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Telephone 301-548-2227

July 30, 2018

Mr. James R. Carroll
Program Administrator
Land Restoration Program
Land Management Administration
Maryland Department of the Environment
1800 Washington Boulevard, Suite 625
Baltimore, Maryland 21230

Subject: **Building A Sub-Slab Depressurization System and Indoor Air Quality Assessment, Middle River Complex, Middle River, Maryland**

Dear Mr. Carroll,

Lockheed Martin Corporation (Lockheed Martin) submits the information below to document the indoor air (IA) conditions in Building A and the Building A basement following a period when the Building A sub-slab depressurization system (SSDS) was non-operational. The following is a detailed account of why the SSDS was turned off, corrective actions that were implemented, and a summary of the associated confirmatory IA monitoring conducted in Building A and the Building A Basement.

Sub-slab depressurization system (SSDS) shutdown—The Building A SSDS was found to be non-operational (switch was in the off position) during a routine system check on January 18, 2018. The previous system check had been on January 9, 2018, (the system was being checked weekly rather than on the standard every two-week schedule, because of high condensate generation during the cold weather months). The Building A SSDS was, therefore, non-operational for eight days. During the January 9, 2018, system check, 44-gallons of condensate water were removed from the system, with 36-gallons of that volume from the pre-blower moisture separator. The condensate water was transported to the secondary containment waste storage location. in Building C. The operator apparently did not restart the Building A SSDS after the final transfer of condensate water to Building C. Tetra Tech staff called the Building A SSDS operator on January 11 and 15, 2018 to confirm that the system was not in an alarm condition and the auto

dialer call-out non-functioning; no alarm was noted (as would be expected with the system off), and the blower sound was not heard (noted to be off) during these calls.

Operator error was determined to be the cause. A contributing factor was operator fatigue from manually transporting condensate to Building C, compounded by the system-alarm responses on January 5, 2018, (a lengthy response that included thawing condensate for draining and repairing a damaged sight glass at the Building A SSDS) and on January 6, 2018, (the Building C SSDS alarm went off on a Saturday). Not detecting that the SSDS was off during the calls was due to the operator and other staff not focusing on the blower sound (or lack of sound) during the call, resulting in additional days of system downtime.

As a corrective action, the operator was re-educated on the importance of ensuring that the system in the future is restarted after a system check. The field technician provided assurance that the operator error would not be repeated. The operator, backup operator, and other staff that call the auto-dialer were trained and tested during the week of January 22, 2018 to verify that the SSDS blower-running sound, or conversely not running, was correctly identified during test calls. All future calls will record the blower-running sound on the call log, or a physical response to the facility will be made to address the SSDS issues. The project team will also consider establishing a temporary condensate storage area in the Building A basement during winter months of high condensate generation, so that an operator will not have to relocate all condensate water generated from the Building A SSDS to Building C, especially if conditions (e.g., extreme cold, ice, snow) make transporting the condensate unsafe or difficult. Improvements to the heat-trace placement on the moisture separator were also made, to provide more heating directly at the drain. This will prevent freezing in the drain and make draining condensate less difficult during extreme cold.

Indoor air sampling—Following the period that the Building A SSDS was non-operational, on January 24, 2018, IA was sampled (following protocols approved for annual monitoring) at locations that historically have exhibited elevated sub-slab-vapor volatile organic compound (VOC) concentrations (e.g., trichloroethene [TCE]). These locations were selected to assess areas within the zone-of-influence (ZOI) of the Building A SSDS.

Seven IA samples plus one duplicate were collected as follows:

- IA-168-A: location of former vapor degreaser (including duplicate)
- IA-136-A: location of former vapor degreaser
- IA-117-A: location in central portion of Building A northeast of former plating shop area
- IA-079-A: location in eastern portion of Building A near autoclaves
- IA-015-A: location in the middle of former plating shop area
- IA-HRS5-A: location near former heater room sump in Building A basement
- IA-021-A: location in northeastern portion of Building A north of IA-136-A area

All Summa® canisters and associated regulators functioned properly during IA sampling. Starting pressures ranged from -24 to -30 inches of mercury (Hg) and ending pressures ranged from zero to -4 inches of mercury (Hg). All canisters collected an adequate volume of air for sampling. Temperatures ranged from 39 to 45 degrees Fahrenheit during the sampling period, which had overcast skies and winds averaging eight miles per hour (mph), with gusts up to 28 mph. Barometric pressure averaged 30.03 during the sampling period. The Summa® canister sample locations are shown in Figure 1.

Analytical results—Data for the seven IA samples plus one duplicate sample were validated. No major issues were found, and all results are considered usable. The data validation report is included as Attachment A.

No exceedances of the indoor-air industrial-worker screening criterion for TCE (8.8 micrograms per cubic meter [µg/m^3]) or any other chemical were detected during the Summa® canister sampling. Table 1 summarizes positive detections of chemical analytes in the IA samples. TCE and PCE results are presented in Figure 1. Though PCE is not an IA contaminant of concern, it is a parent compound to TCE, and appears in related groundwater analyses in other reports. Note that TCE breakdown products (*cis*-and trans-1,2 dichloroethene and vinyl chloride) were likewise not detected

The following is a summary of the analytical results:

- TCE was detected in three of seven samples, plus the duplicate

- IA-168-A-VS (1.1 µg/m^3) and associated duplicate sample IA-DUP1-A-VS (0.48 µg/m^3)
- IA-136-A-VS (0.57 µg/m^3)
- IA-HRS5-A-VS (0.56 µg/m^3)

- the highest PCE concentration was detected at IA-168-A-VS (6.3 µg/m^3)
- benzene was detected in all seven samples plus duplicate at low levels ranging from 0.38–0.53 µg/m^3
- toluene detected in six of seven samples plus duplicate at low levels ranging from 4.5–16 µg/m^3 with the highest recorded at IA-136-A-VS

Conclusions—Sampling results indicate that indoor-air conditions within Building A and the Building A basement were acceptable according to guidance following the period that the SSDS was non-operational. The comprehensive semiannual indoor air/sub-slab vapor intrusion sampling program was completed the week of February 19–23, 2018 as previously scheduled following this supplemental indoor air sampling.

Please let me know if you have any questions. My office phone is (301) 548-2227.

Sincerely,

Lynnette Drake
Lockheed Martin Project Lead, Environmental Remediation

Enclosures:
Figure 1
Table 1
Attachment A

cc: (via e-mail, with enclosure)
Gary Schold, MDE
Mark Mank, MDE
Thomas Blackman, Lockheed Martin
Christine Kline, Lockheed Martin
Norm Varney, Lockheed Martin
Dave Brown, MRAS
Michael Martin, Tetra Tech
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Tom Green, LMCPI
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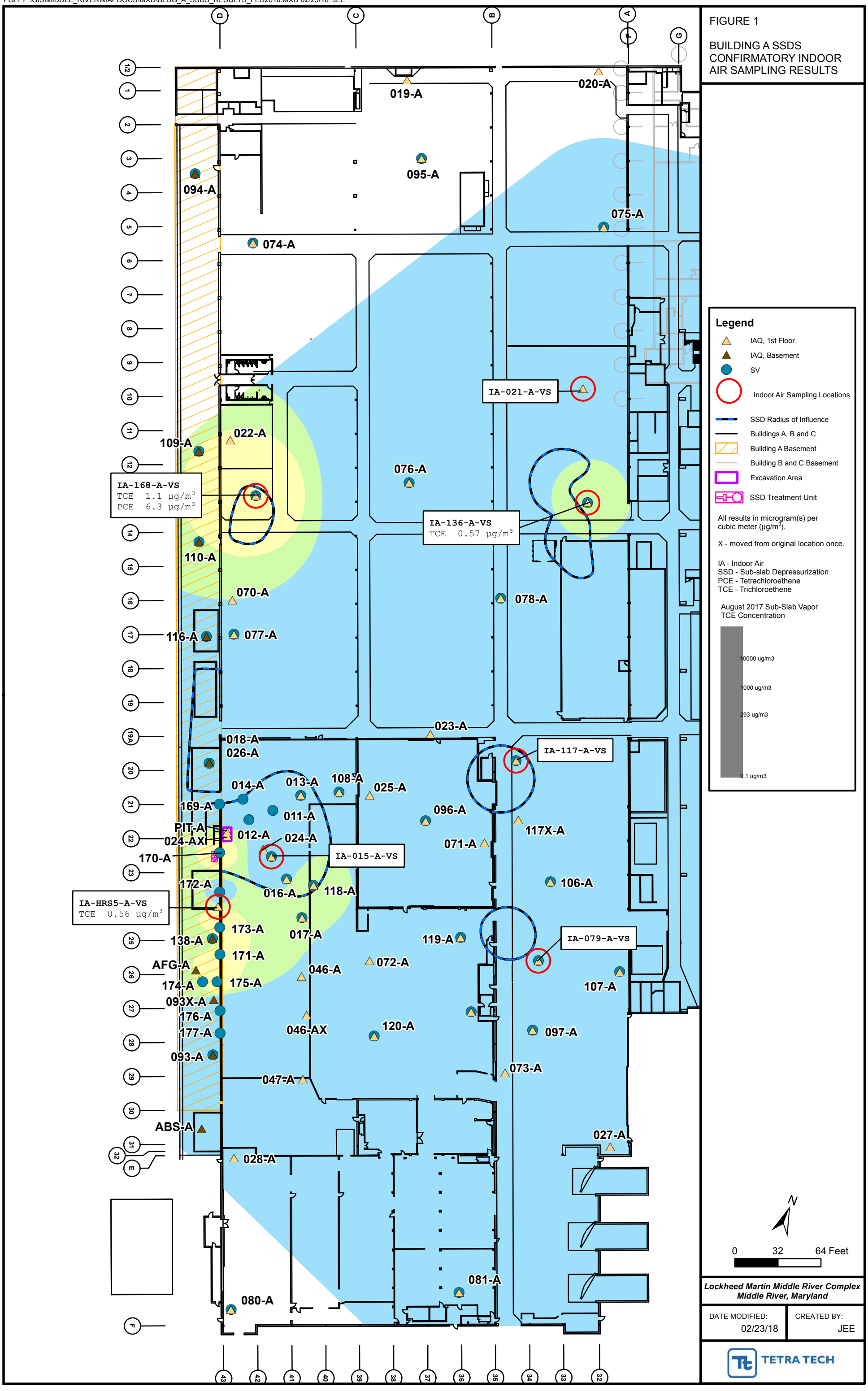
Scott Heinlein, LMCPI
Christopher Keller, LMCPI
Randy Huff, LMCPI
Jann Richardson, Lockheed Martin

FIGURE

PGH P:\GIS\MIDDLE_RIVER\MAPDOCS\MXD\BLDG_A_SSDS_RESULTS_FEB2018.MXD 02/23/18 JEE

FIGURE 1

BUILDING A SSDS CONFIRMATORY INDOOR AIR SAMPLING RESULTS



Legend

- IAQ, 1st Floor
- IAQ, Basement
- SV
- Indoor Air Sampling Locations
- SSD Radius of Influence
- Buildings A, B and C
- Building A Basement
- Building B and C Basement
- Excavation Area
- SSD Treatment Unit

All results in microgram(s) per cubic meter (µg/m^3).

X - moved from original location once.

IA - Indoor Air
SSD - Sub-slab Depressurization
PCE - Tetrachloroethene
TCE - Trichloroethene

August 2017 Sub-Slab Vapor TCE Concentration

- 10000 ug/m3
- 1000 ug/m3
- 293 ug/m3
- 0.1 ug/m3

N

0 32 64 Feet

Lockheed Martin Middle River Complex
Middle River, Maryland

DATE MODIFIED:	CREATED BY:
02/23/18	JEE

TETRA TECH

TABLE

TABLE 1

POSITIVE DETECTIONS FOR SSDS CONFIRMATORY INDOOR AIR SAMPLES, BUILDING A AND BUILDING A BASEMENT, JANUARY 2018
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

LOCATION			AIR-015-A	AIR-021-A	AIR-079-A	AIR-117-A	AIR-136-A	AIR-168-A			WS-HRS5-A
SAMPLE ID	OSHA PEL ($\mu g/m^3$)	Industrial Air Screening Level ($\mu g/m^3$)	IA-015-A-VS	IA-021-A-VS	IA-079-A-VS	IA-117-A-VS	IA-136-A-VS	IA-168-A-VS	IA-168-A-VS-AVG	IA-168-A-VS-D	IA-HRS5-A-VS
SAMPLE DATE			20180124	20180124	20180124	20180124	20180124	20180124	20180124	20180124	20180124
VOLATILE ORGANICS FOR AIR REPORTED IN MICROGRAMS PER CUBIC METER (UG/M3)											
1,2,4-TRIMETHYLBENZENE	**31**	**123,000**	0.61 U	0.61 U	1 J	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U
BENZENE	**16**	**319**	0.52 J	0.41 J	0.53 J	0.4 J	0.43 J	0.4 J	0.415	0.43 J	0.38 J
CHLORODIFLUOROMETHANE	**220,000**	**3,590,000**	1.8	1.9	1.4	1.4 J	1.7	1.6	1.65	1.7	1.1 J
DICHLORODIFLUOROMETHANE	**440**	**4,950,000**	2.3	2.4	2.5	2.5	2.5	2.3	2.45	2.6	2.7
ETHYLBENZENE	**49**	**435,000**	0.59 U	0.59 U	0.59 U	0.59 U	0.6 J	0.59 U	0.59 U	0.59 U	0.59 U
METHYLENE CHLORIDE	**2,600**	**87,000**	4.8	6.7	4	4.5	5.6	6.3	8.15	10	5
TETRACHLOROETHENE	**180**	**678,000**	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	6.3 J	3.285	0.54 UJ	0.54 U
TOLUENE	**22,000**	**754,000**	6.6	12	11	5.5	16	4.5	5.2	5.9	2.3 U
TOTAL XYLENES	**440**	**435,000**	0.52 U	2.3 J	2.2 J	0.52 U	2.4 J	0.52 U	0.52 U	0.52 U	0.52 U
TRICHLOROETHENE	**8.8**	**537,000**	0.38 U	0.38 U	0.38 U	0.38 U	0.57 J	1.1	0.79	0.48 J	0.56 J

Notes: All sample concentrations are in micrograms per cubic meter ($\mu g/m^3$)
Shaded cells indicate a concentration greater than risk-based
AVG - average of original and duplicate samples
DUP - duplicate sample
IA - indoor air
Industrial Air Screening Levels from USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, May 2016
J - estimated value
ug/m^3 - micrograms per liter
ORIG - original sample
OSHA PEL = Occupational Safety and Health Administration Pemissible Exposure Limit
U - not detected
VS - verification sample

ATTACHMENT A

TETRA TECH

INTERNAL CORRESPONDENCE

TO: **T. APANAVAGE** **DATE:** **FEBRUARY 16, 2018**

FROM: **LEIGH A. CIOFANI** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC**
LOCKHEED MARTIN CORPORATION (LMC) – MIDDLE RIVER COMPLEX (MRC) - BUILDING A
SAMPLE DELIVERY GROUP (SDG) 140-10566-1

SAMPLES: 8 / Air / VOC

IA-015-A-VS	IA-021-A-VS	IA-079-A-VS
IA-117-A-VS	IA-136-A-VS	IA-168-A-VS
IA-DUP1-A-VS	IA-HRS5-A-VS	

OVERVIEW

The sample set for LMC – MRC-Building A, SDG 140-10566-1, consists of eight (8) indoor air (IA) environmental samples. All samples were analyzed for select volatile organic compounds (VOCs). One (1) field duplicate pair is included in this SDG: IA-168-A-VS (original) / IA-DUP1-A-VS (duplicate).

The samples were collected by Tetra Tech on January 24, 2018 and analyzed by TestAmerica. All analyses were conducted in accordance with EPA Method TO-15 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank results, laboratory control sample results, internal standard areas, chromatographic resolution, compound identification, compound quantitation, field duplicate precision, and detection limits. Areas of concern are listed below.

MAJOR PROBLEMS

- None.

MINOR PROBLEMS

- The difference between results for the field duplicate pair samples IA-168-A-VS / IA-DUP1-A-VS exceeded two times the reporting limit for tetrachloroethene because one result was nondetected and the other result exceeded the reporting limit. The detected and non-detected results for tetrachloroethene were qualified as estimated (J and UJ, respectively) in samples IA-168-A-VS and IA-DUP1-A-VS.

- Detected results reported below the reporting limit (RL) but above the method detection limit (MDL) were qualified as estimated (J).

NOTES

Twenty-five VOC target compounds were reported for the TO-15 analysis of the samples.

Non-detected results were reported to the MDL.

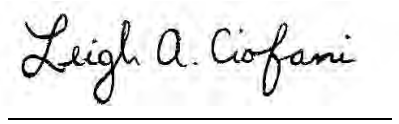
A batch canister cleaning sample was submitted to represent that the canisters used for sampling were clean. The lot number of the batch canister was 10373. No contamination was detected in the batch blank.

EXECUTIVE SUMMARY

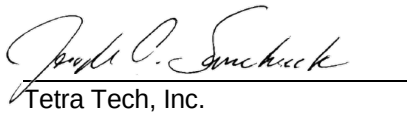
Laboratory Performance: None.

Other Factors Affecting Data Quality: Two results were qualified due to field duplicate imprecision. Results above the MDL but below the RL were qualified as estimated.

The data for these analyses were reviewed with reference to the USEPA "National Functional Guidelines for Organic Superfund Methods Data Review" (January 2017) and USEPA Method TO-15 analytical and reporting protocols. The text of this report has been formulated to address only those areas affecting data quality.



Tetra Tech, Inc.
Leigh A. Ciofani
Environmental Scientist/Data Validator



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

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

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 method detection limit for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
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.
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.

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 x 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

PROJ_NO: 08388	NSAMPLE	IA-015-A-VS			IA-021-A-VS			IA-079-A-VS			IA-117-A-VS		
SDG: 140-10566-1	LAB_ID	140-10566-5			140-10566-7			140-10566-4			140-10566-3		
FRACTION: OV-M3	SAMP_DATE	1/24/2018			1/24/2018			1/24/2018			1/24/2018		
MEDIA: AIR	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/M3			UG/M3			UG/M3			UG/M3		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.33	U		0.33	U		0.33	U		0.33	U	
1,1,2-TRICHLOROETHANE		0.57	U		0.57	U		0.57	U		0.57	U	
1,1-DICHLOROETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
1,1-DICHLOROETHENE		0.28	U		0.28	U		0.28	U		0.28	U	
1,2,3-TRIMETHYLBENZENE		0.84	U		0.84	U		0.84	U		0.84	U	
1,2,4-TRICHLOROBENZENE		1.4	U		1.4	U		1.4	U		1.4	U	
1,2,4-TRIMETHYLBENZENE		0.61	U		0.61	U		1	J	P	0.61	U	
1,2-DICHLOROETHANE		0.38	U		0.38	U		0.38	U		0.38	U	
1,3,5-TRIMETHYLBENZENE		0.64	U		0.64	U		0.64	U		0.64	U	
BENZENE		0.52	J	P	0.41	J	P	0.53	J	P	0.4	J	P
CARBON TETRACHLORIDE		0.47	U		0.47	U		0.47	U		0.47	U	
CHLORODIFLUOROMETHANE		1.8			1.9			1.4			1.4	J	P
CHLOROFORM		0.37	U		0.37	U		0.37	U		0.37	U	
CIS-1,2-DICHLOROETHENE		0.48	U		0.48	U		0.48	U		0.48	U	
DICHLORODIFLUOROMETHANE		2.3			2.4			2.5			2.5		
ETHYLBENZENE		0.59	U		0.59	U		0.59	U		0.59	U	
METHYL TERT-BUTYL ETHER		1.2	U		1.2	U		1.2	U		1.2	U	
METHYLENE CHLORIDE		4.8			6.7			4			4.5		
NAPHTHALENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		0.54	U		0.54	U		0.54	U		0.54	U	
TOLUENE		6.6			12			11			5.5		
TOTAL XYLENES		0.52	U		2.3	J	P	2.2	J	P	0.52	U	
TRANS-1,2-DICHLOROETHENE		0.4	U		0.4	U		0.4	U		0.4	U	
TRICHLOROETHENE		0.38	U		0.38	U		0.38	U		0.38	U	
VINYL CHLORIDE		0.37	U		0.37	U		0.37	U		0.37	U	

PROJ_NO: 08388	NSAMPLE	IA-136-A-VS			IA-168-A-VS			IA-DUP1-A-VS			IA-HRS5-A-VS		
SDG: 140-10566-1	LAB_ID	140-10566-2			140-10566-1			140-10566-8			140-10566-6		
FRACTION: OV-M3	SAMP_DATE	1/24/2018			1/24/2018			1/24/2018			1/24/2018		
MEDIA: AIR	QC_TYPE	NM			NM			FD			NM		
	UNITS	UG/M3			UG/M3			UG/M3			UG/M3		
	PCT_SOLIDS												
	DUP_OF							IA-168-A-VS					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.33	U		0.33	U		0.33	U		0.33	U	
1,1,2-TRICHLOROETHANE		0.57	U		0.57	U		0.57	U		0.57	U	
1,1-DICHLOROETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
1,1-DICHLOROETHENE		0.28	U		0.28	U		0.28	U		0.28	U	
1,2,3-TRIMETHYLBENZENE		0.84	U		0.84	U		0.84	U		0.84	U	
1,2,4-TRICHLOROBENZENE		1.4	U		1.4	U		1.4	U		1.4	U	
1,2,4-TRIMETHYLBENZENE		0.61	U		0.61	U		0.61	U		0.61	U	
1,2-DICHLOROETHANE		0.38	U		0.38	U		0.38	U		0.38	U	
1,3,5-TRIMETHYLBENZENE		0.64	U		0.64	U		0.64	U		0.64	U	
BENZENE		0.43	J	P	0.4	J	P	0.43	J	P	0.38	J	P
CARBON TETRACHLORIDE		0.47	U		0.47	U		0.47	U		0.47	U	
CHLORODIFLUOROMETHANE		1.7			1.6			1.7			1.1	J	P
CHLOROFORM		0.37	U		0.37	U		0.37	U		0.37	U	
CIS-1,2-DICHLOROETHENE		0.48	U		0.48	U		0.48	U		0.48	U	
DICHLORODIFLUOROMETHANE		2.5			2.3			2.6			2.7		
ETHYLBENZENE		0.6	J	P	0.59	U		0.59	U		0.59	U	
METHYL TERT-BUTYL ETHER		1.2	U		1.2	U		1.2	U		1.2	U	
METHYLENE CHLORIDE		5.6			6.3			10			5		
NAPHTHALENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		0.54	U		6.3	J	G	0.54	UJ	G	0.54	U	
TOLUENE		16			4.5			5.9			2.3	U	
TOTAL XYLENES		2.4	J	P	0.52	U		0.52	U		0.52	U	
TRANS-1,2-DICHLOROETHENE		0.4	U		0.4	U		0.4	U		0.4	U	
TRICHLOROETHENE		0.57	J	P	1.1			0.48	J	P	0.56	J	P
VINYL CHLORIDE		0.37	U		0.37	U		0.37	U		0.37	U	

Appendix B

Results as Reported by the Laboratory

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-015-A-VS Lab Sample ID: 140-10566-5

Matrix: Air Lab File ID: GA29P113.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:27

Sample wt/vol: 100(mL) Date Analyzed: 01/29/2018 23:47

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.16	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.52		0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.47		0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	ND		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	ND		0.40	0.14
75-09-2	Methylene Chloride	84.93	1.4		1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	ND		0.40	0.080
108-88-3	Toluene	92.14	1.8		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	ND		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	ND		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-015-A-VS Lab Sample ID: 140-10566-5

Matrix: Air Lab File ID: GA29P113.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:27

Sample wt/vol: 100(mL) Date Analyzed: 01/29/2018 23:47

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.52	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.8		1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.3		2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	ND		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	ND		1.7	0.59
75-09-2	Methylene Chloride	84.93	4.8		3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	ND		2.7	0.54
108-88-3	Toluene	92.14	6.6		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	ND		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	ND		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	ND		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-021-A-VS Lab Sample ID: 140-10566-7

Matrix: Air Lab File ID: GA29P115.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:34

Sample wt/vol: 100(mL) Date Analyzed: 01/30/2018 01:14

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.13	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.53		0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.49		0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	ND		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	ND		0.40	0.14
75-09-2	Methylene Chloride	84.93	1.9		1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	ND		0.40	0.080
108-88-3	Toluene	92.14	3.2		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	ND		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	0.53	J	0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	95		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-021-A-VS Lab Sample ID: 140-10566-7

Matrix: Air Lab File ID: GA29P115.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:34

Sample wt/vol: 100(mL) Date Analyzed: 01/30/2018 01:14

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.41	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.9		1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.4		2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	ND		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	ND		1.7	0.59
75-09-2	Methylene Chloride	84.93	6.7		3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	ND		2.7	0.54
108-88-3	Toluene	92.14	12		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	ND		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	ND		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	2.3	J	3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	95		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-079-A-VS Lab Sample ID: 140-10566-4

Matrix: Air Lab File ID: GA29P112.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:30

Sample wt/vol: 100(mL) Date Analyzed: 01/29/2018 23:05

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.17	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.40		0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.51		0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	ND		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	ND		0.40	0.14
75-09-2	Methylene Chloride	84.93	1.1		1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	ND		0.40	0.080
108-88-3	Toluene	92.14	3.0		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	ND		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	0.21	J	0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	0.51	J	0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	97		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-079-A-VS Lab Sample ID: 140-10566-4

Matrix: Air Lab File ID: GA29P112.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:30

Sample wt/vol: 100(mL) Date Analyzed: 01/29/2018 23:05

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.53	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.4		1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.5		2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	ND		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	ND		1.7	0.59
75-09-2	Methylene Chloride	84.93	4.0		3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	ND		2.7	0.54
108-88-3	Toluene	92.14	11		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	ND		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	ND		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	1.0	J	2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	2.2	J	3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	97		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-117-A-VS Lab Sample ID: 140-10566-3

Matrix: Air Lab File ID: GA29P111.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:31

Sample wt/vol: 100(mL) Date Analyzed: 01/29/2018 22:22

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.13	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.38	J	0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.50		0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	ND		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	ND		0.40	0.14
75-09-2	Methylene Chloride	84.93	1.3		1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	ND		0.40	0.080
108-88-3	Toluene	92.14	1.5		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	ND		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	ND		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-117-A-VS Lab Sample ID: 140-10566-3

Matrix: Air Lab File ID: GA29P111.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:31

Sample wt/vol: 100(mL) Date Analyzed: 01/29/2018 22:22

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.40	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.4	J	1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.5		2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	ND		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	ND		1.7	0.59
75-09-2	Methylene Chloride	84.93	4.5		3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	ND		2.7	0.54
108-88-3	Toluene	92.14	5.5		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	ND		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	ND		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	ND		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-136-A-VS Lab Sample ID: 140-10566-2

Matrix: Air Lab File ID: GA29P110.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:32

Sample wt/vol: 100(mL) Date Analyzed: 01/29/2018 21:39

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.14	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.49		0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.50		0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	ND		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	0.14	J	0.40	0.14
75-09-2	Methylene Chloride	84.93	1.6		1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	ND		0.40	0.080
108-88-3	Toluene	92.14	4.1		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	0.11	J	0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	0.56	J	0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	94		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-136-A-VS Lab Sample ID: 140-10566-2

Matrix: Air Lab File ID: GA29P110.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:32

Sample wt/vol: 100(mL) Date Analyzed: 01/29/2018 21:39

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.43	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.7		1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.5		2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	ND		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	0.60	J	1.7	0.59
75-09-2	Methylene Chloride	84.93	5.6		3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	ND		2.7	0.54
108-88-3	Toluene	92.14	16		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	ND		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	0.57	J	1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	2.4	J	3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	94		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-168-A-VS Lab Sample ID: 140-10566-1

Matrix: Air Lab File ID: GA29P108.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:36

Sample wt/vol: 100(mL) Date Analyzed: 01/29/2018 20:56

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.12	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.46		0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.47		0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	ND		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	ND		0.40	0.14
75-09-2	Methylene Chloride	84.93	1.8		1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	0.92		0.40	0.080
108-88-3	Toluene	92.14	1.2		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	0.21		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	ND		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-168-A-VS Lab Sample ID: 140-10566-1

Matrix: Air Lab File ID: GA29P108.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:36

Sample wt/vol: 100(mL) Date Analyzed: 01/29/2018 20:56

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.40	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.6		1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.3		2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	ND		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	ND		1.7	0.59
75-09-2	Methylene Chloride	84.93	6.3		3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	6.3		2.7	0.54
108-88-3	Toluene	92.14	4.5		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	ND		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	1.1		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	ND		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-DUP1-A-VS Lab Sample ID: 140-10566-8

Matrix: Air Lab File ID: GA29P116.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 00:00

Sample wt/vol: 100(mL) Date Analyzed: 01/30/2018 01:57

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.14	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.49		0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.53		0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	ND		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	ND		0.40	0.14
75-09-2	Methylene Chloride	84.93	2.9		1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	ND		0.40	0.080
108-88-3	Toluene	92.14	1.6		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	0.089	J	0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	ND		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	94		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-DUP1-A-VS Lab Sample ID: 140-10566-8

Matrix: Air Lab File ID: GA29P116.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 00:00

Sample wt/vol: 100(mL) Date Analyzed: 01/30/2018 01:57

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.43	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.7		1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.6		2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	ND		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	ND		1.7	0.59
75-09-2	Methylene Chloride	84.93	10		3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	ND		2.7	0.54
108-88-3	Toluene	92.14	5.9		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	ND		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	0.48	J	1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	ND		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	94		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-HRS5-A-VS Lab Sample ID: 140-10566-6

Matrix: Air Lab File ID: GA29P114.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:25

Sample wt/vol: 100(mL) Date Analyzed: 01/30/2018 00:31

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.12	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.31	J	0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.55		0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	ND		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	ND		0.40	0.14
75-09-2	Methylene Chloride	84.93	1.4		1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	ND		0.40	0.080
108-88-3	Toluene	92.14	ND		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	0.10	J	0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	ND		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	95		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-HRS5-A-VS Lab Sample ID: 140-10566-6

Matrix: Air Lab File ID: GA29P114.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:25

Sample wt/vol: 100(mL) Date Analyzed: 01/30/2018 00:31

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.38	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.1	J	1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.7		2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	ND		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	ND		1.7	0.59
75-09-2	Methylene Chloride	84.93	5.0		3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	ND		2.7	0.54
108-88-3	Toluene	92.14	ND		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	ND		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	0.56	J	1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	ND		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	95		60-140

Appendix C

Support Documentation

Job Narrative
140-10566-1

Receipt
The samples were received on 1/26/2018 at 9:30 AM. The samples arrived in good condition and properly preserved.

Air - GC/MS VOA - Method TO-15 LL
EPA methods TO-14A and TO-15 specify the use of humidified “zero air” as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of “zero air” by TestAmerica Knoxville.

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

Comments
No additional comments.

Qualifiers

Air - 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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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)

Method Summary

Client: Tetra Tech GEO
Project/Site: LMC MRC - MRA3/BLDG-A

TestAmerica Job ID: 140-10566-1

Method	Method Description	Protocol	Laboratory
TO 15 LL	Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)	EPA	TAL KNX

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Sample Summary

Client: Tetra Tech GEO
Project/Site: LMC MRC - MRA3/BLDG-A

TestAmerica Job ID: 140-10566-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-10566-1	IA-168-A-VS	Air	01/24/18 19:36	01/26/18 09:30
140-10566-2	IA-136-A-VS	Air	01/24/18 19:32	01/26/18 09:30
140-10566-3	IA-117-A-VS	Air	01/24/18 19:31	01/26/18 09:30
140-10566-4	IA-079-A-VS	Air	01/24/18 19:30	01/26/18 09:30
140-10566-5	IA-015-A-VS	Air	01/24/18 19:27	01/26/18 09:30
140-10566-6	IA-HRS5-A-VS	Air	01/24/18 19:25	01/26/18 09:30
140-10566-7	IA-021-A-VS	Air	01/24/18 19:34	01/26/18 09:30
140-10566-8	IA-DUP1-A-VS	Air	01/24/18 00:00	01/26/18 09:30

TAL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** Peter Rich	**Sampled By:** J M Wilks	1 of 2 COCs
Company: Tetra Tech	Phone: 410-990-4607		
Address: 51 Franklin St	Site Contact:		
City/State/Zip Annapolis MD 21401	TAL Contact:		
Phone: 410-990-4607			
FAX:			
Project Name: LMC MRC	**Analysis Turnaround Time**		
Site/location: MRA3 / BLDG-A	Standard (Specify)		
PO # 177-05121140	Rush (Specify)		

140-10566 Chain of Custody

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
IA-168-A-VS	1-24-18	1120	1936	24	+1	11475	11739	✓							✓				
IA-136-A-VS	1	1115	1932	25	+1	10079	11740	✓							✓				
IA-117-A-VS	1	1113	1931	30	3	10053	11727	✓							✓				
IA-079-A-VS	1	1111	1930	30	2	09861	11746	✓							✓				
IA-015-A-VS	1	1107	1927	28.5	0	10299	11659	✓							✓				
IA-HRSS-A-VS	↓	1104	1925	30	4	10619	11738	✓							✓				

Sampled by :

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

Received @ ambient / Cooler
Fedex Ground trk# 7713 2387 0168
Custody seal intact
KW 1/26/18

Special Instructions/QC Requirements & Comments:

Canisters Shipped by: [illegible] Coffman	Date/Time: 1/25/18	Canisters Received by: [illegible]	1/26/18 0930
Samples Relinquished by:	Date/Time:	Received by:	
Relinquished by:	Date/Time:	Received by:	

8 Cans
1 T, 8 Cans

TAL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

TestAmerica ENVIRONMENTAL
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information	**Project Manager:** Peter Rich	**Sampled By:** JM Wilks	2 of 2
Company: Tetra Tech	Phone: 410-990-4607		
Address: 51 Franklin St	Site Contact:		
City/State/Zip Annapolis MD 21401	TAL Contact:		
Phone: 410-990-4607			
FAX:			
Project Name: LMC MRC	**Analysis Turnaround Time**		
Site/location: MRAs-1 B2DF-A	Standard (Specify)		
PO # 117-051240	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
IA-021-A-VS	1-24-18	1118	1934	27	0	10466	10739	✓							✓				
IA-DUP1-A-VS	↓	—	—	27.5	1	11499	11744	✓							✓				

Sampled by :	Temperature (Fahrenheit)		
	Interior	Ambient	
Start			
Stop			

	Pressure (inches of Hg)		
	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Canisters Shipped by: DHL Capture	Date/Time: 1/25/18	Canisters Received by: [illegible]	1/26/18 0930
Samples Relinquished by:	Date/Time:	Received by:	
Relinquished by:	Date/Time:	Received by:	

Loc: 140
10566

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST **Log In Number:**

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	✓			☐ **Containers, Broken**
2. Were ambient air containers received intact?			✓	☑ Checked in lab
3. The coolers/containers custody seal if present, is it intact?	✓			☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID : IR67 Correction factor: −0.1			✓	☐ **Cooler Out of Temp, Client Contacted, Proceed/Cancel** ☐ **Cooler Out of Temp, Same Day Receipt**
5. Were all of the sample containers received intact?	✓			☐ **Containers, Broken**
6. Were samples received in appropriate containers?	✓			☐ **Containers, Improper; Client Contacted; Proceed/Cancel**
7. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ **COC & Samples Do Not Match** ☐ **COC Incorrect/Incomplete** ☐ **COC Not Received**
8. Were all of the samples listed on the COC received?	✓			☐ **Sample Received, Not on COC** ☐ **Sample on COC, Not Received**
9. Is the date/time of sample collection noted?	✓			☐ **COC; No Date/Time; Client Contacted**
10. Was the sampler identified on the COC?	✓			☐ **Sampler Not Listed on COC**
11. Is the client and project name/# identified?	✓			☐ **COC Incorrect/Incomplete**
12. Are tests/parameters listed for each sample?	✓			☐ **COC No tests on COC**
13. Is the matrix of the samples noted?	✓			☐ **COC Incorrect/Incomplete**
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ **COC Incorrect/Incomplete**
15. Were samples received within holding time?	✓			☐ **Holding Time - Receipt**
16. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ **pH Adjusted, pH Included (See box 16A)** ☐ **Incorrect Preservative**
17. Were VOA samples received without headspace?			✓	☐ **Headspace (VOA only)**
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:_____			✓	☐ **Residual Chlorine**
19. For 1613B water samples is pH<9?			✓	☐ If no, lab will adjust
20. For rad samples was sample activity info. Provided?			✓	☐ Project missing info

Comments/Actions Taken

Labeling Verified by: **Date:**

pH test strip lot number:

Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:	
Lot Number:	
Exp Date:	
Analyst:	
Date:	
Time:	

Project #: 140292 PM Instructions:

Sample Receiving Associate: Date: 1/26/18

QA026R30.doc, 080916

TestAmerica Knoxville - Air Canister Initial Pressure Check

Gauge ID: G5
Date: 1/26/2018

Analyst	Sample ID	Asset #	Cleaning Job	Cert	Size (L)	Pressure @ Receipt (-in Hg or +psig)	Time	Comments
BKK	140-10566-A-1	11739	10373	B	1	-1.9	1345	
BKK	140-10566-A-2	11740	10373	B	1	-2.3	1346	
BKK	140-10566-A-3	11727	10373	B	1	-3.0	1347	
BKK	140-10566-A-4	11746	10373	B	1	-1.2	1348	
BKK	140-10566-A-5	11659	10373	B	1	-2.6	1349	
BKK	140-10566-A-6	11738	10373	B	1	-1.5	1350	
BKK	140-10566-A-7	10739	10373	B	1	-1.8	1351	
BKK	140-10566-A-8	11744	10373	B	1	-2.3	1352	

Clean Canister Certification

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10373-1

SDG No.:

Client Sample ID: 10780 Lab Sample ID: 140-10373-8

Matrix: Air Lab File ID: LOT10373.D

Analysis Method: TO-15 Date Collected: 01/03/2018 11:25

Sample wt/vol: 200(mL) Date Analyzed: 01/04/2018 17:41

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17146 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.20	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.20	
79-00-5	1,1,2-Trichloroethane	ND		0.20	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.20	
75-34-3	1,1-Dichloroethane	ND		0.20	
75-35-4	1,1-Dichloroethene	ND		0.20	
87-61-6	1,2,3-Trichlorobenzene	ND		1.0	
96-18-4	1,2,3-Trichloropropane	ND		0.50	
526-73-8	1,2,3-Trimethylbenzene	ND		0.20	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.20	
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	
95-63-6	1,2,4-Trimethylbenzene	ND		0.20	
106-93-4	1,2-Dibromoethane	ND		0.20	
95-50-1	1,2-Dichlorobenzene	ND		0.20	
107-06-2	1,2-Dichloroethane	ND		0.20	
78-87-5	1,2-Dichloropropane	ND		0.20	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.20	
108-67-8	1,3,5-Trimethylbenzene	ND		0.20	
106-99-0	1,3-Butadiene	ND		0.40	
541-73-1	1,3-Dichlorobenzene	ND		0.20	
106-46-7	1,4-Dichlorobenzene	ND		0.20	
123-91-1	1,4-Dioxane	ND		0.50	
71-36-3	1-Butanol	ND	*	2.0	
90-12-0	1-Methylnaphthalene	ND		2.5	
540-84-1	2,2,4-Trimethylpentane	ND		0.50	
565-59-3	2,3-Dimethylpentane	ND		0.20	
78-93-3	2-Butanone	ND		1.0	
95-49-8	2-Chlorotoluene	ND		0.40	
591-78-6	2-Hexanone	ND		0.50	
78-78-4	2-Methylbutane	ND		0.50	
91-57-6	2-Methylnaphthalene	ND		2.5	
107-83-5	2-Methylpentane	ND		0.20	
107-05-1	3-Chloropropene	ND		0.20	
622-96-8	4-Ethyltoluene	ND		0.40	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.50	
67-64-1	Acetone	ND		5.0	

Clean Canister Certification

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10373-1

SDG No.:

Client Sample ID: 10780 | Lab Sample ID: 140-10373-8

Matrix: Air | Lab File ID: LOT10373.D

Analysis Method: TO-15 | Date Collected: 01/03/2018 11:25

Sample wt/vol: 200(mL) | Date Analyzed: 01/04/2018 17:41

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 17146 | Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-05-8	Acetonitrile	ND		1.0	
107-02-8	Acrolein	ND		1.0	
107-13-1	Acrylonitrile	ND		2.0	
98-83-9	Alpha Methyl Styrene	ND		0.40	
71-43-2	Benzene	ND		0.20	
100-44-7	Benzyl chloride	ND		0.40	
75-27-4	Bromodichloromethane	ND		0.20	
75-25-2	Bromoform	ND		0.20	
74-83-9	Bromomethane	ND		0.20	
106-97-8	Butane	ND		0.40	
75-15-0	Carbon disulfide	ND		0.50	
56-23-5	Carbon tetrachloride	ND		0.20	
108-90-7	Chlorobenzene	ND		0.20	
75-45-6	Chlorodifluoromethane	ND		0.20	
75-00-3	Chloroethane	ND		0.20	
67-66-3	Chloroform	ND		0.20	
74-87-3	Chloromethane	ND		0.50	
156-59-2	cis-1,2-Dichloroethene	ND		0.20	
10061-01-5	cis-1,3-Dichloropropene	ND		0.20	
98-82-8	Cumene	ND		0.40	
110-82-7	Cyclohexane	ND		0.50	
124-48-1	Dibromochloromethane	ND		0.20	
74-95-3	Dibromomethane	ND		0.40	
75-71-8	Dichlorodifluoromethane	ND		0.20	
64-17-5	Ethanol	ND		5.0	
141-78-6	Ethyl acetate	ND		2.0	
60-29-7	Ethyl ether	ND	*	2.0	
100-41-4	Ethylbenzene	ND		0.20	
87-68-3	Hexachlorobutadiene	ND		1.0	
110-54-3	Hexane	ND		0.50	
496-11-7	Indane	NC		0.20	
95-13-6	Indene	ND		0.40	
67-63-0	Isopropyl alcohol	ND		2.0	
179601-23-1	m&p-Xylene	ND		0.20	
80-62-6	Methyl methacrylate	ND		0.50	
1634-04-4	Methyl tert-butyl ether	ND		1.0	

Clean Canister Certification

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10373-1

SDG No.:

Client Sample ID: 10780 Lab Sample ID: 140-10373-8

Matrix: Air Lab File ID: LOT10373.D

Analysis Method: TO-15 Date Collected: 01/03/2018 11:25

Sample wt/vol: 200(mL) Date Analyzed: 01/04/2018 17:41

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17146 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
108-87-2	Methylcyclohexane	ND		0.20	
75-09-2	Methylene Chloride	ND		0.50	
91-20-3	Naphthalene	ND		0.50	
104-51-8	n-Butylbenzene	ND		0.40	
124-18-5	n-Decane	ND		1.0	
112-40-3	n-Dodecane	ND		1.0	
142-82-5	n-Heptane	ND		0.50	
111-84-2	n-Nonane	ND		0.50	
111-65-9	n-Octane	ND		0.40	
103-65-1	N-Propylbenzene	ND		0.40	
1120-21-4	n-Undecane	ND		1.0	
95-47-6	o-Xylene	ND		0.20	
99-87-6	p-Cymene	ND		0.20	
109-66-0	Pentane	ND		1.0	
115-07-1	Propene	ND		0.50	
135-98-8	sec-Butylbenzene	ND		0.40	
100-42-5	Styrene	ND		0.20	
75-65-0	tert-Butanol	ND		2.0	
98-06-6	tert-Butylbenzene	ND		0.50	
127-18-4	Tetrachloroethene	ND		0.20	
109-99-9	Tetrahydrofuran	ND		1.0	
110-02-1	Thiophene	NC		0.20	
108-88-3	Toluene	ND		0.20	
156-60-5	trans-1,2-Dichloroethene	ND		0.20	
10061-02-6	trans-1,3-Dichloropropene	ND		0.20	
79-01-6	Trichloroethene	ND		0.20	
75-69-4	Trichlorofluoromethane	ND		0.20	
108-05-4	Vinyl acetate	ND		1.0	
593-60-2	Vinyl bromide	ND		0.20	
75-01-4	Vinyl chloride	ND		0.20	

FIELD DUPLICATE PRECISION

ORIGINAL ID	DUP ID	FRACTION	ANALYTE	ORIGINAL	DUPLICATE	RL	RL1	RL2	RPD	RPD > 50%	ORIGINAL SAMPLE CONC >RL	DUPLICATE SAMPLE CONC >RL	DIFFERENCE >2XRL
IA-168-A-VS	IA-DUP1-A-VS	OV-M3	BENZENE	0.4 J	0.43 J	1.3	1.3	1.3	7.23	FALSE	FALSE	FALSE	FALSE
IA-168-A-VS	IA-DUP1-A-VS	OV-M3	CHLORODIFLUOROMETHANE	1.6	1.7	1.4	1.4	1.4	6.06	FALSE	TRUE	TRUE	FALSE
IA-168-A-VS	IA-DUP1-A-VS	OV-M3	DICHLORODIFLUOROMETHANE	2.3	2.6	2	2	2	12.24	FALSE	TRUE	TRUE	FALSE
IA-168-A-VS	IA-DUP1-A-VS	OV-M3	METHYLENE CHLORIDE	6.3	10	3.5	3.5	3.5	45.40	FALSE	TRUE	TRUE	FALSE
IA-168-A-VS	IA-DUP1-A-VS	OV-M3	TETRACHLOROETHENE	6.3	0.54 U	2.7	2.7	2.7	168.42	TRUE	TRUE	FALSE	~~TRUE~~
IA-168-A-VS	IA-DUP1-A-VS	OV-M3	TOLUENE	4.5	5.9	2.3	2.3	2.3	26.92	FALSE	TRUE	TRUE	FALSE
IA-168-A-VS	IA-DUP1-A-VS	OV-M3	TRICHLOROETHENE	1.1	0.48 J	1.1	1.1	1.1	~~78.48~~	~~TRUE~~	FALSE	FALSE	FALSE

Method TO15 Low Level

Volatile Organic Compounds - Low level (GC/MS) by Method TO 15

FORM V
AIR - GC/MS VOA INSTRUMENT PERFORMANCE CHECK

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Lab File ID: GBFBK13.D BFB Injection Date: 11/13/2017

Instrument ID: MG BFB Injection Time: 14:59

Analysis Batch No.: 15917

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	20.3	
75	30.0 - 60.0 % of mass 95	51.8	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.7	
173	Less than 2.0 % of mass 174	0.4	(0.5) 1
174	50.0 - 120.00 % of mass 95	82.0	
175	5.0 - 9.0 % of mass 174	5.6	(6.8) 1
176	95.0 - 101.0 % of mass 174	79.5	(97.0) 1
177	5.0 - 9.0 % of mass 176	5.2	(6.5) 2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	IC 140-15917/3	GK13IC01.D	11/13/2017	16:15
	IC 140-15917/4	GK13IC02.D	11/13/2017	16:57
	IC 140-15917/5	GK13IC03.D	11/13/2017	17:39
	IC 140-15917/6	GK13IC04.D	11/13/2017	18:22
	IC 140-15917/7	GK13IC05.D	11/13/2017	19:05
	IC 140-15917/8	GK13IC06.D	11/13/2017	19:47
	ICIS 140-15917/9	GK13IC07.D	11/13/2017	20:29
	IC 140-15917/10	GK13IC08.D	11/13/2017	21:11
	IC 140-15917/11	GK13IC09.D	11/13/2017	21:54
	IC 140-15917/12	GK13IC10.D	11/13/2017	22:37
	ICV 140-15917/14	GICVK13.D	11/14/2017	00:02

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

Calibration Files

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 140-15917/3	GK13IC01.D
Level 2	IC 140-15917/4	GK13IC02.D
Level 3	IC 140-15917/5	GK13IC03.D
Level 4	IC 140-15917/6	GK13IC04.D
Level 5	IC 140-15917/7	GK13IC05.D
Level 6	IC 140-15917/8	GK13IC06.D
Level 7	ICIS 140-15917/9	GK13IC07.D
Level 8	IC 140-15917/10	GK13IC08.D
Level 9	IC 140-15917/11	GK13IC09.D
Level 10	IC 140-15917/12	GK13IC10.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
Chlorodifluoromethane	+++++ 0.4209	0.4741 0.3778	0.4890 0.3631	0.4015 0.3389	0.3904 0.3461	Ave		0.4002				13.2		30.0			
Propene	+++++ 1.2942	+++++ 1.1742	1.4339 1.0902	1.3826 1.0058	1.2116 0.9801	Ave		1.1966				14.0		30.0			
Dichlorodifluoromethane	+++++ 4.2687	4.7102 3.9109	4.2434 3.7103	4.1211 3.4967	3.8994 3.5726	Ave		3.9926				9.7		30.0			
Chloromethane	+++++ 0.4856	+++++ 0.4266	+++++ 0.4031	0.5283 0.3716	0.4379 0.3688	Ave		0.4317				13.6		30.0			
1,2-Dichloro-1,1,2,2-tetrafluoroethane	+++++ 2.6040	2.6490 2.4574	2.7020 2.4381	2.3871 2.3767	2.4295 2.6085	Ave		2.5169				4.9		30.0			
Vinyl chloride	1.9357 1.6167	1.7829 1.5085	1.6650 1.4276	1.5284 1.3540	1.4886 1.3938	Ave		1.5701				11.6		30.0			
1,3-Butadiene	+++++ 1.2734	+++++ 1.1671	1.3254 1.1011	1.2255 1.0267	1.1534 1.0249	Ave		1.1622				9.4		30.0			
Butane	+++++ 2.4587	+++++ 2.2121	2.7533 2.0602	2.4531 1.8895	2.3384 1.8366	Ave		2.2502				13.9		30.0			
Bromomethane	+++++ 1.4801	+++++ 1.4021	1.5021 1.3416	1.4094 1.2847	1.3709 1.3397	Ave		1.3913				5.3		30.0			
Chloroethane	+++++ 0.8384	+++++ 0.7765	0.8487 0.7405	0.8017 0.7131	0.7663 0.7370	Ave		0.7778				6.3		30.0			
Ethanol	+++++ 0.7651	+++++ 0.6439	0.7998 0.6811	0.7406 0.6282	0.7569 0.5700	Ave		0.6982				11.4		30.0			
Vinyl bromide	+++++ 1.4498	1.4149 1.3601	1.4580 1.3047	1.3403 1.2626	1.3032 1.3326	Ave		1.3585				5.0		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
2-Methylbutane	+++++ 1.8716	2.3370 1.7013	2.0465 1.5831	1.7630 1.4868	1.7293 1.5330	Ave		1.7835				15.2		30.0			
Trichlorofluoromethane	+++++ 4.3809	4.6634 4.0134	4.4068 3.8719	4.1208 3.7805	4.0463 3.9344	Ave		4.1354				7.0		30.0			
Acrolein	+++++ 0.3377	+++++ 0.3261	+++++ 0.3414	0.3514 0.3222	0.3132 0.3382	Ave		0.3329				3.9		30.0			
Acetonitrile	+++++ 0.5747	+++++ 0.4890	+++++ 0.5325	0.4160 0.5074	0.5128 0.4502	Ave		0.4975				10.5		30.0			
Acetone	+++++ 0.6862	+++++ 0.5664	+++++ 0.6053	+++++ 0.5595	0.8231 0.4809	Ave		0.6202				19.3		30.0			
Pentane	+++++ 0.2963	+++++ 0.2708	+++++ 0.2656	0.2760 0.2604	0.2756 0.2709	Ave		0.2737				4.2		30.0			
Isopropyl alcohol	+++++ 1.8952	+++++ 1.6084	1.9172 1.6809	1.7458 1.3805	1.8324 +++++	Ave		1.7229				10.9		30.0			
Ethyl ether	+++++ 1.5210	+++++ 1.3351	1.4931 1.3355	1.4082 1.3266	1.5010 1.2689	Ave		1.3987				6.9		30.0			
1,1-Dichloroethene	1.7502 1.4609	1.5168 1.3618	1.4246 1.3230	1.2646 1.3098	1.2861 1.3797	Ave		1.4077				10.2		30.0			
Acrylonitrile	+++++ 0.9596	+++++ 0.8283	0.8995 0.8932	0.8126 0.8745	0.9184 0.8340	Ave		0.8775				5.7		30.0			
1,1,2-Trichloro-1,2,2-trifluoroethane	3.6567 3.1066	3.1502 2.9260	2.9962 2.8369	2.9172 2.7926	2.8230 2.9631	Ave		3.0169				8.4		30.0			
tert-Butyl alcohol	+++++ 2.5279	2.2922 2.1541	2.4015 2.2705	2.2114 2.0890	2.2379 2.3346	Ave		2.2799				5.8		30.0			
Methylene Chloride	+++++ 1.4251	+++++ 1.2601	+++++ 1.1850	2.2436 1.1339	1.5560 1.1655	Ave		1.4242				27.6		30.0			
3-Chloropropene	+++++ 1.4457	+++++ 1.2674	1.5312 1.2161	1.3992 1.1961	1.3315 1.2092	Ave		1.3246				9.4		30.0			
Carbon disulfide	+++++ 4.1086	+++++ 3.8051	4.0534 3.6756	3.8052 3.6313	3.7219 3.8432	Ave		3.8305				4.5		30.0			
trans-1,2-Dichloroethene	1.7541 1.4461	1.5580 1.3782	1.3541 1.3639	1.3369 1.3461	1.2781 1.4225	Ave		1.4238				9.7		30.0			
Methyl tert-butyl ether	+++++ 3.7627	3.7268 3.2357	3.5424 3.6305	3.1609 3.5993	3.6393 3.2995	Ave		3.5108				6.3		30.0			
1,1-Dichloroethane	3.5525 2.8572	3.1022 2.6631	2.8540 2.6446	2.7940 2.5777	2.6493 2.6406	Ave		2.8335				10.5		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
Vinyl acetate	+++++ 3.7174	+++++ 3.2004	3.4707 3.6232	2.9712 3.5570	3.5837 3.2104	Ave		3.4167				7.6		30.0			
2-Butanone (MEK)	+++++ 0.6334	+++++ 0.5295	0.7110 0.6299	0.6425 0.6169	0.6553 0.5489	Ave		0.6209				9.3		30.0			
Hexane	+++++ 1.2427	+++++ 1.1685	1.3522 1.1361	1.2777 1.0863	1.1291 1.0815	Ave		1.1842				8.2		30.0			
cis-1,2-Dichloroethene	1.7741 1.4982	1.5249 1.4314	1.4959 1.4374	1.4499 1.4124	1.3413 1.4652	Ave		1.4831				7.7		30.0			
Ethyl acetate	+++++ 2.9400	+++++ 2.4680	2.6650 2.9172	2.4499 2.8494	2.8983 2.4913	Ave		2.7099				8.0		30.0			
Chloroform	3.9103 3.3083	3.5770 3.1112	3.3275 3.0912	3.2198 3.0077	3.0511 3.0501	Ave		3.2654				8.7		30.0			
Tetrahydrofuran	+++++ 1.5162	+++++ 1.2787	1.5723 1.4773	1.3462 1.4386	1.4921 1.2939	Ave		1.4269				7.6		30.0			
1,1,1-Trichloroethane	4.1906 3.4987	3.6924 3.3036	3.4470 3.2998	3.3138 3.2176	3.1294 3.2831	Ave		3.4376				9.0		30.0			
1,2-Dichloroethane	0.5117 0.4100	0.4505 0.3742	0.4316 0.3691	0.3877 0.3586	0.3568 0.3781	Ave		0.4028				12.2		30.0			
Benzene	1.1158 0.7924	0.8587 0.7364	0.7839 0.7148	0.7379 0.6985	0.6966 0.7357	Ave		0.7871				16.0		30.0			
Cyclohexane	+++++ 0.1335	+++++ 0.1226	0.1426 0.1184	0.1305 0.1148	0.1176 0.1205	Ave		0.1251				7.6		30.0			
Carbon tetrachloride	0.7088 0.6291	0.6098 0.5944	0.5973 0.5968	0.5681 0.5952	0.5334 0.6504	Ave		0.6083				7.8		30.0			
1-Butanol	+++++ 0.0946	+++++ 0.0834	+++++ 0.0831	+++++ 0.0819	0.0793 0.0982	Ave		0.0867				8.9		30.0			
2,2,4-Trimethylpentane	+++++ 1.3672	1.5226 1.2532	1.4131 1.2121	1.2981 1.1665	1.1966 1.2023	Ave		1.2924				9.2		30.0			
Heptane	+++++ 0.2926	0.3256 0.2738	0.2998 0.2671	0.2725 0.2600	0.2552 0.2748	Ave		0.2801				7.9		30.0			
1,2-Dichloropropane	+++++ 0.3066	0.3445 0.2774	0.3207 0.2778	0.2853 0.2707	0.2745 0.2714	Ave		0.2921				8.9		30.0			
Trichloroethene	0.4652 0.3688	0.3821 0.3588	0.3635 0.3455	0.3473 0.3501	0.3041 0.4002	Ave		0.3686				11.5		30.0			
Dibromomethane	+++++ 0.3329	0.4326 0.3103	0.3748 0.3064	0.3179 0.3025	0.2950 0.3293	Ave		0.3335				13.2		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
Bromodichloromethane	+++++ 0.6113	0.5991 0.5748	0.5839 0.5709	0.5278 0.5670	0.5155 0.6011	Ave		0.5724				5.7		30.0			
1,4-Dioxane	+++++ 0.1105	+++++ 0.0941	0.1052 0.1081	0.0908 0.1051	0.0972 0.1066	Ave		0.1022				7.0		30.0			
Methyl methacrylate	+++++ 0.3158	+++++ 0.2641	0.2492 0.3141	0.2384 0.3122	0.2828 0.2892	Ave		0.2832				10.7		30.0			
4-Methyl-2-pentanone (MIBK)	+++++ 0.5375	+++++ 0.4341	0.5084 0.4922	0.4079 0.4649	0.4854 0.4900	Ave		0.4776				8.6		30.0			
cis-1,3-Dichloropropene	0.5075 0.4702	0.4397 0.4480	0.4523 0.4416	0.4038 0.4413	0.4096 0.4695	Ave		0.4483				6.7		30.0			
trans-1,3-Dichloropropene	0.4342 0.4373	0.4304 0.4122	0.4106 0.4009	0.3622 0.4246	0.3856 0.4414	Ave		0.4139				6.1		30.0			
Toluene	1.0429 0.9043	0.9626 0.8486	0.9133 0.8393	0.7821 0.8678	0.8513 0.8790	Ave		0.8891				8.2		30.0			
1,1,2-Trichloroethane	0.3033 0.2741	0.2815 0.2557	0.2792 0.2501	0.2453 0.2586	0.2541 0.2630	Ave		0.2665				6.7		30.0			
2-Hexanone	+++++ 0.2716	+++++ 0.2322	0.2518 0.2501	0.2147 0.2500	0.2290 0.2793	Ave		0.2473				8.7		30.0			
Dibromochloromethane	0.5416 0.5728	0.5126 0.5660	0.5075 0.5689	0.4644 0.6094	0.4724 0.6634	Ave		0.5479				11.2		30.0			
Octane	+++++ 0.3244	0.3327 0.3080	0.3192 0.3031	0.2916 0.3075	0.2942 0.3192	Ave		0.3111				4.4		30.0			
1,2-Dibromoethane (EDB)	+++++ 0.5098	0.4728 0.4820	0.4689 0.4701	0.4348 0.4973	0.4408 0.5244	Ave		0.4779				6.2		30.0			
Tetrachloroethene	0.4213 0.3335	0.3824 0.3188	0.3455 0.3140	0.3122 0.3328	0.3036 0.3657	Ave		0.3430				10.8		30.0			
Chlorobenzene	0.8433 0.7231	0.7521 0.6719	0.7272 0.6662	0.6567 0.7000	0.6517 0.7385	Ave		0.7131				8.2		30.0			
Ethylbenzene	1.3742 1.1894	1.1702 1.0825	1.1557 1.1009	0.9649 1.1355	1.1083 1.1255	Ave		1.1407				9.0		30.0			
m-Xylene & p-Xylene	+++++ 0.9298	0.9015 0.8276	0.9024 0.8564	0.7434 0.8908	0.8693 0.8668	Ave		0.8653				6.3		30.0			
Bromoform	+++++ 0.5176	+++++ 0.5363	0.4204 0.5814	0.3780 0.6486	0.4038 0.7062	Ave		0.5240				22.7		30.0			
Styrene	0.5999 0.6697	0.5201 0.6167	0.5206 0.6491	0.4604 0.7038	0.5617 0.7401	Ave		0.6042				14.7		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
Nonane	+++++ 0.6466	0.6263 0.5909	0.6432 0.5621	0.5601 0.5546	0.5952 0.5326	Ave		0.5902				7.0		30.0			
o-Xylene	1.0869 0.9646	0.9289 0.8472	0.9499 0.8898	0.7858 0.9259	0.9216 0.9030	Ave		0.9204				8.5		30.0			
1,1,2,2-Tetrachloroethane	0.6533 0.6932	0.6079 0.5957	0.6355 0.6316	0.5342 0.6439	0.6321 0.6389	Ave		0.6266				6.6		30.0			
1,2,3-Trichloropropane	+++++ 0.2119	0.1993 0.1814	0.2064 0.1971	0.1669 0.2037	0.1957 0.2016	Ave		0.1960				7.0		30.0			
Isopropylbenzene	+++++ 1.3491	1.3682 1.1827	1.3327 1.2527	1.1039 1.2987	1.2911 1.2653	Ave		1.2716				6.6		30.0			
Propylbenzene	+++++ 0.3621	0.3270 0.3129	0.3289 0.3411	0.2729 0.3669	0.3245 +++++	Ave		0.3295				9.0		30.0			
2-Chlorotoluene	+++++ 0.3343	0.3272 0.3066	0.3121 0.3108	0.2736 0.3334	0.2981 +++++	Ave		0.3120				6.5		30.0			
4-Ethyltoluene	+++++ 1.3352	1.1081 1.1364	1.1913 1.2355	1.0106 1.2920	1.2010 1.2605	Ave		1.1967				8.4		30.0			
1,3,5-Trimethylbenzene	0.4807 0.5225	0.4770 0.4536	0.4624 0.5031	0.3977 0.5363	0.4907 0.5389	Ave		0.4863				8.8		30.0			
Alpha Methyl Styrene	+++++ 0.5103	0.3322 0.4660	0.3565 0.5246	0.3053 0.5662	0.4034 0.5736	Ave		0.4487				22.8		30.0			
Decane	+++++ 0.7857	0.6888 0.6911	0.7401 0.6921	0.6253 0.6831	0.7217 0.6552	Ave		0.6981				6.7		30.0			
tert-Butylbenzene	+++++ 1.1901	1.0319 1.0285	1.0714 1.1332	0.9066 1.1980	1.1104 1.2180	Ave		1.0987				9.1		30.0			
1,2,4-Trimethylbenzene	1.1091 1.1388	0.9655 0.9726	1.0084 1.0738	0.8528 1.1248	1.0434 1.1041	Ave		1.0393				8.7		30.0			
1,3-Dichlorobenzene	0.8365 0.7918	0.7336 0.7095	0.7293 0.7443	0.6029 0.8352	0.6783 0.9280	Ave		0.7589				12.2		30.0			
sec-Butylbenzene	+++++ 1.6578	1.3730 1.4153	1.4542 1.5502	1.2351 1.6298	1.5346 +++++	Ave		1.4813				9.5		30.0			
Benzyl chloride	+++++ 0.9768	0.7957 0.8885	0.8314 0.9902	0.6921 1.0745	0.8463 1.0292	Ave		0.9028				13.7		30.0			
1,4-Dichlorobenzene	0.8219 0.7874	0.7403 0.7096	0.7341 0.7307	0.6294 0.8124	0.6903 0.8859	Ave		0.7542				9.8		30.0			
4-Isopropyltoluene	+++++ 1.3804	1.1035 1.1652	1.1829 1.3276	1.0350 1.3891	1.2763 +++++	Ave		1.2325				10.6		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
1,2,3-Trimethylbenzene	1.1301 1.2212	0.9985 1.0326	1.0839 1.1440	0.9224 1.1900	1.1508 1.1418	Ave		1.1015				8.4		30.0			
1,2-Dichlorobenzene	0.8093 0.7576	0.7011 0.6556	0.7122 0.7007	0.5760 0.7551	0.6631 0.7809	Ave		0.7112				9.7		30.0			
Butylbenzene	+++++ 1.3331	1.1396 1.1099	1.1769 1.2421	0.9844 1.2553	1.2183 +++++	Ave		1.1825				9.0		30.0			
Undecane	+++++ 0.8305	0.7108 0.6797	0.7565 0.7566	0.6273 0.6922	0.7778 0.5012	Ave		0.7036				13.7		30.0			
1,2-Dibromo-3-Chloropropane	0.4186 0.5564	0.3796 0.4894	0.4384 +++++	0.3554 +++++	0.4490 +++++	Ave		0.4410				15.3		30.0			
1,2,4,5-Tetramethylbenzene	+++++ 1.7199	1.3253 1.3969	1.5070 1.6674	1.2340 1.5685	1.5075 +++++	Ave		1.4908				11.1		30.0			
Dodecane	+++++ 0.8159	0.6104 0.6383	0.7590 0.6272	0.5888 0.4291	0.6184 +++++	Ave		0.6359				18.2		30.0			
1,2,4-Trichlorobenzene	+++++ 0.6739	0.6036 0.5545	0.6234 0.6355	0.4876 0.5074	0.5245 +++++	Ave		0.5763				11.7		30.0			
Naphthalene	+++++ 1.5712	1.3840 1.2411	1.5280 1.3968	1.1679 1.1550	1.2131 +++++	Ave		1.3321				12.1		30.0			
Hexachlorobutadiene	+++++ 0.6454	0.5112 0.5557	0.5505 0.6440	0.4534 0.5647	0.5218 +++++	Ave		0.5558				11.7		30.0			
1,2,3-Trichlorobenzene	+++++ 0.6521	0.5790 0.5122	0.6088 0.5747	0.4773 0.4042	0.4747 +++++	Ave		0.5354				15.3		30.0			
2-Methylnaphthalene	+++++ 0.8005	0.5668 0.6138	0.7733 0.4431	0.6512 +++++	0.3021 +++++	Ave		0.5930				29.8		50.0			
1-Methylnaphthalene	+++++ 0.7496	0.5426 0.5657	0.7787 0.3966	0.6537 +++++	0.2811 +++++	Ave		0.5668				32.0		50.0			
4-Bromofluorobenzene (Surr)	0.7251 0.7536	0.7270 0.7603	0.7319 0.7473	0.7585 0.7425	0.7608 0.7566	Ave		0.7464				1.9		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

Calibration Files

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 140-15917/3	GK13IC01.D
Level 2	IC 140-15917/4	GK13IC02.D
Level 3	IC 140-15917/5	GK13IC03.D
Level 4	IC 140-15917/6	GK13IC04.D
Level 5	IC 140-15917/7	GK13IC05.D
Level 6	IC 140-15917/8	GK13IC06.D
Level 7	ICIS 140-15917/9	GK13IC07.D
Level 8	IC 140-15917/10	GK13IC08.D
Level 9	IC 140-15917/11	GK13IC09.D
Level 10	IC 140-15917/12	GK13IC10.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (PPB V/V)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
Chlorodifluoromethane	CBM	Ave	+++++ 47584	1944 91604	4016 188886	6739 380435	17815 776367	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Propene	CBM	Ave	+++++ 146316	+++++ 284706	11776 567180	23206 1128877	55285 2198206	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Dichlorodifluoromethane	CBM	Ave	+++++ 482581	19312 948236	34850 1930222	69172 3924687	177921 8013096	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Chloromethane	CBM	Ave	+++++ 54897	+++++ 103444	+++++ 209700	8868 417131	19982 827117	+++++ 1.00	+++++ 2.00	+++++ 4.00	0.159 8.00	0.400 16.0
1,2-Dichloro-1,1,2,2-tetrafluoro ethane	CBM	Ave	+++++ 294387	10861 595818	22191 1268393	40067 2667613	110853 5850706	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Vinyl chloride	CBM	Ave	3977 182777	7310 365751	13674 742706	25654 1519736	67921 3126086	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,3-Butadiene	CBM	Ave	+++++ 143956	+++++ 282979	10885 572852	20570 1152350	52626 2298877	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Butane	CBM	Ave	+++++ 277958	+++++ 536349	22612 1071781	41175 2120801	106696 4119438	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Bromomethane	CBM	Ave	+++++ 167329	+++++ 339947	12336 697972	23657 1441978	62553 3004925	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Chloroethane	CBM	Ave	+++++ 94779	+++++ 188279	6970 385220	13456 800409	34965 1652929	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Ethanol	CBM	Ave	+++++ 432503	+++++ 780582	32841 1771762	62153 3525366	172678 6392242	+++++ 5.01	+++++ 9.99	0.397 20.0	0.793 40.0	2.00 80.0
Vinyl bromide	CBM	Ave	+++++ 163902	5801 329759	11974 678777	22496 1417168	59464 2988838	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
2-Methylbutane	CBM	Ave	+++++ 211585	9582 412500	16807 823604	29591 1668764	78905 3438323	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Trichlorofluoromethane	CBM	Ave	+++++ 495271	19120 973088	36192 2014322	69167 4243257	184625 8824574	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (PPB V/V)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
Acrolein	CBM	Ave	+++++ 38182	+++++ 79056	+++++ 177634	5898 361660	14290 758574	+++++ 1.00	+++++ 2.00	+++++ 4.00	0.159 8.00	0.400 16.0
Acetonitrile	CBM	Ave	+++++ 64966	+++++ 118573	+++++ 277041	6983 569467	23397 1009777	+++++ 1.00	+++++ 2.00	+++++ 4.00	0.159 8.00	0.400 16.0
Acetone	CBM	Ave	+++++ 232757	+++++ 412013	+++++ 944699	+++++ 1884211	112683 3235879	+++++ 3.01	+++++ 5.99	+++++ 12.0	+++++ 24.0	1.20 48.0
Pentane	CBM	Ave	+++++ 33503	+++++ 65649	+++++ 138163	4633 292318	12574 607693	+++++ 1.00	+++++ 2.00	+++++ 4.00	0.159 8.00	0.400 16.0
Isopropyl alcohol	CBM	Ave	+++++ 642804	+++++ 1169994	47239 2623528	87914 4648765	250842 +++++	+++++ 3.01	+++++ 5.99	0.238 12.0	0.476 24.0	1.20 +++++
Ethyl ether	CBM	Ave	+++++ 171952	+++++ 323714	12262 694797	23637 1488991	68486 2845941	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,1-Dichloroethene	CBM	Ave	3596 165163	6219 330185	11700 688255	21226 1470068	58681 3094497	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Acrylonitrile	CBM	Ave	+++++ 108483	+++++ 200830	7387 464689	13640 981544	41904 1870672	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,1,2-Trichloro-1,2,2-trifluoroe thane	CBM	Ave	7513 351206	12916 709434	24607 1475868	48964 3134469	128810 6646009	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
tert-Butyl alcohol	CBM	Ave	+++++ 285790	9398 522279	19723 1181182	37118 2344702	102110 5236389	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Methylene Chloride	CBM	Ave	+++++ 161108	+++++ 305525	+++++ 616498	37658 1272652	70998 2614182	+++++ 1.00	+++++ 2.00	+++++ 4.00	0.159 8.00	0.400 16.0
3-Chloropropene	CBM	Ave	+++++ 163444	+++++ 307300	12575 632648	23486 1342560	60754 2712084	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Carbon disulfide	CBM	Ave	+++++ 464484	+++++ 922581	33289 1912166	63869 4075744	169821 8619899	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
trans-1,2-Dichloroethene	CBM	Ave	3604 163483	6388 334149	11121 709568	22440 1510891	58319 3190481	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Methyl tert-butyl ether	CBM	Ave	+++++ 425380	15280 784526	29093 1888738	53055 4039827	166054 7400547	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,1-Dichloroethane	CBM	Ave	7299 323009	12719 645687	23439 1375802	46896 2893219	120884 5922596	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Vinyl acetate	CBM	Ave	+++++ 420259	+++++ 775973	28504 1884906	49871 3992345	163517 7200595	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
2-Butanone (MEK)	CBM	Ave	+++++ 71610	+++++ 128390	5839 327700	10784 692427	29898 1231198	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Hexane	CBM	Ave	+++++ 140488	+++++ 283313	11105 591020	21446 1219314	51517 2425623	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
cis-1,2-Dichloroethene	CBM	Ave	3645 169371	6252 347062	12285 747816	24336 1585322	61201 3286404	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Ethyl acetate	CBM	Ave	+++++ 332371	+++++ 598383	21887 1517621	41121 3198147	132244 5587753	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (PPB V/V)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
Chloroform	CBM	Ave	8034 374012	14666 754349	27328 1608175	54044 3375902	139215 6841071	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Tetrahydrofuran	CBM	Ave	+++++ 171415	+++++ 310039	12913 768573	22595 1614635	68081 2902098	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,1,1-Trichloroethane	CBM	Ave	8610 395534	15139 800987	28309 1716664	55622 3611490	142790 7363783	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,2-Dichloroethane	DFBZ	Ave	5673 259566	10182 520510	19580 1114126	37293 2335228	95876 4709100	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Benzene	DFBZ	Ave	12370 501630	19406 1024154	35561 2157425	70972 4549459	187181 9164238	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Cyclohexane	DFBZ	Ave	+++++ 84494	+++++ 170517	6467 357392	12548 747761	31612 1500344	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Carbon tetrachloride	DFBZ	Ave	7858 398226	13782 826704	27093 1801251	54641 3876730	143333 8101116	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1-Butanol	DFBZ	Ave	+++++ 59892	+++++ 116059	+++++ 250710	+++++ 533382	21302 1222672	+++++ 1.00	+++++ 2.00	+++++ 4.00	+++++ 8.00	0.400 16.0
2,2,4-Trimethylpentane	DFBZ	Ave	+++++ 865496	34411 1743031	64100 3658581	124855 7597575	321511 14975770	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Heptane	DFBZ	Ave	+++++ 185205	7359 380779	13600 806181	26207 1693244	68571 3422405	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,2-Dichloropropane	DFBZ	Ave	+++++ 194107	7786 385846	14547 838597	27437 1762859	73768 3380117	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Trichloroethene	DFBZ	Ave	5158 233492	8635 498989	16491 1042788	33403 2280195	81717 4984487	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Dibromomethane	DFBZ	Ave	+++++ 210713	9776 431534	17001 924791	30571 1970153	79263 4101555	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Bromodichloromethane	DFBZ	Ave	+++++ 386993	13539 799522	26488 1723165	50764 3692749	138509 7486541	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,4-Dioxane	DFBZ	Ave	+++++ 69922	+++++ 130937	4772 326321	8736 684344	26106 1328311	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Methyl methacrylate	DFBZ	Ave	+++++ 199881	+++++ 367336	11302 948044	22934 2033631	75998 3601729	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
4-Methyl-2-pentanone (MIBK)	DFBZ	Ave	+++++ 340244	+++++ 603705	23063 1485711	39232 3027959	130432 6102839	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
cis-1,3-Dichloropropene	DFBZ	Ave	5626 297640	9937 623039	20516 1332908	38840 2874230	110051 5847515	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
trans-1,3-Dichloropropene	CBZd5	Ave	4601 277012	9461 566136	17831 1226943	34215 2732765	98547 5551856	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Toluene	CBZd5	Ave	11052 572881	21162 1165314	39657 2568835	73875 5584757	217565 11056815	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,1,2-Trichloroethane	CBZd5	Ave	3214 173621	6189 351168	12122 765500	23173 1664151	64954 3308788	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (PPB V/V)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
2-Hexanone	CBZd5	Ave	+++++ 172057	+++++ 318812	10935 765512	20284 1608707	58525 3512737	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Dibromochloromethane	CBZd5	Ave	5740 362847	11268 777247	22038 1741361	43866 3921724	120741 8344619	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Octane	CBZd5	Ave	+++++ 205487	7315 422950	13862 927681	27542 1979286	75198 4015158	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,2-Dibromoethane (EDB)	CBZd5	Ave	+++++ 322986	10393 661871	20360 1438737	41070 3200738	112648 6596127	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Tetrachloroethene	CBZd5	Ave	4465 211272	8406 437875	15001 961139	29490 2142029	77588 4599494	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Chlorobenzene	CBZd5	Ave	8937 458051	16534 922752	31575 2038993	62025 4504989	166566 9289454	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Ethylbenzene	CBZd5	Ave	14563 753463	25725 1486579	50183 3369711	91139 7307896	283248 14157820	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
m-Xylene & p-Xylene	CBZd5	Ave	+++++ 1177991	39638 2272968	78365 5242609	140427 11465455	444334 21806256	+++++ 2.00	0.0784 3.99	0.159 8.00	0.317 16.0	0.800 32.0
Bromoform	CBZd5	Ave	+++++ 327887	+++++ 736506	18254 1779551	35707 4174050	103211 8882803	+++++ 1.00	+++++ 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Styrene	CBZd5	Ave	6357 424228	11434 846974	22604 1986886	43489 4529543	143547 9309265	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Nonane	CBZd5	Ave	+++++ 409599	13769 811483	27931 1720525	52902 3569182	152116 6699885	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
o-Xylene	CBZd5	Ave	11518 611045	20421 1163490	41248 2723409	74225 5958754	235544 11358762	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,1,2,2-Tetrachloroethane	CBZd5	Ave	6923 439123	13365 818045	27596 1933268	50461 4144047	161542 8035941	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,2,3-Trichloropropane	CBZd5	Ave	+++++ 134211	4381 249161	8963 603248	15766 1311284	50028 2536219	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Isopropylbenzene	CBZd5	Ave	+++++ 854663	30079 1624262	57868 3834410	104274 8357827	329988 15915639	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Propylbenzene	CBZd5	Ave	+++++ 229365	7189 429742	14281 1043989	25777 2361300	82932 +++++	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 +++++
2-Chlorotoluene	CBZd5	Ave	+++++ 211810	7193 421025	13554 951412	25846 2145590	76188 +++++	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 +++++
4-Ethyltoluene	CBZd5	Ave	+++++ 845855	24361 1560565	51730 3781660	95461 8315317	306943 15855587	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,3,5-Trimethylbenzene	CBZd5	Ave	5094 331007	10487 622915	20077 1539893	37561 3451667	125411 6779157	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Alpha Methyl Styrene	CBZd5	Ave	+++++ 323279	7304 640010	15479 1605753	28835 3643686	103095 7215494	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Decane	CBZd5	Ave	+++++ 497726	15143 949035	32136 2118306	59064 4396462	184448 8241480	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (PPB V/V)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
tert-Butylbenzene	CBZd5	Ave	+++++ 753895	22686 1412476	46523 3468593	85633 7710356	283790 15320211	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,2,4-Trimethylbenzene	CBZd5	Ave	11754 721428	21226 1335737	43788 3286687	80549 7239156	266676 13888395	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,3-Dichlorobenzene	CBZd5	Ave	8865 501608	16127 974372	31667 2278192	56944 5375340	173369 11673191	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
sec-Butylbenzene	CBZd5	Ave	+++++ 1050236	30184 1943696	63144 4744834	116663 10489103	392216 +++++	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 +++++
Benzyl chloride	CBZd5	Ave	+++++ 618812	17493 1220157	36099 3030954	65377 6915532	216285 12946207	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,4-Dichlorobenzene	CBZd5	Ave	8710 498785	16274 974506	31875 2236477	59450 5228501	176427 11143200	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
4-Isopropyltoluene	CBZd5	Ave	+++++ 874472	24258 1600192	51363 4063563	97762 8939626	326193 +++++	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 +++++
1,2,3-Trimethylbenzene	CBZd5	Ave	11976 773629	21951 1418029	47065 3501681	87127 7658766	294110 14362227	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,2-Dichlorobenzene	CBZd5	Ave	8577 479951	15412 900341	30924 2144847	54402 4859952	169475 9822366	0.0196 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
Butylbenzene	CBZd5	Ave	+++++ 844489	25053 1524209	51104 3801946	92982 8078894	311379 +++++	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 +++++
Undecane	CBZd5	Ave	+++++ 526148	15625 933449	32847 2315826	59250 4454741	198779 6304131	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 16.0
1,2-Dibromo-3-Chloropropane	CBZd5	Ave	4436 352487	8345 672068	19037 +++++	33569 +++++	114753 +++++	0.0196 1.00	0.0392 2.00	0.0793 +++++	0.159 +++++	0.400 +++++
1,2,4,5-Tetramethylbenzene	CBZd5	Ave	+++++ 1089561	29135 1918393	65438 5103471	116556 10094348	385281 +++++	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 +++++
Dodecane	CBZd5	Ave	+++++ 516869	13418 876620	32956 1919805	55615 2761674	158042 +++++	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 +++++
1,2,4-Trichlorobenzene	CBZd5	Ave	+++++ 426933	13269 761477	27070 1945001	46058 3265387	134060 +++++	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 +++++
Naphthalene	CBZd5	Ave	+++++ 995322	30426 1704351	66349 4275324	110319 7433321	310035 +++++	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 +++++
Hexachlorobutadiene	CBZd5	Ave	+++++ 408883	11237 763125	23905 1971022	42828 3633973	133367 +++++	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 +++++
1,2,3-Trichlorobenzene	CBZd5	Ave	+++++ 413121	12729 703409	26434 1758932	45087 2601150	121323 +++++	+++++ 1.00	0.0392 2.00	0.0793 4.00	0.159 8.00	0.400 +++++
2-Methylnaphthalene	CBZd5	Ave	+++++ 1166334	28659 1938623	77228 3119599	141471 +++++	177610 +++++	+++++ 2.30	0.0902 4.59	0.182 9.20	0.365 +++++	0.920 +++++
1-Methylnaphthalene	CBZd5	Ave	+++++ 1092194	27436 1786735	77764 2791839	142019 +++++	165222 +++++	+++++ 2.30	0.0902 4.59	0.182 9.20	0.365 +++++	0.920 +++++
4-Bromofluorobenzene (Surr)	CBZd5	Ave	1568234 1906447	1630824 2091104	1602397 2287406	1806171 2389282	1944444 2379169	4.00 4.00	4.00 4.00	4.00 4.00	4.00 4.00	4.00 4.00

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

Curve Type Legend
Ave = Average ISTD

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

Calibration Files

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 140-15917/3	GK13IC01.D
Level 2	IC 140-15917/4	GK13IC02.D
Level 3	IC 140-15917/5	GK13IC03.D
Level 4	IC 140-15917/6	GK13IC04.D
Level 5	IC 140-15917/7	GK13IC05.D
Level 6	IC 140-15917/8	GK13IC06.D
Level 7	ICIS 140-15917/9	GK13IC07.D
Level 8	IC 140-15917/10	GK13IC08.D
Level 9	IC 140-15917/11	GK13IC09.D
Level 10	IC 140-15917/12	GK13IC10.D

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 # LVL 8 #	LVL 3 # LVL 9 #	LVL 4 # LVL 10 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2 LVL 8	LVL 3 LVL 9	LVL 4 LVL 10	LVL 5	LVL 6
Chlorodifluoromethane	+++++	18.5						50				
Propene	+++++	+++++	19.8						50			
Dichlorodifluoromethane	+++++	18.0						50				
Chloromethane	+++++	+++++	+++++	22.4						50		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	+++++	5.2						50				
Vinyl chloride	23.3						50					
1,3-Butadiene	+++++	+++++	14.0						50			
Butane	+++++	+++++	22.4						50			
Bromomethane	+++++	+++++	8.0						50			
Chloroethane	+++++	+++++	9.1						50			
Ethanol	+++++	+++++	14.5						50			
Vinyl bromide	+++++	4.2						50				
2-Methylbutane	+++++	31.0						50				
Trichlorofluoromethane	+++++	12.8						50				

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 # LVL 8 #	LVL 3 # LVL 9 #	LVL 4 # LVL 10 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2 LVL 8	LVL 3 LVL 9	LVL 4 LVL 10	LVL 5	LVL 6
Acrolein	+++++	+++++	+++++	5.6						50		
Acetonitrile	+++++	+++++	+++++	-16.4						50		
Acetone	+++++	+++++	+++++	+++++	32.7						80	
Pentane	+++++	+++++	+++++	0.9						50		
Isopropyl alcohol	+++++	+++++	11.3	+++++					50			
Ethyl ether	+++++	+++++	6.7						50			
1,1-Dichloroethene	24.3						50					
Acrylonitrile	+++++	+++++	2.5						50			
1,1,2-Trichloro-1,2,2-trifluoroeth ane	21.2						50					
tert-Butyl alcohol	+++++	0.5						50				
Methylene Chloride	+++++	+++++	+++++	57.5						80		
3-Chloropropene	+++++	+++++	15.6						50			
Carbon disulfide	+++++	+++++	5.8						50			
trans-1,2-Dichloroethene	23.2						50					
Methyl tert-butyl ether	+++++	6.2						50				
1,1-Dichloroethane	25.4						50					
Vinyl acetate	+++++	+++++	1.6						50			
2-Butanone (MEK)	+++++	+++++	14.5						50			
Hexane	+++++	+++++	14.2						50			
cis-1,2-Dichloroethene	19.6						50					

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 # LVL 8 #	LVL 3 # LVL 9 #	LVL 4 # LVL 10 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2 LVL 8	LVL 3 LVL 9	LVL 4 LVL 10	LVL 5	LVL 6
Ethyl acetate	+++++	+++++	-1.7						50			
Chloroform	19.7						50					
Tetrahydrofuran	+++++	+++++	10.2						50			
1,1,1-Trichloroethane	21.9						50					
1,2-Dichloroethane	27.0						50					
Benzene	41.8						50					
Cyclohexane	+++++	+++++	14.0						50			
Carbon tetrachloride	16.5						50					
1-Butanol	+++++	+++++	+++++	+++++	-8.6						50	
2,2,4-Trimethylpentane	+++++	17.8						50				
Heptane	+++++	16.2						50				
1,2-Dichloropropane	+++++	17.9						50				
Trichloroethene	26.2						50					
Dibromomethane	+++++	29.7						50				
Bromodichloromethane	+++++	4.7						50				
1,4-Dioxane	+++++	+++++	2.9						50			
Methyl methacrylate	+++++	+++++	-12.0						50			
4-Methyl-2-pentanone (MIBK)	+++++	+++++	6.5						50			
cis-1,3-Dichloropropene	13.2						50					
trans-1,3-Dichloropropene	4.9						50					
Toluene	17.3						50					

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 # LVL 8 #	LVL 3 # LVL 9 #	LVL 4 # LVL 10 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2 LVL 8	LVL 3 LVL 9	LVL 4 LVL 10	LVL 5	LVL 6
1,1,2-Trichloroethane	13.8						50					
2-Hexanone	+++++	+++++	1.8						50			
Dibromochloromethane	-1.1						50					
Octane	+++++	7.0						50				
1,2-Dibromoethane (EDB)	+++++	-1.1						50				
Tetrachloroethene	22.8						50					
Chlorobenzene	18.3						50					
Ethylbenzene	20.5						50					
m-Xylene & p-Xylene	+++++	4.2						50				
Bromoform	+++++	+++++	-19.8						50			
Styrene	-0.7						50					
Nonane	+++++	6.1						50				
o-Xylene	18.1						50					
1,1,2,2-Tetrachloroethane	4.3						50					
1,2,3-Trichloropropane	+++++	1.7						50				
Isopropylbenzene	+++++	7.6						50				
Propylbenzene	+++++	-0.8		+++++				50				
2-Chlorotoluene	+++++	4.9		+++++				50				
4-Ethyltoluene	+++++	-7.4						50				
1,3,5-Trimethylbenzene	-1.2						50					
Alpha Methyl Styrene	+++++	-26.0						50				

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 # LVL 8 #	LVL 3 # LVL 9 #	LVL 4 # LVL 10 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2 LVL 8	LVL 3 LVL 9	LVL 4 LVL 10	LVL 5	LVL 6
Decane	+++++	-1.3						50				
tert-Butylbenzene	+++++	-6.1						50				
1,2,4-Trimethylbenzene	6.7						50					
1,3-Dichlorobenzene	10.2						50					
sec-Butylbenzene	+++++	-7.3		+++++				50				
Benzyl chloride	+++++	-11.9						50				
1,4-Dichlorobenzene	9.0						50					
4-Isopropyltoluene	+++++	-10.5		+++++				50				
1,2,3-Trimethylbenzene	2.6						50					
1,2-Dichlorobenzene	13.8						50					
Butylbenzene	+++++	-3.6		+++++				50				
Undecane	+++++	1.0						50				
1,2-Dibromo-3-Chloropropane	-5.1	+++++	+++++	+++++			50					
1,2,4,5-Tetramethylbenzene	+++++	-11.1		+++++				50				
Dodecane	+++++	-4.0		+++++				50				
1,2,4-Trichlorobenzene	+++++	4.7		+++++				50				
Naphthalene	+++++	3.9		+++++				80				
Hexachlorobutadiene	+++++	-8.0		+++++				50				
1,2,3-Trichlorobenzene	+++++	8.2		+++++				50				
2-Methylnaphthalene	+++++	-4.4	+++++	+++++				80				

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 # LVL 8 #	LVL 3 # LVL 9 #	LVL 4 # LVL 10 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2 LVL 8	LVL 3 LVL 9	LVL 4 LVL 10	LVL 5	LVL 6
1-Methylnaphthalene	+++++	-4.3	+++++	+++++				80				

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Lab Sample ID: ICV 140-15917/14 Calibration Date: 11/14/2017 00:02

Instrument ID: MG Calib Start Date: 11/13/2017 16:15

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 11/13/2017 22:37

Lab File ID: GICVK13.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Chlorodifluoromethane	Ave	0.4002	0.3895		1.95	2.00	-2.7	35.0
Propene	Ave	1.197	1.174		1.96	2.00	-1.9	35.0
Dichlorodifluoromethane	Ave	3.993	4.061		2.03	2.00	1.7	35.0
Chloromethane	Ave	0.4317	0.4323		2.00	2.00	0.1	35.0
1,2-Dichloro-1,1,2,2-tetra fluoroethane	Ave	2.517	2.694		2.14	2.00	7.0	35.0
Vinyl chloride	Ave	1.570	1.603		2.04	2.00	2.1	35.0
1,3-Butadiene	Ave	1.162	1.186		2.04	2.00	2.1	35.0
Butane	Ave	2.250	2.306		2.05	2.00	2.5	35.0
Bromomethane	Ave	1.391	1.453		2.09	2.00	4.5	35.0
Chloroethane	Ave	0.7778	0.8308		2.14	2.00	6.8	35.0
Ethanol	Ave	0.6982	0.5950		8.52	10.0	-14.8	35.0
Vinyl bromide	Ave	1.358	1.556		2.29	2.00	14.5	35.0
2-Methylbutane	Ave	1.784	1.797		2.01	2.00	0.7	35.0
Trichlorofluoromethane	Ave	4.135	4.239		2.05	2.00	2.5	35.0
Acrolein	Ave	0.3329	0.3377		2.03	2.00	1.4	35.0
Acetonitrile	Ave	0.4975	0.4865		1.96	2.00	-2.2	35.0
Acetone	Ave	0.6202	0.5335		5.16	6.00	-14.0	35.0
Pentane	Ave	0.2737	0.3148		2.30	2.00	15.0	35.0
Isopropyl alcohol	Ave	1.723	1.633		5.69	6.00	-5.2	35.0
Ethyl ether	Ave	1.399	1.267		1.81	2.00	-9.4	35.0
1,1-Dichloroethene	Ave	1.408	1.524		2.16	2.00	8.2	35.0
Acrylonitrile	Ave	0.8775	0.8709		1.98	2.00	-0.8	35.0
tert-Butyl alcohol	Ave	2.280	2.356		2.07	2.00	3.3	35.0
1,1,2-Trichloro-1,2,2-trif luoroethane	Ave	3.017	3.223		2.14	2.00	6.8	35.0
Methylene Chloride	Ave	1.424	1.388		1.95	2.00	-2.6	35.0
3-Chloropropene	Ave	1.325	1.246		1.88	2.00	-5.9	35.0
Carbon disulfide	Ave	3.831	4.206		2.20	2.00	9.8	35.0
trans-1,2-Dichloroethene	Ave	1.424	1.532		2.15	2.00	7.6	35.0
Methyl tert-butyl ether	Ave	3.511	3.407		1.94	2.00	-3.0	35.0
1,1-Dichloroethane	Ave	2.834	2.904		2.05	2.00	2.5	35.0
Vinyl acetate	Ave	3.417	3.254		1.90	2.00	-4.8	35.0
2-Butanone (MEK)	Ave	0.6209	0.5708		1.84	2.00	-8.1	35.0
Hexane	Ave	1.184	1.245		2.10	2.00	5.2	35.0
cis-1,2-Dichloroethene	Ave	1.483	1.601		2.16	2.00	7.9	35.0
Ethyl acetate	Ave	2.710	2.380		1.76	2.00	-12.2	35.0
Chloroform	Ave	3.265	3.269		2.00	2.00	0.1	35.0
Tetrahydrofuran	Ave	1.427	1.341		1.88	2.00	-6.0	35.0
1,1,1-Trichloroethane	Ave	3.438	3.456		2.01	2.00	0.5	35.0
1,2-Dichloroethane	Ave	0.4028	0.3981		1.98	2.00	-1.2	35.0

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Lab Sample ID: ICV 140-15917/14 Calibration Date: 11/14/2017 00:02

Instrument ID: MG Calib Start Date: 11/13/2017 16:15

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 11/13/2017 22:37

Lab File ID: GICVK13.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Benzene	Ave	0.7871	0.8305		2.11	2.00	5.5	35.0
Cyclohexane	Ave	0.1251	0.1403		2.24	2.00	12.2	35.0
Carbon tetrachloride	Ave	0.6083	0.6766		2.22	2.00	11.2	35.0
1-Butanol	Ave	0.0867	0.0887		2.04	2.00	2.2	35.0
2,2,4-Trimethylpentane	Ave	1.292	1.388		2.15	2.00	7.4	35.0
Heptane	Ave	0.2801	0.3067		2.19	2.00	9.5	35.0
1,2-Dichloropropane	Ave	0.2921	0.3018		2.07	2.00	3.3	35.0
Trichloroethene	Ave	0.3686	0.4205		2.28	2.00	14.1	35.0
Dibromomethane	Ave	0.3335	0.3527		2.12	2.00	5.8	35.0
Bromodichloromethane	Ave	0.5724	0.6227		2.18	2.00	8.8	35.0
1,4-Dioxane	Ave	0.1022	0.1067		2.09	2.00	4.4	35.0
Methyl methacrylate	Ave	0.2832	0.2751		1.94	2.00	-2.9	35.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4776	0.4730		1.98	2.00	-1.0	35.0
cis-1,3-Dichloropropene	Ave	0.4483	0.4940		2.20	2.00	10.2	35.0
trans-1,3-Dichloropropene	Ave	0.4139	0.4356		2.10	2.00	5.2	35.0
Toluene	Ave	0.8891	0.8985		2.02	2.00	1.1	35.0
1,1,2-Trichloroethane	Ave	0.2665	0.2662		2.00	2.00	-0.1	35.0
2-Hexanone	Ave	0.2473	0.2492		2.01	2.00	0.7	35.0
Dibromochloromethane	Ave	0.5479	0.5920		2.16	2.00	8.0	35.0
Octane	Ave	0.3111	0.3432		2.21	2.00	10.3	35.0
1,2-Dibromoethane (EDB)	Ave	0.4779	0.5168		2.16	2.00	8.1	35.0
Tetrachloroethene	Ave	0.3430	0.3560		2.08	2.00	3.8	35.0
Chlorobenzene	Ave	0.7131	0.7452		2.09	2.00	4.5	35.0
Ethylbenzene	Ave	1.141	1.122		1.97	2.00	-1.7	35.0
m-Xylene & p-Xylene	Ave	0.8653	0.8696		4.02	4.00	0.5	35.0
Bromoform	Ave	0.5240	0.5445		2.08	2.00	3.9	35.0
Styrene	Ave	0.6042	0.6718		2.22	2.00	11.2	35.0
Nonane	Ave	0.5902	0.6101		2.07	2.00	3.4	35.0
o-Xylene	Ave	0.9204	0.8793		1.91	2.00	-4.5	35.0
1,1,2,2-Tetrachloroethane	Ave	0.6266	0.6177		1.97	2.00	-1.4	35.0
1,2,3-Trichloropropane	Ave	0.1960	0.1919		1.96	2.00	-2.1	35.0
Isopropylbenzene	Ave	1.272	1.276		2.01	2.00	0.3	35.0
Propylbenzene	Ave	0.3295	0.3450		2.09	2.00	4.7	35.0
2-Chlorotoluene	Ave	0.3120	0.3305		2.12	2.00	5.9	35.0
4-Ethyltoluene	Ave	1.197	1.161		1.94	2.00	-3.0	35.0
1,3,5-Trimethylbenzene	Ave	0.4863	0.4840		1.99	2.00	-0.5	35.0
Alpha Methyl Styrene	Ave	0.4487	0.5063		2.26	2.00	12.8	35.0
Decane	Ave	0.6981	0.7015		2.01	2.00	0.5	35.0
tert-Butylbenzene	Ave	1.099	1.091		1.99	2.00	-0.7	35.0
1,2,4-Trimethylbenzene	Ave	1.039	1.014		1.95	2.00	-2.4	35.0

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Lab Sample ID: ICV 140-15917/14 Calibration Date: 11/14/2017 00:02

Instrument ID: MG Calib Start Date: 11/13/2017 16:15

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 11/13/2017 22:37

Lab File ID: GICVK13.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,3-Dichlorobenzene	Ave	0.7589	0.7482		1.97	2.00	-1.4	35.0
sec-Butylbenzene	Ave	1.481	1.499		2.02	2.00	1.2	35.0
Benzyl chloride	Ave	0.9028	0.9351		2.07	2.00	3.6	35.0
1,4-Dichlorobenzene	Ave	0.7542	0.7438		1.97	2.00	-1.4	35.0
4-Isopropyltoluene	Ave	1.232	1.220		1.98	2.00	-1.0	35.0
1,2,3-Trimethylbenzene	Ave	1.102	0.9788		1.78	2.00	-11.1	35.0
1,2-Dichlorobenzene	Ave	0.7112	0.6972		1.96	2.00	-2.0	35.0
Butylbenzene	Ave	1.182	1.167		1.97	2.00	-1.3	35.0
Undecane	Ave	0.7036	0.6966		1.98	2.00	-1.0	35.0
1,2-Dibromo-3-Chloropropane	Ave	0.4410	0.2779		1.26	2.00	-37.0*	35.0
1,2,4,5-Tetramethylbenzene	Ave	1.491	1.085		1.45	2.00	-27.3	35.0
Dodecane	Ave	0.6359	0.6663		2.10	2.00	4.8	35.0
1,2,4-Trichlorobenzene	Ave	0.5763	0.5970		2.07	2.00	3.6	35.0
Naphthalene	Ave	1.332	1.326		1.99	2.00	-0.4	35.0
Hexachlorobutadiene	Ave	0.5558	0.5688		2.05	2.00	2.3	35.0
1,2,3-Trichlorobenzene	Ave	0.5354	0.5806		2.17	2.00	8.5	35.0
2-Methylnaphthalene	Ave	0.5930	0.3864		2.99	4.59	-34.8	50.0
1-Methylnaphthalene	Ave	0.5668	0.4031		3.27	4.60	-28.9	50.0
4-Bromofluorobenzene (Surr)	Ave	0.7464	0.7320		3.92	4.00	-1.9	35.0

FORM V
AIR - GC/MS VOA INSTRUMENT PERFORMANCE CHECK

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Lab File ID: GBFBA29A.D BFB Injection Date: 01/29/2018

Instrument ID: MG BFB Injection Time: 11:56

Analysis Batch No.: 17732

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	17.4	
75	30.0 - 60.0 % of mass 95	50.3	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.8	
173	Less than 2.0 % of mass 174	0.3	(0.4) 1
174	50.0 - 120.00 % of mass 95	82.2	
175	5.0 - 9.0 % of mass 174	5.8	(7.1) 1
176	95.0 - 101.0 % of mass 174	79.0	(96.2) 1
177	5.0 - 9.0 % of mass 176	5.2	(6.5) 2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 140-17732/6	GCCVA29A.D	01/29/2018	12:28
	LCS 140-17732/1006	GCCVA29A-LCS.d	01/29/2018	12:28
	MB 140-17732/8	G500BA29.D	01/29/2018	14:29
IA-168-A-VS	140-10566-1	GA29P108.D	01/29/2018	20:56
IA-136-A-VS	140-10566-2	GA29P110.D	01/29/2018	21:39
IA-117-A-VS	140-10566-3	GA29P111.D	01/29/2018	22:22
IA-079-A-VS	140-10566-4	GA29P112.D	01/29/2018	23:05
IA-015-A-VS	140-10566-5	GA29P113.D	01/29/2018	23:47
IA-HRS5-A-VS	140-10566-6	GA29P114.D	01/30/2018	00:31
IA-021-A-VS	140-10566-7	GA29P115.D	01/30/2018	01:14
IA-DUP1-A-VS	140-10566-8	GA29P116.D	01/30/2018	01:57

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Lab Sample ID: CCVIS 140-17732/6 Calibration Date: 01/29/2018 12:28

Instrument ID: MG Calib Start Date: 11/13/2017 16:15

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 11/13/2017 22:37

Lab File ID: GCCVA29A.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Chlorodifluoromethane	Ave	0.4002	0.4660		2.33	2.00	16.4	30.0
Propene	Ave	1.197	1.167		1.95	2.00	-2.5	30.0
Dichlorodifluoromethane	Ave	3.993	4.708		2.36	2.00	17.9	30.0
Chloromethane	Ave	0.4317	0.4613		2.14	2.00	6.9	30.0
1,2-Dichloro-1,1,2,2-tetra fluoroethane	Ave	2.517	2.862		2.28	2.00	13.7	30.0
Vinyl chloride	Ave	1.570	1.678		2.14	2.00	6.9	30.0
1,3-Butadiene	Ave	1.162	1.203		2.07	2.00	3.5	30.0
Butane	Ave	2.250	2.226		1.98	2.00	-1.1	30.0
Bromomethane	Ave	1.391	1.538		2.21	2.00	10.5	30.0
Chloroethane	Ave	0.7778	0.8400		2.16	2.00	8.0	30.0
Ethanol	Ave	0.6982	0.4942		7.08	10.0	-29.2	30.0
Vinyl bromide	Ave	1.358	1.551		2.28	2.00	14.1	30.0
2-Methylbutane	Ave	1.784	1.646		1.85	2.00	-7.7	30.0
Acrolein	Ave	0.3329	0.3922		2.36	2.00	17.8	30.0
Trichlorofluoromethane	Ave	4.135	4.847		2.35	2.00	17.2	30.0
Acetonitrile	Ave	0.4975	0.5101		2.05	2.00	2.5	30.0
Acetone	Ave	0.6202	0.5919		5.73	6.00	-4.6	30.0
Pentane	Ave	0.2737	0.3016		2.21	2.00	10.2	30.0
Isopropyl alcohol	Ave	1.723	1.626		5.67	6.00	-5.6	30.0
Ethyl ether	Ave	1.399	1.151		1.65	2.00	-17.7	30.0
1,1-Dichloroethene	Ave	1.408	1.464		2.08	2.00	4.0	30.0
Acrylonitrile	Ave	0.8775	0.9207		2.10	2.00	4.9	30.0
tert-Butyl alcohol	Ave	2.280	2.211		1.94	2.00	-3.0	30.0
1,1,2-Trichloro-1,2,2-trif luoroethane	Ave	3.017	3.237		2.15	2.00	7.3	30.0
Methylene Chloride	Ave	1.424	1.306		1.84	2.00	-8.3	30.0
3-Chloropropene	Ave	1.325	1.097		1.66	2.00	-17.1	30.0
Carbon disulfide	Ave	3.831	3.932		2.05	2.00	2.6	30.0
trans-1,2-Dichloroethene	Ave	1.424	1.453		2.04	2.00	2.0	30.0
Methyl tert-butyl ether	Ave	3.511	3.972		2.26	2.00	13.1	30.0
1,1-Dichloroethane	Ave	2.834	3.060		2.16	2.00	8.0	30.0
Vinyl acetate	Ave	3.417	3.651		2.14	2.00	6.8	30.0
2-Butanone (MEK)	Ave	0.6209	0.6228		2.01	2.00	0.3	30.0
Hexane	Ave	1.184	1.237		2.09	2.00	4.4	30.0
cis-1,2-Dichloroethene	Ave	1.483	1.594		2.15	2.00	7.5	30.0
Ethyl acetate	Ave	2.710	2.639		1.95	2.00	-2.6	30.0
Chloroform	Ave	3.265	3.645		2.23	2.00	11.6	30.0
Tetrahydrofuran	Ave	1.427	1.416		1.99	2.00	-0.8	30.0
1,1,1-Trichloroethane	Ave	3.438	3.911		2.28	2.00	13.8	30.0
1,2-Dichloroethane	Ave	0.4028	0.4139		2.06	2.00	2.7	30.0

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Lab Sample ID: CCVIS 140-17732/6 Calibration Date: 01/29/2018 12:28

Instrument ID: MG Calib Start Date: 11/13/2017 16:15

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 11/13/2017 22:37

Lab File ID: GCCVA29A.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Benzene	Ave	0.7871	0.7770		1.98	2.00	-1.3	30.0
Cyclohexane	Ave	0.1251	0.1250		2.00	2.00	-0.0	30.0
Carbon tetrachloride	Ave	0.6083	0.6744		2.22	2.00	10.9	30.0
1-Butanol	Ave	0.0867	0.0600		1.38	2.00	-30.8*	30.0
2,2,4-Trimethylpentane	Ave	1.292	1.285		1.99	2.00	-0.6	30.0
Heptane	Ave	0.2801	0.2827		2.02	2.00	0.9	30.0
1,2-Dichloropropane	Ave	0.2921	0.2945		2.02	2.00	0.8	30.0
Trichloroethene	Ave	0.3686	0.3476		1.89	2.00	-5.7	30.0
Dibromomethane	Ave	0.3335	0.3310		1.99	2.00	-0.7	30.0
Bromodichloromethane	Ave	0.5724	0.6229		2.18	2.00	8.8	30.0
1,4-Dioxane	Ave	0.1022	0.0914		1.79	2.00	-10.5	30.0
Methyl methacrylate	Ave	0.2832	0.2617		1.85	2.00	-7.6	30.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4776	0.4117		1.73	2.00	-13.8	30.0
cis-1,3-Dichloropropene	Ave	0.4483	0.4843		2.16	2.00	8.0	30.0
trans-1,3-Dichloropropene	Ave	0.4139	0.4540		2.19	2.00	9.7	30.0
Toluene	Ave	0.8891	0.8994		2.02	2.00	1.2	30.0
1,1,2-Trichloroethane	Ave	0.2665	0.2707		2.03	2.00	1.6	30.0
2-Hexanone	Ave	0.2473	0.2217		1.79	2.00	-10.4	30.0
Dibromochloromethane	Ave	0.5479	0.5815		2.12	2.00	6.1	30.0
Octane	Ave	0.3111	0.3278		2.11	2.00	5.4	30.0
1,2-Dibromoethane (EDB)	Ave	0.4779	0.5043		2.11	2.00	5.5	30.0
Tetrachloroethene	Ave	0.3430	0.3420		2.00	2.00	-0.3	30.0
Chlorobenzene	Ave	0.7131	0.7180		2.02	2.00	0.7	30.0
Ethylbenzene	Ave	1.141	1.191		2.09	2.00	4.4	30.0
m-Xylene & p-Xylene	Ave	0.8653	0.9365		4.33	4.00	8.2	30.0
Bromoform	Ave	0.5240	0.4862		1.86	2.00	-7.2	30.0
Styrene	Ave	0.6042	0.6661		2.21	2.00	10.2	30.0
Nonane	Ave	0.5902	0.6019		2.04	2.00	2.0	30.0
o-Xylene	Ave	0.9204	0.9467		2.06	2.00	2.9	30.0
1,1,2,2-Tetrachloroethane	Ave	0.6266	0.6413		2.05	2.00	2.3	30.0
1,2,3-Trichloropropane	Ave	0.1960	0.2055		2.10	2.00	4.8	30.0
Isopropylbenzene	Ave	1.272	1.348		2.12	2.00	6.0	30.0
Propylbenzene	Ave	0.3295	0.3492		2.12	2.00	6.0	30.0
2-Chlorotoluene	Ave	0.3120	0.3300		2.12	2.00	5.8	30.0
4-Ethyltoluene	Ave	1.197	1.207		2.02	2.00	0.9	30.0
1,3,5-Trimethylbenzene	Ave	0.4863	0.4886		2.01	2.00	0.5	30.0
Alpha Methyl Styrene	Ave	0.4487	0.4900		2.19	2.00	9.2	30.0
Decane	Ave	0.6981	0.7139		2.05	2.00	2.3	30.0
tert-Butylbenzene	Ave	1.099	1.123		2.05	2.00	2.2	30.0
1,2,4-Trimethylbenzene	Ave	1.039	1.075		2.07	2.00	3.4	30.0

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Lab Sample ID: CCVIS 140-17732/6 Calibration Date: 01/29/2018 12:28

Instrument ID: MG Calib Start Date: 11/13/2017 16:15

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 11/13/2017 22:37

Lab File ID: GCCVA29A.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,3-Dichlorobenzene	Ave	0.7589	0.7097		1.87	2.00	-6.5	30.0
sec-Butylbenzene	Ave	1.481	1.554		2.10	2.00	4.9	30.0
Benzyl chloride	Ave	0.9028	0.999		2.21	2.00	10.6	30.0
1,4-Dichlorobenzene	Ave	0.7542	0.7035		1.87	2.00	-6.7	30.0
4-Isopropyltoluene	Ave	1.232	1.256		2.04	2.00	1.9	30.0
1,2,3-Trimethylbenzene	Ave	1.102	0.9915		1.80	2.00	-10.0	30.0
1,2-Dichlorobenzene	Ave	0.7112	0.6669		1.88	2.00	-6.2	30.0
Butylbenzene	Ave	1.182	1.222		2.07	2.00	3.3	30.0
Undecane	Ave	0.7036	0.6918		1.97	2.00	-1.7	30.0
1,2-Dibromo-3-Chloropropane	Ave	0.4410	0.2218		1.01	2.00	-49.7*	30.0
1,2,4,5-Tetramethylbenzene	Ave	1.491	0.9675		1.30	2.00	-35.1*	30.0
Dodecane	Ave	0.6359	0.5187		1.63	2.00	-18.4	30.0
1,2,4-Trichlorobenzene	Ave	0.5763	0.4682		1.63	2.00	-18.8	30.0
Naphthalene	Ave	1.332	1.024		1.54	2.00	-23.2	30.0
Hexachlorobutadiene	Ave	0.5558	0.4909		1.77	2.00	-11.7	30.0
1,2,3-Trichlorobenzene	Ave	0.5354	0.4047		1.51	2.00	-24.4	30.0
2-Methylnaphthalene	Ave	0.5930	0.0939		0.727	4.59	-84.2*	50.0
1-Methylnaphthalene	Ave	0.5668	0.1120		0.909	4.60	-80.2*	50.0
4-Bromofluorobenzene (Surr)	Ave	0.7464	0.7630		4.09	4.00	2.2	30.0

FORM IV
AIR - GC/MS VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Lab File ID: G500BA29.D Lab Sample ID: MB 140-17732/8

Matrix: Air Heated Purge:(Y/N) N

Instrument ID: MG Date Analyzed: 01/29/2018 14:29

GC Column: RTX-5 ID: 0.32(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 140-17732/1006	GCCVA29A-LCS.d	01/29/2018 12:28
IA-168-A-VS	140-10566-1	GA29P108.D	01/29/2018 20:56
IA-136-A-VS	140-10566-2	GA29P110.D	01/29/2018 21:39
IA-117-A-VS	140-10566-3	GA29P111.D	01/29/2018 22:22
IA-079-A-VS	140-10566-4	GA29P112.D	01/29/2018 23:05
IA-015-A-VS	140-10566-5	GA29P113.D	01/29/2018 23:47
IA-HRS5-A-VS	140-10566-6	GA29P114.D	01/30/2018 00:31
IA-021-A-VS	140-10566-7	GA29P115.D	01/30/2018 01:14
IA-DUP1-A-VS	140-10566-8	GA29P116.D	01/30/2018 01:57

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 140-17732/8

Matrix: Air Lab File ID: G500BA29.D

Analysis Method: TO 15 LL Date Collected:

Sample wt/vol: 500(mL) Date Analyzed: 01/29/2018 14:29

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		0.080	0.023
56-23-5	Carbon tetrachloride	153.81	ND		0.080	0.015
75-45-6	Chlorodifluoromethane	86.47	ND		0.080	0.015
67-66-3	Chloroform	119.38	ND		0.080	0.015
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.080	0.024
75-71-8	Dichlorodifluoromethane	120.91	ND		0.080	0.027
75-34-3	1,1-Dichloroethane	98.96	ND		0.080	0.010
107-06-2	1,2-Dichloroethane	98.96	ND		0.080	0.019
75-35-4	1,1-Dichloroethene	96.94	ND		0.080	0.014
100-41-4	Ethylbenzene	106.17	ND		0.080	0.027
75-09-2	Methylene Chloride	84.93	ND		0.20	0.13
1634-04-4	Methyl tert-butyl ether	88.15	ND		0.40	0.068
91-20-3	Naphthalene	128.17	ND		0.040	0.040
127-18-4	Tetrachloroethene	165.83	ND		0.080	0.016
108-88-3	Toluene	92.14	ND		0.12	0.12
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.080	0.020
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.080	0.039
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.080	0.012
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.080	0.021
79-01-6	Trichloroethene	131.39	ND		0.040	0.014
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.080	0.034
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.080	0.025
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.080	0.026
75-01-4	Vinyl chloride	62.50	ND		0.040	0.029
1330-20-7	Xylenes, Total	106.17	ND		0.16	0.024

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 140-17732/8

Matrix: Air Lab File ID: G500BA29.D

Analysis Method: TO 15 LL Date Collected:

Sample wt/vol: 500(mL) Date Analyzed: 01/29/2018 14:29

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		0.26	0.073
56-23-5	Carbon tetrachloride	153.81	ND		0.50	0.094
75-45-6	Chlorodifluoromethane	86.47	ND		0.28	0.053
67-66-3	Chloroform	119.38	ND		0.39	0.073
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.32	0.095
75-71-8	Dichlorodifluoromethane	120.91	ND		0.40	0.13
75-34-3	1,1-Dichloroethane	98.96	ND		0.32	0.040
107-06-2	1,2-Dichloroethane	98.96	ND		0.32	0.077
75-35-4	1,1-Dichloroethene	96.94	ND		0.32	0.056
100-41-4	Ethylbenzene	106.17	ND		0.35	0.12
75-09-2	Methylene Chloride	84.93	ND		0.69	0.45
1634-04-4	Methyl tert-butyl ether	88.15	ND		1.4	0.25
91-20-3	Naphthalene	128.17	ND		0.21	0.21
127-18-4	Tetrachloroethene	165.83	ND		0.54	0.11
108-88-3	Toluene	92.14	ND		0.45	0.45
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.32	0.079
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.59	0.29
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.44	0.065
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.44	0.11
79-01-6	Trichloroethene	131.39	ND		0.21	0.075
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.39	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.39	0.12
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.39	0.13
75-01-4	Vinyl chloride	62.50	ND		0.10	0.074
1330-20-7	Xylenes, Total	106.17	ND		0.69	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		60-140

FORM III
AIR - GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Matrix: Air Level: Low Lab File ID: GCCVA29A-LCS.d

Lab ID: LCS 140-17732/1006 Client ID:

COMPOUND	SPIKE ADDED (ppb v/v)	LCS CONCENTRATION (ppb v/v)	LCS % REC	QC LIMITS REC	#
Benzene	2.00	1.98	99	70-130	
Carbon tetrachloride	2.00	2.22	111	70-130	
Chlorodifluoromethane	2.00	2.33	116	60-140	
Chloroform	2.00	2.23	112	70-130	
cis-1,2-Dichloroethene	2.00	2.15	107	70-130	
Dichlorodifluoromethane	2.00	2.36	118	60-140	
1,1-Dichloroethane	2.00	2.16	108	70-130	
1,2-Dichloroethane	2.00	2.06	103	70-130	
1,1-Dichloroethene	2.00	2.08	104	70-130	
Ethylbenzene	2.00	2.09	104	70-130	
Methylene Chloride	2.00	1.84	92	70-130	
Methyl tert-butyl ether	2.00	2.26	113	60-140	
Naphthalene	2.00	1.54	77	60-140	
Tetrachloroethene	2.00	2.00	100	70-130	
Toluene	2.00	2.02	101	70-130	
trans-1,2-Dichloroethene	2.00	2.04	102	70-130	
1,2,4-Trichlorobenzene	2.00	1.63	81	60-140	
1,1,1-Trichloroethane	2.00	2.28	114	70-130	
1,1,2-Trichloroethane	2.00	2.03	102	70-130	
Trichloroethene	2.00	1.89	94	70-130	
1,2,3-Trimethylbenzene	2.00	1.80	90	70-130	
1,2,4-Trimethylbenzene	2.00	2.07	103	70-130	
1,3,5-Trimethylbenzene	2.00	2.01	100	70-130	
Vinyl chloride	2.00	2.14	107	70-130	
Xylenes, Total	6.00	6.39	106	70-130	

Column to be used to flag recovery and RPD values

FORM III TO 15 LL

FORM II
AIR - GC/MS VOA SURROGATE RECOVERY

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Matrix: Air Level: Low

GC Column (1): RTX-5 ID: 0.32(mm)

Client Sample ID	Lab Sample ID	BFB #
IA-168-A-VS	140-10566-1	98
IA-136-A-VS	140-10566-2	94
IA-117-A-VS	140-10566-3	98
IA-079-A-VS	140-10566-4	97
IA-015-A-VS	140-10566-5	98
IA-HRS5-A-VS	140-10566-6	95
IA-021-A-VS	140-10566-7	95
IA-DUP1-A-VS	140-10566-8	94
	MB 140-17732/8	99
	LCS 140-17732/1006	102

	QC LIMITS
BFB = 4-Bromofluorobenzene (Surr)	60-140

Column to be used to flag recovery values

FORM II TO 15 LL

FORM VIII
AIR - GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Sample No.: ICIS 140-15917/9 Date Analyzed: 11/13/2017 20:29

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm)

Lab File ID (Standard): GK13IC07.D Heated Purge: (Y/N) N

Calibration ID: 1337

		CBM		DFBZ		CBZd5	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		485567	7.62	2785396	9.76	2750264	14.71
UPPER LIMIT		679794	7.95	3899554	10.09	3850370	15.04
LOWER LIMIT		291340	7.29	1671238	9.43	1650158	14.38
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 140-15917/14		572242	7.61	3126736	9.75	3200010	14.70

CBM = Chlorobromomethane (IS)
DFBZ = 1,4-Difluorobenzene
CBZd5 = Chlorobenzene-d5 (IS)

Area Limit = 60%-140% of internal standard area
RT Limit = ± 0.33 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII TO 15 LL

FORM VIII
AIR - GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Sample No.: CCVIS 140-17732/6 Date Analyzed: 01/29/2018 12:28

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm)

Lab File ID (Standard): GCCVA29A.D Heated Purge: (Y/N) N

Calibration ID: 1337

		CBM		DFBZ		CBZd5	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		557591	7.58	3453200	9.72	3383205	14.68
UPPER LIMIT		780627	7.91	4834480	10.05	4736487	15.01
LOWER LIMIT		334555	7.25	2071920	9.39	2029923	14.35
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 140-17732/1006		557591	7.58	3453200	9.72	3383205	14.68
MB 140-17732/8		527417	7.57	3194914	9.71	3114234	14.67
140-10566-1	IA-168-A-VS	610163	7.57	3822959	9.70	3719997	14.67
140-10566-2	IA-136-A-VS	578334	7.60	3397071	9.72	3290792	14.67
140-10566-3	IA-117-A-VS	586712	7.58	3595084	9.71	3565497	14.67
140-10566-4	IA-079-A-VS	530262	7.58	2935585	9.71	2867811	14.67
140-10566-5	IA-015-A-VS	564566	7.61	3462615	9.73	3443755	14.68
140-10566-6	IA-HRS5-A-VS	552229	7.56	3248692	9.70	3115367	14.67
140-10566-7	IA-021-A-VS	543289	7.59	3040540	9.72	2897954	14.67
140-10566-8	IA-DUP1-A-VS	554772	7.58	3212431	9.71	3022582	14.67

CBM = Chlorobromomethane (IS)
DFBZ = 1,4-Difluorobenzene
CBZd5 = Chlorobenzene-d5 (IS)

Area Limit = 60%-140% of internal standard area
RT Limit = ± 0.33 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII TO 15 LL

LOCKHEED MARTIN CORPORATION (LMC) - MIDDLE RIVER COMPLEX (MRC)
BUILDING A
SDG 140-10566-1

SAMPLE IDENTIFICATION	IA-168-A-VS		
COMPOUND	TRICHLOROETHENE	MW=	131.39
		GAS CONSTANT =	24.45
COMPOUND AREA	14741		
INTERNAL STANDARD AMOUNT (ppbv)	4		
CALIBRATION VOLUME (mL)	500		
DILUTION FACTOR	1		
INTERNAL STANDARD AREA	3822959		
AVERAGE RRF	0.3686		
SAMPLE VOLUME (mL)	100		

0.2092	ppbv
1.12	µg/m³

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-168-A-VS Lab Sample ID: 140-10566-1

Matrix: Air Lab File ID: GA29P108.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:36

Sample wt/vol: 100(mL) Date Analyzed: 01/29/2018 20:56

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.12	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.46		0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.47		0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	ND		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	ND		0.40	0.14
75-09-2	Methylene Chloride	84.93	1.8		1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	0.92		0.40	0.080
108-88-3	Toluene	92.14	1.2		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	0.21		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	ND		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1

SDG No.:

Client Sample ID: IA-168-A-VS Lab Sample ID: 140-10566-1

Matrix: Air Lab File ID: GA29P108.D

Analysis Method: TO 15 LL Date Collected: 01/24/2018 19:36

Sample wt/vol: 100 (mL) Date Analyzed: 01/29/2018 20:56

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32 (mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 17732 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.40	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.6		1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.3		2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	ND		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	ND		1.7	0.59
75-09-2	Methylene Chloride	84.93	6.3		3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	6.3		2.7	0.54
108-88-3	Toluene	92.14	4.5		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	ND		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	1.1 ✓		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	ND		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		60-140

TestAmerica Knoxville
Target Compound Quantitation Report

Data File: \\ChromNA\Knoxville\ChromData\MG\20180128-7221.b\GA29P108.D
Lims ID: 140-10566-A-1
Client ID: IA-168-A-VS
Sample Type: Client
Inject. Date: 29-Jan-2018 20:56:30 ALS Bottle#: 8 Worklist Smp#: 17
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Sample Info: 140-0007221-017
Misc. Info.: 140-10566-a-1
Operator ID: 7126 Instrument ID: MG

Method: \\ChromNA\Knoxville\ChromData\MG\20180128-7221.b\MG_TO15.m
Limit Group: MSA TO14A_15 Routine ICAL
Last Update: 30-Jan-2018 10:52:09 Calib Date: 13-Nov-2017 22:37:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Knoxville\ChromData\MG\20171108-6586.b\GK13IC10.D

Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
Process Host: XAWRK026

First Level Reviewer: tajh Date: 30-Jan-2018 09:30:41

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	7.566	7.582	-0.016	92	610163	4.00	
* 2 1,4-Difluorobenzene	114	9.701	9.717	-0.016	95	3822959	4.00	
* 3 Chlorobenzene-d5 (IS)	117	14.673	14.678	-0.005	86	3719997	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	16.360	16.366	-0.006	91	2709965	3.90	
6 Chlorodifluoromethane	67	3.289	3.300	-0.011	95	5624	0.0921	
8 Dichlorodifluoromethane	85	3.338	3.349	-0.011	99	57758	0.0948	
31 Methylene Chloride	84	5.317	5.328	-0.011	92	78206	0.3600	
47 Benzene	78	9.124	9.135	-0.011	97	18777	0.0250	
56 Trichloroethene	130	10.456	10.467	-0.011	96	14741	0.0418	
65 Toluene	91	12.634	12.640	-0.006	93	195332	0.2362	
73 Tetrachloroethene	129	13.826	13.831	-0.005	95	58916	0.1847	

Reagents:

40MXISSURP_00003 Amount Added: 40.00 Units: mL Run Reagent

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10566-1 Analy Batch No.: 15917

SDG No.:

Instrument ID: MG GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/13/2017 16:15 Calibration End Date: 11/13/2017 22:37 Calibration ID: 1337

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
Vinyl acetate	+++++ 3.7174	+++++ 3.2004	3.4707 3.6232	2.9712 3.5570	3.5837 3.2104	Ave		3.4167				7.6		30.0			
2-Butanone (MEK)	+++++ 0.6334	+++++ 0.5295	0.7110 0.6299	0.6425 0.6169	0.6553 0.5489	Ave		0.6209				9.3		30.0			
Hexane	+++++ 1.2427	+++++ 1.1685	1.3522 1.1361	1.2777 1.0863	1.1291 1.0815	Ave		1.1842				8.2		30.0			
cis-1,2-Dichloroethene	1.7741 1.4982	1.5249 1.4314	1.4959 1.4374	1.4499 1.4124	1.3413 1.4652	Ave		1.4831				7.7		30.0			
Ethyl acetate	+++++ 2.9400	+++++ 2.4680	2.6650 2.9172	2.4499 2.8494	2.8983 2.4913	Ave		2.7099				8.0		30.0			
Chloroform	3.9103 3.3083	3.5770 3.1112	3.3275 3.0912	3.2198 3.0077	3.0511 3.0501	Ave		3.2654				8.7		30.0			
Tetrahydrofuran	+++++ 1.5162	+++++ 1.2787	1.5723 1.4773	1.3462 1.4386	1.4921 1.2939	Ave		1.4269				7.6		30.0			
1,1,1-Trichloroethane	4.1906 3.4987	3.6924 3.3036	3.4470 3.2998	3.3138 3.2176	3.1294 3.2831	Ave		3.4376				9.0		30.0			
1,2-Dichloroethane	0.5117 0.4100	0.4505 0.3742	0.4316 0.3691	0.3877 0.3586	0.3568 0.3781	Ave		0.4028				12.2		30.0			
Benzene	1.1158 0.7924	0.8587 0.7364	0.7839 0.7148	0.7379 0.6985	0.6966 0.7357	Ave		0.7871				16.0		30.0			
Cyclohexane	+++++ 0.1335	+++++ 0.1226	0.1426 0.1184	0.1305 0.1148	0.1176 0.1205	Ave		0.1251				7.6		30.0			
Carbon tetrachloride	0.7088 0.6291	0.6098 0.5944	0.5973 0.5968	0.5681 0.5952	0.5334 0.6504	Ave		0.6083				7.8		30.0			
1-Butanol	+++++ 0.0946	+++++ 0.0834	+++++ 0.0831	+++++ 0.0819	0.0793 0.0982	Ave		0.0867				8.9		30.0			
2,2,4-Trimethylpentane	+++++ 1.3672	1.5226 1.2532	1.4131 1.2121	1.2981 1.1665	1.1966 1.2023	Ave		1.2924				9.2		30.0			
Heptane	+++++ 0.2926	0.3256 0.2738	0.2998 0.2671	0.2725 0.2600	0.2552 0.2748	Ave		0.2801				7.9		30.0			
1,2-Dichloropropane	+++++ 0.3066	0.3445 0.2774	0.3207 0.2778	0.2853 0.2707	0.2745 0.2714	Ave		0.2921				8.9		30.0			
Trichloroethene	0.4652 0.3688	0.3821 0.3588	0.3635 0.3455	0.3473 0.3501	0.3041 0.4002	Ave		0.3686				11.5		30.0			
Dibromomethane	+++++ 0.3329	0.4326 0.3103	0.3748 0.3064	0.3179 0.3025	0.2950 0.3293	Ave		0.3335				13.2		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.