



Former Lockheed Martin French Road Facility
Utica, New York
Solvent Dock Site
(NYSDEC Site ID #633036A)

Data Summary and Observations First Quarter Post-Shutdown Groundwater Monitoring

General Notes

- As part of the groundwater collection and treatment system (GCTS) optimization investigation activities, installation of two test pits and eight new piezometers in the north storm sewer area near the buried perforated piping for the GCTS was performed during the week of May 17, 2021. The GCTS was shut down on May 26, 2021. The approximate locations of the test pits and the new piezometers are shown on Figure D-1.
- First quarter post-shutdown groundwater samples were collected from the existing monitoring wells and piezometers previously sampled in the May 2021 pre-shutdown groundwater sampling event, and the new piezometers were sampled for volatile organic compounds (VOCs). The monitoring well network and new piezometers are shown on Figure D-1. This first quarter post-shutdown groundwater monitoring event was performed in August 2021 using standard monitoring locations, procedures, and analytical parameters.
- The groundwater gauging and sampling of the existing monitoring wells and piezometers was performed from August 10, 2021 to August 13, 2021. Of the existing 61 wells subject to water level gauging, fourteen wells were sampled and analyzed for Volatile Organic Compounds (VOCs), and one of the wells (PZ-21) was reported as dry. The attached Tables 4-1 and 4-2 summarize gauging data and VOC analytical results, respectively. Note that analytical data qualifiers have been included in Table 4-2 according to results of the attached Data Usability Summary Report (DUSR). Based on the results of data validation and as summarized in the attached DUSR, the analytical data are usable.
- On August 10, 2021, prior to purging and taking field parameter measurements, extra 40 milliliter (mL) sample vials of well water were collected from PZ-5 and PZ-6 in case the wells did not recharge after purging. The water levels were checked on August 13, 2021 at PZ-5 and PZ-6. There was sufficient recharge in PZ-5 and PZ-6 to collect additional samples that were submitted for analysis.
- The eight new piezometers installed during the test pitting activities, TP1-PZ-1, TP1-PZ-2, TP1-PZ-3, TP1-PZ-4, TP2-PZ-1, TP2-PZ-2, TP2-PZ-3, and TP2-PZ-4 were sampled and analyzed for VOCs on August 12, 2021. The attached Table 4-3 summarizes the VOC analytical results for the new piezometers.
- During the operation of the GCTS, treated groundwater was discharged via gravity to the local municipal storm drain under a NYSDEC State Pollutant Discharge Elimination System (SPDES) permit (permit No. NY 0121894). The three existing catch basins CB-1, CB-2 and CB-3 were monitored by collecting stormwater samples for the presence of VOCs. The locations of the catch basins are shown on Figure D-1A. The three existing catch basins were sampled and analyzed for VOCs on August 10, 2021. The attached Table 4-4 summarizes the VOC analytical results for the existing catch basins.



TETRA TECH

DATA USABILITY SUMMARY REPORT

4.0 CONCLUSIONS

Overall, based on the outcome of data validation and as summarized in the DUSR, the data quality is acceptable with the qualifiers noted in this report.



Tetra Tech, Inc.
Michelle L. Woeber
Chemist/Data Validator



Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

September 29, 2021

Attachments:

Attachment 1 – Qualified Analytical Results
Attachment 2 – Results as Reported by the Laboratory
Attachment 3 – Support Documentation

Data Qualifier Definitions

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted detection limit.
J	The result is an estimated value with an unknown bias. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
NJ	The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
X	The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team, but exclusion of the data is recommended.

Attachment 1

Qualified Analytical Results

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors $>40\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $<30\%$
- Z = Uncertainty at 2 standard deviations is greater than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed
- Z3 = Tentatively Identified Compound aldol condensate
- Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
- Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

Attachment 3

Support Documentation

LMC UTICA
SDG 70184112

SAMPLE IDENTIFICATION

TP1-PZ3

COMPOUND

CIS-1,2-DICHLOROETHENE

COMPOUND AREA 363727

INTERNAL STANDARD AMOUNT (ng) 250

VOLUME WATER PURGED (ml) 5

DILUTION FACTOR 25

INTERNAL STANDARD AREA 332515

CONTINUING CALIBRATION RRF 0.46666

ml to μ l 1000

ng to μ g 1000

reported result 2930.0 μ g/L
2930 μ g/L

$(363727 \times 250\text{ng} \times 25 \times 1000\text{ml} \times 1\mu\text{g} / 332515 \times 0.46666 \times 5\text{ml} \times 1\text{L} \times 1000\text{ng})$

Data File: \\v70wintarget\chem\70msv8.i\081921.b\P34050.D
Report Date: 20-Aug-2021 20:22

QC Flag Legend

Q - Qualifier signal failed the ratio test.
D - User disabled compound identification.

Review Codes Legend

:

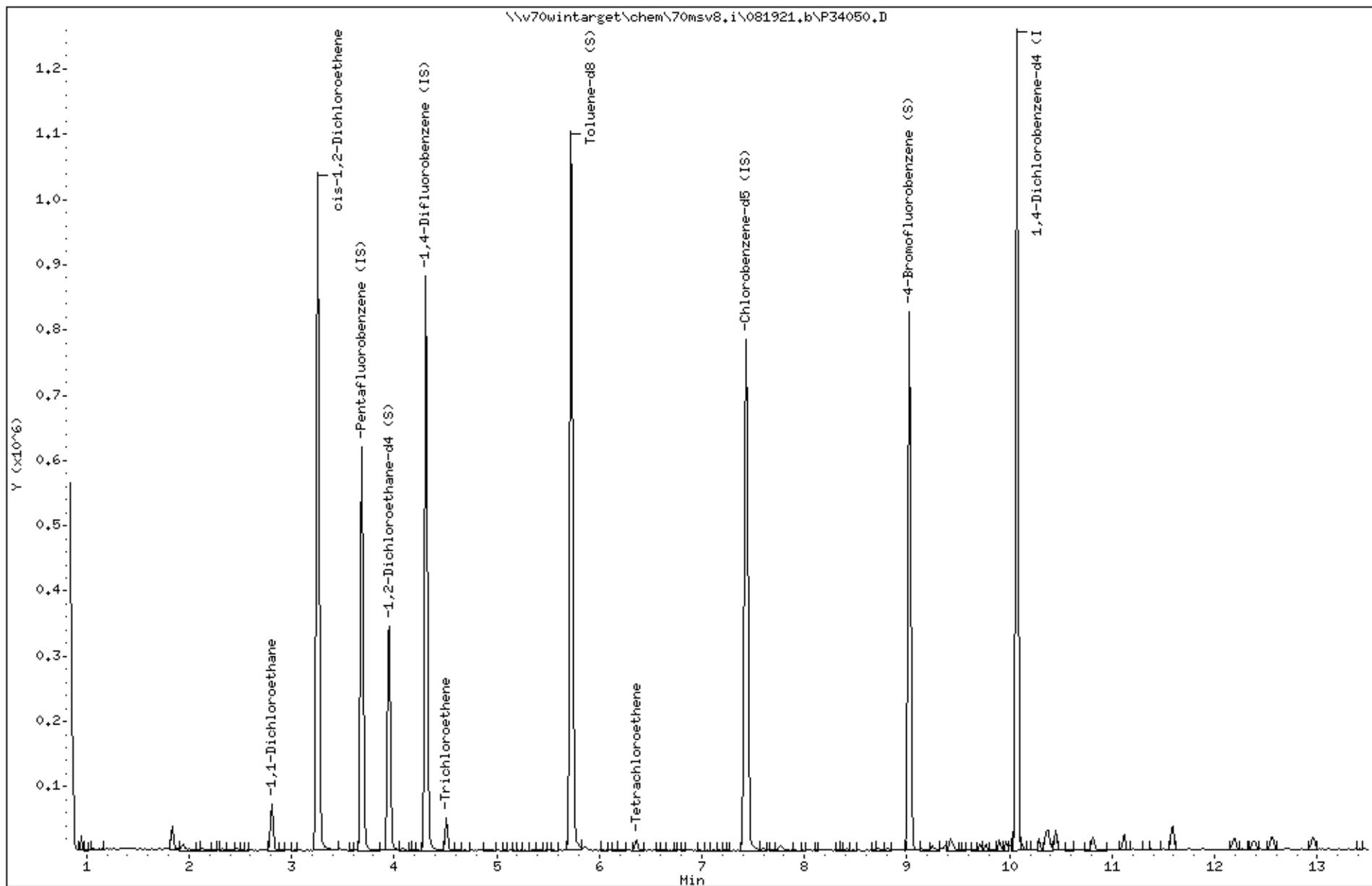
Data File: \\v70wintarget\chem\70msv8.i\081921.b\P34050.D
Report Date: 20-Aug-2021 20:22

Pace Analytical Services, Inc.

SW846-8260C/D/EPA 624.1

Data file : \\v70wintarget\chem\70msv8.i\081921.b\P34050.D
Lab Smp Id: 70184112007 Client Smp ID: TP1-PZ3
Inj Date : 19-AUG-2021 19:37 MS Autotune Date: 14-MAY-2021 14:0
Operator : BBL Inst ID: 70msv8.i
Smp Info : 70184112007x25,
Misc Info : 12314,
Comment :
Method : \\v70wintarget\chem\70msv8.i\081921.b\060921_8260W.m
Meth Date : 20-Aug-2021 20:19 70msv8.i Quant Type: ISTD
Cal Date : 09-JUN-2021 16:47 Cal File: P31435.D
Als bottle: 36
Dil Factor: 25.00000
Integrator: HP RTE Compound Sublist: 8260.sub
Target Version: RC10A
Processing Host: 70MSV3WS10B6

- NO TENTATIVELY IDENTIFIED COMPOUNDS -



ANALYTE	ORIGINAL	DUPLICATE	RL	RPD	RPD > 30%	ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2xRL
CIS-1,2-DICHLOROETHENE	1.6	1.5	1	6.45	FALSE	FALSE	FALSE	FALSE

SDG 70184112

MW-4 DUP/MW-4

PROJECT NARRATIVE

Project: LMC UTICA 8/11

Pace Project No.: 70184112

Method: EPA 8260C/5030C

Description: 8260C Volatile Organics

Client: Tetra Tech Inc.

Date: August 25, 2021

QC Batch: 222330

v3: The continuing calibration verification was below the method acceptance limit. Any detection for the analyte in the associated samples may have a low bias.

- Chlorodifluoromethane
- Chloromethane
- Dichlorodifluoromethane
- Vinyl chloride
- CB#2 (Lab ID: 70184112026)
 - Acetone
 - Chlorodifluoromethane
 - Chloromethane
 - Dichlorodifluoromethane
 - Vinyl chloride
- CB#3 (Lab ID: 70184112027)
 - Acetone
 - Chlorodifluoromethane
 - Chloromethane
 - Dichlorodifluoromethane
 - Vinyl chloride
- LCS (Lab ID: 1121101)
 - Acetone
 - Chlorodifluoromethane
 - Chloromethane
 - Dichlorodifluoromethane
 - Vinyl chloride
- MS (Lab ID: 1121102)
 - Acetone
 - Chlorodifluoromethane
 - Chloromethane
 - Dichlorodifluoromethane
 - Vinyl chloride
- MSD (Lab ID: 1121103)
 - Acetone
 - Chlorodifluoromethane
 - Chloromethane
 - Dichlorodifluoromethane
 - Vinyl chloride
- MW-1 (Lab ID: 70184112002)
 - Acetone
 - Chlorodifluoromethane
 - Chloromethane
 - Dichlorodifluoromethane
 - Vinyl chloride
- MW-10 (Lab ID: 70184112006)
 - Acetone
 - Chlorodifluoromethane

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LMC UTICA 8/11

Pace Project No.: 70184112

Method: EPA 8260C/5030C

Description: 8260C Volatile Organics

Client: Tetra Tech Inc.

Date: August 25, 2021

QC Batch: 222330

v3: The continuing calibration verification was below the method acceptance limit. Any detection for the analyte in the associated samples may have a low bias.

- Chloromethane
- Dichlorodifluoromethane
- Vinyl chloride
- MW-2 (Lab ID: 70184112001)
 - Acetone
 - Chlorodifluoromethane
 - Chloromethane
 - Dichlorodifluoromethane
 - Vinyl chloride
- MW-3 (Lab ID: 70184112003)
 - Acetone
 - Chlorodifluoromethane
 - Chloromethane
 - Dichlorodifluoromethane
 - Vinyl chloride
- MW-4 (Lab ID: 70184112004)
 - Acetone
 - Chlorodifluoromethane
 - Chloromethane
 - Dichlorodifluoromethane
 - Vinyl chloride
- MW-4-DUP (Lab ID: 70184112005)
 - Acetone
 - Chlorodifluoromethane
 - Chloromethane
 - Dichlorodifluoromethane
 - Vinyl chloride
- TP1-PZ1 (Lab ID: 70184112008)
 - Acetone
 - Chlorodifluoromethane
 - Chloromethane
 - Dichlorodifluoromethane
 - Vinyl chloride
- TP1-PZ3 (Lab ID: 70184112007)
 - Acetone
 - Chlorodifluoromethane
 - Chloromethane
 - Dichlorodifluoromethane
 - Vinyl chloride
- TRIP BLANK (Lab ID: 70184112028)
 - Acetone
 - Chlorodifluoromethane
 - Chloromethane

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: LMC UTICA 8/11

Pace Project No.: 70184112

Method: EPA 8260C/5030C

Description: 8260C Volatile Organics

Client: Tetra Tech Inc.

Date: August 25, 2021

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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MSV - FORM VI VOA-3
MSV INITIAL CALIBRATION DATA

Lab Name: Pace Analytical - New York Instrument ID: 70MSV8 GC Column: Col 1 SDG No.: 70184112
Calibration Date(s): 06/09/2021 06/09/2021 Calibration Time(s): 16:08 18:24

LAB FILE ID

CAL1 = 060921.B\P31433.D CAL2 = 060921.B\P31434.D CAL3 = 060921.B\P31435.D
CAL4 = 060921.B\P31436.D CAL5 = 060921.B\P31437.D CAL6 = 060921.B\P31438.D
CAL7 = 060921.B\P31439.D CAL8 = 060921.B\P31440.D

COMPOUND	CURVE TYPE	CAL1	CAL2	CAL3	CAL4	CAL5	CAL6
1,2-Dichloroethane-d4 (S)	Averaged	0.33833	0.32941	0.33242	0.33427	0.32735	0.33225
Toluene-d8 (S)	Averaged	2.42588	2.40283	2.42642	2.44355	2.40572	2.42719

The values for compounds reported as total are based on a summation of the components within the laboratory information management system.

09/07/2021 8:59

MSV - FORM VI VOA-6
MSV INITIAL CALIBRATION DATA

Lab Name: Pace Analytical - New York Instrument ID: 70MSV8 GC Column: Col 1 SDG No.: 70184112
Calibration Date(s): 06/09/2021 06/09/2021 Calibration Time(s): 16:08 18:24

LAB FILE ID

CAL1 = 060921.B\P31433.D CAL2 = 060921.B\P31434.D CAL3 = 060921.B\P31435.D
CAL4 = 060921.B\P31436.D CAL5 = 060921.B\P31437.D CAL6 = 060921.B\P31438.D
CAL7 = 060921.B\P31439.D CAL8 = 060921.B\P31440.D

COMPOUND	CURVE TYPE	CAL7	CAL8
1,2-Dichloroethane-d4 (S)	Averaged	0.33103	0.33278
Toluene-d8 (S)	Averaged	2.44928	2.39846

The values for compounds reported as total are based on a summation of the components within the laboratory information management system.

09/07/2021 8:59

MSV - FORM VI VOA-9
MSV INITIAL CALIBRATION DATA

Lab Name: Pace Analytical - New York Instrument ID: 70MSV8 GC Column: Col 1 SDG No.: 70184112
Calibration Date(s): 06/09/2021 06/09/2021 Calibration Time(s): 16:08 18:24

LAB FILE ID

CAL1 = 060921.B\P31433.D CAL2 = 060921.B\P31434.D CAL3 = 060921.B\P31435.D
CAL4 = 060921.B\P31436.D CAL5 = 060921.B\P31437.D CAL6 = 060921.B\P31438.D
CAL7 = 060921.B\P31439.D CAL8 = 060921.B\P31440.D

COMPOUND	CURVE TYPE	%RSD	R2	A1	A2	A3
1,2-Dichloroethane-d4 (S)	Averaged	0.98463			0.33223	
Toluene-d8 (S)	Averaged	0.77310			2.42242	

The values for compounds reported as total are based on a summation of the components within the laboratory information management system.

09/07/2021 8:59

MSV - FORM VII VOA-3
MSV INITIAL CALIBRATION DATA

SAMPLE NO.

15164450ICV

Lab Name: Pace Analytical - New York

Calibration Date: 06/09/2021 Time: 19:14

Instrument ID: 70MSV8 GC Column: Col 1

Init. Calib. Date(s): 06/09/2021 06/09/2021

Lab File ID: 060921.B\P31441.D

Init. Calib. Time(s): 16:08 18:24

SDG No.: 70184112

COMPOUND	CURVE	RRF or Amount	RRF or Amount	MIN RRF	%D	MAX %D
1,2-Dichloroethane-d4 (S)	Averaged	0.33223	0.33051	0.0100	-0.5172	30.0000
Toluene-d8 (S)	Averaged	2.42242	2.42312	0.0100	0.0289	30.0000

* - Value lies outside of established control limits.

The values for compounds reported as total are based on a summation of the components within the laboratory information management system.

09/07/2021 8:59

MSV - FORM VII VOA-3
MSV CONTINUING CALIBRATION DATA

SAMPLE NO.

15577767CCV

Lab Name: Pace Analytical - New York

Calibration Date: 08/18/2021 Time: 09:27

Instrument ID: 70MSV8 GC Column: Col 1

Init. Calib. Date(s): 06/09/2021 06/09/2021

Lab File ID: 081821.B\P34000.D

Init. Calib. Time(s): 16:08 18:24

SDG No.: 70184112

COMPOUND	CURVE	\overline{RRF} or Amount	RRF or Amount	MIN RRF	%D	MAX %D
1,2-Dichloroethane-d4 (S)	Averaged	0.33223	0.31812	0.0100	-4.2479	20.0000
Toluene-d8 (S)	Averaged	2.42242	2.52059	0.0100	4.0528	20.0000

The values for compounds reported as total are based on a summation of the components within the laboratory information management system.

09/07/2021 8:59

MSV - FORM V VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET
PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Pace Analytical - New York SDG No.: 70184112 Contract: LMC UTICA 8/11
 Lab File ID: 081921.B\P34025.D BFB Injection Date 08/19/2021
 Instrument ID: 70MSV8 BFB Injection Time 09:37

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.00 - 40.00% of mass 95	16.61
75	30.00 - 60.00% of mass 95	44.68
95	Base Peak, 100.00% relative	100.00
96	5.00 - 9.00% of mass 95	6.45
173	Less than 2.00% of mass 174	0.99 (1.33) ¹
174	50.00 - 100.00% of mass 95	74.44
175	5.00 - 9.00% of mass 174	5.69 (7.64) ¹
176	95.00 - 101.00% of mass 174	73.02 (98.10) ¹
177	5.00 - 9.00% of mass 176	4.67 (6.40) ²

1 - Value is % mass 174

2 - Value is % mass 176

SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
15539856CCV	15539856CCV	081921.B\P34026.D	08/19/2021	10:09
TP1-PZ3	70184112007	081921.B\P34050.D	08/19/2021	19:37

1,1-DCA and cis-1,2-DCE only

MSV - FORM VII VOA-3
MSV CONTINUING CALIBRATION DATA

SAMPLE NO.

15539856CCV

Lab Name: Pace Analytical - New York

Calibration Date: 08/19/2021 Time: 10:09

Instrument ID: 70MSV8 GC Column: Col 1

Init. Calib. Date(s): 06/09/2021 06/09/2021

Lab File ID: 081921.B\P34026.D

Init. Calib. Time(s): 16:08 18:24

SDG No.: 70184112

COMPOUND	CURVE	RRF or Amount	RRF or Amount	MIN RRF	%D	MAX %D
1,2-Dichloroethane-d4 (S)	Averaged	0.33223	0.31295	0.0100	-5.8019	20.0000
Toluene-d8 (S)	Averaged	2.42242	2.48838	0.0100	2.7231	20.0000

The values for compounds reported as total are based on a summation of the components within the laboratory information management system.

09/07/2021 8:59

MSV - FORM V VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET
PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Pace Analytical - New York SDG No.: 70184112 Contract: LMC UTICA 8/11
Lab File ID: 082021.B\P34051.D BFB Injection Date 08/20/2021
Instrument ID: 70MSV8 BFB Injection Time 08:40

SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
TP1-PZ4	70184112010	082021.B\P34076.D	08/20/2021	19:28

MSV - FORM VII VOA-3
MSV CONTINUING CALIBRATION DATA

SAMPLE NO.

15539858CCV

Lab Name: Pace Analytical - New York

Calibration Date: 08/20/2021 Time: 09:34

Instrument ID: 70MSV8 GC Column: Col 1

Init. Calib. Date(s): 06/09/2021 06/09/2021

Lab File ID: 082021.B\P34052.D

Init. Calib. Time(s): 16:08 18:24

SDG No.: 70184112

COMPOUND	CURVE	RRF or Amount	RRF or Amount	MIN RRF	%D	MAX %D
1,2-Dichloroethane-d4 (S)	Averaged	0.33223	0.32033	0.0100	-3.5805	20.0000
Toluene-d8 (S)	Averaged	2.42242	2.47560	0.0100	2.1956	20.0000

The values for compounds reported as total are based on a summation of the components within the laboratory information management system.

09/07/2021 8:59