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: 160-23692-1
TestAmerica Sample Delivery Group: SL2612
Client Project/Site: F17-009

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

Attn: Mr. Scot Fitzgerald

Authorized for release by:
8/29/2017 4:01:31 PM

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

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Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

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Job ID: 160-23692-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2MHill Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352
August 29, 2017
Attention: Scot Fitzgerald

SDG	: SL2612
Number of Samples	: 2 samples
Sample Matrix	: Soil / 1 Water Extraction
Data Deliverable	: Summary
Date SDG Closed	: August 2, 2017

II. Introduction

On August 2, 2 samples were received by TestAmerica - St. Louis for 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: F17-009

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 non-conformance in the sections below.

Job ID: 160-23692-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

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/radiochemistry analyses, the sample result is greater than the MDL/MDC but less than the RL.
- **B** - For organic analyses, Method Blank contamination. The Method Blank contains the target analyte above the MDL/RL and Method Blank is greater than 5% of the sample concentration.
- **B** - For inorganics and radiochemistry, Method Blank reported above the MDC/MDL.
- **J** - For organic analyses, the sample is estimated and less than the RL. If on Method Blank, indicates Method Blank contamination.
- **C** - For inorganics and radiochemistry analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL/RL and Method Blank concentration is greater than 5% of the sample concentration.
- **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.

Water Extraction

As per client request, the following soil sample is to be prepared and analyzed as a water extraction necessitating a DI-prep to be performed. Sample was prepped at 1:1 ratio in a 1L poly container. Sample was then shaken by hand to break up any large soil clumps before placing on a shaker table for 15 minutes. Sample was then allowed to settle for 1 hour before decanting the supernatant into a new 500 mL poly container. After preparation sample was made available to the lab for analysis. B3BMX4 (160-23692-2)

Semivolatiles

Batch: 323867

The continuing calibration verification (CCV) associated with batch 160-323867 recovered above the upper control limit for the surrogate nitrobenzene-d5. Nitrobenzene-d5 surrogate recovery was within control limit in all associated QC and samples; therefore, the data have been reported. The following samples are impacted: B3BMX3 (160-23692-3), (CCV 160-323867/4), (CCVIS 160-323867/3), (LCS 160-322064/2-A), (MB 160-322064/1-A), (160-23692-C-3-C MS) and (160-23692-C-3-D MSD).

ICP Metals

Batch: 324641

Client: CH2M Hill Plateau Remediation Company
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Laboratory: TestAmerica St. Louis (Continued)

Due to the high concentration of Silicon, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 160-323863 and analytical batch 160-324641 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria. (160-23692-A-2-B MS ^) and (160-23692-A-2-C MSD)

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 160-323863 and analytical batch 160-324641 were outside control limits for Aluminum. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (160-23692-A-2-B MS ^) and (160-23692-A-2-C MSD) This analyte has been qualified accordingly with an "N" flag in the associated samples.

The following samples were diluted due to the nature of the sample matrix: (160-23692-A-2-B MS ^) and (160-23692-A-2-C MSD). Because of this dilution, the surrogate spike and matrix spike concentration for Potassium in the sample was reduced to a level where the recovery calculation does not provide useful information. These analytes have been qualified accordingly with a "D" flag in the associated samples.

The following samples were diluted to bring the concentration of target analytes within the calibration range: B3BMX4 (160-23692-2), (160-23692-A-2-B MS ^), (160-23692-A-2-C MSD) and (160-23692-A-2-A SD ^). Elevated reporting limits (RLs) are provided. These analytes have been qualified accordingly with a "D" flag in the associated samples.

ICPMS Metals

Batch: 324640

The recovery for the CCB bracketing the method blank and LCS was outside the upper QC limit for Copper indicating a potential high bias. The method blank was below the MDL/RL; no further action is required. (CCB 160-324640/14)

Due to the high concentration of Manganese and Aluminum, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 160-323939 and analytical batch 160-324640 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria. (160-23692-D-3-I MS) and (160-23692-D-3-J MSD)

The following samples were diluted due to the nature of the sample matrix. Samples are high in salts which can cause instrument and QC failures when ran at a lesser dilution: B3BMX3 (160-23692-3), (160-23692-D-3-I MS), (160-23692-D-3-J MSD) and (160-23692-D-3-H SD). Elevated reporting limits (RLs) are provided. These analytes have been qualified accordingly with a "D" flag in the associated samples.

Batch: 323903

The following samples were diluted due to the nature of the sample matrix. Samples are high in salts which can cause instrument and QC failures when ran at a lesser dilution. : B3BMX3 (160-23692-3), (160-23591-A-1-D), (160-23591-A-1-E MS), (160-23591-A-1-F MSD) and (160-23591-A-1-D SD). Elevated reporting limits (RLs) are provided. This analyte has been qualified accordingly with a "D" flag in the associated samples.

Ammonia as N

Batch: 321814

The following matrix spike (MS) recoveries for Ammonia preparation batch 160-321695 and analytical batch 160-321814 were outside control limits: (160-23370-C-1-F MS). Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. This analyte has been qualified accordingly with an "N" flag in the associated samples.

Conductivity

Batch: 324424

Specific Conductance was detected in method blank MB 160-324424/2 at a level that was above the method detection limit but below the

Job ID: 160-23692-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

reporting limit. 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 MB is greater than 5% the sample concentration, the result has been flagged “C”.

TOC

Batch: 321701

The following sample in TOC soil analytical batch 160-321701 was analyzed at a reduced aliquot (2x) due to suspected high concentrations of the target analytes: B3BMX4 (160-23692-1) The TOC results are above the adjusted reporting limits (RLs). This analyte has been qualified accordingly with a "D" flag in the associated samples.

The RPD value for analytical batch 160-321701 was outside established QC limits. RPD determinations are not applicable to results near the reporting limit; therefore, the data has been reported.

Batch: 321358

The following samples in TOC batch 160-321358 were analyzed without a duplicate (DU) or a matrix spike (MS) in the batch in order to limit the number of reps performed on these samples (and thereby protect the instrument), due to these leachates containing some suspended solids that would not settle: B3BMX4 (160-23692-2) To demonstrate acceptable duplication in the batch, a laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) were analyzed and both recovered within acceptance limits.

The following samples in TOC batch 160-321358 were analyzed at dilution to start, based on suspected high concentrations of the target analyte and to limit the volume of sample analyzed, due to suspended solids in the leachates:B3BMX4 (160-23692-2) All sample results are above the adjusted reporting limit (RL) at dilution. This analyte has been qualified with a "D" flag in the associated samples.

TIC

Batch: 321477

The following samples in TIC batch 160-321477 were analyzed at dilution to start, based on suspected high concentrations of the target analyte and to limit the volume of sample analyzed, due to suspended solids in the leachates:B3BMX4 (160-23692-2) All sample results are above the adjusted reporting limit (RL) at dilution. This analyte has been qualified accordingly with a "D" flag in the associated samples.

The following samples in TIC batch 160-321477 were analyzed without a duplicate (DU) or a matrix spike (MS) in the batch in order to limit the number of reps performed on these samples (and thereby protect the instrument), due to these leachates containing some suspended solids that would not settle:B3BMX4 (160-23692-2) To demonstrate acceptable duplication in the batch, a laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) were analyzed and both recovered within acceptance limits.

There were no observations or non-conformances associated with the following methods:

DRO
Mercury
Total Cyanide
pH

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:

Case Narrative

Job ID: 160-23692-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Jayna Awalt
St. Louis Project Manager

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-23692-1
SDG Number: SL2612

Login Number: 23692
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.	N/A	
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	2.3
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F17-009-702	PAGE 1 OF 1
COLLECTOR P. Brice SL2612	COMPANY CONTACT FITZGERALD, SL	TELEPHONE NO. 373-7495	PROJECT COORDINATOR FITZGERALD, SL	PRICE CODE 8H AIR QUALITY ☐	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION C9497, Core 44, B39M20	PROJECT DESIGNATION 200-DV-1 Operable Unit Characterization of Waste Sites Sampling - Soil 20		SAF NO. F17-009		
ICE CHEST NO. NA	FIELD LOGBOOK NO. NA	ACTUAL SAMPLE DEPTH 260.0-261.2	COA 302632	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO TestAmerica St. Louis	OFFSITE PROPERTY NO. NA		BILL OF LADING/AIR BILL NO.		

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

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 HANDLING AND/OR STORAGE
NA

PRESERVATION	Cool <=6C	None	Cool <=6C	None	Cool <=6C	Cool <=6C
HOLDING TIME	28 Days	6 Months	28 Days	ASAP	28 Days	28 Days
TYPE OF CONTAINER	aG	P	G/P	G/P	aG	aG
NO. OF CONTAINER(S)	1	1	1	1	1	1
VOLUME	120mL	~~60mL~~ 4oz 7/25/17 AOH	250mL	~~60mL~~ 4oz 7/25/17 AOH	120mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	9060_TIC_WE: COMMON {Total Inorganic Carbon};	9060_TOC_WE: COMMON {Total organic carbon};

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B3BMX4	SOIL	7/31/17	1500	X	X	X	X	X	X

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Patrick Brice [signature] PBS	7/31/17 1500	GTL Refrigerator RJ Lee	7/31/17 1500
GTL Refrigerator RJ Lee	8/1/17 0845	Jen Russell [signature] PBS	8/1/17 0845
Jen Russell [signature] PBS	8/1/17 0920	A Rogers, TARI [signature]	8/1/17 0920
[signature] TAUR	8-1-17/1430	FEDEX	8-1-17
FedEx		[signature] Jill Clark	8-2-17 0900

SPECIAL INSTRUCTIONS
TRVL-17-175; ** All Cations, TIC and TOC requesting Water Extraction (WE) shall use a 1:1 ratio.
(1) 9060_TIC: COMMON {Total Inorganic Carbon}; 9060_TOC: COMMON {Total organic carbon};
(2) 6010_METALS_ICP_WE: COMMON {Aluminum, Barium, Calcium, Chromium, Iron, Magnesium, Manganese, Potassium, Silicon, Sodium};
(3) 9050_CONDUCTIVITY_WE: COMMON {Specific Conductance};
(4) 9045_pH (Non-Aqueous)_WE: COMMON {pH Measurement};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 6/28/2017 FSR ID = FSR47555 TRVL NUM = TRVL-17-175 A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F17-009-701	PAGE 1 OF 1
COLLECTOR P. Brice SL2612	**COMPANY CONTACT** FITZGERALD, SL	**TELEPHONE NO.** 373-7495	**PROJECT COORDINATOR** FITZGERALD, SL	**PRICE CODE** 8H	**DATA TURNAROUND**
SAMPLING LOCATION C9497, Core 44, B39M20	**PROJECT DESIGNATION** 200-DV-1 Operable Unit Characterization of Waste Sites Sampling - Soil 20		**SAF NO.** F17-009	**AIR QUALITY** ☐	30 Days / 30 Days
ICE CHEST NO. NA	**FIELD LOGBOOK NO.** NA	**ACTUAL SAMPLE DEPTH** 260.0-261.2	**COA** 302632	**METHOD OF SHIPMENT** FEDERAL EXPRESS	ORIGINAL
SHIPPED TO TestAmerica St. Louis	**OFFSITE PROPERTY NO.** NA		**BILL OF LADING/AIR BILL NO.**		

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

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 HANDLING AND/OR STORAGE
NA

PRESERVATION	Cool <=6C	Cool <=6C	Cool <=6C	Cool <=6C
HOLDING TIME	14/40 Days	14/40 Days	28 Days	28 Days
TYPE OF CONTAINER	Gs	aG	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	~~120mL~~ 4oz 7/25/17 AOM	120mL	250mL	~~60mL~~ 4oz 7/25/17 AOM
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	WTPH_KEROSENE: COMMON;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	350.1_AMMONIA: COMMON; 9012_CYANIDE: COMMON;
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**				
B3BMX3	SOIL	7/31/17	1500	X	X	X	X

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CHAIN OF POSSESSION	SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	**DATE/TIME**	**RECEIVED BY/STORED IN**	**DATE/TIME**
Patrick Brice PBS	7/31/17 1500	GTL Refrigerator RJLee	7/31/17 1500
GTL Refrigerator RJLee	8/1/17 0845	JenRussell JenRussell PBS	8/1/17 0845
JenRussell JenRussell PBS	8/1/17 0920	A. Rogers, TARL	8/1/17 0920
Jack Bock TARL	8-1-17/1430	FED EX	8-1-17
FedEx		Jill Clarke Jill Clarke	8.2.17 0800

SPECIAL INSTRUCTIONS
TRVL-17-175
(1) 8270_SVOA_GCMS: COMMON (Add-on) {Tributyl phosphate};
(2) 7471_MERCURY_CV: COMMON (SOLIDS); 6020_METALS_ICPMS: COMMON {Aluminum, Barium, Cadmium, Chromium, Copper, Lead, Selenium}; 6020_METALS_ICPMS: COMMON (Add-on) {Antimony, Arsenic, Manganese, Nickel, Silver, Uranium};

LABORATORY SECTION	**RECEIVED BY**	**TITLE**	**DATE/TIME**
FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**	**DISPOSED BY**	**DATE/TIME**

PRINTED ON 6/28/2017 **FSR ID = FSR47555** **TRVL NUM = TRVL-17-175** A-6003-618 (REV 2)

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REV.0

IMPORTANT!
FedEx is closely monitoring the wildfires in California. Learn More

FedEx ® Tracking

779788366940

Ship date:
Tue 8/01/2017

RICHLAND, WA US

Delivered
Signed for by: J.CLARKE

Actual delivery:
Wed 8/02/2017 8:46 am

EARTH CITY, MO US

Travel History

Date/Time	Activity	Location
- 8/02/2017 - Wednesday		
8:46 am	Delivered	EARTH CITY, MO
8:35 am	On FedEx vehicle for delivery	EARTH CITY, MO
6:54 am	At local FedEx facility	EARTH CITY, MO
5:20 am	At destination sort facility	BERKELEY, MO
4:33 am	Departed FedEx location	MEMPHIS, TN
12:19 am	Arrived at FedEx location	MEMPHIS, TN
- 8/01/2017 - Tuesday		
4:49 pm	Shipment information sent to FedEx	
4:40 pm	Left FedEx origin facility	PASCO, WA
3:16 pm	Picked up	PASCO, WA

Shipment Facts

Tracking number	779788366940	**Service**	FedEx Standard Overnight
Weight	19 lbs / 8.62 kgs	**Delivered To**	Shipping/Receiving
Total pieces	1	**Total shipment weight**	19 lbs / 8.62 kgs
Terms	Recipient	**Shipper reference**	ch2mhill
Packaging	Your Packaging	**Special handling section**	Deliver Weekday, Additional Handling Surcharge
Standard transit	8/02/2017 by 3:00 pm		

Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.

Metals

Qualifier	Qualifier Description
D	The reported value is from a dilution.
N	Recovery exceeds upper or lower control limits
B	Estimated result. Result is less than the RL, but greater than MDL
U	Analyzed for but not detected.
X	See case narrative notes for explanation of the 'X' flag

General Chemistry

Qualifier	Qualifier Description
N	MS, MSD: Spike recovery is outside acceptance limits.
B	Estimated result. Result is less than the RL, but greater than MDL
y	Duplicate analysis not within control limits.
D	The reported value is from a dilution.
U	Analyzed for but not detected.

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: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Method	Method Description	Protocol	Laboratory
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SL
8015B	Diesel Range Organics (DRO) (GC)	SW846	TAL SL
6010C	Metals (ICP)	SW846	TAL SL
6020A	Metals (ICP/MS)	SW846	TAL SL
7471B	Mercury (CVAA)	SW846	TAL SL
350.1	Nitrogen, Ammonia	MCAWW	TAL SL
9012B	Cyanide, Total andor Amenable	SW846	TAL SL
9040C	pH	SW846	TAL SL
9050A	Specific Conductance	SW846	TAL SL
9060	Total Inorganic Carbon	SW846	TAL SL
9060	Organic Carbon, Total (TOC)	SW846	TAL SL
9060	Carbon, Total and Total Inorganic	SW846	TAL SL
Moisture	Percent Moisture	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-23692-1	B3BMX4	Soil	07/31/17 15:00	08/02/17 09:00
160-23692-2	B3BMX4	Water	07/31/17 15:00	08/02/17 09:00
160-23692-3	B3BMX3	Soil	07/31/17 15:00	08/02/17 09:00

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: B3BMX3
Date Collected: 07/31/17 15:00
Date Received: 08/02/17 09:00

Lab Sample ID: 160-23692-3
Matrix: Soil
Percent Solids: 89.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyl phosphate	51	U	370	51	ug/Kg	☼	08/14/17 10:21	08/24/17 00:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*77*		*47 - 125*	*08/14/17 10:21*	*08/24/17 00:16*	*1*
2-Fluorobiphenyl (Surr)	*84*		*59 - 110*	*08/14/17 10:21*	*08/24/17 00:16*	*1*
2-Fluorophenol (Surr)	*82*		*54 - 102*	*08/14/17 10:21*	*08/24/17 00:16*	*1*
Nitrobenzene-d5 (Surr)	*94*		*44 - 120*	*08/14/17 10:21*	*08/24/17 00:16*	*1*
Phenol-d5 (Surr)	*80*		*51 - 104*	*08/14/17 10:21*	*08/24/17 00:16*	*1*
Terphenyl-d14 (Surr)	*90*		*59 - 98*	*08/14/17 10:21*	*08/24/17 00:16*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: B3BMX3
Date Collected: 07/31/17 15:00
Date Received: 08/02/17 09:00

Lab Sample ID: 160-23692-3
Matrix: Soil
Percent Solids: 89.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Kerosene (C9-C16)	2.7	U	28	2.7	mg/Kg	☼	08/14/17 11:57	08/24/17 01:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*79*		*49 - 133*	*08/14/17 11:57*	*08/24/17 01:39*	*1*

Method: 6010C - Metals (ICP)

Client Sample ID: B3BMX4
Date Collected: 07/31/17 15:00
Date Received: 08/02/17 09:00

Lab Sample ID: 160-23692-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**21700**	**N D**	2000	500	ug/L		08/23/17 14:19	08/25/17 13:27	10
Barium	**256**	**B D**	500	150	ug/L		08/23/17 14:19	08/25/17 13:27	10
Calcium	**14300**	**D**	10000	3000	ug/L		08/23/17 14:19	08/25/17 13:27	10
Chromium	**33.0**	**B D**	100	30.0	ug/L		08/23/17 14:19	08/25/17 13:27	10
Iron	**28500**	**D**	1000	300	ug/L		08/23/17 14:19	08/25/17 13:27	10
Magnesium	**7060**	**B D**	10000	3000	ug/L		08/23/17 14:19	08/25/17 13:27	10
Manganese	**465**	**D**	150	40.0	ug/L		08/23/17 14:19	08/25/17 13:27	10
Potassium	15000	U D	50000	15000	ug/L		08/23/17 14:19	08/25/17 13:27	10
Silicon	**50900**	**D**	4000	1250	ug/L		08/23/17 14:19	08/25/17 13:27	10
Sodium	**61100**	**D**	10000	3000	ug/L		08/23/17 14:19	08/25/17 13:27	10

Method: 6020A - Metals (ICP/MS)

Client Sample ID: B3BMX3
Date Collected: 07/31/17 15:00
Date Received: 08/02/17 09:00

Lab Sample ID: 160-23692-3
Matrix: Soil
Percent Solids: 89.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**7040**	**D**	13.4	5.4	mg/Kg	☼	08/24/17 10:06	08/26/17 02:43	5
Antimony	1.0	U D	2.6	1.0	mg/Kg	☼	08/22/17 12:27	08/23/17 18:25	10
Arsenic	**2.0**	**B D**	2.7	1.1	mg/Kg	☼	08/24/17 10:06	08/26/17 02:43	5
Barium	**92.7**	**D**	5.4	1.3	mg/Kg	☼	08/24/17 10:06	08/26/17 02:43	5
Cadmium	**0.067**	**B D**	0.13	0.064	mg/Kg	☼	08/24/17 10:06	08/26/17 02:43	5
Chromium	**37.2**	**D**	2.7	1.2	mg/Kg	☼	08/24/17 10:06	08/26/17 02:43	5

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

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

Client Sample ID: B3BMX3 — **Lab Sample ID: 160-23692-3**
Date Collected: 07/31/17 15:00 — **Matrix: Soil**
Date Received: 08/02/17 09:00 — **Percent Solids: 89.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	**20.2**	**D**	2.7	1.1	mg/Kg	☼	08/24/17 10:06	08/26/17 02:43	5
Lead	**2.9**	**D**	0.80	0.33	mg/Kg	☼	08/24/17 10:06	08/26/17 02:43	5
Manganese	**394**	**D N**	1.3	0.54	mg/Kg	☼	08/24/17 10:06	08/26/17 02:43	5
Nickel	**13.2**	**D**	1.3	0.54	mg/Kg	☼	08/24/17 10:06	08/26/17 02:43	5
Selenium	0.86	U D	1.3	0.86	mg/Kg	☼	08/24/17 10:06	08/26/17 02:43	5
Silver	0.20	U D	0.54	0.20	mg/Kg	☼	08/24/17 10:06	08/26/17 02:43	5
Uranium	**0.61**	**D**	0.27	0.11	mg/Kg	☼	08/24/17 10:06	08/26/17 02:43	5

Method: 7471B - Mercury (CVAA)

Client Sample ID: B3BMX3 — **Lab Sample ID: 160-23692-3**
Date Collected: 07/31/17 15:00 — **Matrix: Soil**
Date Received: 08/02/17 09:00 — **Percent Solids: 89.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.011	U	0.032	0.011	mg/Kg	☼	08/09/17 15:03	08/10/17 17:30	1

General Chemistry

Client Sample ID: B3BMX4 — **Lab Sample ID: 160-23692-1**
Date Collected: 07/31/17 15:00 — **Matrix: Soil**
Date Received: 08/02/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Inorganic Carbon	**48.0**	**B**	100	33.4	mg/Kg			08/11/17 13:57	1

Client Sample ID: B3BMX4 — **Lab Sample ID: 160-23692-2**
Date Collected: 07/31/17 15:00 — **Matrix: Water**
Date Received: 08/02/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**8.76**		0.100	0.100	SU			08/15/17 23:22	1
Specific Conductance	**366**		1.00	0.0970	uS/cm			08/25/17 22:59	1

Client Sample ID: B3BMX3 — **Lab Sample ID: 160-23692-3**
Date Collected: 07/31/17 15:00 — **Matrix: Soil**
Date Received: 08/02/17 09:00 — **Percent Solids: 89.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	**3.5**	**N**	0.56	0.25	mg/Kg	☼	08/10/17 16:50	08/11/17 12:17	1
Cyanide, Total	0.12	U	0.56	0.12	mg/Kg	☼	08/14/17 13:50	08/14/17 18:07	1

General Chemistry - DL

Client Sample ID: B3BMX4 — **Lab Sample ID: 160-23692-1**
Date Collected: 07/31/17 15:00 — **Matrix: Soil**
Date Received: 08/02/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**594**	**D**	200	66.8	mg/Kg		08/09/17 17:39	08/10/17 19:36	2

Client Sample ID: B3BMX4 — **Lab Sample ID: 160-23692-2**
Date Collected: 07/31/17 15:00 — **Matrix: Water**
Date Received: 08/02/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Inorganic Carbon	**21.3**	**D**	10.0	5.0	mg/L			08/08/17 20:52	10

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

General Chemistry - DL (Continued)

Client Sample ID: B3BMX4
Date Collected: 07/31/17 15:00
Date Received: 08/02/17 09:00

Lab Sample ID: 160-23692-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	68.0	D	10.0	5.0	mg/L			08/08/17 11:29	10

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 160-322064/1-A
Matrix: Solid
Analysis Batch: 323867

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 322064

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyl phosphate	46	U	330	46	ug/Kg		08/14/17 10:21	08/23/17 23:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*61*		*47 - 125*	*08/14/17 10:21*	*08/23/17 23:07*	*1*
2-Fluorobiphenyl (Surr)	*85*		*59 - 110*	*08/14/17 10:21*	*08/23/17 23:07*	*1*
2-Fluorophenol (Surr)	*80*		*54 - 102*	*08/14/17 10:21*	*08/23/17 23:07*	*1*
Nitrobenzene-d5 (Surr)	*91*		*44 - 120*	*08/14/17 10:21*	*08/23/17 23:07*	*1*
Phenol-d5 (Surr)	*78*		*51 - 104*	*08/14/17 10:21*	*08/23/17 23:07*	*1*
Terphenyl-d14 (Surr)	*93*		*59 - 98*	*08/14/17 10:21*	*08/23/17 23:07*	*1*

Lab Sample ID: LCS 160-322064/2-A
Matrix: Solid
Analysis Batch: 323867

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 322064

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tributyl phosphate	3330	2670		ug/Kg		80	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*80*		*47 - 125*
2-Fluorobiphenyl (Surr)	*88*		*59 - 110*
2-Fluorophenol (Surr)	*87*		*54 - 102*
Nitrobenzene-d5 (Surr)	*97*		*44 - 120*
Phenol-d5 (Surr)	*84*		*51 - 104*
Terphenyl-d14 (Surr)	*89*		*59 - 98*

Lab Sample ID: 160-23692-3 MS
Matrix: Soil
Analysis Batch: 323867

Client Sample ID: B3BMX3
Prep Type: Total/NA
Prep Batch: 322064

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Tributyl phosphate	51	U	3710	3350		ug/Kg	☼	90	50 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*88*		*47 - 125*
2-Fluorobiphenyl (Surr)	*85*		*59 - 110*
2-Fluorophenol (Surr)	*82*		*54 - 102*
Nitrobenzene-d5 (Surr)	*92*		*44 - 120*
Phenol-d5 (Surr)	*83*		*51 - 104*
Terphenyl-d14 (Surr)	*93*		*59 - 98*

Lab Sample ID: 160-23692-3 MSD
Matrix: Soil
Analysis Batch: 323867

Client Sample ID: B3BMX3
Prep Type: Total/NA
Prep Batch: 322064

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tributyl phosphate	51	U	3720	3680		ug/Kg	☼	99	50 - 150	9	30

TestAmerica St. Louis

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 160-23692-3 MSD
Matrix: Soil
Analysis Batch: 323867

Client Sample ID: B3BMX3
Prep Type: Total/NA
Prep Batch: 322064

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*87*		*47 - 125*
2-Fluorobiphenyl (Surr)	*90*		*59 - 110*
2-Fluorophenol (Surr)	*87*		*54 - 102*
Nitrobenzene-d5 (Surr)	*101*		*44 - 120*
Phenol-d5 (Surr)	*87*		*51 - 104*
Terphenyl-d14 (Surr)	*93*		*59 - 98*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 160-322092/1-A
Matrix: Solid
Analysis Batch: 323871

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 322092

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Kerosene (C9-C16)	2.4	U	25	2.4	mg/Kg		08/14/17 11:57	08/24/17 00:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*93*		*49 - 133*	*08/14/17 11:57*	*08/24/17 00:46*	*1*

Lab Sample ID: LCS 160-322092/2-A
Matrix: Solid
Analysis Batch: 323871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 322092

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	83.3	58.7		mg/Kg		70	57 - 105

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*85*		*49 - 133*

Lab Sample ID: 160-23692-3 MS
Matrix: Soil
Analysis Batch: 323871

Client Sample ID: B3BMX3
Prep Type: Total/NA
Prep Batch: 322092

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	2.7	U	92.6	65.3		mg/Kg	☼	71	34 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl	*80*		*49 - 133*

Lab Sample ID: 160-23692-3 MSD
Matrix: Soil
Analysis Batch: 323871

Client Sample ID: B3BMX3
Prep Type: Total/NA
Prep Batch: 322092

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	2.7	U	92.6	79.3		mg/Kg	☼	86	34 - 150	19	30

TestAmerica St. Louis

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl	97		49 - 133

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 160-323863/1-A
Matrix: Water
Analysis Batch: 324641

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 323863

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	50.0	U	200	50.0	ug/L		08/23/17 14:19	08/25/17 13:18	1
Barium	15.0	U	50.0	15.0	ug/L		08/23/17 14:19	08/25/17 13:18	1
Calcium	300	U	1000	300	ug/L		08/23/17 14:19	08/25/17 13:18	1
Chromium	3.0	U	10.0	3.0	ug/L		08/23/17 14:19	08/25/17 13:18	1
Iron	30.0	U	100	30.0	ug/L		08/23/17 14:19	08/25/17 13:18	1
Magnesium	300	U	1000	300	ug/L		08/23/17 14:19	08/25/17 13:18	1
Manganese	4.0	U	15.0	4.0	ug/L		08/23/17 14:19	08/25/17 13:18	1
Potassium	1500	U	5000	1500	ug/L		08/23/17 14:19	08/25/17 13:18	1
Silicon	125	U	400	125	ug/L		08/23/17 14:19	08/25/17 13:18	1
Sodium	300	U	1000	300	ug/L		08/23/17 14:19	08/25/17 13:18	1

Lab Sample ID: LCS 160-323863/2-A
Matrix: Water
Analysis Batch: 324641

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 323863

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10000	9777		ug/L		98	80 - 120
Barium	1000	979.4		ug/L		98	80 - 120
Calcium	10000	9756		ug/L		98	80 - 120
Chromium	1000	941.6		ug/L		94	80 - 120
Iron	10000	9938		ug/L		99	80 - 120
Magnesium	10000	9824		ug/L		98	80 - 120
Manganese	1000	998.4		ug/L		100	80 - 120
Potassium	10000	9351		ug/L		94	80 - 120
Silicon	5000	4660		ug/L		93	80 - 120
Sodium	10000	9568		ug/L		96	80 - 120

Lab Sample ID: 160-23692-2 MS
Matrix: Water
Analysis Batch: 324641

Client Sample ID: B3BMX4
Prep Type: Total/NA
Prep Batch: 323863

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	21700	N D	10000	36280	D N	ug/L		145	75 - 125
Barium	256	B D	1000	1298	D	ug/L		104	75 - 125
Calcium	14300	D	10000	24050	D	ug/L		97	75 - 125
Chromium	33.0	B D	1000	979.0	D	ug/L		95	75 - 125
Iron	28500	D	10000	39130	D	ug/L		106	75 - 125
Magnesium	7060	B D	10000	17380	D	ug/L		103	75 - 125
Manganese	465	D	1000	1507	D	ug/L		104	75 - 125
Potassium	15000	U D	10000	20600	B D	ug/L		NC	75 - 125
Silicon	50900	D	5000	63540	X D	ug/L		252	75 - 125
Sodium	61100	D	10000	71810	X D	ug/L		107	75 - 125

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

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

Lab Sample ID: 160-23692-2 MSD — **Client Sample ID: B3BMX4**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 324641 — **Prep Batch: 323863**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	21700	N D	10000	35070	N D	ug/L		133	75 - 125	3	20
Barium	256	B D	1000	1274	D	ug/L		102	75 - 125	2	20
Calcium	14300	D	10000	24910	D	ug/L		106	75 - 125	4	20
Chromium	33.0	B D	1000	1010	D	ug/L		98	75 - 125	3	20
Iron	28500	D	10000	38870	D	ug/L		104	75 - 125	1	20
Magnesium	7060	B D	10000	16910	D	ug/L		99	75 - 125	3	20
Manganese	465	D	1000	1479	D	ug/L		101	75 - 125	2	20
Potassium	15000	U D	10000	20340	B D	ug/L		NC	75 - 125	1	20
Silicon	50900	D	5000	62640	X D	ug/L		234	75 - 125	1	20
Sodium	61100	D	10000	71270	X D	ug/L		102	75 - 125	1	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-322978/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 323903 — **Prep Batch: 322978**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.19	U D	0.48	0.19	mg/Kg		08/18/17 09:44	08/23/17 17:23	2

Lab Sample ID: LCS 160-322978/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 323903 — **Prep Batch: 322978**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	48.0	45.41	D	mg/Kg		95	21 - 251

Lab Sample ID: 160-23591-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 323903 — **Prep Batch: 322978**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.96	U D	48.6	47.92	D	mg/Kg	☼	99	75 - 125

Lab Sample ID: 160-23591-A-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 323903 — **Prep Batch: 322978**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.96	U D	46.3	45.19	D	mg/Kg	☼	98	75 - 125	6	30

Lab Sample ID: MB 160-323939/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 324640 — **Prep Batch: 323939**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1.8	U D	4.5	1.8	mg/Kg		08/24/17 10:06	08/26/17 02:02	2
Arsenic	0.36	U D	0.90	0.36	mg/Kg		08/24/17 10:06	08/26/17 02:02	2
Barium	0.45	U D	1.8	0.45	mg/Kg		08/24/17 10:06	08/26/17 02:02	2

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

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

Lab Sample ID: MB 160-323939/1-A
Matrix: Solid
Analysis Batch: 324640

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 323939

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.022	U D	0.045	0.022	mg/Kg		08/24/17 10:06	08/26/17 02:02	2
Chromium	0.40	U D	0.90	0.40	mg/Kg		08/24/17 10:06	08/26/17 02:02	2
Copper	0.36	U D	0.90	0.36	mg/Kg		08/24/17 10:06	08/26/17 02:02	2
Lead	0.11	U D	0.27	0.11	mg/Kg		08/24/17 10:06	08/26/17 02:02	2
Manganese	0.18	U D	0.45	0.18	mg/Kg		08/24/17 10:06	08/26/17 02:02	2
Nickel	0.18	U D	0.45	0.18	mg/Kg		08/24/17 10:06	08/26/17 02:02	2
Selenium	0.29	U D	0.45	0.29	mg/Kg		08/24/17 10:06	08/26/17 02:02	2
Silver	0.067	U D	0.18	0.067	mg/Kg		08/24/17 10:06	08/26/17 02:02	2
Uranium	0.036	U D	0.090	0.036	mg/Kg		08/24/17 10:06	08/26/17 02:02	2

Lab Sample ID: LCS 160-323939/2-A
Matrix: Solid
Analysis Batch: 324640

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 323939

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	88.6	82.03	D	mg/Kg		93	80 - 120

Lab Sample ID: LCSSRM 160-323939/3-A
Matrix: Solid
Analysis Batch: 324640

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 323939

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	8080	6383	D	mg/Kg		79.0	39.6 - 160.9
Arsenic	145	143.9	D	mg/Kg		99.3	70.3 - 136.6
Barium	209	194.5	D	mg/Kg		93.1	73.7 - 126.8
Cadmium	87.6	83.01	D	mg/Kg		94.8	73.3 - 126.7
Chromium	143	129.2	D	mg/Kg		90.4	69.9 - 129.4
Copper	173	175.4	D	mg/Kg		101.4	75.1 - 124.3
Lead	146	140.8	D	mg/Kg		96.5	73.3 - 126.7
Manganese	309	313.1	D	mg/Kg		101.3	74.8 - 125.2
Nickel	129	128.9	D	mg/Kg		99.9	73.0 - 127.1
Selenium	178	180.6	D	mg/Kg		101.5	68.0 - 131.5
Silver	31.3	30.19	D	mg/Kg		96.5	65.2 - 134.5

Lab Sample ID: 160-23692-3 MS
Matrix: Soil
Analysis Batch: 324640

Client Sample ID: B3BMX3
Prep Type: Total/NA
Prep Batch: 323939

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	7040	D	1080	10800	D X	mg/Kg	☼	349	75 - 125
Arsenic	2.0	B D	108	101.7	D	mg/Kg	☼	93	75 - 125

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

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

Lab Sample ID: 160-23692-3 MS
Matrix: Soil
Analysis Batch: 324640

Client Sample ID: B3BMX3
Prep Type: Total/NA
Prep Batch: 323939

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	92.7	D	108	208.5	D	mg/Kg	☼	108	75 - 125
Cadmium	0.067	B D	108	96.92	D	mg/Kg	☼	90	75 - 125
Chromium	37.2	D	108	139.1	D	mg/Kg	☼	95	75 - 125
Copper	20.2	D	108	125.6	D	mg/Kg	☼	98	75 - 125
Lead	2.9	D	108	102.3	D	mg/Kg	☼	92	75 - 125
Manganese	394	D N	108	577.2	D N	mg/Kg	☼	170	75 - 125
Nickel	13.2	D	108	116.8	D	mg/Kg	☼	96	75 - 125
Selenium	0.86	U D	53.8	50.76	D	mg/Kg	☼	94	75 - 125
Silver	0.20	U D	21.5	19.65	D	mg/Kg	☼	91	75 - 125
Uranium	0.61	D	108	100.3	D	mg/Kg	☼	93	75 - 125

Lab Sample ID: 160-23692-3 MSD
Matrix: Soil
Analysis Batch: 324640

Client Sample ID: B3BMX3
Prep Type: Total/NA
Prep Batch: 323939

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	7040	D	979	10420	D X	mg/Kg	☼	345	75 - 125	4	30
Arsenic	2.0	B D	97.9	94.35	D	mg/Kg	☼	94	75 - 125	8	30
Barium	92.7	D	97.9	199.7	D	mg/Kg	☼	109	75 - 125	4	30
Cadmium	0.067	B D	97.8	89.32	D	mg/Kg	☼	91	75 - 125	8	30
Chromium	37.2	D	97.9	126.7	D	mg/Kg	☼	91	75 - 125	9	30
Copper	20.2	D	97.9	114.7	D	mg/Kg	☼	97	75 - 125	9	30
Lead	2.9	D	97.9	93.27	D	mg/Kg	☼	92	75 - 125	9	30
Manganese	394	D N	97.9	534.4	D X	mg/Kg	☼	143	75 - 125	8	30
Nickel	13.2	D	97.9	106.4	D	mg/Kg	☼	95	75 - 125	9	30
Selenium	0.86	U D	48.9	45.39	D	mg/Kg	☼	93	75 - 125	11	30
Silver	0.20	U D	19.6	18.06	D	mg/Kg	☼	92	75 - 125	8	30
Uranium	0.61	D	97.9	91.74	D	mg/Kg	☼	93	75 - 125	9	30

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 160-321525/1-A
Matrix: Solid
Analysis Batch: 321806

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 321525

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.010	U	0.031	0.010	mg/Kg		08/09/17 15:02	08/10/17 17:16	1

Lab Sample ID: LCSSRM 160-321525/2-A
Matrix: Solid
Analysis Batch: 321806

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 321525

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	9.36	7.51	D	mg/Kg		80.3	51.3 - 148.5

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Method: 7471B - Mercury (CVAA) (Continued)

Lab Sample ID: 160-23640-A-1-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 321806 — **Prep Batch: 321525**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0098	U	0.786	0.749		mg/Kg	☼	95	80 - 120

Lab Sample ID: 160-23640-A-1-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 321806 — **Prep Batch: 321525**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0098	U	0.808	0.773		mg/Kg	☼	96	80 - 120	3	30

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 160-321695/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 321814 — **Prep Batch: 321695**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	0.22	U	0.50	0.22	mg/Kg		08/10/17 16:50	08/10/17 18:28	1

Lab Sample ID: LCS 160-321695/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 321814 — **Prep Batch: 321695**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	5.00	5.01		mg/Kg		100	90 - 110

Lab Sample ID: 160-23370-C-1-F MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 321814 — **Prep Batch: 321695**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	0.64	N	5.08	7.48	N	mg/Kg	☼	135	90 - 110

Lab Sample ID: 160-23370-C-1-E DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 321814 — **Prep Batch: 321695**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ammonia (as N)	0.64	N	0.699		mg/Kg	☼	9	30

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 160-322100/25-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 322272 — **Prep Batch: 322100**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.11	U	0.50	0.11	mg/Kg		08/14/17 13:50	08/14/17 17:56	1

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Method: 9012B - Cyanide, Total andor Amenable (Continued)

Lab Sample ID: HLCS 160-322100/27-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 322272 — **Prep Batch: 322100**

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	4.80	4.76		mg/Kg		99	85 - 115

Lab Sample ID: LCS 160-322100/26-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 322272 — **Prep Batch: 322100**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	2.40	2.39		mg/Kg		99	85 - 115

Lab Sample ID: 160-23692-3 MS — **Client Sample ID: B3BMX3**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 322272 — **Prep Batch: 322100**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.12	U	2.65	2.72		mg/Kg	☼	103	60 - 130

Lab Sample ID: 160-23692-3 DU — **Client Sample ID: B3BMX3**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 322272 — **Prep Batch: 322100**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cyanide, Total	0.12	U	0.12	U	mg/Kg	☼	NC	30

Method: 9040C - pH

Lab Sample ID: LCS 160-322337/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 322337

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.000		SU		100	99.0 - 101.0

Lab Sample ID: 160-23692-2 DU — **Client Sample ID: B3BMX4**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 322337

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	8.76		8.730		SU		0.3	5

Method: 9050A - Specific Conductance

Lab Sample ID: MB 160-324424/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 324424

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	0.350	B	1.00	0.0970	uS/cm			08/25/17 22:56	1

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Method: 9050A - Specific Conductance (Continued)

Lab Sample ID: LCS 160-324424/3
Matrix: Water
Analysis Batch: 324424

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Specific Conductance	500	500.0		uS/cm		100	85 - 115

Lab Sample ID: 160-23692-2 MS
Matrix: Water
Analysis Batch: 324424

Client Sample ID: B3BMX4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Specific Conductance	366		1410	1812		uS/cm		102	75 - 125

Lab Sample ID: 160-23692-2 DU
Matrix: Water
Analysis Batch: 324424

Client Sample ID: B3BMX4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	366		366.0		uS/cm		0	20

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 160-321358/64
Matrix: Water
Analysis Batch: 321358

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.50	U	1.0	0.50	mg/L			08/08/17 05:16	1

Lab Sample ID: LCS 160-321358/65
Matrix: Water
Analysis Batch: 321358

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.84		mg/L		98	90 - 110

Lab Sample ID: LCSD 160-321358/66
Matrix: Water
Analysis Batch: 321358

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
Total Organic Carbon	10.0	9.78		mg/L		98	90 - 110	1	20

Lab Sample ID: MB 160-321534/8-A
Matrix: Solid
Analysis Batch: 321701

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 321534

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	33.4	U	100	33.4	mg/Kg		08/09/17 17:39	08/10/17 18:48	1

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Method: 9060 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 160-321534/9-A
Matrix: Solid
Analysis Batch: 321701

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 321534

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			6180	5337		mg/Kg		86	49 - 117		

Lab Sample ID: 160-23370-D-6-F MS
Matrix: Solid
Analysis Batch: 321701

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 321534

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	84.5	B y	1000	1030		mg/Kg		95	50 - 150		

Lab Sample ID: 160-23370-D-6-E DU
Matrix: Solid
Analysis Batch: 321701

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 321534

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Organic Carbon	84.5	B y		34.77	B y	mg/Kg				83	30

Method: 9060 - Carbon, Total and Total Inorganic

Lab Sample ID: MB 160-321477/4
Matrix: Water
Analysis Batch: 321477

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Inorganic Carbon	0.50	U	1.0	0.50	mg/L			08/08/17 19:11	1

Lab Sample ID: LCS 160-321477/5
Matrix: Water
Analysis Batch: 321477

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Inorganic Carbon			10.0	10.29		mg/L		103	85 - 129		

Lab Sample ID: LCSD 160-321477/6
Matrix: Water
Analysis Batch: 321477

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
Total Inorganic Carbon			10.0	10.45		mg/L		104	85 - 129	2	20

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

GC/MS Semi VOA

Prep Batch: 322064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	3550C	
MB 160-322064/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 160-322064/2-A	Lab Control Sample	Total/NA	Solid	3550C	
160-23692-3 MS	B3BMX3	Total/NA	Soil	3550C	
160-23692-3 MSD	B3BMX3	Total/NA	Soil	3550C	

Analysis Batch: 323867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	8270D	322064
MB 160-322064/1-A	Method Blank	Total/NA	Solid	8270D	322064
LCS 160-322064/2-A	Lab Control Sample	Total/NA	Solid	8270D	322064
160-23692-3 MS	B3BMX3	Total/NA	Soil	8270D	322064
160-23692-3 MSD	B3BMX3	Total/NA	Soil	8270D	322064

GC Semi VOA

Prep Batch: 322092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	3550C	
MB 160-322092/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 160-322092/2-A	Lab Control Sample	Total/NA	Solid	3550C	
160-23692-3 MS	B3BMX3	Total/NA	Soil	3550C	
160-23692-3 MSD	B3BMX3	Total/NA	Soil	3550C	

Analysis Batch: 323871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	8015B	322092
MB 160-322092/1-A	Method Blank	Total/NA	Solid	8015B	322092
LCS 160-322092/2-A	Lab Control Sample	Total/NA	Solid	8015B	322092
160-23692-3 MS	B3BMX3	Total/NA	Soil	8015B	322092
160-23692-3 MSD	B3BMX3	Total/NA	Soil	8015B	322092

Metals

Prep Batch: 321525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	7471B	
MB 160-321525/1-A	Method Blank	Total/NA	Solid	7471B	
LCSSRM 160-321525/2-A	Lab Control Sample	Total/NA	Solid	7471B	
160-23640-A-1-B MS	Matrix Spike	Total/NA	Solid	7471B	
160-23640-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	7471B	

Analysis Batch: 321806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	7471B	321525
MB 160-321525/1-A	Method Blank	Total/NA	Solid	7471B	321525
LCSSRM 160-321525/2-A	Lab Control Sample	Total/NA	Solid	7471B	321525
160-23640-A-1-B MS	Matrix Spike	Total/NA	Solid	7471B	321525
160-23640-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	7471B	321525

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Metals (Continued)

Prep Batch: 322978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	3050B-Sb	
MB 160-322978/1-A	Method Blank	Total/NA	Solid	3050B-Sb	
LCS 160-322978/2-A	Lab Control Sample	Total/NA	Solid	3050B-Sb	
160-23591-A-1-E MS	Matrix Spike	Total/NA	Solid	3050B-Sb	
160-23591-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B-Sb	

Prep Batch: 323863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-2	B3BMX4	Total/NA	Water	3010A	
MB 160-323863/1-A	Method Blank	Total/NA	Water	3010A	
LCS 160-323863/2-A	Lab Control Sample	Total/NA	Water	3010A	
160-23692-2 MS	B3BMX4	Total/NA	Water	3010A	
160-23692-2 MSD	B3BMX4	Total/NA	Water	3010A	

Analysis Batch: 323903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	6020A	322978
MB 160-322978/1-A	Method Blank	Total/NA	Solid	6020A	322978
LCS 160-322978/2-A	Lab Control Sample	Total/NA	Solid	6020A	322978
160-23591-A-1-E MS	Matrix Spike	Total/NA	Solid	6020A	322978
160-23591-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	6020A	322978

Prep Batch: 323939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	3050B	
MB 160-323939/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 160-323939/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSSRM 160-323939/3-A	Lab Control Sample	Total/NA	Solid	3050B	
160-23692-3 MS	B3BMX3	Total/NA	Soil	3050B	
160-23692-3 MSD	B3BMX3	Total/NA	Soil	3050B	

Analysis Batch: 324640

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	6020A	323939
MB 160-323939/1-A	Method Blank	Total/NA	Solid	6020A	323939
LCS 160-323939/2-A	Lab Control Sample	Total/NA	Solid	6020A	323939
LCSSRM 160-323939/3-A	Lab Control Sample	Total/NA	Solid	6020A	323939
160-23692-3 MS	B3BMX3	Total/NA	Soil	6020A	323939
160-23692-3 MSD	B3BMX3	Total/NA	Soil	6020A	323939

Analysis Batch: 324641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-2	B3BMX4	Total/NA	Water	6010C	323863
MB 160-323863/1-A	Method Blank	Total/NA	Water	6010C	323863
LCS 160-323863/2-A	Lab Control Sample	Total/NA	Water	6010C	323863
160-23692-2 MS	B3BMX4	Total/NA	Water	6010C	323863
160-23692-2 MSD	B3BMX4	Total/NA	Water	6010C	323863

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

General Chemistry

Analysis Batch: 320685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-1	B3BMX4	Total/NA	Soil	Moisture	
160-23692-3	B3BMX3	Total/NA	Soil	Moisture	
160-23727-C-1 DU	Duplicate	Total/NA	Solid	Moisture	

Analysis Batch: 321358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-2 - DL	B3BMX4	Total/NA	Water	9060	
MB 160-321358/64	Method Blank	Total/NA	Water	9060	
LCS 160-321358/65	Lab Control Sample	Total/NA	Water	9060	
LCSD 160-321358/66	Lab Control Sample Dup	Total/NA	Water	9060	

Analysis Batch: 321477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-2 - DL	B3BMX4	Total/NA	Water	9060	
MB 160-321477/4	Method Blank	Total/NA	Water	9060	
LCS 160-321477/5	Lab Control Sample	Total/NA	Water	9060	
LCSD 160-321477/6	Lab Control Sample Dup	Total/NA	Water	9060	

Prep Batch: 321534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-1 - DL	B3BMX4	Total/NA	Soil	None	
MB 160-321534/8-A	Method Blank	Total/NA	Solid	None	
LCS 160-321534/9-A	Lab Control Sample	Total/NA	Solid	None	
160-23370-D-6-F MS	Matrix Spike	Total/NA	Solid	None	
160-23370-D-6-E DU	Duplicate	Total/NA	Solid	None	

Prep Batch: 321695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	DILeach_Prep	
MB 160-321695/1-A	Method Blank	Total/NA	Solid	DILeach_Prep	
LCS 160-321695/2-A	Lab Control Sample	Total/NA	Solid	DILeach_Prep	
160-23370-C-1-F MS	Matrix Spike	Total/NA	Solid	DILeach_Prep	
160-23370-C-1-E DU	Duplicate	Total/NA	Solid	DILeach_Prep	

Analysis Batch: 321701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-1 - DL	B3BMX4	Total/NA	Soil	9060	321534
MB 160-321534/8-A	Method Blank	Total/NA	Solid	9060	321534
LCS 160-321534/9-A	Lab Control Sample	Total/NA	Solid	9060	321534
160-23370-D-6-F MS	Matrix Spike	Total/NA	Solid	9060	321534
160-23370-D-6-E DU	Duplicate	Total/NA	Solid	9060	321534

Analysis Batch: 321814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	350.1	321695
MB 160-321695/1-A	Method Blank	Total/NA	Solid	350.1	321695
LCS 160-321695/2-A	Lab Control Sample	Total/NA	Solid	350.1	321695
160-23370-C-1-F MS	Matrix Spike	Total/NA	Solid	350.1	321695
160-23370-C-1-E DU	Duplicate	Total/NA	Solid	350.1	321695

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

General Chemistry (Continued)

Analysis Batch: 321841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-1	B3BMX4	Total/NA	Soil	9060	

Prep Batch: 322100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	9010C	
MB 160-322100/25-A	Method Blank	Total/NA	Solid	9010C	
HLCS 160-322100/27-A	Lab Control Sample	Total/NA	Solid	9010C	
LCS 160-322100/26-A	Lab Control Sample	Total/NA	Solid	9010C	
160-23692-3 MS	B3BMX3	Total/NA	Soil	9010C	
160-23692-3 DU	B3BMX3	Total/NA	Soil	9010C	

Analysis Batch: 322272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-3	B3BMX3	Total/NA	Soil	9012B	322100
MB 160-322100/25-A	Method Blank	Total/NA	Solid	9012B	322100
HLCS 160-322100/27-A	Lab Control Sample	Total/NA	Solid	9012B	322100
LCS 160-322100/26-A	Lab Control Sample	Total/NA	Solid	9012B	322100
160-23692-3 MS	B3BMX3	Total/NA	Soil	9012B	322100
160-23692-3 DU	B3BMX3	Total/NA	Soil	9012B	322100

Analysis Batch: 322337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-2	B3BMX4	Total/NA	Water	9040C	
LCS 160-322337/5	Lab Control Sample	Total/NA	Water	9040C	
160-23692-2 DU	B3BMX4	Total/NA	Water	9040C	

Analysis Batch: 324424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-23692-2	B3BMX4	Total/NA	Water	9050A	
MB 160-324424/2	Method Blank	Total/NA	Water	9050A	
LCS 160-324424/3	Lab Control Sample	Total/NA	Water	9050A	
160-23692-2 MS	B3BMX4	Total/NA	Water	9050A	
160-23692-2 DU	B3BMX4	Total/NA	Water	9050A	

Surrogate Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

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

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	PHL	TPH
Lab Sample ID	Client Sample ID	(47-125)	(59-110)	(54-102)	(44-120)	(51-104)	(59-98)
160-23692-3	B3BMX3	77	84	82	94	80	90
160-23692-3 MS	B3BMX3	88	85	82	92	83	93
160-23692-3 MSD	B3BMX3	87	90	87	101	87	93

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

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

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	PHL	TPH
Lab Sample ID	Client Sample ID	(47-125)	(59-110)	(54-102)	(44-120)	(51-104)	(59-98)
LCS 160-322064/2-A	Lab Control Sample	80	88	87	97	84	89
MB 160-322064/1-A	Method Blank	61	85	80	91	78	93

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)
		OTPH1
Lab Sample ID	Client Sample ID	(49-133)
160-23692-3	B3BMX3	79
160-23692-3 MS	B3BMX3	80
160-23692-3 MSD	B3BMX3	97

Surrogate Legend

OTPH = o-Terphenyl

Method: 8015B - Diesel Range Organics (DRO) (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)
		OTPH1
Lab Sample ID	Client Sample ID	(49-133)
LCS 160-322092/2-A	Lab Control Sample	85
MB 160-322092/1-A	Method Blank	93

Surrogate Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-23692-1
SDG: SL2612

Surrogate Legend

OTPH = o-Terphenyl