for 48 hours.

The next monitoring is scheduled for the fourth quarter of 2019 consisting of the following:

- Sampling of RW-1, RW-2, RW-3, AV-2, and AVS-EFF.
- Sampling of the residential drinking supply well at the Lot 6 residence.
- 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 – Monitoring Well Locations
Figure 3 – Groundwater Contour Map
Attachment A – Laboratory Analytical Report

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

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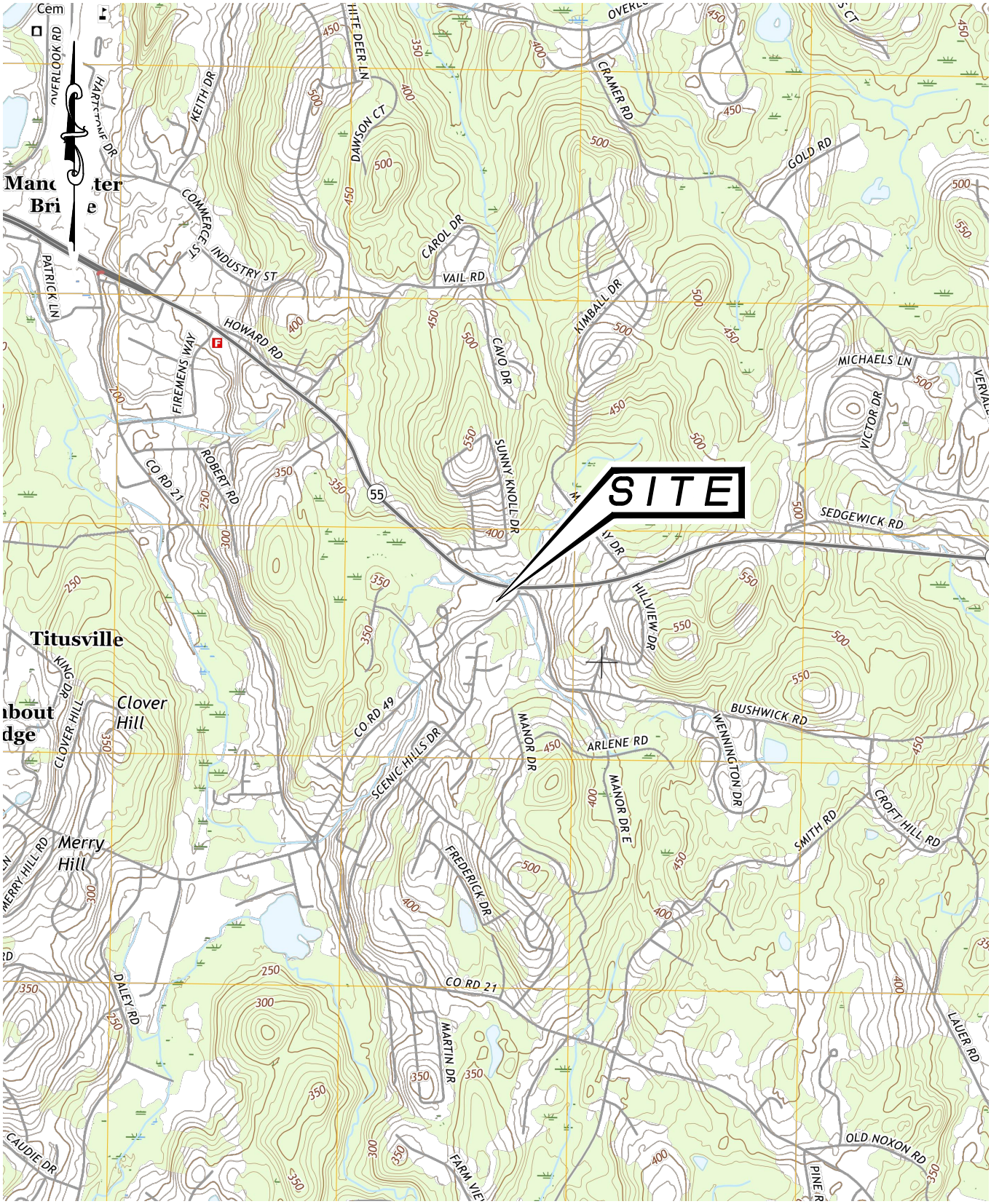
FIGURES



MAP REFERENCE: USGS US TOPO 7.5–MINUTE MAP FOR PLEASANT VALLEY, NY 2016

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SITE LOCATION MAP
APPLE VALLEY SHOPPING CENTER
FREEDOM PLAINS ROAD

TOWN OF LAGRANGE — DUTCHESS CO., N.Y.

PROJ. No.:	DATE:	SCALE:	DWG. NO.	FIGURE
23008	9/25/2019	1" = 2000'	23008001	1

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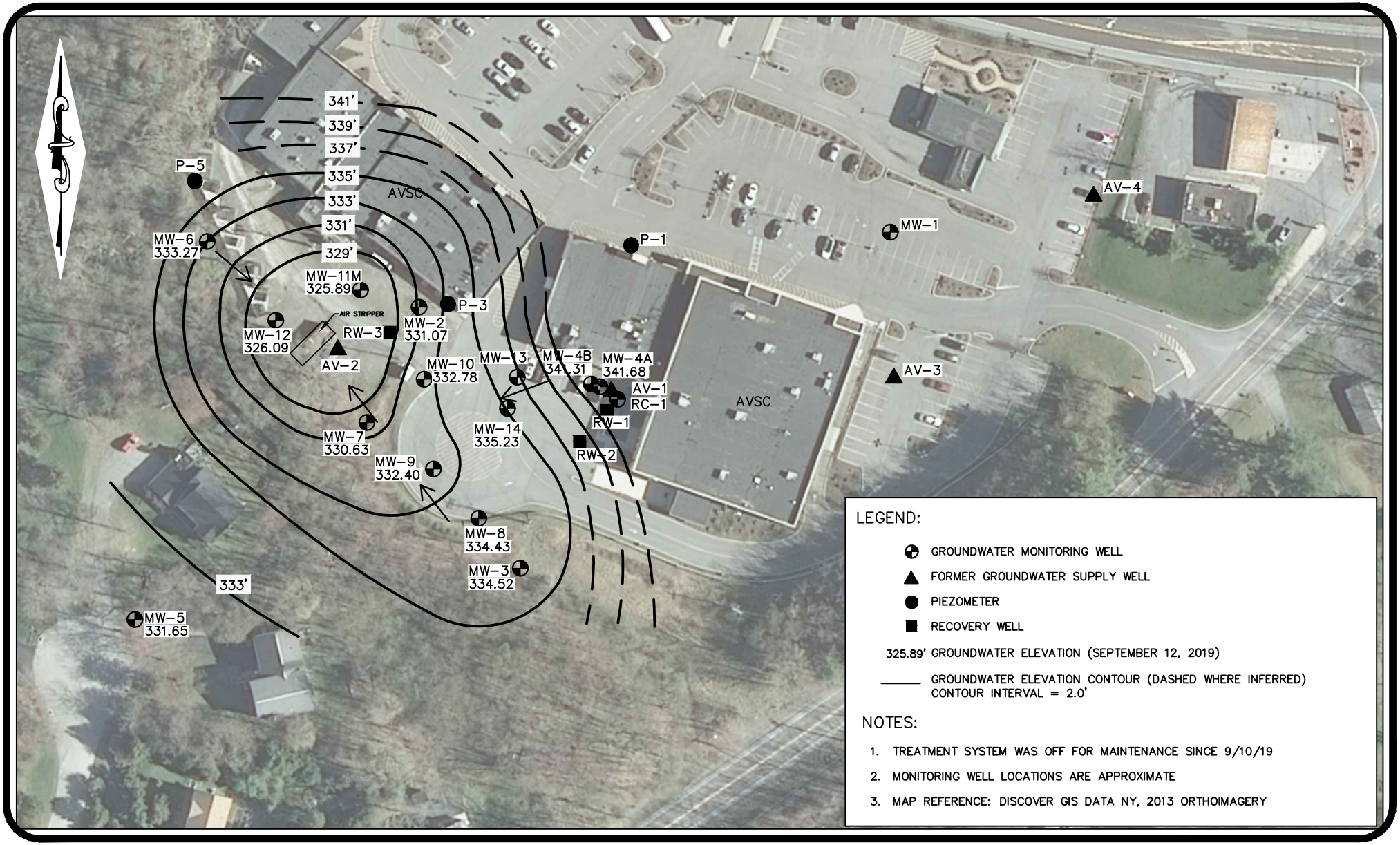
MONITORING WELL LOCATIONS
APPLE VALLEY SHOPPING CENTER
FREEDOM PLAINS ROAD

TOWN OF LAGRANGE DUTCHESS COUNTY, NEW YORK

PROJ. No.:	23008	DATE:	09/25/2019	SCALE:	1"=100'	DWG. NO.	23008022	FIGURE	2

S:\Sterling\Projects\2003 Projects\Apple Valley – 23008\Drawings-Maps-Figures\CAD\23008022 – Well Depths and Location Sept 2019.dwg CAD 9/25/2019 4:55 PM



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GROUNDWATER CONTOUR MAP
APPLE VALLEY SHOPPING CENTER
FREEDOM PLAINS ROAD

TOWN OF LAGRANGE DUTCHESS COUNTY, NEW YORK

PROJ. No.:	23008	DATE:	09/26/2019	SCALE:	1"=100'	DWG. NO.	23008021	FIGURE	3

S:\Sterling\Projects\2003 Projects\Apple Valley – 23008\Drawings-Maps-Figures\CAD\23008021 – Groundwater Contour Map Sept 2019.dwg CAD 9/26/2019 10:47 AM

ATTACHMENT A

LABORATORY ANALYTICAL REPORT

ANALYTICAL REPORT

Lab Number:	L1941946
Client:	Sterling Environmental Eng 24 Wade Road Latham, NY 12110
ATTN:	Andrew Millspaugh
Phone:	(518) 456-4900
Project Name:	APPLE VALLEY
Project Number:	23008
Report Date:	09/19/19

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
Project Number: 23008

Lab Number: L1941946
Report Date: 09/19/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1941946-01	RW-1	WATER	LAGRANGE, NY	09/12/19 12:25	09/12/19
L1941946-02	RW-2	WATER	LAGRANGE, NY	09/12/19 12:30	09/12/19
L1941946-03	RW-3	WATER	LAGRANGE, NY	09/12/19 12:45	09/12/19
L1941946-04	AV-2	WATER	LAGRANGE, NY	09/12/19 12:55	09/12/19
L1941946-05	AVS-EFF	WATER	LAGRANGE, NY	09/12/19 13:15	09/12/19
L1941946-06	TRIP BLANK 09122019	WATER	LAGRANGE, NY	09/12/19 00:00	09/12/19

Project Name:	APPLE VALLEY	**Lab Number:**	L1941946
Project Number:	23008	**Report Date:**	09/19/19

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	**Lab Number:**	L1941946
Project Number:	23008	**Report Date:**	09/19/19

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.

Volatile Organics

L1941946-02: Differences were noted between the results of the analyses which have been attributed to vial discrepancies. Further re-analysis could not be performed due to the existing vials being compromised.

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: 09/19/19

ORGANICS

VOLATILES

Project Name: APPLE VALLEY
Project Number: 23008
Lab Number: L1941946
Report Date: 09/19/19

SAMPLE RESULTS

Lab ID: L1941946-01 D
Client ID: RW-1
Sample Location: LAGRANGE, NY

Date Collected: 09/12/19 12:25
Date Received: 09/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 09/19/19 02:55
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Tetrachloroethene	200		ug/l	1.0	0.36	2
Vinyl chloride	ND		ug/l	2.0	0.14	2
trans-1,2-Dichloroethene	ND		ug/l	5.0	1.4	2
Trichloroethene	9.2		ug/l	1.0	0.35	2
cis-1,2-Dichloroethene	5.1		ug/l	5.0	1.4	2
1,2-Dichloroethene, Total	5.1		ug/l	5.0	1.4	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	102		70-130

Project Name: APPLE VALLEY
Project Number: 23008
Lab Number: L1941946
Report Date: 09/19/19

SAMPLE RESULTS

Lab ID: L1941946-02
Client ID: RW-2
Sample Location: LAGRANGE, NY

Date Collected: 09/12/19 12:30
Date Received: 09/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 09/19/19 12:03
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Tetrachloroethene	220	E	ug/l	0.50	0.18	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	12		ug/l	0.50	0.18	1
cis-1,2-Dichloroethene	8.3		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	8.3		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	101		70-130

Project Name: APPLE VALLEY
Project Number: 23008
Lab Number: L1941946
Report Date: 09/19/19

SAMPLE RESULTS

Lab ID: L1941946-02 D
Client ID: RW-2
Sample Location: LAGRANGE, NY

Date Collected: 09/12/19 12:30
Date Received: 09/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 09/19/19 03:19
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Tetrachloroethene	110		ug/l	1.0	0.36	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	106		70-130

Project Name: APPLE VALLEY
Project Number: 23008
Lab Number: L1941946
Report Date: 09/19/19

SAMPLE RESULTS

Lab ID: L1941946-03 D
Client ID: RW-3
Sample Location: LAGRANGE, NY
Date Collected: 09/12/19 12:45
Date Received: 09/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 09/19/19 03:44
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Tetrachloroethene	890		ug/l	2.5	0.90	5
Vinyl chloride	ND		ug/l	5.0	0.36	5
trans-1,2-Dichloroethene	ND		ug/l	12	3.5	5
Trichloroethene	100		ug/l	2.5	0.88	5
cis-1,2-Dichloroethene	86		ug/l	12	3.5	5
1,2-Dichloroethene, Total	86		ug/l	12	3.5	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	102		70-130

Project Name: APPLE VALLEY
Project Number: 23008
Lab Number: L1941946
Report Date: 09/19/19

SAMPLE RESULTS

Lab ID: L1941946-04 D
Client ID: AV-2
Sample Location: LAGRANGE, NY

Date Collected: 09/12/19 12:55
Date Received: 09/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 09/19/19 00:52
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Tetrachloroethene	220		ug/l	1.0	0.36	2
Vinyl chloride	0.17	J	ug/l	2.0	0.14	2
trans-1,2-Dichloroethene	ND		ug/l	5.0	1.4	2
Trichloroethene	21		ug/l	1.0	0.35	2
cis-1,2-Dichloroethene	29		ug/l	5.0	1.4	2
1,2-Dichloroethene, Total	29		ug/l	5.0	1.4	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	98		70-130

Project Name: APPLE VALLEY
Project Number: 23008
Lab Number: L1941946
Report Date: 09/19/19

SAMPLE RESULTS

Lab ID: L1941946-05
Client ID: AVS-EFF
Sample Location: LAGRANGE, NY
Date Collected: 09/12/19 13:15
Date Received: 09/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 09/19/19 01:17
Analyst: NLK

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name: APPLE VALLEY
Project Number: 23008
Lab Number: L1941946
Report Date: 09/19/19

SAMPLE RESULTS

Lab ID: L1941946-06
Client ID: TRIP BLANK 09122019
Sample Location: LAGRANGE, NY
Date Collected: 09/12/19 00:00
Date Received: 09/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 09/18/19 21:29
Analyst: NLK

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
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	99		70-130

Project Name: APPLE VALLEY
Project Number: 23008
Lab Number: L1941946
Report Date: 09/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 09/19/19 08:45
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1286111-5					
Tetrachloroethene	ND		ug/l	0.50	0.18
Vinyl chloride	ND		ug/l	1.0	0.07
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	100		70-130

Project Name: APPLE VALLEY
Project Number: 23008
Lab Number: L1941946
Report Date: 09/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 09/18/19 19:55
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1286128-5					
Tetrachloroethene	ND		ug/l	0.50	0.18
Vinyl chloride	ND		ug/l	1.0	0.07
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	99		70-130

Project Name: APPLE VALLEY
Project Number: 23008
Lab Number: L1941946
Report Date: 09/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 09/18/19 21:04
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04-06 Batch: WG1286131-5					
Tetrachloroethene	ND		ug/l	0.50	0.18
Vinyl chloride	ND		ug/l	1.0	0.07
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: APPLE VALLEY

Project Number: 23008

Lab Number: L1941946

Report Date: 09/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1286111-3 WG1286111-4								
Tetrachloroethene	89		90		70-130	1		20
Vinyl chloride	82		81		55-140	1		20
trans-1,2-Dichloroethene	94		93		70-130	1		20
Trichloroethene	93		92		70-130	1		20
cis-1,2-Dichloroethene	94		94		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		103		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	83		84		70-130
Dibromofluoromethane	95		95		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: APPLE VALLEY

Project Number: 23008

Lab Number: L1941946

Report Date: 09/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1286128-3 WG1286128-4								
Tetrachloroethene	90		91		70-130	1		20
Vinyl chloride	76		76		55-140	0		20
trans-1,2-Dichloroethene	90		94		70-130	4		20
Trichloroethene	91		92		70-130	1		20
cis-1,2-Dichloroethene	92		93		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	89		89		70-130
Dibromofluoromethane	93		95		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: APPLE VALLEY

Project Number: 23008

Lab Number: L1941946

Report Date: 09/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04-06 Batch: WG1286131-3 WG1286131-4								
Tetrachloroethene	99		100		70-130	1		20
Vinyl chloride	100		110		55-140	10		20
trans-1,2-Dichloroethene	110		110		70-130	0		20
Trichloroethene	110		120		70-130	9		20
cis-1,2-Dichloroethene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	120		120		70-130
Toluene-d8	95		97		70-130
4-Bromofluorobenzene	96		97		70-130
Dibromofluoromethane	101		101		70-130

Project Name: APPLE VALLEY
Project Number: 23008

Lab Number: L1941946
Report Date: 09/19/19

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(*)
L1941946-01A	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-01B	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-01C	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-02A	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-02B	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-02C	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-03A	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-03B	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-03C	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-04A	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-04B	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-04C	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-05A	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-05B	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-05C	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L1941946-06A	Vial HCl preserved	A	NA		3.4	Y	Absent		NYTCL-8260-R2(14)

*Values in parentheses indicate holding time in days

Project Name:	APPLE VALLEY	**Lab Number:**	L1941946
Project Number:	23008	**Report Date:**	09/19/19

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.
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.
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

Project Name:	APPLE VALLEY	**Lab Number:**	L1941946
Project Number:	23008	**Report Date:**	09/19/19

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.

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.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

Project Name:	APPLE VALLEY	**Lab Number:**	L1941946
Project Number:	23008	**Report Date:**	09/19/19

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.

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.

ALPHA ANALYTICAL

NEW YORK CHAIN OF CUSTODY

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 9/13/19

ALPHA Job #: L1941946 (~~L1941636~~)

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Project Information
Project Name: Apple Valley
Project Location: Lagrange, NY
Project #: 23008
(Use Project name as Project #) ☐
Project Manager: Andrew Millspaugh / C. Fox
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☒ ASP-A * ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other * Report Only PCE, TCE, 1,2 cis-DCE, Vinylchloride

Billing Information
☒ Same as Client Info
PO #

Client Information
Client: Sterling Environmental
Address: 24 Wade Rd
Latham, NY 12110
Phone: 518 456-4900
Fax:
Email:

Regulatory Requirement
☒ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:
andrew.millspaugh@sterlingenvironmental.com

Please specify Metals or TAL.

ANALYSIS: VOCs EPA 8260C

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs EPA 8260C	Sample Specific Comments	Total Bottles
41946-01	RW-1	9/12/2019	1225	Groundwater	PWS	X		3
-02	RW-2	↓	1230	↓	↓	X		3
-03	RW-3	↓	1245	↓	↓	X		3
-04	AV-2	↓	1255	↓	↓	X		3
-05	AVS-EFF	↓	1315	↓	↓	X		3
-06	TripBlank09122019	↓		Water	↓	X		1

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; K/E = Zn Ac/NaOH; O = Other

Container Code: P = Plastic; A = Amber Glass; V = Vial; G = Glass; B = Bacteria Cup; C = Cube; O = Other; E = Encore; D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type: V
Preservative: B

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	9/12/2019 5:40	[signature] AAL	9-12-19 17:40
[signature]	9-12-19 17:40	[signature]	9/13/19 01:30

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)