

June 26, 2017

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-22883-2

TestAmerica Sample Delivery Group: SL2562
Client Project/Site: X17-003

For:

CH2M Hill Plateau Remediation Company
PO BOX 1600, MS H8-41
Richland, Washington 99352

Attn: Mr. Scot Fitzgerald



Authorized for release by:
6/26/2017 11:45:21 AM

Jayna Awalt, Project Manager II
(314)298-8566
jayna.awalt@testamericainc.com

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



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Client: CH2M Hill Plateau Remediation Company
Project/Site: X17-003

TestAmerica Job ID: 160-22883-2
SDG: SL2562

Job ID: 160-22883-2

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2M Hill Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352
June 26, 2017
Attention: Scot Fitzgerald

SDG	: SL2562
Number of Samples	: 1 sample
Sample Matrix	: Water
Data Deliverable	: Summary
Date SDG Closed	: June 16, 2017

II. Introduction

On June 16, 1 sample was received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criteria. See the COC and receipt checklists for documentation of any variations on receipt conditions and temperature. Upon receipt, samples were given laboratory Ids to correspond with specific client Ids. Please refer to the Sample Summary sheets attached to this case narrative. This report is incomplete without the narrative.

The following SAFs are associated with this SDG: X17-003

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. All results are based upon samples as they were received, i.e. wet weight, unless otherwise noted on the data sheets. See the attached Methods Summary Form for the methods used in this SDG.

MS/MSD/Dup analysis was done per the client requirements. Analytical batches that did not contain matrix QC were analyzed with an LCS/LCS duplicate.

Note: For Metals analyses, per standard practice, all 6020 water and soil samples are initially prepared at 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate a narrative note; however, they are flagged "D" due to a limitation in the LIMS.

For solid matrices, all Metals analyses (including Hg) use a Standard Reference Material for the Laboratory Control Sample (LCS). Certificate for this source material may be obtained from TASL.

For Anion analysis, samples have been started at a 2x dilution per CHPRC direction. The samples are flagged accordingly with a "D" flag if sample concentration is above the MDL/RL. Non-conformance will be included in the below section only if dilution is greater than 2x.

For WTPH methods, the lab utilizes method 8015B. Per CHPRC direction, the method name in the electronic data has been modified to read WTPH in the place of 8015B.

Per CHPRC direction, due to the short hold times for Nitrate, Nitrite and Phosphate by IC (48 hours) as well as pH analysis (24 hours), a SIR request is not needed when samples are run outside 1x hold but within 2x hold. A narrative comment will be included below if a sample is run outside the lab-specified hold time for waters.

For extractable and volatile organic analyses, several analytes are considered poor performers and will not meet CHPRC QC limits. Per CHPRC direction, the lab's statistical limits have been reported. Excursions outside these statistical limits will include a

Job ID: 160-22883-2 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

non-conformance in the sections below.

IV. Definitions

QCBLK-	Quality Control Blank, Method Blank
QCLCS-	Quality Control Laboratory Control Sample, Blank Spike
DUP-	Laboratory Duplicate
MS-	Matrix Spike
MSD-	Matrix Spike Duplicate

The term "Detection Limit" used in the analytical data report refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

The following data qualifiers may be applicable to the results in this report, as appropriate.

- **B** - For inorganic analyses, the sample result is greater than the MDL but less than the RL.
- **B** - For organic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **B** - For radiochemistry, Method Blank reported above the MDC. Sample activity is > 5% the method blank.
- **J** - For organic analyses, the sample is estimated and less than the RL.
- **C** - For inorganic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL/RL but not greater than 5% the MB.
- **D** - For all analyses, the sample result was obtained from the analysis of a dilution. For ICPMS Metals analyses, per standard practice, all samples are initially prepared at a 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner and will not be narrated below. Only dilutions above 2x will be narrated and considered a true dilution for these samples.
- **N** - For inorganics, rad and GC analyses, the spike/spike duplicate recoveries are outside QC limits.
- **T** - For GCMS analyses, the spike/spike duplicate recoveries are outside QC limits.
- **o** - For all analyses, the LCS (LCSD) recoveries are outside QC limits.
- **P** - For organic analyses (PCB/Pests only), the aroclor target analyte has greater than 25% difference for detected concentrations between the two GC columns.
- **X**- Organics and Anions IC - Sample concentration over calibration and/or surrogate recovery outside QC limits.
- **X**- Inorganics - The analyte present in the original sample is > 4x the spike concentration.
- **X**- Radiochemistry - Carrier or Tracer recovery is outside limits.
- **Z**- Sample was prepped or analyzed beyond the specified sample holding time.
- **y** - RPD is outside established limits.

Volatiles

Batch: 314177

The following compounds did not meet the minimum relative response factor limits in the continuing calibration verification (CCV) associated with batch 314177: Acetone, 2- Butanone and 4- Methyl- 2- pentanone. A low level CCV was analyzed at the reporting limit (1ug/L) and the affected analytes were detected.

The associated sample was not detected above the reporting limit for the affected analytes. (CCVIS 160-314177/4)

The matrix spike / matrix spike duplicate (MS/MSD) precision for batch 314177 was outside control limits for Acetone. MS/MSD recoveries are within QC limits demonstrating good extraction performance in the sample matrix. No further action is required. (160-22867-D-1 MS) and (160-22867-E-1 MSD)

We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager or designee and the laboratory's client services representative as verified by their signature on this report.

Client: CH2M Hill Plateau Remediation Company
Project/Site: X17-003

TestAmerica Job ID: 160-22883-2
SDG: SL2562

Job ID: 160-22883-2 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Reviewed and approved:

Jayna Awalt
St. Louis Project Manager

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-22883-2

SDG Number: SL2562

Login Number: 22883

List Number: 1

Creator: Clarke, Jill C

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6, 0.2, 0.5, 0.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

CH2M Hill Plateau Remediation Company *CA 2562* **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** C.O.C.# **X17-003-272** Page 1 of 1

Collector	Juan Aguilar /CHPRC	Contact/Requester	WATERS-HUSTED, K	Telephone No.	376-4650
SAF No.	X17-003	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	Groundwater Background Study, October	Logbook No.	HNF-N-506 92 / 93	Ice Chest No.	605-533
Shipped To (Lab)	TestAmerica St. Louis	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	779414137423
Protocol	SURV	Priority:	15 Days	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
 *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL INSTRUCTIONS Hold Time **14 Days** Total Activity Exemption: Yes No
 Batch with A, I, S, and W SAFs.

Sample Analysis **8260_VOA_GCMS: COMMON** Holding Time **14 Days** Preservative **HCl or H2SO4 to pH <2/Cool <=6C**

Relinquished By	Date	Time	No/Type Container	Sample Analysis	Hold Time	Date/Time	Sign	Matrix *
<i>Juan Aguilar /CHPRC</i>	JUN 15 2017	0948	5x40-mL aGs*	8260_VOA_GCMS: COMMON	14 Days	JUN 15 2017	<i>Juan Aguilar</i>	S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other
<i>Juan Aguilar /CHPRC</i>	JUN 15 2017	1400				JUN 15 2017	<i>Juan Aguilar</i>	
<i>Juan Aguilar /CHPRC</i>	JUN 15 2017	0948				JUN 15 2017	<i>Juan Aguilar</i>	
<i>Juan Aguilar /CHPRC</i>	JUN 15 2017	0948				JUN 15 2017	<i>Juan Aguilar</i>	

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779414137423

Ship date:
Thu 6/15/2017

RICHLAND, WA US

Actual delivery:
Fri 6/16/2017 9:09 am

EARTH CITY, MO US

Delivered

Signed for by: B.DANIELS

Travel History

Date/Time	Activity	Location
6/16/2017 - Friday		
9:09 am	Delivered	EARTH CITY, MO
7:29 am	On FedEx vehicle for delivery	EARTH CITY, MO
7:21 am	At local FedEx facility	EARTH CITY, MO
5:14 am	At destination sort facility	BERKELEY, MO
4:27 am	Departed FedEx location	MEMPHIS, TN
12:28 am	Arrived at FedEx location	MEMPHIS, TN
6/15/2017 - Thursday		
4:47 pm	Left FedEx origin facility	PASCO, WA
4:15 pm	Picked up	PASCO, WA
3:02 pm	Shipment information sent to FedEx	

Shipment Facts

Tracking number	779414137423	Service	FedEx Standard Overnight
Weight	91 lbs / 41.28 kgs	Dimensions	28x16x17 in.
Delivered To	Shipping/Receiving	Total pieces	1
Total shipment weight	91 lbs / 41.28 kgs	Terms	Recipient
Shipper reference	GWS-533	Packaging	Your Packaging
Special handling section	Deliver Weekday, Additional Handling Surcharge	Standard transit	6/16/2017 by 3:00 pm



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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
y	Duplicate analysis not within control limits.
U	Analyzed for but not detected.

GC/MS VOA TICs

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

Client: CH2M Hill Plateau Remediation Company
Project/Site: X17-003

TestAmerica Job ID: 160-22883-2
SDG: SL2562

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds (GC/MS)	SW846	TAL SL

Protocol References:

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

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Client: CH2M Hill Plateau Remediation Company
Project/Site: X17-003

TestAmerica Job ID: 160-22883-2
SDG: SL2562

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-22883-9	B39WD1	Water	06/15/17 09:48	06/16/17 09:20

- 1
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- 10
- 11

June 26, 2017 Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: X17-003

TestAmerica Job ID: 160-22883-2
SDG: SL2562

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

Client Sample ID: B39WD1
Date Collected: 06/15/17 09:48
Date Received: 06/16/17 09:20

Lab Sample ID: 160-22883-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.17	U	1.0	0.17	ug/L			06/20/17 11:51	1
1,1,2-Trichloroethane	0.13	U	1.0	0.13	ug/L			06/20/17 11:51	1
1,1-Dichloroethane	0.070	U	1.0	0.070	ug/L			06/20/17 11:51	1
1,1-Dichloroethene	0.10	U	1.0	0.10	ug/L			06/20/17 11:51	1
1,2-Dichloroethane	0.22	U	1.0	0.22	ug/L			06/20/17 11:51	1
2-Butanone (MEK)	0.47	U	5.0	0.47	ug/L			06/20/17 11:51	1
4-Methyl-2-pentanone (MIBK)	0.22	U	5.0	0.22	ug/L			06/20/17 11:51	1
Acetone	0.55	U	2.0	0.55	ug/L			06/20/17 11:51	1
Benzene	0.10	U	1.0	0.10	ug/L			06/20/17 11:51	1
Carbon disulfide	0.10	U	1.0	0.10	ug/L			06/20/17 11:51	1
Carbon tetrachloride	0.18	U	1.0	0.18	ug/L			06/20/17 11:51	1
Chlorobenzene	0.11	U	1.0	0.11	ug/L			06/20/17 11:51	1
Chloroform	0.10	U	1.0	0.10	ug/L			06/20/17 11:51	1
Ethylbenzene	0.12	U	1.0	0.12	ug/L			06/20/17 11:51	1
Methylene Chloride	3.8		1.0	0.27	ug/L			06/20/17 11:51	1
Tetrachloroethene	0.18	U	1.0	0.18	ug/L			06/20/17 11:51	1
Toluene	0.14	U	1.0	0.14	ug/L			06/20/17 11:51	1
Trichloroethene	0.25	U	1.0	0.25	ug/L			06/20/17 11:51	1
Vinyl chloride	0.19	U	2.0	0.19	ug/L			06/20/17 11:51	1
Xylenes, Total	0.27	U	3.0	0.27	ug/L			06/20/17 11:51	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L					06/20/17 11:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		75 - 129		06/20/17 11:51	1
4-Bromofluorobenzene (Surr)	126		81 - 130		06/20/17 11:51	1
Dibromofluoromethane (Surr)	104		81 - 124		06/20/17 11:51	1
Toluene-d8 (Surr)	117		87 - 128		06/20/17 11:51	1

Client: CH2M Hill Plateau Remediation Company
Project/Site: X17-003

TestAmerica Job ID: 160-22883-2
SDG: SL2562

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

Lab Sample ID: MB 160-314177/8
Matrix: Water
Analysis Batch: 314177

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.17	U	1.0	0.17	ug/L			06/20/17 09:03	1
1,1,2-Trichloroethane	0.13	U	1.0	0.13	ug/L			06/20/17 09:03	1
1,1-Dichloroethane	0.070	U	1.0	0.070	ug/L			06/20/17 09:03	1
1,1-Dichloroethene	0.10	U	1.0	0.10	ug/L			06/20/17 09:03	1
1,2-Dichloroethane	0.22	U	1.0	0.22	ug/L			06/20/17 09:03	1
2-Butanone (MEK)	0.47	U	5.0	0.47	ug/L			06/20/17 09:03	1
4-Methyl-2-pentanone (MIBK)	0.22	U	5.0	0.22	ug/L			06/20/17 09:03	1
Acetone	0.55	U	2.0	0.55	ug/L			06/20/17 09:03	1
Benzene	0.10	U	1.0	0.10	ug/L			06/20/17 09:03	1
Carbon disulfide	0.10	U	1.0	0.10	ug/L			06/20/17 09:03	1
Carbon tetrachloride	0.18	U	1.0	0.18	ug/L			06/20/17 09:03	1
Chlorobenzene	0.11	U	1.0	0.11	ug/L			06/20/17 09:03	1
Chloroform	0.10	U	1.0	0.10	ug/L			06/20/17 09:03	1
Ethylbenzene	0.12	U	1.0	0.12	ug/L			06/20/17 09:03	1
Methylene Chloride	0.27	U	1.0	0.27	ug/L			06/20/17 09:03	1
Tetrachloroethene	0.18	U	1.0	0.18	ug/L			06/20/17 09:03	1
Toluene	0.14	U	1.0	0.14	ug/L			06/20/17 09:03	1
Trichloroethene	0.25	U	1.0	0.25	ug/L			06/20/17 09:03	1
Vinyl chloride	0.19	U	2.0	0.19	ug/L			06/20/17 09:03	1
Xylenes, Total	0.27	U	3.0	0.27	ug/L			06/20/17 09:03	1

Tentatively Identified Compound	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Naphthalene	0.240	J	ug/L		16.11	91-20-3		06/20/17 09:03	1
Tentatively Identified Compound	None		ug/L					06/20/17 09:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		75 - 129		06/20/17 09:03	1
4-Bromofluorobenzene (Surr)	114		81 - 130		06/20/17 09:03	1
Dibromofluoromethane (Surr)	97		81 - 124		06/20/17 09:03	1
Toluene-d8 (Surr)	111		87 - 128		06/20/17 09:03	1

Lab Sample ID: LCS 160-314177/5
Matrix: Water
Analysis Batch: 314177

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	9.67		ug/L		97	85 - 116
1,1,2-Trichloroethane	10.0	9.73		ug/L		97	80 - 120
1,1-Dichloroethane	10.0	9.22		ug/L		92	80 - 120
1,1-Dichloroethene	10.0	9.47		ug/L		95	80 - 120
1,2-Dichloroethane	10.0	9.56		ug/L		96	80 - 115
2-Butanone (MEK)	10.0	9.49		ug/L		95	67 - 127
4-Methyl-2-pentanone (MIBK)	10.0	10.2		ug/L		102	75 - 126
Acetone	10.0	8.20		ug/L		82	69 - 129
Benzene	10.0	9.32		ug/L		93	80 - 120
Carbon disulfide	10.0	9.23		ug/L		92	80 - 121
Carbon tetrachloride	10.0	9.61		ug/L		96	83 - 125

TestAmerica St. Louis

Client: CH2M Hill Plateau Remediation Company
Project/Site: X17-003

TestAmerica Job ID: 160-22883-2
SDG: SL2562

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

Lab Sample ID: LCS 160-314177/5
Matrix: Water
Analysis Batch: 314177

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chlorobenzene	10.0	9.61		ug/L		96	80 - 120
Chloroform	10.0	9.31		ug/L		93	80 - 120
Ethylbenzene	10.0	9.90		ug/L		99	80 - 120
Methylene Chloride	10.0	8.85		ug/L		88	80 - 120
Tetrachloroethene	10.0	10.0		ug/L		100	83 - 123
Toluene	10.0	9.89		ug/L		99	80 - 120
Trichloroethene	10.0	9.32		ug/L		93	80 - 120
Vinyl chloride	10.0	9.64		ug/L		96	77 - 122
Xylenes, Total	20.0	20.9		ug/L		105	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		75 - 129
4-Bromofluorobenzene (Surr)	106		81 - 130
Dibromofluoromethane (Surr)	99		81 - 124
Toluene-d8 (Surr)	104		87 - 128

Lab Sample ID: LCSD 160-314177/6
Matrix: Water
Analysis Batch: 314177

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	10.0	9.81		ug/L		98	85 - 116	1	20
1,1,2-Trichloroethane	10.0	9.76		ug/L		98	80 - 120	0	20
1,1-Dichloroethane	10.0	9.55		ug/L		96	80 - 120	4	20
1,1-Dichloroethene	10.0	9.82		ug/L		98	80 - 120	4	20
1,2-Dichloroethane	10.0	9.62		ug/L		96	80 - 115	1	20
2-Butanone (MEK)	10.0	8.53		ug/L		85	67 - 127	11	20
4-Methyl-2-pentanone (MIBK)	10.0	9.79		ug/L		98	75 - 126	4	20
Acetone	10.0	8.98		ug/L		90	69 - 129	9	20
Benzene	10.0	9.54		ug/L		95	80 - 120	2	20
Carbon disulfide	10.0	9.36		ug/L		94	80 - 121	1	20
Carbon tetrachloride	10.0	9.90		ug/L		99	83 - 125	3	20
Chlorobenzene	10.0	9.60		ug/L		96	80 - 120	0	20
Chloroform	10.0	9.24		ug/L		92	80 - 120	1	20
Ethylbenzene	10.0	9.87		ug/L		99	80 - 120	0	20
Methylene Chloride	10.0	9.01		ug/L		90	80 - 120	2	20
Tetrachloroethene	10.0	10.0		ug/L		100	83 - 123	0	20
Toluene	10.0	10.0		ug/L		100	80 - 120	1	20
Trichloroethene	10.0	9.54		ug/L		95	80 - 120	2	20
Vinyl chloride	10.0	9.91		ug/L		99	77 - 122	3	20
Xylenes, Total	20.0	21.0		ug/L		105	80 - 120	0	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		75 - 129
4-Bromofluorobenzene (Surr)	103		81 - 130
Dibromofluoromethane (Surr)	96		81 - 124
Toluene-d8 (Surr)	102		87 - 128

Client: CH2M Hill Plateau Remediation Company
Project/Site: X17-003

TestAmerica Job ID: 160-22883-2
SDG: SL2562

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

Lab Sample ID: 160-22867-E-1 MSD
Matrix: Water
Analysis Batch: 314177

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Toluene	0.14	U	10.0	9.99		ug/L		100	85 - 123	2	20
Trichloroethene	0.25	U	10.0	9.39		ug/L		94	81 - 125	2	20
Vinyl chloride	0.19	U	10.0	9.69		ug/L		97	70 - 129	6	20
Xylenes, Total	0.27	U	20.0	20.9		ug/L		105	80 - 120	1	20
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	97		75 - 129								
4-Bromofluorobenzene (Surr)	107		81 - 130								
Dibromofluoromethane (Surr)	98		81 - 124								
Toluene-d8 (Surr)	105		87 - 128								

June 26, 2017
QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: X17-003

TestAmerica Job ID: 160-22883-2
SDG: SL2562

GC/MS VOA

Analysis Batch: 314177

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-22883-9	B39WD1	Total/NA	Water	8260C	
MB 160-314177/8	Method Blank	Total/NA	Water	8260C	
LCS 160-314177/5	Lab Control Sample	Total/NA	Water	8260C	
LCSD 160-314177/6	Lab Control Sample Dup	Total/NA	Water	8260C	
160-22867-D-1 MS	Matrix Spike	Total/NA	Water	8260C	
160-22867-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Client: CH2M Hill Plateau Remediation Company
 Project/Site: X17-003

TestAmerica Job ID: 160-22883-2
 SDG: SL2562

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (75-129)	BFB (81-130)	DBFM (81-124)	TOL (87-128)
160-22867-D-1 MS	Matrix Spike	97	107	98	106
160-22867-E-1 MSD	Matrix Spike Duplicate	97	107	98	105
160-22883-9	B39WD1	104	126	104	117
LCS 160-314177/5	Lab Control Sample	94	106	99	104
LCSD 160-314177/6	Lab Control Sample Dup	92	103	96	102
MB 160-314177/8	Method Blank	93	114	97	111

Surrogate Legend

- 12DCE = 1,2-Dichloroethane-d4 (Surr)
- BFB = 4-Bromofluorobenzene (Surr)
- DBFM = Dibromofluoromethane (Surr)
- TOL = Toluene-d8 (Surr)

