

**ANNUAL PROGRESS REPORT
FOR THE
POST REMEDIATION CARE OF
THE GROUNDWATER REMEDIATION SYSTEM
AT THE VIANT COLLEGEVILLE SITE**

**Viant Collegeville LLC.
(formerly UTI Holdings, LLC)
200 West Seventh Ave., Trappe, PA**

MAY 2019

**Prepared by:
Marks Environmental, Inc.
140 Bollinger Road
Elverson, PA 19520**

SECTION 1 INTRODUCTION

Viant Collegeville LLC. (Viant) formerly UTI Holdings LLC (UTI), has been actively remediating groundwater at their Collegeville, Pennsylvania facility located at 200 West 7th Ave., Trappe Borough, Montgomery County, Pennsylvania (site) since 1978. The site is approximately 40 acres in size.

Since 1992 remediation has been conducted under an Administrative Order on Consent, Docket No. RCRA-III-055-CA, executed by Owner and the United States Environmental Protection Agency (USEPA) in March, 1992 (Consent Order). Because the groundwater contamination at the site had been determined to be primarily present within the fractured bedrock (Brunswick Formation), and has historically involved the presence of dense non-aqueous phase liquid (DNAPL) contaminants (trichloroethylene [TCE] and 1,1,1 trichloroethane [TCA]), in 2010 Viant began discussions with the USEPA to allow the consideration of a Technical Impracticability (TI) Waiver for the site. A TI Waiver would allow the establishment of alternative points of compliance (POCs) for the site.

Viant submitted the *Technical Impracticability Determination for Groundwater Remediation, Accellent Inc., Montgomery County, Collegeville, PA* (TI Waiver Request), prepared by Marks Environmental, Inc., in June 2012. The USEPA approved the TI Waiver request for the site on August 22, 2013. A TI Zone was established, within which, attainment was deemed to be technically impracticable. POCs to facilitate ongoing groundwater monitoring, were established outside of the TI Zone.

A Post-Remediation Care Plan (PRCP) was finalized in June 2018. The PRCP presents the groundwater monitoring and routine operation and maintenance (O&M) requirements for the ongoing operation of the Site groundwater extraction system. Sampling and reporting requirements, and an environmental covenant (EC), that will ensure the continued protection of human health and the environment, are also included in the PRCP. The Consent Order that previously held requirements for the site remediation and monitoring, was terminated by the USEPA on February 7, 2019. Together, the PRCP and the EC provide an enforceable mechanism for the continued operation of the groundwater pump and treat system.

The PRCP was conditionally approved by the USEPA on November 20, 2015 (exclusive of the EC) and the site groundwater monitoring and reporting has been conducted under the PRCP requirements beginning in May 2016.

This Annual Progress Report has been prepared in accordance with the reporting requirements of the PRCP and covers the period from March 2018 through February 2018. Sampling of POC monitoring wells and the TI Zone monitoring wells at the site is required annually.

The sampling requirements and well designations are summarized in Table 1 below:

Table 1 - Annual Groundwater Monitoring Sample Collection Locations

Well	Sampling Frequency	Sample Parameters and Analysis	
		Compound	EPA Analytical Method
Point of Compliance Wells			
UTM-4	Annual	TCE/TCA	8260B
UTM-7	Annual		
UTM-9	Annual		
UTM-21	Annual		
UTM-23	Annual		
TI Zone Monitoring Wells			
UTM-1	Annual	TCE/TCA	8260B
UTM-6	Annual		
UTM-8	Annual		
UTM-10	Annual		
UTM-11	Annual		
UTM-14	Annual		
UTM-17	Annual		
UTM-20	Annual		
UTM-22	Annual		
QA/QC Samples			
Trip Blank	One per shipment	TCE/TCA	8260B

Figure 1 shows the locations of the POC and TI Zone monitoring wells. The annual groundwater sampling was conducted on February 25 and 26, 2019 consistent with the PRCP. The condition of the well network at the site is good. All monitoring wells have locked steel protective casings.

Sampling was performed using the low-flow sampling method (EPA, Puls and Barcelona, 1995), consistent with historic sampling at the site. A trip blank was submitted to the laboratory for quality assurance/quality control (QA/QC) purposes for each shipment of samples. All samples

were placed into a pre-chilled cooler and submitted under chain-of-custody documentation to a Pennsylvania-certified analytical laboratory (currently TestAmerica Pittsburgh Laboratory) for TCE/TCA analysis in accordance with USEPA Method 8260B.

Pre-purge water levels and groundwater table elevation for 12 on-site monitoring wells and the two groundwater extraction wells (during pumping conditions) are included in Table 2. Measured water levels include a pre-purge measurement on each of the sampled monitoring wells, and measured water level in an unsampled monitoring well UTM-16. The water level in UTM-16 is required as part of the monthly water level measurements required by Viant's Delaware River Basin Commission (DRBC) groundwater withdrawal permit. Table 2 also includes the total depth of each on-site monitoring well, the surveyed measuring point reference elevation in feet above mean sea level (ft. msl), and the calculated groundwater elevation for each of the wells for which water level measurements were taken.

Table 2 - 2019 ANNUAL SAMPLING EVENT GROUNDWATER ELEVATIONS

Well ID	Meas. Pt. Elev. (ft MSL)	Date of Meas.	DTW (ft. TOIC)	Groundwater Elevation (ft MSL)	Total Well Depth (ft BGS)
UTM-1	311.98	2/26/2019	126.28	185.70	200
UTM-2	309.37	NA	NM	NM	146
UTM-3	296.50	NA	NM	NM	146
UTM-4	310.49	2/26/2019	86.78	223.71	146
UTM-5	300.16	NA	NM	NM	146
UTM-6	285.13	2/26/2019	18.69	266.44	146
UTM-7	287.41	2/26/2019	25.34	262.07	100
UTM-8	304.86	2/26/2019	37.34	267.52	145
UTM-9	322.40	2/26/2019	24.42	297.98	86
UTM-10	303.35	2/25/2019	37.59	265.76	55
UTM-11	293.99	2/26/2019	81.82	212.17	100
UTM-12	297.91	NA	NM	NM	86
UTM-13	298.86	NA	NM	NM	50
UTM-14	273.50	2/26/2019	9.02	264.48	50
UTM-15	298.02	NA	NM	NM	150
UTM-16	283.87	2/26/2019	13.61	270.26	75
UTM-17	284.53	2/26/2019	33.00	251.53	153
UTM-18	277.52	NA	NM	NM	453
UTM-19	306.81	NA	NM	NM	72
UTM-20	288.84	2/25/2019	36.90	251.94	150
UTM-21	306.49	2/25/2019	50.35	256.14	150
UTM-22	302.20	2/26/2019	51.92	250.28	150
RCRA-1	302.47	NA	NM	NM	86
RCRA-2	296.64	NA	NM	NM	49
RCRA-3	300.52	NA	NM	NM	43
RCRA-4	300.62	NA	NM	NM	78

Notes:

MSL - Mean Sea Level

TOIC - Top of Inner Casing

NM - Not Measured

NA - Not applicable

SECTION 2 RESULTS

Groundwater Quality

The results from the annual sampling of the POC wells and the TI Zone wells, are summarized in Tables 3 and 4, respectively .

Table 3 - Point of Compliance Groundwater Monitoring Results

WELL #	Feb. 2019	
	TCE	TCA
UTM-4	1.3	1U
UTM-7	1U	1U
UTM-9	1U	1U
UTM-21	1U	1U
UTM-23	1U	1U

NOTES:

All concentrations reported in micrograms per liter ($\mu\text{g/L}$).

U - Not detected, reporting limit shown

NA - Not Analyzed

J - Result is an estimated value below the laboratory reporting limit.

Table 4 – TI Zone Groundwater Monitoring Results

WELL #	Feb. 2019	
	TCE	TCA
UTM-1	1500	82J
UTM-6	1U	1U
UTM-8	1U	1U
UTM-10	2.6	0.87J
UTM-11	62	30
UTM-14	1.3	1U
UTM-17	11	10
UTM-20	1U	1U
UTM-22	2.2	1U

NOTES:

All concentrations reported in micrograms per liter ($\mu\text{g/L}$).

U - Not detected, reporting limit shown

NA - Not Analyzed

J - Result is an estimated value below the laboratory reporting limit.

As seen in Table 2, there were no exceedances of the USEPA Maximum Contaminant Level (MCL) for any of the POCs during the reporting period covered in this report. The TI Zone

monitoring wells detected TCE and TCA at concentrations consistent with past sampling events. The TCE and TCA concentrations continue to show a long-term decreasing trend in the site groundwater.

The laboratory analytical report is included in Appendix A.

Statistical Analysis

In accordance with the PRCP, any POC that had an exceedance of an MCL during the last eight sampling rounds, will be statistically evaluated to determine whether the statistical average (95% Upper Confidence Level [UCL]) exceeds the MCL. In the event of a non-detect the laboratory reporting limit is used as the value for the purpose of statistical analysis. The statistical evaluation is discussed below.

Only one of the five POC monitoring wells (UTM-4) had an exceedance of an MCL during the last 8 sampling rounds. TCE was detected in UTM-4 at a concentration of 11 micrograms per liter (ug/L) in February 2016. The MCL for TCE is 5 ug/L.

The statistical analysis of these data are included in Appendix B to this report. This intra-well analysis found the 95% UCL for TCE in POC monitoring well UTM-4 is 4.78, below the MCL for this compound. Therefore, no further action is necessary. Sampling of all monitoring wells will continue on an annual basis in accordance with the PRCP. The next groundwater sampling round is scheduled for February 2020.

Groundwater Recovery and Influent/Effluent Monitoring

Groundwater recovery from the two recovery wells, UTM-1 and UTM-11, continued throughout the reporting period, pursuant to Section VI.A.2 of the Consent Order. The two recovery wells operated continuously, with the exception of minor down time for system maintenance. Minor repairs and upgrades of equipment (system shutdowns of less than 8 hours duration) were made during the reporting period. The primary recovery well UTM-1 typically pumps at a rate between 30 and 55 gallons per minute (gpm), depending upon the water table elevation. Secondary recovery well UTM-11 typically pumps at a rate between 9 and 15 gpm since the modification (deepening) of this well in September 2015.

The monthly sampling of the air stripper influent and effluent continued in compliance with Section VI.A.3 of the Consent Order. The quarterly and bimonthly sampling and analysis of Outfall 002 (discharge from the stripping tower) has continued in accordance with Viant's National Pollutant Discharge Elimination System (NPDES) permit (No. PA0042617). There were no exceedances of the NPDES permit limits during the reporting period covered in this annual report.

Water levels continue to be measured monthly at nine on-site monitoring wells in accordance with the DRBC permit (Docket No. D-93-61 (G)-2) for groundwater extraction at the site. There were no exceedances of the withdrawal limits in the DRBC permit during the reporting period covered in this annual report.

Activity Planned for 2019/2020:

Viant will continue the operation and maintenance of the groundwater recovery system during the 2019/2020 reporting period. The Annual Groundwater Sampling Round will be conducted during February of 2020.

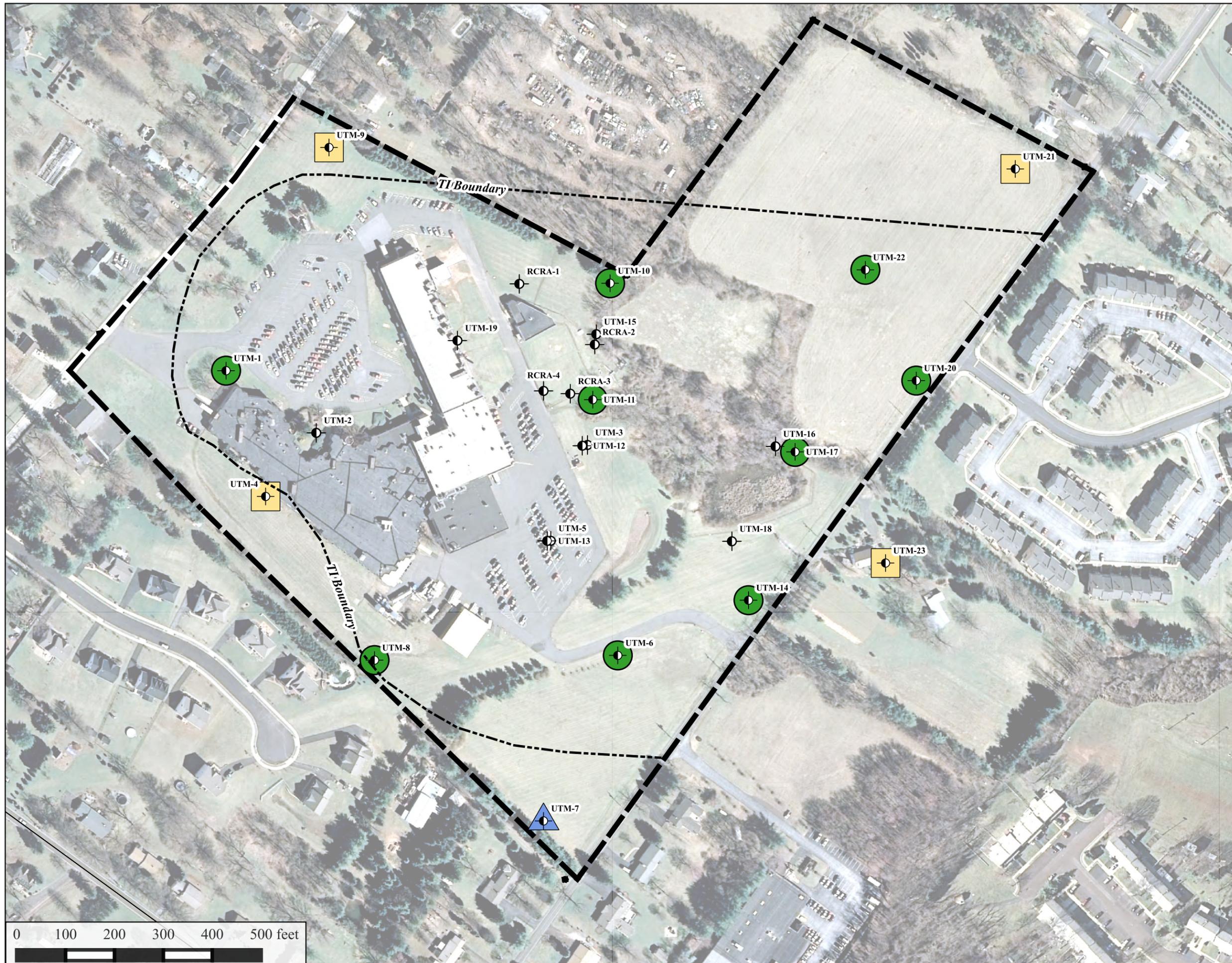
The quarterly NPDES effluent sample from Outfall 002 will be collected during the 2019/2020 reporting period in accordance with Viant's NPDES permit. Monthly water levels will continue to be measured at the site during the 2019/2020 reporting period in accordance with Viant's DRBC permit.

REFERENCES CITED

Puls, R.W. and M.J. Barcelona, December 1995, Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures, United States Environmental Protection Agency (USEPA), EPA/540/5-95/504.

Marks Environmental, Inc., June 11, 2012; Request for Technical Impracticability Determination for Groundwater Remediation, Accellent Inc., Montgomery County, Collegeville, PA.

Figures



Legend

-  LRM Collegeville Land Parcel Boundary - Approximate
-  TI Zone Boundary
-  Monitoring Well
-  TI Zone Monitoring Well
-  Quarterly Point of Compliance Well *
-  Annual Point of Compliance Well

* Quarterly sampling for four quarters, then revert to annual sampling thereafter



Figure 1
 Post-Remediation Groundwater Monitoring Points
 Collegeville Pennsylvania Facility
 Lake Region Medical

Appendix A

Laboratory Analytical Reports

ANALYTICAL REPORT

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

TestAmerica Job ID: 180-87124-1
Client Project/Site: Marks, Viant

For:
Marks Environmental, Inc.
140 Bollinger Road
Elverson, Pennsylvania 19520

Attn: Mr. Tom Marks



Authorized for release by:
3/7/2019 10:12:37 AM

David Dunlap, Senior Project Manager
(412)963-2432
david.dunlap@testamericainc.com

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416



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Case Narrative

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Job ID: 180-87124-1

Laboratory: TestAmerica Pittsburgh

Narrative

**Job Narrative
180-87124-1**

Receipt

The samples were received on 2/28/2019 8:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1° C.

GC/MS VOA

Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: UTM-1 (180-87124-1), UTM-11 (180-87124-8) and its matrix spikes. Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The recovery of surrogate 1,2-dichloroethane-d4 was above the control limits for the following sample: UTM-6 (180-87124-3). As the surrogate recovery was high and there were no target analytes detected in the sample, the results were reported.

Method(s) 8260C: The matrix spike (MS) recoveries and the recovery of surrogate toluene-d8 for sample UTM-11 (180-87124-8) were below the control limits. The recoveries of the matrix spike duplicate (MSD) and the RPDs between the spikes were within the control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Definitions/Glossary

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Laboratory: TestAmerica Pittsburgh

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Pennsylvania	NELAP	3	02-00416	04-30-19

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Sample Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-87124-1	UTM-1	Water	02/26/19 18:05	02/28/19 08:45
180-87124-2	UTM-4	Water	02/26/19 16:45	02/28/19 08:45
180-87124-3	UTM-6	Water	02/26/19 12:25	02/28/19 08:45
180-87124-4	UTM-7	Water	02/26/19 12:23	02/28/19 08:45
180-87124-5	UTM-8	Water	02/26/19 16:28	02/28/19 08:45
180-87124-6	UTM-9	Water	02/26/19 14:42	02/28/19 08:45
180-87124-7	UTM-10	Water	02/25/19 11:10	02/28/19 08:45
180-87124-8	UTM-11	Water	02/26/19 17:40	02/28/19 08:45
180-87124-9	UTM-14	Water	02/26/19 10:20	02/28/19 08:45
180-87124-10	UTM-17	Water	02/26/19 09:29	02/28/19 08:45
180-87124-11	UTM-20	Water	02/25/19 15:45	02/28/19 08:45
180-87124-12	UTM-21	Water	02/25/19 14:52	02/28/19 08:45
180-87124-13	UTM-22	Water	02/25/19 13:15	02/28/19 08:45
180-87124-14	UTM-23	Water	02/26/19 18:30	02/28/19 08:45
180-87124-15	TRIP BLANK 1	Water	02/26/19 08:00	02/28/19 08:45

Method Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Method	Method Description	Protocol	Laboratory
EPA 8260C	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT
5030C	Purge and Trap	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058



Lab Chronicle

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Client Sample ID: UTM-1

Date Collected: 02/26/19 18:05

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		100	5 mL	5 mL	271738	03/01/19 16:27	HRB	TAL PIT
Instrument ID: CHHP5										

Client Sample ID: UTM-4

Date Collected: 02/26/19 16:45

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		1	5 mL	5 mL	271738	03/01/19 16:51	HRB	TAL PIT
Instrument ID: CHHP5										

Client Sample ID: UTM-6

Date Collected: 02/26/19 12:25

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		1	5 mL	5 mL	271738	03/01/19 17:15	HRB	TAL PIT
Instrument ID: CHHP5										

Client Sample ID: UTM-7

Date Collected: 02/26/19 12:23

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		1	5 mL	5 mL	271738	03/01/19 17:39	HRB	TAL PIT
Instrument ID: CHHP5										

Client Sample ID: UTM-8

Date Collected: 02/26/19 16:28

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		1	5 mL	5 mL	271965	03/05/19 15:10	HRB	TAL PIT
Instrument ID: CHHP5										

Client Sample ID: UTM-9

Date Collected: 02/26/19 14:42

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		1	5 mL	5 mL	271738	03/01/19 18:27	HRB	TAL PIT
Instrument ID: CHHP5										

TestAmerica Pittsburgh

Lab Chronicle

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Client Sample ID: UTM-10

Date Collected: 02/25/19 11:10

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		1	5 mL	5 mL	271738	03/01/19 15:40	HRB	TAL PIT
Instrument ID: CHHP5										

Client Sample ID: UTM-11

Date Collected: 02/26/19 17:40

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		5	5 mL	5 mL	271965	03/05/19 15:33	HRB	TAL PIT
Instrument ID: CHHP5										

Client Sample ID: UTM-14

Date Collected: 02/26/19 10:20

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		1	5 mL	5 mL	271965	03/05/19 15:58	HRB	TAL PIT
Instrument ID: CHHP5										

Client Sample ID: UTM-17

Date Collected: 02/26/19 09:29

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		1	5 mL	5 mL	271738	03/01/19 19:40	HRB	TAL PIT
Instrument ID: CHHP5										

Client Sample ID: UTM-20

Date Collected: 02/25/19 15:45

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		1	5 mL	5 mL	271738	03/01/19 14:52	HRB	TAL PIT
Instrument ID: CHHP5										

Client Sample ID: UTM-21

Date Collected: 02/25/19 14:52

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		1	5 mL	5 mL	271738	03/01/19 15:16	HRB	TAL PIT
Instrument ID: CHHP5										

TestAmerica Pittsburgh

Lab Chronicle

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Client Sample ID: UTM-22

Lab Sample ID: 180-87124-13

Date Collected: 02/25/19 13:15

Matrix: Water

Date Received: 02/28/19 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		1	5 mL	5 mL	271738	03/01/19 16:03	HRB	TAL PIT
Instrument ID: CHHP5										

Client Sample ID: UTM-23

Lab Sample ID: 180-87124-14

Date Collected: 02/26/19 18:30

Matrix: Water

Date Received: 02/28/19 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		1	5 mL	5 mL	271738	03/01/19 20:04	HRB	TAL PIT
Instrument ID: CHHP5										

Client Sample ID: TRIP BLANK 1

Lab Sample ID: 180-87124-15

Date Collected: 02/26/19 08:00

Matrix: Water

Date Received: 02/28/19 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 8260C		1	5 mL	5 mL	271965	03/05/19 14:46	HRB	TAL PIT
Instrument ID: CHHP5										

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Analysis

HRB = Hannah Bowie

Client Sample Results

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Client Sample ID: UTM-1

Date Collected: 02/26/19 18:05

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-1

Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	82	J	100	60	ug/L			03/01/19 16:27	100
Trichloroethene	1500		100	69	ug/L			03/01/19 16:27	100
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		58 - 124					03/01/19 16:27	100
Dibromofluoromethane (Surr)	109		64 - 125					03/01/19 16:27	100
1,2-Dichloroethane-d4 (Surr)	117		65 - 127					03/01/19 16:27	100
Toluene-d8 (Surr)	100		69 - 115					03/01/19 16:27	100

Client Sample ID: UTM-4

Date Collected: 02/26/19 16:45

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-2

Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.60	ug/L			03/01/19 16:51	1
Trichloroethene	1.3		1.0	0.69	ug/L			03/01/19 16:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		58 - 124					03/01/19 16:51	1
Dibromofluoromethane (Surr)	107		64 - 125					03/01/19 16:51	1
1,2-Dichloroethane-d4 (Surr)	117		65 - 127					03/01/19 16:51	1
Toluene-d8 (Surr)	100		69 - 115					03/01/19 16:51	1

Client Sample ID: UTM-6

Date Collected: 02/26/19 12:25

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-3

Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.60	ug/L			03/01/19 17:15	1
Trichloroethene	ND		1.0	0.69	ug/L			03/01/19 17:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		58 - 124					03/01/19 17:15	1
Dibromofluoromethane (Surr)	115		64 - 125					03/01/19 17:15	1
1,2-Dichloroethane-d4 (Surr)	128	X	65 - 127					03/01/19 17:15	1
Toluene-d8 (Surr)	101		69 - 115					03/01/19 17:15	1

Client Sample ID: UTM-7

Date Collected: 02/26/19 12:23

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-4

Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.60	ug/L			03/01/19 17:39	1
Trichloroethene	ND		1.0	0.69	ug/L			03/01/19 17:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		58 - 124					03/01/19 17:39	1
Dibromofluoromethane (Surr)	105		64 - 125					03/01/19 17:39	1

TestAmerica Pittsburgh

Client Sample Results

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Client Sample ID: UTM-7

Date Collected: 02/26/19 12:23

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-4

Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		65 - 127		03/01/19 17:39	1
Toluene-d8 (Surr)	104		69 - 115		03/01/19 17:39	1

Client Sample ID: UTM-8

Date Collected: 02/26/19 16:28

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-5

Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.60	ug/L			03/05/19 15:10	1
Trichloroethene	ND		1.0	0.69	ug/L			03/05/19 15:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		58 - 124		03/05/19 15:10	1
Dibromofluoromethane (Surr)	104		64 - 125		03/05/19 15:10	1
1,2-Dichloroethane-d4 (Surr)	111		65 - 127		03/05/19 15:10	1
Toluene-d8 (Surr)	99		69 - 115		03/05/19 15:10	1

Client Sample ID: UTM-9

Date Collected: 02/26/19 14:42

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-6

Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.60	ug/L			03/01/19 18:27	1
Trichloroethene	ND		1.0	0.69	ug/L			03/01/19 18:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		58 - 124		03/01/19 18:27	1
Dibromofluoromethane (Surr)	89		64 - 125		03/01/19 18:27	1
1,2-Dichloroethane-d4 (Surr)	93		65 - 127		03/01/19 18:27	1
Toluene-d8 (Surr)	83		69 - 115		03/01/19 18:27	1

Client Sample ID: UTM-10

Date Collected: 02/25/19 11:10

Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-7

Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.87	J	1.0	0.60	ug/L			03/01/19 15:40	1
Trichloroethene	2.6		1.0	0.69	ug/L			03/01/19 15:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		58 - 124		03/01/19 15:40	1
Dibromofluoromethane (Surr)	94		64 - 125		03/01/19 15:40	1
1,2-Dichloroethane-d4 (Surr)	102		65 - 127		03/01/19 15:40	1
Toluene-d8 (Surr)	99		69 - 115		03/01/19 15:40	1

TestAmerica Pittsburgh

Client Sample Results

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Client Sample ID: UTM-11
Date Collected: 02/26/19 17:40
Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-8
Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	30	F1	5.0	3.0	ug/L			03/05/19 15:33	5
Trichloroethene	62	F1	5.0	3.4	ug/L			03/05/19 15:33	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		58 - 124					03/05/19 15:33	5
Dibromofluoromethane (Surr)	103		64 - 125					03/05/19 15:33	5
1,2-Dichloroethane-d4 (Surr)	113		65 - 127					03/05/19 15:33	5
Toluene-d8 (Surr)	101		69 - 115					03/05/19 15:33	5

Client Sample ID: UTM-14
Date Collected: 02/26/19 10:20
Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-9
Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.60	ug/L			03/05/19 15:58	1
Trichloroethene	1.3		1.0	0.69	ug/L			03/05/19 15:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		58 - 124					03/05/19 15:58	1
Dibromofluoromethane (Surr)	103		64 - 125					03/05/19 15:58	1
1,2-Dichloroethane-d4 (Surr)	115		65 - 127					03/05/19 15:58	1
Toluene-d8 (Surr)	98		69 - 115					03/05/19 15:58	1

Client Sample ID: UTM-17
Date Collected: 02/26/19 09:29
Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-10
Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	10		1.0	0.60	ug/L			03/01/19 19:40	1
Trichloroethene	11		1.0	0.69	ug/L			03/01/19 19:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		58 - 124					03/01/19 19:40	1
Dibromofluoromethane (Surr)	108		64 - 125					03/01/19 19:40	1
1,2-Dichloroethane-d4 (Surr)	123		65 - 127					03/01/19 19:40	1
Toluene-d8 (Surr)	99		69 - 115					03/01/19 19:40	1

Client Sample ID: UTM-20
Date Collected: 02/25/19 15:45
Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-11
Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.60	ug/L			03/01/19 14:52	1
Trichloroethene	ND		1.0	0.69	ug/L			03/01/19 14:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		58 - 124					03/01/19 14:52	1
Dibromofluoromethane (Surr)	105		64 - 125					03/01/19 14:52	1

TestAmerica Pittsburgh

Client Sample Results

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Client Sample ID: UTM-20
Date Collected: 02/25/19 15:45
Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-11
Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		65 - 127		03/01/19 14:52	1
Toluene-d8 (Surr)	102		69 - 115		03/01/19 14:52	1

Client Sample ID: UTM-21
Date Collected: 02/25/19 14:52
Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-12
Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.60	ug/L			03/01/19 15:16	1
Trichloroethene	ND		1.0	0.69	ug/L			03/01/19 15:16	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
4-Bromofluorobenzene (Surr)	78		58 - 124		03/01/19 15:16	1			
Dibromofluoromethane (Surr)	94		64 - 125		03/01/19 15:16	1			
1,2-Dichloroethane-d4 (Surr)	106		65 - 127		03/01/19 15:16	1			
Toluene-d8 (Surr)	88		69 - 115		03/01/19 15:16	1			

Client Sample ID: UTM-22
Date Collected: 02/25/19 13:15
Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-13
Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.60	ug/L			03/01/19 16:03	1
Trichloroethene	2.2		1.0	0.69	ug/L			03/01/19 16:03	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
4-Bromofluorobenzene (Surr)	65		58 - 124		03/01/19 16:03	1			
Dibromofluoromethane (Surr)	75		64 - 125		03/01/19 16:03	1			
1,2-Dichloroethane-d4 (Surr)	86		65 - 127		03/01/19 16:03	1			
Toluene-d8 (Surr)	72		69 - 115		03/01/19 16:03	1			

Client Sample ID: UTM-23
Date Collected: 02/26/19 18:30
Date Received: 02/28/19 08:45

Lab Sample ID: 180-87124-14
Matrix: Water

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.60	ug/L			03/01/19 20:04	1
Trichloroethene	ND		1.0	0.69	ug/L			03/01/19 20:04	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
4-Bromofluorobenzene (Surr)	86		58 - 124		03/01/19 20:04	1			
Dibromofluoromethane (Surr)	110		64 - 125		03/01/19 20:04	1			
1,2-Dichloroethane-d4 (Surr)	122		65 - 127		03/01/19 20:04	1			
Toluene-d8 (Surr)	100		69 - 115		03/01/19 20:04	1			

TestAmerica Pittsburgh

Client Sample Results

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Client Sample ID: TRIP BLANK 1

Lab Sample ID: 180-87124-15

Date Collected: 02/26/19 08:00

Matrix: Water

Date Received: 02/28/19 08:45

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.60	ug/L			03/05/19 14:46	1
Trichloroethene	ND		1.0	0.69	ug/L			03/05/19 14:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		58 - 124		03/05/19 14:46	1
Dibromofluoromethane (Surr)	88		64 - 125		03/05/19 14:46	1
1,2-Dichloroethane-d4 (Surr)	97		65 - 127		03/05/19 14:46	1
Toluene-d8 (Surr)	88		69 - 115		03/05/19 14:46	1



QC Sample Results

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Method: EPA 8260C - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-271738/7

Matrix: Water

Analysis Batch: 271738

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.60	ug/L			03/01/19 13:21	1
Trichloroethene	ND		1.0	0.69	ug/L			03/01/19 13:21	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		58 - 124		03/01/19 13:21	1
Dibromofluoromethane (Surr)	101		64 - 125		03/01/19 13:21	1
1,2-Dichloroethane-d4 (Surr)	117		65 - 127		03/01/19 13:21	1
Toluene-d8 (Surr)	107		69 - 115		03/01/19 13:21	1

Lab Sample ID: LCS 180-271738/5

Matrix: Water

Analysis Batch: 271738

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	9.05		ug/L		91	65 - 136
Trichloroethene	10.0	9.81		ug/L		98	71 - 121

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		58 - 124
Dibromofluoromethane (Surr)	94		64 - 125
1,2-Dichloroethane-d4 (Surr)	103		65 - 127
Toluene-d8 (Surr)	102		69 - 115

Lab Sample ID: 180-87124-7 MS

Matrix: Water

Analysis Batch: 271738

Client Sample ID: UTM-10

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	0.87	J	10.0	9.09		ug/L		82	65 - 136
Trichloroethene	2.6		10.0	11.6		ug/L		90	71 - 121

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	92		58 - 124
Dibromofluoromethane (Surr)	96		64 - 125
1,2-Dichloroethane-d4 (Surr)	110		65 - 127
Toluene-d8 (Surr)	93		69 - 115

Lab Sample ID: 180-87124-7 MSD

Matrix: Water

Analysis Batch: 271738

Client Sample ID: UTM-10

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.87	J	10.0	8.71		ug/L		78	65 - 136	4	28
Trichloroethene	2.6		10.0	11.7		ug/L		91	71 - 121	1	28

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		58 - 124

TestAmerica Pittsburgh

QC Sample Results

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Method: EPA 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-87124-7 MSD
Matrix: Water
Analysis Batch: 271738

Client Sample ID: UTM-10
Prep Type: Total/NA

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	94		64 - 125
1,2-Dichloroethane-d4 (Surr)	106		65 - 127
Toluene-d8 (Surr)	98		69 - 115

Lab Sample ID: MB 180-271965/7
Matrix: Water
Analysis Batch: 271965

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		1.0	0.60	ug/L			03/05/19 12:22	1
Trichloroethene	ND		1.0	0.69	ug/L			03/05/19 12:22	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	88		58 - 124		03/05/19 12:22	1
Dibromofluoromethane (Surr)	102		64 - 125		03/05/19 12:22	1
1,2-Dichloroethane-d4 (Surr)	110		65 - 127		03/05/19 12:22	1
Toluene-d8 (Surr)	100		69 - 115		03/05/19 12:22	1

Lab Sample ID: LCS 180-271965/5
Matrix: Water
Analysis Batch: 271965

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
1,1,1-Trichloroethane	10.0	9.47		ug/L		95	65 - 136
Trichloroethene	10.0	9.99		ug/L		100	71 - 121

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	97		58 - 124
Dibromofluoromethane (Surr)	89		64 - 125
1,2-Dichloroethane-d4 (Surr)	97		65 - 127
Toluene-d8 (Surr)	100		69 - 115

Lab Sample ID: 180-87124-8 MS
Matrix: Water
Analysis Batch: 271965

Client Sample ID: UTM-11
Prep Type: Total/NA

Analyte	Sample Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
1,1,1-Trichloroethane	30	F1	50.0	61.8	F1	ug/L		64	65 - 136
Trichloroethene	62	F1	50.0	94.9	F1	ug/L		66	71 - 121

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	62		58 - 124
Dibromofluoromethane (Surr)	64		64 - 125
1,2-Dichloroethane-d4 (Surr)	72		65 - 127
Toluene-d8 (Surr)	64	X	69 - 115

TestAmerica Pittsburgh

QC Sample Results

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

Method: EPA 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-87124-8 MSD

Matrix: Water

Analysis Batch: 271965

Client Sample ID: UTM-11

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	30	F1	50.0	70.2		ug/L		81	65 - 136	13	28
Trichloroethene	62	F1	50.0	103		ug/L		82	71 - 121	8	28
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	82		58 - 124								
Dibromofluoromethane (Surr)	85		64 - 125								
1,2-Dichloroethane-d4 (Surr)	95		65 - 127								
Toluene-d8 (Surr)	83		69 - 115								

QC Association Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Viant

TestAmerica Job ID: 180-87124-1

GC/MS VOA

Analysis Batch: 271738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87124-1	UTM-1	Total/NA	Water	EPA 8260C	
180-87124-2	UTM-4	Total/NA	Water	EPA 8260C	
180-87124-3	UTM-6	Total/NA	Water	EPA 8260C	
180-87124-4	UTM-7	Total/NA	Water	EPA 8260C	
180-87124-6	UTM-9	Total/NA	Water	EPA 8260C	
180-87124-7	UTM-10	Total/NA	Water	EPA 8260C	
180-87124-10	UTM-17	Total/NA	Water	EPA 8260C	
180-87124-11	UTM-20	Total/NA	Water	EPA 8260C	
180-87124-12	UTM-21	Total/NA	Water	EPA 8260C	
180-87124-13	UTM-22	Total/NA	Water	EPA 8260C	
180-87124-14	UTM-23	Total/NA	Water	EPA 8260C	
MB 180-271738/7	Method Blank	Total/NA	Water	EPA 8260C	
LCS 180-271738/5	Lab Control Sample	Total/NA	Water	EPA 8260C	
180-87124-7 MS	UTM-10	Total/NA	Water	EPA 8260C	
180-87124-7 MSD	UTM-10	Total/NA	Water	EPA 8260C	

Analysis Batch: 271965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87124-5	UTM-8	Total/NA	Water	EPA 8260C	
180-87124-8	UTM-11	Total/NA	Water	EPA 8260C	
180-87124-9	UTM-14	Total/NA	Water	EPA 8260C	
180-87124-15	TRIP BLANK 1	Total/NA	Water	EPA 8260C	
MB 180-271965/7	Method Blank	Total/NA	Water	EPA 8260C	
LCS 180-271965/5	Lab Control Sample	Total/NA	Water	EPA 8260C	
180-87124-8 MS	UTM-11	Total/NA	Water	EPA 8260C	
180-87124-8 MSD	UTM-11	Total/NA	Water	EPA 8260C	

Client Information Client Contact: Mr. Tom Marks Company: Marks Environmental, Inc. Address: 140 Bollinger Road City: Elverson State, Zip: PA, 19520 Phone: 610-909-8250(Tel) 610-913-0288(Fax) Email: tm.mei@comcast.net Project Name: <u>Viant</u> Marks: Lake Region-Medical-Annual Site: <u>Viant-Collegeville</u>		Lab PM: Duniap, David A E-Mail: david.duniap@testamericainc.com Carrier: <u>Carrier</u>		COC No: 180-42518-7591.1 Page: Page 1 of 2 Job #: <u>9001-03</u>	
Due Date Requested: TAT Requested (days): <u>2 week</u> PO #: <u>Purchase Order not required</u> WO #: <u></u> Project #: <u>18014958</u> SSOW#: <u></u>		Analysis Requested			
Sample Identification		Sample Date		Sample Time	
Sample Type (C=comp, G=grab) Matrix (W=water, S=solid, O=soil, BT=tissue, A=air)		Preservation Code:		Field Filtered Sample (Yes or No)	
UTM-1		2/26/19	18:05	Water	N
UTM-4		2/26/19	16:45	Water	N
UTM-6		2/26/19	12:25	Water	N
UTM-7		2/26/19	12:23	Water	N
UTM-8		2/26/19	16:28	Water	N
UTM-9		2/26/19	14:42	Water	N
UTM-10		2/25/19	11:10	Water	N
UTM-11		2/26/19	17:40	Water	N
UTM-14		2/26/19	10:20	Water	N
UTM-17		2/26/19	09:29	Water	N
UTM-20		2/25/19	15:45	Water	N
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)					
Empty Kit Relinquished by:					
Relinquished by: <u>[Signature]</u>		Date/Time: <u>2/27/19 11:15</u>		Company: <u>JA/KOP</u>	
Relinquished by: <u>[Signature]</u>		Date/Time: <u>2/27/19 14:26</u>		Company: <u>JA-KOP</u>	
Relinquished by: <u>[Signature]</u>		Date/Time:		Company:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:	



Login Sample Receipt Checklist

Client: Marks Environmental, Inc.

Job Number: 180-87124-1

Login Number: 87124
List Number: 1
Creator: Say, Thomas C

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix B

Statistical Analysis

**TCE 95% Upper Confidence Limit for Last 8 POC Well Results vs. MCL
For Data Through 2/19 (also 11/1/13)**

Time	UTM-4	UTM-7	UTM-9	UTM-21	UTM-23	MCL
	TCE	TCE	TCE	TCE	TCE	TCE
5/1/04	8.9	1	1	-	-	
11/1/07	3.2	1.3	4.5	-	-	
2/1/08	36	-	20	-	-	
5/1/08	2.5	-	0.9	-	-	
8/1/08	1.5	-	1	-	-	
11/1/08	1.7	-	1	-	-	
2/1/09	0.8	-	1	-	-	
5/1/09	2.1	-	1	-	-	
8/1/09	1.5	-	1	-	-	
11/1/09	1.8	-	1	-	-	
2/1/10	0.5	-	1	-	-	
5/1/10	0.33	-	1	-	-	
8/1/10	1.7	-	0.16	-	-	
11/1/10	1.5	-	1	-	-	
2/1/11	0.29	-	-	1	-	
5/1/11	0.69	-	-	1	-	
8/1/11	0.51	-	-	1	-	
11/1/11	1.1	-	-	0.55	-	
2/1/12	0.73	-	-	1	0.45	
5/1/12	0.62	-	-	1	0.43	
8/1/12	0.64	-	-	1	0.68	
11/1/12	0.92	-	-	0.45	0.37	
2/1/13	1.2	-	-	1	0.84	
5/1/13	1	-	-	1	1	
8/1/13	0.75	-	-	1	1	
11/1/13	0.91	-	1	1	1	
3/26/14	0.82	-	-	1	1	
5/1/14	1.7	-	-	1	1	
8/1/14	0.78	-	-	1	1	
11/1/14	0.6	-	-	1	1	
2/1/15	0.91	-	-	1	1	
5/15/15	1.6	-	-	1	1	
11/3/15	0.72	-	-	1	-	
2/1/16	11	-	-	1	-	
5/15/16	-	0.5	-	-	-	
8/15/16	-	0.46	-	-	-	
11/3/16	0.46	0.49	0.25	0.47	1	
2/1/17	-	1	-	-	-	
2/23/18	2	1	1	1	1	
2/26/19	1.3	1	1	1	1	

Cell Range	C65:C75	E23:E75	I46:I75	K65:K75	O63:O75
Count (n)	8	8	8	8	8
Standard Deviation (σ)	3.55	0.32	0.37	0.19	0.00
Sample Mean (x)	2.32	0.84	0.80	0.93	1.00
95% Confidence Interval	2.46	0.22	0.26	0.13	#NUM!
95% Lower Confidence Limit	-0.13	0.63	0.55	0.80	#NUM!

95% Upper Confidence Limit (UCL)

	UTM-4	UTM-7	UTM-9	UTM-21	UTM-23	MCL
95% UCL	4.78	1.06	1.06	1.06	#NUM!	5.00

95% UCL for Prior Periods: (up to 8 sample points ending at date listed)

11/1/13	0.98	1.58	1.10	1.07	0.91	5.00
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Notes

- (1) "-" indicates reported as Not Analyzed; RL used when not detected.
- (2) "#NUM!" indicates UCL cannot be calculated because all values <1 (i.e., Not Detected)

Data highlighted in Light Green used for check against UCL test