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: 160-11366-1
TestAmerica Sample Delivery Group: SL1788
Client Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

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

Attn: General Mailbox

Authorized for release by:
5/20/2015 10:40:49 AM

Jayna Awalt, Project Manager II
(314)298-8566
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LINKS

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

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

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Job ID: 160-11366-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2MHill Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352
May 19, 2015
Attention: Scot Fitzgerald

SDG	: SL1788
Number of Samples	: 5 samples
Sample Matrix	: Water
Data Deliverable	: Summary
Date SDG Closed	: April 16, 2015

II. Introduction

On April 16, 5 samples were received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criter 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: X15-004, X15-027

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 flagging unless otherwise noted in the case narrative.

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 (June 2014), Boron will be reported for Metals using method 6010. Boron will no longer be reported by method 6020.

IV. Definitions

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

Job ID: 160-11366-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

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.
- **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.
- **D** - For all analyses, the sample result was obtained from the analysis of a dilution. For Metals analyses, per standard practice, all solid 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. These dilutions do not necessitate qualification unless otherwise noted in the case narrative.
- **N** - For inorganics 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.
- **M**- For inorganic analyses, the precision was outside control 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.

Volatiles

Batch: 186272

The following compounds were outside the method recommended control limits for the minimum response factor in the continuing calibratic verification (CCV) associated with batch 186272: Acetone and 2-Butanone. A reporting limit standard (LOQV-1ug/L) was analyzed within analytical batch and these compounds were identified; therefore, the data has been reported. The associated samples were not detected above the reporting limit for the affected analytes. (CCVIS 160-186272/4) and (LOQV 160-186272/7)

The laboratory control samples (LCS/LCSD) for 186272 recovered outside control limits for the following analyte: Trichloroethene. A low-level LCS (LOQV), spiked at the reporting limit (RL), was prepared with this batch. The affected target analyte was detected; therefore, the LOQV demonstrates the analytical system had sufficient sensitivity to detect the compound had it been present. Since the affected target compound was not detected in the samples, the data has been reported and qualified. (LCS 160-186272/5), (LCSD 160-186272/6) and (LOQ 160-186272/7) This analyte has been qualified accordingly with an "O" flag in the associated samples.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for 186272 were outside control limits for Trichloroethene. Matrix interfere is suspected. This analyte has been qualified accordingly with a "T" flag in the associated samples: (160-11296-B-1 MS) and (160-11296-C-MSD).

The matrix spike / matrix spike duplicate (MS/MSD) precision for batch 186272 was outside control limits for 1- Butanol. MS/MSD recover are within QC limits demonstrating good extraction performance in the sample matrix. No further action is required. (160-11296-B-1 MS) a (160-11296-C-1 MSD)

ICP Metals

Batch: 190412

Arsenic was detected in method blank MB 160-189224/1-A at a level that was above the method detection limit but below the reporting limit

Job ID: 160-11366-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

The value should be considered an estimate, and has been flagged "B". If the associated sample reported a result above the MDL and/or RL and is not greater than 5x the method blank, the result has been flagged "C".

The continuing calibration verification (CCV) associated with the following samples recovered above the upper control limit for arsenic, nickel, and cobalt. The samples associated with this CCV were below the reporting limit for the affected analytes; therefore, the data have been reported. The following sample is impacted: (CCV 160-190412/55).

The continuing calibration verification (CCV) associated with the following samples recovered above the upper control limit for nickel and cobalt. The sample associated with this CCV is a spiked sample that recovered within limits and for which the original sample was below the reporting limit; therefore, the data have been reported. The following sample is impacted: (CCV 160-190412/69).

Batch: 190830

The serial dilution performed for the following samples was outside control limits for calcium and magnesium: (160-11367-A-4-A SD) indicating the presence of matrix interference.

ICPMS Metals

Batch: 190419

Due to LDR failures, the linear range for beryllium has been lowered to the concentration if the highest calibration standard (200ppb). The MS\MSD was above the LDR, but was within acceptable limits. (160-11367-A-4-E MS) and (160-11367-A-4-F MSD)

Batch: 190569

Due to LDR failures, the linear range for beryllium has been lowered to the concentration if the highest calibration standard (200ppb). The LCS was above the LDR, but was within acceptable limits. (LCS 160-189226/2-A)

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.

Reviewed and approved:

Jayna Awalt
St. Louis Project Manager

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-11366-1
SDG Number: SL1788

Login Number: 11366
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	1.1
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.	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	

CH2MHill Plateau Remediation Company

84788

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # X15-004-095

Page 1 of 1

Collector	J.C. Fulton/CHPRC	Contact/Requester	WATERS-HUSTED, K	Telephone No.	376-4650
SAF No.	X15-004	Sampling Origin	HANFORD SITE	Purchase Order/Charge Code	303064~~ES20~~
Project Title	GW Sitewide Surv, FY15	Logbook No.	HNF-N-506 73/70	Ice Chest No.	EWS-098
Shipped To (Lab)	TestAmerica St. Louis	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7733-7776-7746
Protocol	SURV	Priority:	30 Days PRIORITY	Offsite Property No.	

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

Batch with A, I, S, and W SAFs.

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2Y4D0	N	W	APR 15 2015	0921	4x40-mL aGs*	8260_VOA_GCMS: COMMON ✓	14 Days	HCl or H2SO4 to pH <2/Cool <=6C

Relinquished By J.C. Fulton/CHPRC J.C. Fulton/CHPRC	Print Sign Date/Time APR 15 2015 1110	Received By R.A. Shepard/CHPRC	Print Sign Date/Time APR 15 2015 1110
Relinquished By R.A. Shepard/CHPRC	Date/Time APR 15 2015 1400	Received By FEDEX	Date/Time
Relinquished By FED EX	Date/Time	Received By Jill Clark J. Jill Clark	Date/Time 4.16.15 0925
Relinquished By	Date/Time	Received By	Date/Time

Matrix *

S = Soil	DS = Drum Solids		
SE = Sediment	DL = Drum Liquids		
SO = Solid	T = Tissue		
SL = Sludge	WI = Wipe		
W = Water	L = Liquid		
O = Oil	V = Vegetation		
A = Air	X = Other		

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

PRINTED O 9/12/2014

A-6004-842 (REV 2)

FedEx ® Tracking

773377767746

Ship (P/U) date :
Wed 4/15/2015 3:22 pm

RICHLAND, WA US

Delivered

Signed for by: J.CLARKE

Actual delivery :
Thur 4/16/2015 9:16 am

EARTH CITY, MO US

Travel History

Date/Time	Activity	Location
4/16/2015 - Thursday		
9:16 am	Delivered	EARTH CITY, MO
6:50 am	On FedEx vehicle for delivery	EARTH CITY, MO
6:46 am	At local FedEx facility	EARTH CITY, MO
5:10 am	At destination sort facility	BERKELEY, MO
4:23 am	Departed FedEx location	MEMPHIS, TN
12:41 am	Arrived at FedEx location	MEMPHIS, TN
4/15/2015 - Wednesday		
5:02 pm	Left FedEx origin facility	PASCO, WA
3:22 pm	Picked up	PASCO, WA
2:26 pm	Shipment information sent to FedEx	

Shipment Facts

Tracking number	773377767746	Service	FedEx Priority Overnight
Weight	34 lbs / 15.42 kgs	Delivered To	Shipping/Receiving
Total pieces	1	Total shipment weight	34 lbs / 15.42 kgs
Shipper reference	GWS-098	Packaging	Your Packaging
Special handling section	Deliver Weekday		

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-11367-1
SDG Number: SL1788

Login Number: 11367
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	1.1
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.	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	

CH2MHill Plateau Remediation Company 841788

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # X15-027-025

Collector	J.C. Fulton/CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X15-027	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303064
Project Title	AQUIFER TUBES, APRIL 2015	Logbook No.	HNF-N-506 73/70	Ice Chest No.	GWS-098
Shipped To (Lab)	TestAmerica St. Louis	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7733-7776-7746
Protocol	CERCLA	Priority:	30 Days PRIORITY	Offsite Property No.	

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B30PJ2	N	W	APR 15 2015	0959	1x500-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01	6 Months	HNO3 to pH <2
B30PJ2	N	W	↓	↓	4x40-mL aGs*	8260_VOA_GCMS: COMMON; 8260_VOA_GCMS: GW 01	14 Days	HCl or H2SO4 to pH <2/Cool <=6C
B30PJ4	Y	W	APR 15 2015	0959	1x500-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01	6 Months	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
J.C. Fulton/CHPRC			APR 15 2015 1110	R.A. Shepard/CHPRC			APR 15 2015 1110
R.A. Shepard/CHPRC			APR 15 2015 1400	FEDEX			
FED EX				Jill Clarke	Jill Clarke		4-16-15 0925

Matrix *

S	= Soil	DS	= Drum Solids		
SE	= Sediment	DL	= Drum Liquids		
SO	= Solid	T	= Tissue		
SL	= Sludge	WI	= Wipe		
W	= Water	L	= Liquid		
O	= Oil	V	= Vegetation		
A	= Air	X	= Other		

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED O 2/23/2015

A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company

SLI788

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # X15-027-024

Collector	J.C. Fulton/CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X15-027	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303064
Project Title	AQUIFER TUBES, APRIL 2015	Logbook No.	HNF-N-506 73/70	Ice Chest No.	GWS-098
Shipped To (Lab)	TestAmerica St. Louis	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7733-7776-7746
Protocol	CERCLA	Priority:	30 Days PRIORITY	Offsite Property No.	

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B30PH4	N	W	APR 15 2015	0921	1x500-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01	6 Months	HNO3 to pH <2
B30PH4	N	W	↓	↓	4x40-mL aGs*	8260_VOA_GCMS: COMMON; 8260_VOA_GCMS: GW 01	14 Days	HCl or H2SO4 to pH <2/Cool <=6C
B30PH9	Y	W	APR 15 2015	0921	1x500-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01	6 Months	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
J.C. Fulton/CHPRC			APR 15 2015 1110	R.A. Shepard/CHPRC			APR 15 2015 1110
R.A. Shepard/CHPRC			APR 15 2015 1400	FEDEX			
FED EX				Jill Clarke	Jill Clarke		4.16.15 0925

Matrix *

S = Soil	DS = Drum Solids		
SE = Sediment	DL = Drum Liquids		
SO = Solid	T = Tissue		
SL = Sludge	WI = Wipe		
W = Water	L = Liquid		
O = Oil	V = Vegetation		
A = Air	X = Other		

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED O 2/23/2015

A-6004-842 (REV 2)

FedEx ® Tracking

773377767746

Ship (P/U) date :
Wed 4/15/2015 3:22 pm

RICHLAND, WA US

Delivered

Signed for by: J.CLARKE

Actual delivery :
Thur 4/16/2015 9:16 am

EARTH CITY, MO US

Travel History

Date/Time	Activity	Location
4/16/2015 - Thursday		
9:16 am	Delivered	EARTH CITY, MO
6:50 am	On FedEx vehicle for delivery	EARTH CITY, MO
6:46 am	At local FedEx facility	EARTH CITY, MO
5:10 am	At destination sort facility	BERKELEY, MO
4:23 am	Departed FedEx location	MEMPHIS, TN
12:41 am	Arrived at FedEx location	MEMPHIS, TN
4/15/2015 - Wednesday		
5:02 pm	Left FedEx origin facility	PASCO, WA
3:22 pm	Picked up	PASCO, WA
2:26 pm	Shipment information sent to FedEx	

Shipment Facts

Tracking number	773377767746	Service	FedEx Priority Overnight
Weight	34 lbs / 15.42 kgs	Delivered To	Shipping/Receiving
Total pieces	1	Total shipment weight	34 lbs / 15.42 kgs
Shipper reference	GWS-098	Packaging	Your Packaging
Special handling section	Deliver Weekday		

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
T	MS, MSD: Recovery exceeds upper or lower control limits.
U	Analyzed for but not detected.
O	LCS, LCSD: Recovery exceeds upper or lower control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS VOA TICs

Qualifier	Qualifier Description
N	Presumptive evidence of material.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
U	Analyzed for but not detected.
B	Estimated result. Result is less than the RL, but greater than MDL
C	The analyte was detected in both the sample and the assoicated QC blank, and the sample concentration was </= 5X the blank concentration.

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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: CH2M Hill Plateau Remediation Company
Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-11366-1
SDG: SL1788

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds (GC/MS)	SW846	TAL SL
6010C	Metals (ICP)	SW846	TAL SL
6020A	Metals (ICP/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

Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-11366-1
SDG: SL1788

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-11366-1	B2Y4D0	Water	04/15/15 09:21	04/16/15 09:25
160-11367-1	B30PJ2	Water	04/15/15 09:59	04/16/15 09:25
160-11367-2	B30PJ4	Water	04/15/15 09:59	04/16/15 09:25
160-11367-3	B30PH4	Water	04/15/15 09:21	04/16/15 09:25
160-11367-4	B30PH9	Water	04/15/15 09:21	04/16/15 09:25

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

Client Sample ID: B2Y4D0 — **Lab Sample ID: 160-11366-1**
Date Collected: 04/15/15 09:21 — **Matrix: Water**
Date Received: 04/16/15 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.070	U	1.0	0.070	ug/L			04/17/15 13:03	1
1,1,2-Trichloroethane	0.15	U	1.0	0.15	ug/L			04/17/15 13:03	1
1,1-Dichloroethane	0.070	U	1.0	0.070	ug/L			04/17/15 13:03	1
1,1-Dichloroethene	0.080	U	1.0	0.080	ug/L			04/17/15 13:03	1
1,2-Dichloroethane	0.10	U	1.0	0.10	ug/L			04/17/15 13:03	1
2-Butanone (MEK)	0.52	U	5.0	0.52	ug/L			04/17/15 13:03	1
4-Methyl-2-pentanone (MIBK)	0.12	U	5.0	0.12	ug/L			04/17/15 13:03	1
Acetone	0.34	U	2.0	0.34	ug/L			04/17/15 13:03	1
Benzene	0.060	U	1.0	0.060	ug/L			04/17/15 13:03	1
Carbon disulfide	0.050	U	1.0	0.050	ug/L			04/17/15 13:03	1
Carbon tetrachloride	0.13	U	1.0	0.13	ug/L			04/17/15 13:03	1
Chlorobenzene	0.15	U	1.0	0.15	ug/L			04/17/15 13:03	1
Chloroform	0.10	U	1.0	0.10	ug/L			04/17/15 13:03	1
Ethylbenzene	0.090	U	1.0	0.090	ug/L			04/17/15 13:03	1
Methylene Chloride	**1.7**		1.0	0.27	ug/L			04/17/15 13:03	1
Tetrachloroethene	0.18	U	1.0	0.18	ug/L			04/17/15 13:03	1
Toluene	0.070	U	1.0	0.070	ug/L			04/17/15 13:03	1
Trichloroethene	0.25	U O T	1.0	0.25	ug/L			04/17/15 13:03	1
Vinyl chloride	0.080	U	2.0	0.080	ug/L			04/17/15 13:03	1
Xylenes, Total	0.20	U	3.0	0.20	ug/L			04/17/15 13:03	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/L*					*04/17/15 13:03*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*75 - 129*		*04/17/15 13:03*	*1*
4-Bromofluorobenzene (Surr)	*112*		*81 - 130*		*04/17/15 13:03*	*1*
Dibromofluoromethane (Surr)	*116*		*81 - 124*		*04/17/15 13:03*	*1*
Toluene-d8 (Surr)	*107*		*87 - 128*		*04/17/15 13:03*	*1*

Client Sample ID: B30PJ2 — **Lab Sample ID: 160-11367-1**
Date Collected: 04/15/15 09:59 — **Matrix: Water**
Date Received: 04/16/15 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.070	U	1.0	0.070	ug/L			04/17/15 13:27	1
1,1,2-Trichloroethane	0.15	U	1.0	0.15	ug/L			04/17/15 13:27	1
1,1-Dichloroethane	0.070	U	1.0	0.070	ug/L			04/17/15 13:27	1
1,1-Dichloroethene	0.080	U	1.0	0.080	ug/L			04/17/15 13:27	1
1,2-Dichloroethane	0.10	U	1.0	0.10	ug/L			04/17/15 13:27	1
1,4-Dichlorobenzene	0.12	U	1.0	0.12	ug/L			04/17/15 13:27	1
1-Butanol	12	U	50	12	ug/L			04/17/15 13:27	1
2-Butanone (MEK)	0.52	U	5.0	0.52	ug/L			04/17/15 13:27	1
4-Methyl-2-pentanone (MIBK)	0.12	U	5.0	0.12	ug/L			04/17/15 13:27	1
Acetone	0.34	U	2.0	0.34	ug/L			04/17/15 13:27	1
Benzene	0.060	U	1.0	0.060	ug/L			04/17/15 13:27	1
Carbon disulfide	0.050	U	1.0	0.050	ug/L			04/17/15 13:27	1
Carbon tetrachloride	0.13	U	1.0	0.13	ug/L			04/17/15 13:27	1
Chlorobenzene	0.15	U	1.0	0.15	ug/L			04/17/15 13:27	1
Chloroform	0.10	U	1.0	0.10	ug/L			04/17/15 13:27	1
cis-1,2-Dichloroethylene	0.090	U	1.0	0.090	ug/L			04/17/15 13:27	1

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

Client Sample ID: B30PJ2 — **Lab Sample ID: 160-11367-1**
Date Collected: 04/15/15 09:59 — **Matrix: Water**
Date Received: 04/16/15 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl Cyanide	1.4	U	10	1.4	ug/L			04/17/15 13:27	1
Ethylbenzene	0.090	U	1.0	0.090	ug/L			04/17/15 13:27	1
Methylene Chloride	0.27	U	1.0	0.27	ug/L			04/17/15 13:27	1
Tetrachloroethene	0.18	U	1.0	0.18	ug/L			04/17/15 13:27	1
Tetrahydrofuran	1.1	U	10	1.1	ug/L			04/17/15 13:27	1
Toluene	0.070	U	1.0	0.070	ug/L			04/17/15 13:27	1
trans-1,2-Dichloroethylene	0.080	U	1.0	0.080	ug/L			04/17/15 13:27	1
Trichloroethene	**0.52**	**J O T**	1.0	0.25	ug/L			04/17/15 13:27	1
Vinyl chloride	0.080	U	2.0	0.080	ug/L			04/17/15 13:27	1
Xylenes, Total	0.20	U	3.0	0.20	ug/L			04/17/15 13:27	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/L*					*04/17/15 13:27*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*75 - 129*		*04/17/15 13:27*	*1*
4-Bromofluorobenzene (Surr)	*109*		*81 - 130*		*04/17/15 13:27*	*1*
Dibromofluoromethane (Surr)	*113*		*81 - 124*		*04/17/15 13:27*	*1*
Toluene-d8 (Surr)	*107*		*87 - 128*		*04/17/15 13:27*	*1*

Client Sample ID: B30PH4 — **Lab Sample ID: 160-11367-3**
Date Collected: 04/15/15 09:21 — **Matrix: Water**
Date Received: 04/16/15 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.070	U	1.0	0.070	ug/L			04/17/15 13:50	1
1,1,2-Trichloroethane	0.15	U	1.0	0.15	ug/L			04/17/15 13:50	1
1,1-Dichloroethane	0.070	U	1.0	0.070	ug/L			04/17/15 13:50	1
1,1-Dichloroethene	0.080	U	1.0	0.080	ug/L			04/17/15 13:50	1
1,2-Dichloroethane	0.10	U	1.0	0.10	ug/L			04/17/15 13:50	1
1,4-Dichlorobenzene	0.12	U	1.0	0.12	ug/L			04/17/15 13:50	1
1-Butanol	12	U	50	12	ug/L			04/17/15 13:50	1
2-Butanone (MEK)	0.52	U	5.0	0.52	ug/L			04/17/15 13:50	1
4-Methyl-2-pentanone (MIBK)	0.12	U	5.0	0.12	ug/L			04/17/15 13:50	1
Acetone	0.34	U	2.0	0.34	ug/L			04/17/15 13:50	1
Benzene	0.060	U	1.0	0.060	ug/L			04/17/15 13:50	1
Carbon disulfide	0.050	U	1.0	0.050	ug/L			04/17/15 13:50	1
Carbon tetrachloride	0.13	U	1.0	0.13	ug/L			04/17/15 13:50	1
Chlorobenzene	0.15	U	1.0	0.15	ug/L			04/17/15 13:50	1
Chloroform	0.10	U	1.0	0.10	ug/L			04/17/15 13:50	1
cis-1,2-Dichloroethylene	0.090	U	1.0	0.090	ug/L			04/17/15 13:50	1
Ethyl Cyanide	1.4	U	10	1.4	ug/L			04/17/15 13:50	1
Ethylbenzene	0.090	U	1.0	0.090	ug/L			04/17/15 13:50	1
Methylene Chloride	0.27	U	1.0	0.27	ug/L			04/17/15 13:50	1
Tetrachloroethene	0.18	U	1.0	0.18	ug/L			04/17/15 13:50	1
Tetrahydrofuran	1.1	U	10	1.1	ug/L			04/17/15 13:50	1
Toluene	0.070	U	1.0	0.070	ug/L			04/17/15 13:50	1
trans-1,2-Dichloroethylene	0.080	U	1.0	0.080	ug/L			04/17/15 13:50	1
Trichloroethene	0.25	U O T	1.0	0.25	ug/L			04/17/15 13:50	1
Vinyl chloride	0.080	U	2.0	0.080	ug/L			04/17/15 13:50	1
Xylenes, Total	0.20	U	3.0	0.20	ug/L			04/17/15 13:50	1

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

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Unknown	71	N	ug/L		2.85			04/17/15 13:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		75 - 129		04/17/15 13:50	1
4-Bromofluorobenzene (Surr)	113		81 - 130		04/17/15 13:50	1
Dibromofluoromethane (Surr)	116		81 - 124		04/17/15 13:50	1
Toluene-d8 (Surr)	109		87 - 128		04/17/15 13:50	1

Method: 6010C - Metals (ICP)

Client Sample ID: B30PJ2 — **Lab Sample ID: 160-11367-1**
Date Collected: 04/15/15 09:59 — **Matrix: Water**
Date Received: 04/16/15 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	3.7	U	10.0	3.7	ug/L		05/04/15 15:37	05/11/15 20:28	1
Arsenic	**2.8**	**B C**	10.0	1.8	ug/L		05/04/15 15:37	05/11/15 20:28	1
Barium	**19.8**	**B**	50.0	2.1	ug/L		05/04/15 15:37	05/11/15 20:28	1
Boron	7.2	U	50.0	7.2	ug/L		05/04/15 15:37	05/11/15 20:28	1
Cadmium	0.34	U	5.0	0.34	ug/L		05/04/15 15:37	05/11/15 20:28	1
Calcium	**27600**		1000	54.2	ug/L		05/04/15 15:37	05/14/15 19:41	1
Chromium	3.4	U	10.0	3.4	ug/L		05/04/15 15:37	05/14/15 19:41	1
Cobalt	2.7	U	50.0	2.7	ug/L		05/04/15 15:37	05/11/15 20:28	1
Copper	2.1	U	25.0	2.1	ug/L		05/04/15 15:37	05/11/15 20:28	1
Iron	12.8	U	100	12.8	ug/L		05/04/15 15:37	05/11/15 20:28	1
Magnesium	**5270**		1000	50.5	ug/L		05/04/15 15:37	05/14/15 19:41	1
Manganese	1.0	U	15.0	1.0	ug/L		05/04/15 15:37	05/11/15 20:28	1
Nickel	**4.8**	**B**	40.0	2.6	ug/L		05/04/15 15:37	05/11/15 20:28	1
Potassium	**3750**	**B**	5000	456	ug/L		05/04/15 15:37	05/11/15 20:28	1
Silver	0.99	U	10.0	0.99	ug/L		05/04/15 15:37	05/11/15 20:28	1
Sodium	**4940**		1000	105	ug/L		05/04/15 15:37	05/11/15 20:28	1
Vanadium	**13.8**	**B**	50.0	4.4	ug/L		05/04/15 15:37	05/11/15 20:28	1
Zinc	8.3	U	20.0	8.3	ug/L		05/04/15 15:37	05/11/15 20:28	1

Client Sample ID: B30PH4 — **Lab Sample ID: 160-11367-3**
Date Collected: 04/15/15 09:21 — **Matrix: Water**
Date Received: 04/16/15 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	3.7	U	10.0	3.7	ug/L		05/04/15 15:37	05/11/15 20:36	1
Arsenic	1.8	U	10.0	1.8	ug/L		05/04/15 15:37	05/11/15 20:36	1
Barium	**15.9**	**B**	50.0	2.1	ug/L		05/04/15 15:37	05/11/15 20:36	1
Boron	7.2	U	50.0	7.2	ug/L		05/04/15 15:37	05/11/15 20:36	1
Cadmium	0.34	U	5.0	0.34	ug/L		05/04/15 15:37	05/11/15 20:36	1
Calcium	**20900**		1000	54.2	ug/L		05/04/15 15:37	05/14/15 16:56	1
Chromium	3.4	U	10.0	3.4	ug/L		05/04/15 15:37	05/14/15 16:56	1
Cobalt	2.7	U	50.0	2.7	ug/L		05/04/15 15:37	05/11/15 20:36	1
Copper	2.1	U	25.0	2.1	ug/L		05/04/15 15:37	05/11/15 20:36	1
Iron	**73.0**	**B**	100	12.8	ug/L		05/04/15 15:37	05/11/15 20:36	1
Magnesium	**4520**		1000	50.5	ug/L		05/04/15 15:37	05/14/15 16:56	1
Manganese	**2.3**	**B**	15.0	1.0	ug/L		05/04/15 15:37	05/11/15 20:36	1
Nickel	**3.1**	**B**	40.0	2.6	ug/L		05/04/15 15:37	05/11/15 20:36	1
Potassium	**1640**	**B**	5000	456	ug/L		05/04/15 15:37	05/11/15 20:36	1
Silver	0.99	U	10.0	0.99	ug/L		05/04/15 15:37	05/11/15 20:36	1
Sodium	**2280**		1000	105	ug/L		05/04/15 15:37	05/11/15 20:36	1

Method: 6010C - Metals (ICP) (Continued)

Client Sample ID: B30PH4 — **Lab Sample ID: 160-11367-3**
Date Collected: 04/15/15 09:21 — **Matrix: Water**
Date Received: 04/16/15 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	**4.9**	**B**	50.0	4.4	ug/L		05/04/15 15:37	05/11/15 20:36	1
Zinc	**15.5**	**B**	20.0	8.3	ug/L		05/04/15 15:37	05/11/15 20:36	1

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: B30PJ4 — **Lab Sample ID: 160-11367-2**
Date Collected: 04/15/15 09:59 — **Matrix: Water**
Date Received: 04/16/15 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	3.7	U	10.0	3.7	ug/L		05/04/15 15:37	05/11/15 20:32	1
Arsenic	**2.6**	**B C**	10.0	1.8	ug/L		05/04/15 15:37	05/11/15 20:32	1
Barium	**19.2**	**B**	50.0	2.1	ug/L		05/04/15 15:37	05/11/15 20:32	1
Boron	7.2	U	50.0	7.2	ug/L		05/04/15 15:37	05/11/15 20:32	1
Cadmium	0.34	U	5.0	0.34	ug/L		05/04/15 15:37	05/11/15 20:32	1
Calcium	**31300**		1000	54.2	ug/L		05/04/15 15:37	05/14/15 16:52	1
Chromium	**4.2**	**B**	10.0	3.4	ug/L		05/04/15 15:37	05/14/15 16:52	1
Cobalt	2.7	U	50.0	2.7	ug/L		05/04/15 15:37	05/11/15 20:32	1
Copper	2.1	U	25.0	2.1	ug/L		05/04/15 15:37	05/11/15 20:32	1
Iron	12.8	U	100	12.8	ug/L		05/04/15 15:37	05/11/15 20:32	1
Magnesium	**5980**		1000	50.5	ug/L		05/04/15 15:37	05/14/15 16:52	1
Manganese	**1.0**	**B**	15.0	1.0	ug/L		05/04/15 15:37	05/11/15 20:32	1
Nickel	**4.8**	**B**	40.0	2.6	ug/L		05/04/15 15:37	05/11/15 20:32	1
Potassium	**3630**	**B**	5000	456	ug/L		05/04/15 15:37	05/11/15 20:32	1
Silver	0.99	U	10.0	0.99	ug/L		05/04/15 15:37	05/11/15 20:32	1
Sodium	**4730**		1000	105	ug/L		05/04/15 15:37	05/11/15 20:32	1
Vanadium	**10.5**	**B**	50.0	4.4	ug/L		05/04/15 15:37	05/11/15 20:32	1
Zinc	8.3	U	20.0	8.3	ug/L		05/04/15 15:37	05/11/15 20:32	1

Client Sample ID: B30PH9 — **Lab Sample ID: 160-11367-4**
Date Collected: 04/15/15 09:21 — **Matrix: Water**
Date Received: 04/16/15 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	3.7	U	10.0	3.7	ug/L		05/04/15 15:37	05/11/15 20:40	1
Arsenic	**2.2**	**B C**	10.0	1.8	ug/L		05/04/15 15:37	05/11/15 20:40	1
Barium	**15.2**	**B**	50.0	2.1	ug/L		05/04/15 15:37	05/11/15 20:40	1
Boron	7.2	U	50.0	7.2	ug/L		05/04/15 15:37	05/11/15 20:40	1
Cadmium	0.34	U	5.0	0.34	ug/L		05/04/15 15:37	05/11/15 20:40	1
Calcium	**21800**		1000	54.2	ug/L		05/04/15 15:37	05/14/15 17:00	1
Chromium	3.4	U	10.0	3.4	ug/L		05/04/15 15:37	05/14/15 17:00	1
Cobalt	2.7	U	50.0	2.7	ug/L		05/04/15 15:37	05/11/15 20:40	1
Copper	2.1	U	25.0	2.1	ug/L		05/04/15 15:37	05/11/15 20:40	1
Iron	12.8	U	100	12.8	ug/L		05/04/15 15:37	05/11/15 20:40	1
Magnesium	**4750**		1000	50.5	ug/L		05/04/15 15:37	05/14/15 17:00	1
Manganese	1.0	U	15.0	1.0	ug/L		05/04/15 15:37	05/11/15 20:40	1
Nickel	**2.8**	**B**	40.0	2.6	ug/L		05/04/15 15:37	05/11/15 20:40	1
Potassium	**1580**	**B**	5000	456	ug/L		05/04/15 15:37	05/11/15 20:40	1
Silver	0.99	U	10.0	0.99	ug/L		05/04/15 15:37	05/11/15 20:40	1
Sodium	**2220**		1000	105	ug/L		05/04/15 15:37	05/11/15 20:40	1
Vanadium	**8.0**	**B**	50.0	4.4	ug/L		05/04/15 15:37	05/11/15 20:40	1
Zinc	8.3	U	20.0	8.3	ug/L		05/04/15 15:37	05/11/15 20:40	1

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-11366-1
SDG: SL1788

Method: 6020A - Metals (ICP/MS)

Client Sample ID: B30PJ2
Date Collected: 04/15/15 09:59
Date Received: 04/16/15 09:25

Lab Sample ID: 160-11367-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	17.3	U	30.0	17.3	ug/L		05/04/15 15:42	05/11/15 21:50	2
Antimony	1.7	U	5.0	1.7	ug/L		05/04/15 15:42	05/11/15 21:50	2
Arsenic	**2.1**	**B**	10.0	1.2	ug/L		05/04/15 15:42	05/11/15 21:50	2
Barium	**20.3**		2.0	0.22	ug/L		05/04/15 15:42	05/11/15 21:50	2
Beryllium	0.35	U	0.50	0.35	ug/L		05/04/15 15:42	05/11/15 21:50	2
Cadmium	0.10	U	0.50	0.10	ug/L		05/04/15 15:42	05/11/15 21:50	2
Chromium	**1.4**	**B**	10.0	1.0	ug/L		05/04/15 15:42	05/11/15 21:50	2
Cobalt	0.22	U	2.0	0.22	ug/L		05/04/15 15:42	05/11/15 21:50	2
Copper	0.68	U	1.0	0.68	ug/L		05/04/15 15:42	05/11/15 21:50	2
Lead	0.17	U	3.0	0.17	ug/L		05/04/15 15:42	05/11/15 21:50	2
Manganese	**0.91**	**B**	2.0	0.88	ug/L		05/04/15 15:42	05/11/15 21:50	2
Molybdenum	1.0	U	5.0	1.0	ug/L		05/04/15 15:42	05/11/15 21:50	2
Nickel	0.80	U	5.0	0.80	ug/L		05/04/15 15:42	05/11/15 21:50	2
Selenium	1.6	U	5.0	1.6	ug/L		05/04/15 15:42	05/11/15 21:50	2
Silver	0.82	U	2.0	0.82	ug/L		05/04/15 15:42	05/11/15 21:50	2
Strontium	**132**		5.0	0.060	ug/L		05/04/15 15:42	05/11/15 21:50	2
Thallium	0.55	U	2.0	0.55	ug/L		05/04/15 15:42	05/11/15 21:50	2
Thorium	0.55	U	2.0	0.55	ug/L		05/04/15 15:42	05/11/15 21:50	2
Tin	1.1	U	2.0	1.1	ug/L		05/04/15 15:42	05/11/15 21:50	2
Uranium	**1.1**		1.0	0.23	ug/L		05/04/15 15:42	05/11/15 21:50	2
Zinc	9.3	U	10.0	9.3	ug/L		05/04/15 15:42	05/11/15 21:50	2

Client Sample ID: B30PH4
Date Collected: 04/15/15 09:21
Date Received: 04/16/15 09:25

Lab Sample ID: 160-11367-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**51.8**		30.0	17.3	ug/L		05/04/15 15:42	05/11/15 22:03	2
Antimony	1.7	U	5.0	1.7	ug/L		05/04/15 15:42	05/11/15 22:03	2
Arsenic	1.2	U	10.0	1.2	ug/L		05/04/15 15:42	05/11/15 22:03	2
Barium	**17.4**		2.0	0.22	ug/L		05/04/15 15:42	05/11/15 22:03	2
Beryllium	0.35	U	0.50	0.35	ug/L		05/04/15 15:42	05/11/15 22:03	2
Cadmium	0.10	U	0.50	0.10	ug/L		05/04/15 15:42	05/11/15 22:03	2
Chromium	1.0	U	10.0	1.0	ug/L		05/04/15 15:42	05/11/15 22:03	2
Cobalt	0.22	U	2.0	0.22	ug/L		05/04/15 15:42	05/11/15 22:03	2
Copper	0.68	U	1.0	0.68	ug/L		05/04/15 15:42	05/11/15 22:03	2
Lead	0.17	U	3.0	0.17	ug/L		05/04/15 15:42	05/11/15 22:03	2
Manganese	**2.5**		2.0	0.88	ug/L		05/04/15 15:42	05/11/15 22:03	2
Molybdenum	1.0	U	5.0	1.0	ug/L		05/04/15 15:42	05/11/15 22:03	2
Nickel	0.80	U	5.0	0.80	ug/L		05/04/15 15:42	05/11/15 22:03	2
Selenium	1.6	U	5.0	1.6	ug/L		05/04/15 15:42	05/11/15 22:03	2
Silver	0.82	U	2.0	0.82	ug/L		05/04/15 15:42	05/11/15 22:03	2
Strontium	**83.3**		5.0	0.060	ug/L		05/04/15 15:42	05/11/15 22:03	2
Thallium	0.55	U	2.0	0.55	ug/L		05/04/15 15:42	05/11/15 22:03	2
Thorium	0.55	U	2.0	0.55	ug/L		05/04/15 15:42	05/11/15 22:03	2
Tin	1.1	U	2.0	1.1	ug/L		05/04/15 15:42	05/11/15 22:03	2
Uranium	0.23	U	1.0	0.23	ug/L		05/04/15 15:42	05/11/15 22:03	2
Zinc	**14.1**		10.0	9.3	ug/L		05/04/15 15:42	05/11/15 22:03	2

Client: CH2M Hill Plateau Remediation Company
Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-11366-1
SDG: SL1788

Method: 6020A - Metals (ICP/MS) - Dissolved

Client Sample ID: B30PJ4 — **Lab Sample ID: 160-11367-2**
Date Collected: 04/15/15 09:59 — **Matrix: Water**
Date Received: 04/16/15 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	17.3	U	30.0	17.3	ug/L		05/04/15 15:42	05/11/15 21:57	2
Antimony	1.7	U	5.0	1.7	ug/L		05/04/15 15:42	05/11/15 21:57	2
Arsenic	**1.6**	**B**	10.0	1.2	ug/L		05/04/15 15:42	05/11/15 21:57	2
Barium	**20.6**		2.0	0.22	ug/L		05/04/15 15:42	05/11/15 21:57	2
Beryllium	0.35	U	0.50	0.35	ug/L		05/04/15 15:42	05/11/15 21:57	2
Cadmium	0.10	U	0.50	0.10	ug/L		05/04/15 15:42	05/11/15 21:57	2
Chromium	**1.2**	**B**	10.0	1.0	ug/L		05/04/15 15:42	05/11/15 21:57	2
Cobalt	**0.24**	**B**	2.0	0.22	ug/L		05/04/15 15:42	05/11/15 21:57	2
Copper	0.68	U	1.0	0.68	ug/L		05/04/15 15:42	05/11/15 21:57	2
Lead	0.17	U	3.0	0.17	ug/L		05/04/15 15:42	05/11/15 21:57	2
Manganese	**0.92**	**B**	2.0	0.88	ug/L		05/04/15 15:42	05/11/15 21:57	2
Molybdenum	1.0	U	5.0	1.0	ug/L		05/04/15 15:42	05/11/15 21:57	2
Nickel	0.80	U	5.0	0.80	ug/L		05/04/15 15:42	05/11/15 21:57	2
Selenium	1.6	U	5.0	1.6	ug/L		05/04/15 15:42	05/11/15 21:57	2
Silver	0.82	U	2.0	0.82	ug/L		05/04/15 15:42	05/11/15 21:57	2
Strontium	**135**		5.0	0.060	ug/L		05/04/15 15:42	05/11/15 21:57	2
Thallium	0.55	U	2.0	0.55	ug/L		05/04/15 15:42	05/11/15 21:57	2
Thorium	0.55	U	2.0	0.55	ug/L		05/04/15 15:42	05/11/15 21:57	2
Tin	1.1	U	2.0	1.1	ug/L		05/04/15 15:42	05/11/15 21:57	2
Uranium	**1.2**		1.0	0.23	ug/L		05/04/15 15:42	05/11/15 21:57	2
Zinc	9.3	U	10.0	9.3	ug/L		05/04/15 15:42	05/11/15 21:57	2

Client Sample ID: B30PH9 — **Lab Sample ID: 160-11367-4**
Date Collected: 04/15/15 09:21 — **Matrix: Water**
Date Received: 04/16/15 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	17.3	U	30.0	17.3	ug/L		05/04/15 15:42	05/11/15 22:10	2
Antimony	1.7	U	5.0	1.7	ug/L		05/04/15 15:42	05/11/15 22:10	2
Arsenic	1.2	U	10.0	1.2	ug/L		05/04/15 15:42	05/11/15 22:10	2
Barium	**16.6**		2.0	0.22	ug/L		05/04/15 15:42	05/11/15 22:10	2
Beryllium	0.35	U	0.50	0.35	ug/L		05/04/15 15:42	05/11/15 22:10	2
Cadmium	0.10	U	0.50	0.10	ug/L		05/04/15 15:42	05/11/15 22:10	2
Chromium	1.0	U	10.0	1.0	ug/L		05/04/15 15:42	05/11/15 22:10	2
Cobalt	0.22	U	2.0	0.22	ug/L		05/04/15 15:42	05/11/15 22:10	2
Copper	0.68	U	1.0	0.68	ug/L		05/04/15 15:42	05/11/15 22:10	2
Lead	0.17	U	3.0	0.17	ug/L		05/04/15 15:42	05/11/15 22:10	2
Manganese	0.88	U	2.0	0.88	ug/L		05/04/15 15:42	05/11/15 22:10	2
Molybdenum	1.0	U	5.0	1.0	ug/L		05/04/15 15:42	05/11/15 22:10	2
Nickel	0.80	U	5.0	0.80	ug/L		05/04/15 15:42	05/11/15 22:10	2
Selenium	1.6	U	5.0	1.6	ug/L		05/04/15 15:42	05/11/15 22:10	2
Silver	0.82	U	2.0	0.82	ug/L		05/04/15 15:42	05/11/15 22:10	2
Strontium	**84.5**		5.0	0.060	ug/L		05/04/15 15:42	05/11/15 22:10	2
Thallium	0.55	U	2.0	0.55	ug/L		05/04/15 15:42	05/11/15 22:10	2
Thorium	0.55	U	2.0	0.55	ug/L		05/04/15 15:42	05/11/15 22:10	2
Tin	1.1	U	2.0	1.1	ug/L		05/04/15 15:42	05/11/15 22:10	2
Uranium	0.23	U	1.0	0.23	ug/L		05/04/15 15:42	05/11/15 22:10	2
Zinc	9.3	U	10.0	9.3	ug/L		05/04/15 15:42	05/11/15 22:10	2

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

Lab Sample ID: MB 160-186272/8
Matrix: Water
Analysis Batch: 186272

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	0.070	U	1.0	0.070	ug/L			04/17/15 08:31	1
1,1,2-Trichloroethane	0.15	U	1.0	0.15	ug/L			04/17/15 08:31	1
1,1-Dichloroethane	0.070	U	1.0	0.070	ug/L			04/17/15 08:31	1
1,1-Dichloroethene	0.080	U	1.0	0.080	ug/L			04/17/15 08:31	1
1,2-Dichloroethane	0.10	U	1.0	0.10	ug/L			04/17/15 08:31	1
1,4-Dichlorobenzene	0.12	U	1.0	0.12	ug/L			04/17/15 08:31	1
1-Butanol	12	U	50	12	ug/L			04/17/15 08:31	1
2-Butanone (MEK)	0.52	U	5.0	0.52	ug/L			04/17/15 08:31	1
4-Methyl-2-pentanone (MIBK)	0.12	U	5.0	0.12	ug/L			04/17/15 08:31	1
Acetone	0.34	U	2.0	0.34	ug/L			04/17/15 08:31	1
Benzene	0.060	U	1.0	0.060	ug/L			04/17/15 08:31	1
Carbon disulfide	0.050	U	1.0	0.050	ug/L			04/17/15 08:31	1
Carbon tetrachloride	0.13	U	1.0	0.13	ug/L			04/17/15 08:31	1
Chlorobenzene	0.15	U	1.0	0.15	ug/L			04/17/15 08:31	1
Chloroform	0.10	U	1.0	0.10	ug/L			04/17/15 08:31	1
cis-1,2-Dichloroethylene	0.090	U	1.0	0.090	ug/L			04/17/15 08:31	1
Ethyl Cyanide	1.4	U	10	1.4	ug/L			04/17/15 08:31	1
Ethylbenzene	0.090	U	1.0	0.090	ug/L			04/17/15 08:31	1
Methylene Chloride	0.27	U	1.0	0.27	ug/L			04/17/15 08:31	1
Tetrachloroethene	0.18	U	1.0	0.18	ug/L			04/17/15 08:31	1
Tetrahydrofuran	1.1	U	10	1.1	ug/L			04/17/15 08:31	1
Toluene	0.070	U	1.0	0.070	ug/L			04/17/15 08:31	1
trans-1,2-Dichloroethylene	0.080	U	1.0	0.080	ug/L			04/17/15 08:31	1
Trichloroethene	0.25	U	1.0	0.25	ug/L			04/17/15 08:31	1
Vinyl chloride	0.080	U	2.0	0.080	ug/L			04/17/15 08:31	1
Xylenes, Total	0.20	U	3.0	0.20	ug/L			04/17/15 08:31	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Naphthalene	*0.247*	*J*	*ug/L*		*16.35*	*91-20-3*		*04/17/15 08:31*	*1*
Tentatively Identified Compound	*None*		*ug/L*					*04/17/15 08:31*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 129*		*04/17/15 08:31*	*1*
4-Bromofluorobenzene (Surr)	*110*		*81 - 130*		*04/17/15 08:31*	*1*
Dibromofluoromethane (Surr)	*113*		*81 - 124*		*04/17/15 08:31*	*1*
Toluene-d8 (Surr)	*106*		*87 - 128*		*04/17/15 08:31*	*1*

Lab Sample ID: LCS 160-186272/5
Matrix: Water
Analysis Batch: 186272

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	10.9		ug/L		109	85 - 116
1,1,2-Trichloroethane	10.0	9.43		ug/L		94	80 - 120
1,1-Dichloroethane	10.0	9.48		ug/L		95	80 - 120
1,1-Dichloroethene	10.0	10.0		ug/L		100	80 - 120
1,2-Dichloroethane	10.0	10.0		ug/L		100	80 - 115

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

Lab Sample ID: LCS 160-186272/5
Matrix: Water
Analysis Batch: 186272

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	10.0	9.44		ug/L		94	80 - 120
1-Butanol	250	245		ug/L		98	62 - 128
2-Butanone (MEK)	10.0	9.23		ug/L		92	67 - 127
4-Methyl-2-pentanone (MIBK)	10.0	11.1		ug/L		111	75 - 126
Acetone	10.0	9.08		ug/L		91	69 - 129
Benzene	10.0	9.50		ug/L		95	80 - 120
Carbon disulfide	10.0	9.89		ug/L		99	80 - 121
Carbon tetrachloride	10.0	11.1		ug/L		111	83 - 125
Chlorobenzene	10.0	9.50		ug/L		95	80 - 120
Chloroform	10.0	10.0		ug/L		100	80 - 120
cis-1,2-Dichloroethylene	10.0	9.42		ug/L		94	80 - 120
Ethyl Cyanide	100	95.6		ug/L		96	77 - 121
Ethylbenzene	10.0	9.32		ug/L		93	80 - 120
Methylene Chloride	10.0	8.72		ug/L		87	80 - 120
Tetrachloroethene	10.0	10.4		ug/L		104	83 - 123
Tetrahydrofuran	20.0	17.9		ug/L		89	71 - 124
Toluene	10.0	10.0		ug/L		100	80 - 120
trans-1,2-Dichloroethylene	10.0	9.45		ug/L		95	80 - 120
Trichloroethene	10.0	7.79	O	ug/L		78	80 - 120
Vinyl chloride	10.0	8.49		ug/L		85	77 - 122
Xylenes, Total	20.0	21.1		ug/L		106	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 129*
4-Bromofluorobenzene (Surr)	*103*		*81 - 130*
Dibromofluoromethane (Surr)	*112*		*81 - 124*
Toluene-d8 (Surr)	*105*		*87 - 128*

Lab Sample ID: LCSD 160-186272/6
Matrix: Water
Analysis Batch: 186272

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	10.6		ug/L		106	85 - 116	3	20
1,1,2-Trichloroethane	10.0	9.14		ug/L		91	80 - 120	3	20
1,1-Dichloroethane	10.0	9.40		ug/L		94	80 - 120	1	20
1,1-Dichloroethene	10.0	10.0		ug/L		100	80 - 120	0	20
1,2-Dichloroethane	10.0	9.60		ug/L		96	80 - 115	4	20
1,4-Dichlorobenzene	10.0	9.28		ug/L		93	80 - 120	2	20
1-Butanol	250	227		ug/L		91	62 - 128	8	20
2-Butanone (MEK)	10.0	9.35		ug/L		94	67 - 127	1	20
4-Methyl-2-pentanone (MIBK)	10.0	10.1		ug/L		101	75 - 126	9	20
Acetone	10.0	9.17		ug/L		92	69 - 129	1	20
Benzene	10.0	9.44		ug/L		94	80 - 120	1	20
Carbon disulfide	10.0	9.81		ug/L		98	80 - 121	1	20
Carbon tetrachloride	10.0	11.0		ug/L		110	83 - 125	1	20
Chlorobenzene	10.0	9.32		ug/L		93	80 - 120	2	20
Chloroform	10.0	9.61		ug/L		96	80 - 120	4	20

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

Lab Sample ID: LCSD 160-186272/6
Matrix: Water
Analysis Batch: 186272

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
cis-1,2-Dichloroethylene	10.0	9.40		ug/L		94	80 - 120	0	20
Ethyl Cyanide	100	94.2		ug/L		94	77 - 121	1	20
Ethylbenzene	10.0	9.11		ug/L		91	80 - 120	2	20
Methylene Chloride	10.0	8.67		ug/L		87	80 - 120	1	20
Tetrachloroethene	10.0	10.4		ug/L		104	83 - 123	0	20
Tetrahydrofuran	20.0	18.6		ug/L		93	71 - 124	4	20
Toluene	10.0	10.0		ug/L		100	80 - 120	0	20
trans-1,2-Dichloroethylene	10.0	9.46		ug/L		95	80 - 120	0	20
Trichloroethene	10.0	7.81	O	ug/L		78	80 - 120	0	20
Vinyl chloride	10.0	8.36		ug/L		84	77 - 122	2	20
Xylenes, Total	20.0	21.1		ug/L		106	80 - 120	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 129*
4-Bromofluorobenzene (Surr)	*103*		*81 - 130*
Dibromofluoromethane (Surr)	*108*		*81 - 124*
Toluene-d8 (Surr)	*103*		*87 - 128*

Lab Sample ID: 160-11296-B-1 MS
Matrix: Water
Analysis Batch: 186272

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	0.070	U	10.0	11.1		ug/L		111	82 - 124
1,1,2-Trichloroethane	0.15	U	10.0	9.46		ug/L		95	80 - 120
1,1-Dichloroethane	0.070	U	10.0	9.62		ug/L		96	80 - 122
1,1-Dichloroethene	0.080	U	10.0	10.2		ug/L		102	80 - 120
1,2-Dichloroethane	0.10	U	10.0	10.0		ug/L		100	80 - 120
1,4-Dichlorobenzene	0.12	U	10.0	9.36		ug/L		94	80 - 120
1-Butanol	12	U	250	238		ug/L		95	58 - 144
2-Butanone (MEK)	0.52	U	10.0	9.30		ug/L		93	53 - 145
4-Methyl-2-pentanone (MIBK)	0.12	U	10.0	9.89		ug/L		99	70 - 131
Acetone	0.34	U	10.0	8.59		ug/L		86	50 - 137
Benzene	0.060	U	10.0	9.63		ug/L		96	80 - 120
Carbon disulfide	0.050	U	10.0	10.1		ug/L		101	80 - 121
Carbon tetrachloride	0.13	U	10.0	12.1		ug/L		121	77 - 131
Chlorobenzene	0.15	U	10.0	9.52		ug/L		95	80 - 120
Chloroform	0.60	J	10.0	10.7		ug/L		101	80 - 120
cis-1,2-Dichloroethylene	0.090	U	10.0	9.53		ug/L		95	80 - 120
Ethyl Cyanide	1.4	U	100	97.6		ug/L		98	67 - 141
Ethylbenzene	0.090	U	10.0	9.52		ug/L		95	84 - 125
Methylene Chloride	0.27	U	10.0	8.75		ug/L		87	80 - 120
Tetrachloroethene	0.18	U	10.0	10.7		ug/L		107	80 - 126
Tetrahydrofuran	1.1	U	20.0	18.6		ug/L		93	65 - 136
Toluene	0.070	U	10.0	10.4		ug/L		104	85 - 123
trans-1,2-Dichloroethylene	0.080	U	10.0	9.56		ug/L		96	80 - 120
Trichloroethene	0.25	U O T	10.0	7.89	T	ug/L		79	81 - 125
Vinyl chloride	0.080	U	10.0	8.36		ug/L		84	70 - 129

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

Lab Sample ID: 160-11296-B-1 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 186272

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Xylenes, Total	0.20	U	20.0	21.6		ug/L		108	80 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 129*
4-Bromofluorobenzene (Surr)	*103*		*81 - 130*
Dibromofluoromethane (Surr)	*109*		*81 - 124*
Toluene-d8 (Surr)	*105*		*87 - 128*

Lab Sample ID: 160-11296-C-1 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 186272

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.070	U	10.0	10.8		ug/L		108	82 - 124	3	20
1,1,2-Trichloroethane	0.15	U	10.0	9.96		ug/L		100	80 - 120	5	20
1,1-Dichloroethane	0.070	U	10.0	9.70		ug/L		97	80 - 122	1	20
1,1-Dichloroethene	0.080	U	10.0	9.85		ug/L		98	80 - 120	3	20
1,2-Dichloroethane	0.10	U	10.0	10.3		ug/L		103	80 - 120	2	20
1,4-Dichlorobenzene	0.12	U	10.0	9.46		ug/L		95	80 - 120	1	20
1-Butanol	12	U	250	295		ug/L		118	58 - 144	21	20
2-Butanone (MEK)	0.52	U	10.0	11.4		ug/L		114	53 - 145	20	20
4-Methyl-2-pentanone (MIBK)	0.12	U	10.0	11.6		ug/L		116	70 - 131	16	20
Acetone	0.34	U	10.0	10.4		ug/L		104	50 - 137	19	20
Benzene	0.060	U	10.0	9.78		ug/L		98	80 - 120	2	20
Carbon disulfide	0.050	U	10.0	9.93		ug/L		99	80 - 121	2	20
Carbon tetrachloride	0.13	U	10.0	11.5		ug/L		115	77 - 131	5	20
Chlorobenzene	0.15	U	10.0	9.59		ug/L		96	80 - 120	1	20
Chloroform	0.60	J	10.0	10.2		ug/L		95	80 - 120	5	20
cis-1,2-Dichloroethylene	0.090	U	10.0	9.65		ug/L		96	80 - 120	1	20
Ethyl Cyanide	1.4	U	100	109		ug/L		109	67 - 141	11	20
Ethylbenzene	0.090	U	10.0	8.90		ug/L		89	84 - 125	7	20
Methylene Chloride	0.27	U	10.0	9.22		ug/L		92	80 - 120	5	20
Tetrachloroethene	0.18	U	10.0	10.1		ug/L		101	80 - 126	5	20
Tetrahydrofuran	1.1	U	20.0	22.5		ug/L		113	65 - 136	19	20
Toluene	0.070	U	10.0	9.91		ug/L		99	85 - 123	5	20
trans-1,2-Dichloroethylene	0.080	U	10.0	9.75		ug/L		98	80 - 120	2	20
Trichloroethene	0.25	U O T	10.0	7.65	T	ug/L		77	81 - 125	3	20
Vinyl chloride	0.080	U	10.0	8.50		ug/L		85	70 - 129	2	20
Xylenes, Total	0.20	U	20.0	21.1		ug/L		106	80 - 120	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 129*
4-Bromofluorobenzene (Surr)	*104*		*81 - 130*
Dibromofluoromethane (Surr)	*116*		*81 - 124*
Toluene-d8 (Surr)	*102*		*87 - 128*

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-11366-1
SDG: SL1788

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 160-189224/1-A
Matrix: Water
Analysis Batch: 190412

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 189224

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	3.7	U	10.0	3.7	ug/L		05/04/15 15:37	05/11/15 19:34	1
Arsenic	2.00	B	10.0	1.8	ug/L		05/04/15 15:37	05/11/15 19:34	1
Barium	2.1	U	50.0	2.1	ug/L		05/04/15 15:37	05/11/15 19:34	1
Boron	7.2	U	50.0	7.2	ug/L		05/04/15 15:37	05/11/15 19:34	1
Cadmium	0.34	U	5.0	0.34	ug/L		05/04/15 15:37	05/11/15 19:34	1
Calcium	54.2	U	1000	54.2	ug/L		05/04/15 15:37	05/11/15 19:34	1
Cobalt	2.7	U	50.0	2.7	ug/L		05/04/15 15:37	05/11/15 19:34	1
Copper	2.1	U	25.0	2.1	ug/L		05/04/15 15:37	05/11/15 19:34	1
Iron	12.8	U	100	12.8	ug/L		05/04/15 15:37	05/11/15 19:34	1
Magnesium	50.5	U	1000	50.5	ug/L		05/04/15 15:37	05/11/15 19:34	1
Manganese	1.0	U	15.0	1.0	ug/L		05/04/15 15:37	05/11/15 19:34	1
Nickel	2.6	U	40.0	2.6	ug/L		05/04/15 15:37	05/11/15 19:34	1
Potassium	456	U	5000	456	ug/L		05/04/15 15:37	05/11/15 19:34	1
Silver	0.99	U	10.0	0.99	ug/L		05/04/15 15:37	05/11/15 19:34	1
Sodium	105	U	1000	105	ug/L		05/04/15 15:37	05/11/15 19:34	1
Vanadium	4.4	U	50.0	4.4	ug/L		05/04/15 15:37	05/11/15 19:34	1
Zinc	8.3	U	20.0	8.3	ug/L		05/04/15 15:37	05/11/15 19:34	1

Lab Sample ID: LCS 160-189224/2-A
Matrix: Water
Analysis Batch: 190412

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 189224

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	500	505.0		ug/L		101	80 - 120
Arsenic	1000	1010		ug/L		101	80 - 120
Barium	1000	1079		ug/L		108	80 - 120
Boron	2000	1937		ug/L		97	80 - 120
Cadmium	1000	1020		ug/L		102	80 - 120
Calcium	10000	11080		ug/L		111	80 - 120
Cobalt	1000	1076		ug/L		108	80 - 120
Copper	1000	1062		ug/L		106	80 - 120
Iron	10000	10040		ug/L		100	80 - 120
Magnesium	10000	9104		ug/L		91	80 - 120
Manganese	1000	991.5		ug/L		99	80 - 120
Nickel	1000	1064		ug/L		106	80 - 120
Potassium	10000	10410		ug/L		104	80 - 120
Silver	200	203.4		ug/L		102	80 - 120
Sodium	10000	10930		ug/L		109	80 - 120
Vanadium	1000	991.2		ug/L		99	80 - 120
Zinc	1000	1045		ug/L		105	80 - 120

Lab Sample ID: 160-11367-4 MS
Matrix: Water
Analysis Batch: 190412

Client Sample ID: B30PH9
Prep Type: Dissolved
Prep Batch: 189224

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	3.7	U	500	548.6		ug/L		110	75 - 125
Arsenic	2.2	B C	1000	1154		ug/L		115	75 - 125

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 160-11367-4 MS — **Client Sample ID: B30PH9**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 190412 — **Prep Batch: 189224**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	15.2	B	1000	1009		ug/L		99	75 - 125
Boron	7.2	U	2000	2053		ug/L		103	75 - 125
Cadmium	0.34	U	1000	1124		ug/L		112	75 - 125
Cobalt	2.7	U	1000	1212		ug/L		121	75 - 125
Copper	2.1	U	1000	1112		ug/L		111	75 - 125
Iron	12.8	U	10000	11550		ug/L		116	75 - 125
Manganese	1.0	U	1000	1117		ug/L		112	75 - 125
Nickel	2.8	B	1000	1217		ug/L		121	75 - 125
Potassium	1580	B	10000	11570		ug/L		100	75 - 125
Silver	0.99	U	200	214.5		ug/L		107	75 - 125
Sodium	2220		10000	12060		ug/L		98	75 - 125
Vanadium	8.0	B	1000	1096		ug/L		109	75 - 125
Zinc	8.3	U	1000	1172		ug/L		117	75 - 125

Lab Sample ID: 160-11367-4 MS — **Client Sample ID: B30PH9**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 190830 — **Prep Batch: 189224**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	21800		10000	31250		ug/L		94	75 - 125
Chromium	3.4	U	1000	1073		ug/L		107	75 - 125
Magnesium	4750		10000	14130		ug/L		94	75 - 125

Lab Sample ID: 160-11367-4 MSD — **Client Sample ID: B30PH9**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 190412 — **Prep Batch: 189224**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	3.7	U	500	560.0		ug/L		112	75 - 125	2	20
Arsenic	2.2	B C	1000	1186		ug/L		118	75 - 125	3	20
Barium	15.2	B	1000	973.5		ug/L		96	75 - 125	4	20
Boron	7.2	U	2000	2015		ug/L		101	75 - 125	2	20
Cadmium	0.34	U	1000	1145		ug/L		115	75 - 125	2	20
Cobalt	2.7	U	1000	1233		ug/L		123	75 - 125	2	20
Copper	2.1	U	1000	1127		ug/L		113	75 - 125	1	20
Iron	12.8	U	10000	11410		ug/L		114	75 - 125	1	20
Manganese	1.0	U	1000	1102		ug/L		110	75 - 125	1	20
Nickel	2.8	B	1000	1242		ug/L		124	75 - 125	2	20
Potassium	1580	B	10000	11310		ug/L		97	75 - 125	2	20
Silver	0.99	U	200	215.1		ug/L		108	75 - 125	0	20
Sodium	2220		10000	11690		ug/L		95	75 - 125	3	20
Vanadium	8.0	B	1000	1088		ug/L		108	75 - 125	1	20
Zinc	8.3	U	1000	1199		ug/L		120	75 - 125	2	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 160-11367-4 MSD — **Client Sample ID: B30PH9**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 190830 — **Prep Batch: 189224**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	21800		10000	30260		ug/L		84	75 - 125	3	20
Chromium	3.4	U	1000	1057		ug/L		106	75 - 125	2	20
Magnesium	4750		10000	14120		ug/L		94	75 - 125	0	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-189226/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 190419 — **Prep Batch: 189226**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	17.3	U	30.0	17.3	ug/L		05/04/15 15:42	05/11/15 21:09	2
Antimony	1.7	U	5.0	1.7	ug/L		05/04/15 15:42	05/11/15 21:09	2
Arsenic	1.2	U	10.0	1.2	ug/L		05/04/15 15:42	05/11/15 21:09	2
Barium	0.22	U	2.0	0.22	ug/L		05/04/15 15:42	05/11/15 21:09	2
Beryllium	0.35	U	0.50	0.35	ug/L		05/04/15 15:42	05/11/15 21:09	2
Cadmium	0.10	U	0.50	0.10	ug/L		05/04/15 15:42	05/11/15 21:09	2
Chromium	1.0	U	10.0	1.0	ug/L		05/04/15 15:42	05/11/15 21:09	2
Cobalt	0.22	U	2.0	0.22	ug/L		05/04/15 15:42	05/11/15 21:09	2
Copper	0.68	U	1.0	0.68	ug/L		05/04/15 15:42	05/11/15 21:09	2
Lead	0.17	U	3.0	0.17	ug/L		05/04/15 15:42	05/11/15 21:09	2
Manganese	0.88	U	2.0	0.88	ug/L		05/04/15 15:42	05/11/15 21:09	2
Molybdenum	1.0	U	5.0	1.0	ug/L		05/04/15 15:42	05/11/15 21:09	2
Nickel	0.80	U	5.0	0.80	ug/L		05/04/15 15:42	05/11/15 21:09	2
Selenium	1.6	U	5.0	1.6	ug/L		05/04/15 15:42	05/11/15 21:09	2
Silver	0.82	U	2.0	0.82	ug/L		05/04/15 15:42	05/11/15 21:09	2
Strontium	0.060	U	5.0	0.060	ug/L		05/04/15 15:42	05/11/15 21:09	2
Thallium	0.55	U	2.0	0.55	ug/L		05/04/15 15:42	05/11/15 21:09	2
Thorium	0.55	U	2.0	0.55	ug/L		05/04/15 15:42	05/11/15 21:09	2
Tin	1.1	U	2.0	1.1	ug/L		05/04/15 15:42	05/11/15 21:09	2
Uranium	0.23	U	1.0	0.23	ug/L		05/04/15 15:42	05/11/15 21:09	2
Zinc	9.3	U	10.0	9.3	ug/L		05/04/15 15:42	05/11/15 21:09	2

Lab Sample ID: LCS 160-189226/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 190569 — **Prep Batch: 189226**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10000	9875		ug/L		99	80 - 120
Antimony	500	492.3		ug/L		98	80 - 120
Arsenic	1000	995.2		ug/L		100	80 - 120
Barium	1000	1048		ug/L		105	80 - 120
Beryllium	1000	1056		ug/L		106	80 - 120
Cadmium	1000	1024		ug/L		102	80 - 120
Chromium	1000	1041		ug/L		104	80 - 120
Cobalt	1000	1025		ug/L		102	80 - 120
Copper	1000	1039		ug/L		104	80 - 120
Lead	1000	981.4		ug/L		98	80 - 120

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 160-189226/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 190569 — **Prep Batch: 189226**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	1000	1005		ug/L		100	80 - 120
Molybdenum	500	500.6		ug/L		100	80 - 120
Nickel	1000	1001		ug/L		100	80 - 120
Selenium	500	475.2		ug/L		95	80 - 120
Silver	200	205.3		ug/L		103	80 - 120
Strontium	1000	968.5		ug/L		97	80 - 120
Thallium	200	204.5		ug/L		102	80 - 120
Thorium	1000	979.0		ug/L		98	80 - 120
Tin	1000	970.3		ug/L		97	80 - 120
Uranium	1000	986.0		ug/L		99	80 - 120
Zinc	1000	961.5		ug/L		96	80 - 120

Lab Sample ID: 160-11367-4 MS — **Client Sample ID: B30PH9**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 190419 — **Prep Batch: 189226**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	17.3	U	10000	10100		ug/L		101	75 - 125
Antimony	1.7	U	500	517.2		ug/L		103	75 - 125
Arsenic	1.2	U	1000	1009		ug/L		101	75 - 125
Barium	16.6		1000	1092		ug/L		108	75 - 125
Beryllium	0.35	U	1000	897.7		ug/L		90	75 - 125
Cadmium	0.10	U	1000	1087		ug/L		109	75 - 125
Chromium	1.0	U	1000	1075		ug/L		108	75 - 125
Cobalt	0.22	U	1000	1048		ug/L		105	75 - 125
Copper	0.68	U	1000	1081		ug/L		108	75 - 125
Lead	0.17	U	1000	1031		ug/L		103	75 - 125
Manganese	0.88	U	1000	1016		ug/L		102	75 - 125
Molybdenum	1.0	U	500	564.0		ug/L		113	75 - 125
Nickel	0.80	U	1000	1002		ug/L		100	75 - 125
Selenium	1.6	U	500	501.2		ug/L		100	75 - 125
Silver	0.82	U	200	214.2		ug/L		107	75 - 125
Strontium	84.5		1000	1136		ug/L		105	75 - 125
Thallium	0.55	U	200	222.3		ug/L		111	75 - 125
Thorium	0.55	U	1000	1051		ug/L		105	75 - 125
Tin	1.1	U	1000	1026		ug/L		103	75 - 125
Uranium	0.23	U	1000	1040		ug/L		104	75 - 125
Zinc	9.3	U	1000	988.9		ug/L		99	75 - 125

Lab Sample ID: 160-11367-4 MSD — **Client Sample ID: B30PH9**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 190419 — **Prep Batch: 189226**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	17.3	U	10000	10010		ug/L		100	75 - 125	1	20
Antimony	1.7	U	500	511.7		ug/L		102	75 - 125	1	20
Arsenic	1.2	U	1000	1021		ug/L		102	75 - 125	1	20
Barium	16.6		1000	1084		ug/L		107	75 - 125	1	20
Beryllium	0.35	U	1000	1064		ug/L		106	75 - 125	17	20

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-11366-1
SDG: SL1788

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 160-11367-4 MSD
Matrix: Water
Analysis Batch: 190419

Client Sample ID: B30PH9
Prep Type: Dissolved
Prep Batch: 189226

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	0.10	U	1000	1082		ug/L		108	75 - 125	0	20
Chromium	1.0	U	1000	1071		ug/L		107	75 - 125	0	20
Cobalt	0.22	U	1000	1036		ug/L		104	75 - 125	1	20
Copper	0.68	U	1000	1082		ug/L		108	75 - 125	0	20
Lead	0.17	U	1000	1021		ug/L		102	75 - 125	1	20
Manganese	0.88	U	1000	1012		ug/L		101	75 - 125	0	20
Molybdenum	1.0	U	500	553.6		ug/L		111	75 - 125	2	20
Nickel	0.80	U	1000	985.1		ug/L		99	75 - 125	2	20
Selenium	1.6	U	500	500.7		ug/L		100	75 - 125	0	20
Silver	0.82	U	200	211.4		ug/L		106	75 - 125	1	20
Strontium	84.5		1000	1132		ug/L		105	75 - 125	0	20
Thallium	0.55	U	200	218.3		ug/L		109	75 - 125	2	20
Thorium	0.55	U	1000	1042		ug/L		104	75 - 125	1	20
Tin	1.1	U	1000	1012		ug/L		101	75 - 125	1	20
Uranium	0.23	U	1000	1041		ug/L		104	75 - 125	0	20
Zinc	9.3	U	1000	989.5		ug/L		99	75 - 125	0	20

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-11366-1
SDG: SL1788

GC/MS VOA

Analysis Batch: 186272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11296-B-1 MS	Matrix Spike	Total/NA	Water	8260C	
160-11296-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C	
160-11366-1	B2Y4D0	Total/NA	Water	8260C	
160-11367-1	B30PJ2	Total/NA	Water	8260C	
160-11367-3	B30PH4	Total/NA	Water	8260C	
LCS 160-186272/5	Lab Control Sample	Total/NA	Water	8260C	
LCSD 160-186272/6	Lab Control Sample Dup	Total/NA	Water	8260C	
MB 160-186272/8	Method Blank	Total/NA	Water	8260C	

Metals

Prep Batch: 189224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11367-1	B30PJ2	Total/NA	Water	3010A	
160-11367-2	B30PJ4	Dissolved	Water	3010A	
160-11367-3	B30PH4	Total/NA	Water	3010A	
160-11367-4	B30PH9	Dissolved	Water	3010A	
160-11367-4 MS	B30PH9	Dissolved	Water	3010A	
160-11367-4 MSD	B30PH9	Dissolved	Water	3010A	
LCS 160-189224/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 160-189224/1-A	Method Blank	Total/NA	Water	3010A	

Prep Batch: 189226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11367-1	B30PJ2	Total/NA	Water	3010A	
160-11367-2	B30PJ4	Dissolved	Water	3010A	
160-11367-3	B30PH4	Total/NA	Water	3010A	
160-11367-4	B30PH9	Dissolved	Water	3010A	
160-11367-4 MS	B30PH9	Dissolved	Water	3010A	
160-11367-4 MSD	B30PH9	Dissolved	Water	3010A	
LCS 160-189226/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 160-189226/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 190412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11367-1	B30PJ2	Total/NA	Water	6010C	189224
160-11367-2	B30PJ4	Dissolved	Water	6010C	189224
160-11367-3	B30PH4	Total/NA	Water	6010C	189224
160-11367-4	B30PH9	Dissolved	Water	6010C	189224
160-11367-4 MS	B30PH9	Dissolved	Water	6010C	189224
160-11367-4 MSD	B30PH9	Dissolved	Water	6010C	189224
LCS 160-189224/2-A	Lab Control Sample	Total/NA	Water	6010C	189224
MB 160-189224/1-A	Method Blank	Total/NA	Water	6010C	189224

Analysis Batch: 190419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11367-1	B30PJ2	Total/NA	Water	6020A	189226
160-11367-2	B30PJ4	Dissolved	Water	6020A	189226
160-11367-3	B30PH4	Total/NA	Water	6020A	189226
160-11367-4	B30PH9	Dissolved	Water	6020A	189226

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-11366-1
SDG: SL1788

Metals (Continued)

Analysis Batch: 190419 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11367-4 MS	B30PH9	Dissolved	Water	6020A	189226
160-11367-4 MSD	B30PH9	Dissolved	Water	6020A	189226
MB 160-189226/1-A	Method Blank	Total/NA	Water	6020A	189226

Analysis Batch: 190569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 160-189226/2-A	Lab Control Sample	Total/NA	Water	6020A	189226

Analysis Batch: 190830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11367-1	B30PJ2	Total/NA	Water	6010C	189224
160-11367-2	B30PJ4	Dissolved	Water	6010C	189224
160-11367-3	B30PH4	Total/NA	Water	6010C	189224
160-11367-4	B30PH9	Dissolved	Water	6010C	189224
160-11367-4 MS	B30PH9	Dissolved	Water	6010C	189224
160-11367-4 MSD	B30PH9	Dissolved	Water	6010C	189224

Surrogate Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-11366-1
SDG: SL1788

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	DBFM	TOL
Lab Sample ID	**Client Sample ID**	**(75-129)**	**(81-130)**	**(81-124)**	**(87-128)**
160-11296-B-1 MS	Matrix Spike	104	103	109	105
160-11296-C-1 MSD	Matrix Spike Duplicate	105	104	116	102
160-11366-1	B2Y4D0	112	112	116	107
160-11367-1	B30PJ2	114	109	113	107
160-11367-3	B30PH4	117	113	116	109
LCS 160-186272/5	Lab Control Sample	105	103	112	105
LCSD 160-186272/6	Lab Control Sample Dup	96	103	108	103
MB 160-186272/8	Method Blank	103	110	113	106

Surrogate Legend

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