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: 160-32499-1
TestAmerica Sample Delivery Group: SL32499-1
Client Project/Site: S19-012/W19-012/I19-006

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

Attn: Mr. Scot Fitzgerald

Authorized for release by:
1/28/2019 2:37:30 PM

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

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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Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

Job ID: 160-32499-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2MHill Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352
January 25, 2019
Attention: Scot Fitzgerald

SDG	: SL32499-1
Number of Samples	: 12 samples
Sample Matrix	: Water
Data Deliverable	: Summary
Date SDG Closed	: December 28, 2018

II. Introduction

On December 28, 12 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 S19-012, W19-012, and I19-006

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.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

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

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

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

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

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

Job ID: 160-32499-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

non-conformance in the sections below.

IV. Definitions

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

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

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

- **B** - For inorganic analyses, the sample result is greater than the MDL but less than the RL.
- **B** - For organic analyses, Method Blank contamination. The Method Blank contains the target analyte 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 inorganic 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.

Tritium

Prep Batch: 410030

Due to the high concentration of tritium, the matrix spike (MS) for preparation batch 160-410030 and analytical batch 160-410506 could not be evaluated for accuracy. The associated laboratory control sample (LCS) met acceptance criteria. B3M8M1 (160-32499-3), (LCS 160-410030/2-A), (MB 160-410030/1-A), (160-32497-B-1-B), (160-32497-B-1-C DU) and (160-32499-C-3-B MS)

The client has requested RPD be reported as precision criteria. The RPD tends to “inflate” at low sample activity (near and below the MDC) due to the high relative uncertainty of the measurements. At low activity the RER (relative error ratio) or DER (duplicate error ratio) are better indicators. The laboratory typically uses a dual criterion: either the RER is ≤ 1 or the RPD ≤ 40% (or 30%, depending upon the matrix). The following samples did not meet the RPD criteria; however, the RER is within limits demonstrating good replicate precision.

Carbon-14

Prep Batch: 408305

Case Narrative

Job ID: 160-32499-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

The client has requested RPD be reported as precision criteria. The RPD tends to “inflate” at low sample activity (near and below the MDC) due to the high relative uncertainty of the measurements. At low activity the RER (relative error ratio) or DER (duplicate error ratio) are better indicators. The laboratory typically uses a dual criterion: either the RER is ≤ 1 or the RPD ≤ 40% (or 30%, depending upon the matrix). The following samples did not meet the RPD criteria; however, the RER is within limits demonstrating good replicate precision. B3M8M1 (160-32499-3), (LCS 160-408305/2-A), (MB 160-408305/1-A), (160-32456-A-4-B), (160-32456-A-4-C DU) and (160-32456-A-4-D MS)

Selenium-79

Prep Batch: 408708

The client has requested RPD be reported as precision criteria. The RPD tends to “inflate” at low sample activity (near and below the MDC) due to the high relative uncertainty of the measurements. At low activity the RER (relative error ratio) or DER (duplicate error ratio) are better indicators. The laboratory typically uses a dual criterion: either the RER is ≤ 1 or the RPD ≤ 40% (or 30%, depending upon the matrix). The following samples did not meet the RPD criteria; however, the RER is within limits demonstrating good replicate precision.

Technetium-99

Prep Batch: 409981

Insufficient sample volume was available to perform a sample duplicate (DU). A laboratory control sample and laboratory control sample duplicate (LCS/LCSD) were performed to demonstrate batch precision. B3M8K2 (160-32499-6)

The laboratory control sample (LCS) recovered outside the upper control limit for Technetium-99 (126%) and has been flagged "o". Due to the high LCS spike recovery the precision between the LCS (126% spike recovery) and LCSD (88% spike recovery) is failing outside of the RPD client requested limit of 20% (36%) but does fall within in the laboratory's in house limit of 40%. There is insufficient volume available to re-prepare and re-analyze. Results are reported with this narrative. B3M8K2 (160-32499-6), (LCS 160-409981/2-A), (LCSD 160-409981/3-A) and (MB 160-409981/1-A)

The following sample has a tracer recovery (112%) above the 105% client requested limit. Matrix interference is suspected; the associated QC (MB.LCS/LCSD) has acceptable tracer recoveries. The sample has been truncated to 100% to reduce any potential bias a high carrier recovery may have. The results are reported with this narrative. B3M8K2 (160-32499-6)

The detection goal was not met for the following samples due to a shortened count time attributed to high activity: B3M8K2 (160-32499-6). Analytical results are reported with the detection limit achieved.

Total Cyanide

Batch: 410012

The following samples in Cyanide preparation batch 160-409954 and analytical batch 160-410012 were diluted to bring the concentration of the target analyte within the calibration range: B3MDJ7 (160-32499-11) and B3MDJ8 (160-32499-12). Elevated reporting limits (RLs) are provided. This analyte has been qualified accordingly with a "D" flag in the associated sample.

Reanalysis of the following samples in Cyanide preparation batch 160-409954 and analytical batch 160-410012 was performed one day outside of the analytical holding time due to high concentrations of the target analyte, which required dilution. The in-hold neat run was unreportable: B3MDJ7 (160-32499-11) and B3MDJ8 (160-32499-12).

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

Semivolatiles

Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

Job ID: 160-32499-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

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

SAMPLE ISSUE RESOLUTION (SIR) REPORT

SIR Number: SIR19-0474
Rev. Number: 0
Date Initiated: 01/23/2019

SAMPLE EVENT INFORMATION

SAF NUM(S): I19-006

LABORATORY: TASL

SAMPLING INFORMATION

NUMBER OF SAMPLES: 1

SAMPLE NUMBERS: B3M8K2

SAMPLE MATRIX: WATER

SDG NUM(S): SL32499-1

ISSUE BACKGROUND

CLASS: Laboratory Issue

TYPE: Quality Control Failure

DESCRIPTION: The sample has a technecium tracer recover above the 105% upper limit.

RESOLUTION

PROPOSED RESOLUTION: TASL proposes to truncate the tracer recovery to 100%, narrate and report.

FINAL RESOLUTION: Proposed resolution accepted, but also, please report the original tracer result in the narrative.

SUBMITTED BY:

AWALT, JK 01/23/2019

ACCEPTED BY:

HEY, BE 01/23/2019

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-32499-1
SDG Number: SL32499-1

Login Number: 32499
List Number: 1
Creator: Press, Nicholas B

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	3.0, 3.3, 16.0
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	C.O.C. # S19-012-353 Page 1 of 1

Collector: Juan Aguilar /CHPRC SL32499-1	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650
SAF No.: S19-012	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: SURV, DECEMBER 2018	**Logbook No.:** HNF-N-506-10616/4	**Ice Chest No.:** GWS-021
Shipped To (Lab): TestAmerica St. Louis	**Method of Shipment:** Commercial Carrier	**Bill of Lading/Air Bill No.:** 7740 7066 5983
Protocol: CERCLA	**Priority:** 15 Days PRIORITY	**Offsite Property No.:** 10447

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
~~B3MC80~~	N	~~W~~	12-27-18	0956	~~5x40-mL aGs*~~	~~8260_VOA_GCMS: COMMON~~ DNB 12-28-18	14 Days	HCl or H2SO4 to pH <2 / Cool <=6C
B3MC80	N	W	12-27-18	0956	4x1-L aG	8270_SVOA_GCMS: GW 02	7/40 Days	Cool <=6C

160-32499 Chain of Custody

Relinquished By / Print First and Last Name	Signature	Date/Time	Received By / Print First and Last Name	Signature	Date/Time
Juan Aguilar /CHPRC		DEC 27 2018 1115	Troy Bacon CHPRC		DEC 27 2018 1115
Troy Bacon CHPRC		DEC 27 2018 1400	FEDEX		
	FED EX		Nicholas Gross		12-28-18 0945

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 On 10/29/2018 FSR ID = FSR71362 A-6004-842 (REV 3)

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # I19-006-158 A Page 1 of 1

Collector: Jeff Tucksen CHPRC SL32499-1	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650
SAF No.: I19-006	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: AEA, DECEMBER 2018	**Logbook No.:** HNF-N-506 106	**Ice Chest No.:** N/A
Shipped To (Lab): TestAmerica Incorporated, Rich	**Method of Shipment:** GOVERNMENT VEHICLE	**Bill of Lading/Air Bill No.:** N/A
Protocol: SURV	**Priority:** 15 Days PRIORITY	**Offsite Property No.:** N/A

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
~~B3M8C3 A~~	N	W	DEC 2 0 2018	0930	~~1x1-L G/P~~	~~AMCMISO_EIE_PLATE_AEA: COMMON; PU241_IE_LSC: COMMON; PUISO_PLATE_AEA: COMMON; UISO_PLATE_AEA: COMMON~~	6 Months	HNO3 to pH <2
~~B3M8C3 A~~	N	W	↓	↓	~~1x4-L G/P~~	~~GAMMA_GS: COMMON; GAMMA_GS: GW 01~~	6 Months	HNO3 to pH <2
B3M8C3 A	N	W			1x500-mL G/P	SE79_SEP_IE_LSC: COMMON	6 Months	HNO3 to pH <2
~~B3M8C3 A~~	N	W			~~1x1-L G/P~~	~~SRISO_SEP_PRECIP_GPC: COMMON~~	6 Months	HNO3 to pH <2
~~B3M8C3 A~~	N	W			~~1x500-mL P~~	~~TC99_ETVDSK_LSC: COMMON~~	6 Months	HNO3 to pH <2

08 9107 CB

~~300-9107 COC~~ CB

Relinquished By: Jeff Tucksen CHPRC		DEC 2 0 2018 1045	Received By: Charlotte Brighard CB TARL DEC 2 0 2018 1045
Print First and Last Name	Signature	Date/Time	Print First and Last Name / Signature / Date/Time
Relinquished By: Charlotte Brighard CB TARL		12-21-18 0915	Received By: FED EX
Print First and Last Name	Signature	Date/Time	Print First and Last Name / Signature / Date/Time
Relinquished By:	FED EX		Received By: Nicholas Press Nicholas Press 12-28-18/0925
Print First and Last Name	Signature	Date/Time	Print First and Last Name / Signature / Date/Time
Relinquished By:			Received By:
Print First and Last Name	Signature	Date/Time	Print First and Last Name / Signature / 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 On 10/29/2018

FSR ID = FSR71395

A-6004-842 (REV 3)

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # I19-006-191 Page 1 of 1

Collector: Kevin Patterson /CHPRC SL32499-1	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650
SAF No.: I19-006	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: AEA, DECEMBER 2018	**Logbook No.:** HNF-N-506-105	**Ice Chest No.:** GWS-021
Shipped To (Lab): TestAmerica St. Louis	**Method of Shipment:** Commercial Carrier	**Bill of Lading/Air Bill No.:** 7740 70665983
Protocol: SURV	**Priority:** 15 Days PRIORITY	**Offsite Property No.:** 10447

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3M8M1	N	W	12/27/18	0912	1x500-mL G/P	C14_LSC: COMMON	6 Months	None
B3M8M1	N	W	"	"	1x500-mL G/P	SE79_SEP_IE_LSC: COMMON	6 Months	HNO3 to pH <2
B3M8M1	N	W	12/27/18	0912	1x250-mL P	906.0_TRITIUM_LSC: COMMON	6 Months	None

Relinquished By / Print First and Last Name	Signature	Date/Time	Received By / Print First and Last Name	Signature	Date/Time
Kevin Patterson /CHPRC		DEC 27 2018 1145	Troy Bacon CHPRC	Troy L. Bacon	DEC 27 2018 1145
Troy Bacon CHPRC	Troy L. Bacon	DEC 27 2018 1400	FEDEX		
FED EX			Nicholas Ross	Nicholas Ross	12-28-18 0945

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:

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # W19-012-106
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Collector: Juan Aguilar /CHPRC SL32499-1	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650
SAF No.: W19-012	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: RCRA, DECEMBER 2018	**Logbook No.:** HNF-N-506	**Ice Chest No.:** GWS021
Shipped To (Lab): TestAmerica St. Louis	**Method of Shipment:** Commercial Carrier	**Bill of Lading/Air Bill No.:** 7740 7066 5983
Protocol: RCRA	**Priority:** 15 Days PRIORITY	**Offsite Property No.:** 10447

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3MCX5	Y	W	12-27-18	0910	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3MCX3	N	W	12-27-18	0910	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

Relinquished By:	Received By:
Juan Aguilar /CHPRC — DEC 27 2018 1115 (Print First and Last Name / Signature / Date/Time)	Troy Bacon CHPRC Troy L. Bacon DEC 27 2018 1115
Troy Bacon CHPRC Troy L. Bacon DEC 27 2018 1400	FEDEX
FED EX	Nicholas Gross Nicholas Gross 12-28-18/0925

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:

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # I19-006-174 Page 1 of 1

Collector: Juan Aguilar /CHPRC SL32499-1	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650
SAF No.: I19-006	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: AEA, DECEMBER 2018	**Logbook No.:** HNF-N-506 -106/64	**Ice Chest No.:** GWS-021
Shipped To (Lab): TestAmerica St. Louis	**Method of Shipment:** Commercial Carrier	**Bill of Lading/Air Bill No.:** 7740 7066 5783
Protocol: SURV	**Priority:** 15 Days PRIORITY	**Offsite Property No.:** 10447

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3M8K2	N	W	12-27-18	0956	1x500-mL G/P	TC99_SEP_LSC: COMMON	6 Months	HNO3 to pH <2

Relinquished By:	Received By:
Juan Aguilar /CHPRC — DEC 27 2018 1115	Troy Bacon CHPRC — DEC 27 2018 1115
Print First and Last Name — Signature — Date/Time	*Print First and Last Name — Signature — Date/Time*
Relinquished By: Troy Bacon CHPRC — DEC 27 2018 1400	Received By: FEDEX
Print First and Last Name — Signature — Date/Time	*Print First and Last Name — Signature — Date/Time*
Relinquished By: FED EX	Received By: Nicholas Press — 12-28-18/0945
Print First and Last Name — Signature — Date/Time	*Print First and Last Name — Signature — Date/Time*
Relinquished By:	Received By:
Print First and Last Name — Signature — Date/Time	*Print First and Last Name — Signature — 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 On 10/29/2018 FSR ID = FSR71362 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company	48165 CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # W19-012-232 Page 1 of 1

Collector: Juan Aguilar /CHPRC SL32499-1	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650
SAF No.: W19-012	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: RCRA, DECEMBER 2018	**Logbook No.:** HNF-N-506 -10613	**Ice Chest No.:** GWS-1056
Shipped To (Lab): TestAmerica St. Louis	**Method of Shipment:** Commercial Carrier	**Bill of Lading/Air Bill No.:** 7740 6231 4162
Protocol: RCRA	**Priority:** 15 Days PRIORITY	**Offsite Property No.:** 10447

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3MDJ5	Y	W	12-26-18	1225	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3MDJ6	N	W	12-26-18	1225	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

Relinquished By / Print First and Last Name	Signature	Date/Time	Received By / Print First and Last Name	Signature	Date/Time
Juan Aguilar /CHPRC		DEC 26 2018 1244	Janelle Zunker CHPRC		DEC 26 2018 1244
Janelle Zunker CHPRC		DEC 26 2018 1400	FEDEX		
FEDEX			Nicholas Kress	Nicholas Kress	12-28-18 0926

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 On 10/29/2018 FSR ID = FSR71522 A-6004-842 (REV 3)

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # W19-012-231
		Page 1 of 1

Collector: Juan Aguilar /CHPRC SL32499-1	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650
SAF No.: W19-012	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: RCRA, DECEMBER 2018	**Logbook No.:** HNF-N-506-106/63	**Ice Chest No.:** GWS 6560
Shipped To (Lab): TestAmerica St. Louis	**Method of Shipment:** Commercial Carrier	**Bill of Lading/Air Bill No.:** 774062314162
Protocol: RCRA	**Priority:** 15 Days PRIORITY	**Offsite Property No.:** 10442

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3MDJ4	N	W	12-26-18	0949	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3MDJ3	Y	W	12-26-18	0949	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

Relinquished By:	Print First and Last Name	Signature	Date/Time	Received By:	Print First and Last Name	Signature	Date/Time
Juan Aguilar /CHPRC			DEC 26 2018 1244	Janelle Zunker CHPRC			DEC 26 2018 1244
Janelle Zunker CHPRC			DEC 26 2018 1410	FEDEX			
FEDEX				Nicholas Ross			12-28-18/0925

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 On 10/29/2018 FSR ID = FSR71520 A-6004-842 (REV 3)

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # W19-012-233 Page 1 of 1

Collector: Juan Aguilar /CHPRC SL32499-1	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650
SAF No.: W19-012	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: RCRA, DECEMBER 2018	**Logbook No.:** HNF-N-506-10613	**Ice Chest No.:** GWS-656
Shipped To (Lab): TestAmerica St. Louis	**Method of Shipment:** Commercial Carrier	**Bill of Lading/Air Bill No.:** 774062314162
Protocol: RCRA	**Priority:** 15 Days PRIORITY	**Offsite Property No.:** 10442

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3MDJ7	Y	W	12-26-18	0819	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3MDJ8	N	W	12-26-18	0819	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

	Print First and Last Name	Signature	Date/Time
Relinquished By:	Juan Aguilar /CHPRC		DEC 26 2018 1244
Received By:	Janelle Zunker CHPRC		DEC 26 2018 1244
Relinquished By:	Janelle Zunker CHPRC		DEC 26 2018 1400
Received By:	FEDEX		
Relinquished By:	FED EX		
Received By:	Nicholas Press		12-28-18/0945
Relinquished By:			
Received By:			

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 On 10/29/2018 FSR ID = FSR71524 A-6004-842 (REV 3)

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FedEx

December 31,2018

Dear Customer:

The following is the proof-of-delivery for tracking number **774070665983**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Shipping/Receiving
Signed for by:	G.M	**Delivery location:**	EARTH CITY, MO
Service type:	FedEx Priority Overnight	**Delivery date:**	Dec 28, 2018 09:24
Special Handling:	Deliver Weekday Additional Handling Surcharge Direct Signature Required		

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

Shipping Information:

Tracking number:	774070665983	**Ship date:**	Dec 27, 2018
		Weight:	79.0 lbs/35.8 kg

Recipient:
EARTH CITY, MO US

Shipper:
Richland, WA US

Reference 10447

Thank you for choosing FedEx.

FedEx

December 31,2018

Dear Customer:

The following is the proof-of-delivery for tracking number **774062314162**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Shipping/Receiving
Signed for by:	G.M	**Delivery location:**	EARTH CITY, MO
Service type:	FedEx Priority Overnight	**Delivery date:**	Dec 28, 2018 09:24
Special Handling:	Deliver Weekday Additional Handling Surcharge Direct Signature Required		

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

Shipping Information:

Tracking number:	774062314162	**Ship date:**	Dec 26, 2018
		Weight:	48.0 lbs/21.8 kg

Recipient:
EARTH CITY, MO US

Shipper:
Richland, WA US

Reference 10442

Thank you for choosing FedEx.

FedEx

December 31,2018

Dear Customer:

The following is the proof-of-delivery for tracking number **774044972953**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Shipping/Receiving
Signed for by:	R.PRESS	**Delivery location:**	EARTH CITY, MO
Service type:	FedEx Priority Overnight	**Delivery date:**	Dec 22, 2018 09:47
Special Handling:	Deliver Weekday Additional Handling Surcharge		

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

Shipping Information:

Tracking number:	774044972953	**Ship date:**	Dec 21, 2018
		Weight:	9.0 lbs/4.1 kg

Recipient:
EARTH CITY, MO US

Shipper:
Richland, WA US

Reference Samples
Purchase order number: 195537720

Thank you for choosing FedEx.

Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.

GC/MS Semi VOA TICs

Qualifier	Qualifier Description
J	Indicates an Estimated Value for TICs
N	Presumptive evidence of material.

General Chemistry

Qualifier	Qualifier Description
B	Estimated result. Result is less than the RL, but greater than MDL
D	The reported value is from a dilution.
Z	Sample was prepped or analyzed beyond the specified holding time
U	Analyzed for but not detected.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
y	Duplicate analysis not within control limits.
X	Tracer is outside acceptance limits.
o	LCS, LCSD: Recovery exceeds upper or lower control limits.

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: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

Method	Method Description	Protocol	Laboratory
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SL
9012B	Cyanide, Total andor Amenable	SW846	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
C-01-1	Carbon-14 (EERF C-01-1)	EERF	TAL SL
ST-RC-0079	Selenium-79 (LSC)	TAL-STL	TAL SL
TC-02-RC	Technetium-99 (LSC)	DOE	TAL SL
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL SL
9010C	Cyanide, Distillation	SW846	TAL SL
Ext_Chrom_LSC	Preparation, Extraction Chromatography	None	TAL SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	TAL SL

Protocol References:

DOE = U.S. Department of Energy
EERF = EERF
EPA = US Environmental Protection Agency
None = None
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

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: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-32499-1	B3MC80	Water	12/27/18 09:56	12/28/18 09:25
160-32499-2	B3M8C3A	Water	12/20/18 09:30	12/28/18 09:25
160-32499-3	B3M8M1	Water	12/27/18 09:12	12/28/18 09:25
160-32499-4	B3MCX5	Water	12/27/18 09:10	12/28/18 09:25
160-32499-5	B3MCX3	Water	12/27/18 09:10	12/28/18 09:25
160-32499-6	B3M8K2	Water	12/27/18 09:56	12/28/18 09:25
160-32499-7	B3MDJ5	Water	12/26/18 12:25	12/28/18 09:25
160-32499-8	B3MDJ6	Water	12/26/18 12:25	12/28/18 09:25
160-32499-9	B3MDJ4	Water	12/26/18 09:49	12/28/18 09:25
160-32499-10	B3MDJ3	Water	12/26/18 09:49	12/28/18 09:25
160-32499-11	B3MDJ7	Water	12/26/18 08:19	12/28/18 09:25
160-32499-12	B3MDJ8	Water	12/26/18 08:19	12/28/18 09:25

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

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

Client Sample ID: B3MC80 — **Lab Sample ID: 160-32499-1**
Date Collected: 12/27/18 09:56 — **Matrix: Water**
Date Received: 12/28/18 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	4.8	U	9.8	4.8	ug/L		01/03/19 10:26	01/04/19 12:07	1
Methyl methanesulfonate	0.90	U	9.8	0.90	ug/L		01/03/19 10:26	01/04/19 12:07	1
N-Nitrosodi-n-propylamine	3.4	U	9.8	3.4	ug/L		01/03/19 10:26	01/04/19 12:07	1
Pentachlorophenol	1.2	U	49	1.2	ug/L		01/03/19 10:26	01/04/19 12:07	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
n-Hexadecanoic acid	*14*	*N J*	*ug/L*		*10.97*	*57-10-3*	*01/03/19 10:26*	*01/04/19 12:07*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*51*		*15 - 59*	*01/03/19 10:26*	*01/04/19 12:07*	*1*
2,4,6-Tribromophenol (Surr)	*74*		*37 - 120*	*01/03/19 10:26*	*01/04/19 12:07*	*1*
Nitrobenzene-d5 (Surr)	*66*		*50 - 101*	*01/03/19 10:26*	*01/04/19 12:07*	*1*
Phenol-d5 (Surr)	*29*		*10 - 50*	*01/03/19 10:26*	*01/04/19 12:07*	*1*
Terphenyl-d14 (Surr)	*86*		*21 - 97*	*01/03/19 10:26*	*01/04/19 12:07*	*1*
2-Fluorobiphenyl (Surr)	*73*		*43 - 108*	*01/03/19 10:26*	*01/04/19 12:07*	*1*

General Chemistry

Client Sample ID: B3MCX5 — **Lab Sample ID: 160-32499-4**
Date Collected: 12/27/18 09:10 — **Matrix: Water**
Date Received: 12/28/18 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	3.1	U	5.0	3.1	ug/L		01/09/19 15:40	01/09/19 18:00	1

Client Sample ID: B3MCX3 — **Lab Sample ID: 160-32499-5**
Date Collected: 12/27/18 09:10 — **Matrix: Water**
Date Received: 12/28/18 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	3.1	U	5.0	3.1	ug/L		01/09/19 15:40	01/09/19 18:10	1

Client Sample ID: B3MDJ5 — **Lab Sample ID: 160-32499-7**
Date Collected: 12/26/18 12:25 — **Matrix: Water**
Date Received: 12/28/18 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	**169**		5.0	3.1	ug/L		01/09/19 15:40	01/09/19 18:14	1

Client Sample ID: B3MDJ6 — **Lab Sample ID: 160-32499-8**
Date Collected: 12/26/18 12:25 — **Matrix: Water**
Date Received: 12/28/18 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	**160**		5.0	3.1	ug/L		01/09/19 15:40	01/09/19 18:17	1

Client Sample ID: B3MDJ4 — **Lab Sample ID: 160-32499-9**
Date Collected: 12/26/18 09:49 — **Matrix: Water**
Date Received: 12/28/18 09:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	**7.3**		5.0	3.1	ug/L		01/09/19 15:40	01/09/19 18:20	1

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

General Chemistry

Client Sample ID: B3MDJ3
Date Collected: 12/26/18 09:49
Date Received: 12/28/18 09:25

Lab Sample ID: 160-32499-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	3.2	B	5.0	3.1	ug/L		01/09/19 15:40	01/09/19 18:31	1

General Chemistry - RADL

Client Sample ID: B3MDJ7
Date Collected: 12/26/18 08:19
Date Received: 12/28/18 09:25

Lab Sample ID: 160-32499-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	771	D Z	25.0	15.3	ug/L		01/09/19 15:40	01/10/19 16:26	5

Client Sample ID: B3MDJ8
Date Collected: 12/26/18 08:19
Date Received: 12/28/18 09:25

Lab Sample ID: 160-32499-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	784	D Z	25.0	15.3	ug/L		01/09/19 15:40	01/10/19 16:29	5

Method: 906.0 - Tritium, Total (LSC)

Client Sample ID: B3M8M1
Date Collected: 12/27/18 09:12
Date Received: 12/28/18 09:25

Lab Sample ID: 160-32499-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	5630		468	682	500	280	pCi/L	01/10/19 14:24	01/10/19 20:27	1

Method: C-01-1 - Carbon-14 (EERF C-01-1)

Client Sample ID: B3M8M1
Date Collected: 12/27/18 09:12
Date Received: 12/28/18 09:25

Lab Sample ID: 160-32499-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Carbon-14	10.6	U	7.57	7.66	20.0	12.2	pCi/L	12/31/18 07:32	01/01/19 21:13	1

Method: ST-RC-0079 - Selenium-79 (LSC)

Client Sample ID: B3M8C3A
Date Collected: 12/20/18 09:30
Date Received: 12/28/18 09:25

Lab Sample ID: 160-32499-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Se-79	-5.1	U	11.8	11.8	50.0	21.2	pCi/L	01/03/19 10:15	01/08/19 13:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Se	*93.5*		*40 - 110*	*01/03/19 10:15*	*01/08/19 13:51*	*1*

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

Method: ST-RC-0079 - Selenium-79 (LSC)

Client Sample ID: B3M8M1
Date Collected: 12/27/18 09:12
Date Received: 12/28/18 09:25

Lab Sample ID: 160-32499-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Se-79	1.70	U	14.5	14.5	50.0	25.1	pCi/L	01/03/19 10:15	01/08/19 14:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Se	*80.5*		*40 - 110*	*01/03/19 10:15*	*01/08/19 14:59*	*1*

Method: TC-02-RC - Technetium-99 (LSC)

Client Sample ID: B3M8K2
Date Collected: 12/27/18 09:56
Date Received: 12/28/18 09:25

Lab Sample ID: 160-32499-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium-99	**4090**		61.5	397	3.00	5.19	pCi/L	01/10/19 07:53	01/13/19 23:05	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tc-99m	*112*	*X*	*30 - 105*	*01/10/19 07:53*	*01/13/19 23:05*	*1*

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

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

Lab Sample ID: MB 160-408710/1-A
Matrix: Water
Analysis Batch: 408941

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 408710

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	4.9	U	10	4.9	ug/L		01/03/19 10:26	01/04/19 11:05	1
Methyl methanesulfonate	0.92	U	10	0.92	ug/L		01/03/19 10:26	01/04/19 11:05	1
N-Nitrosodi-n-propylamine	3.5	U	10	3.5	ug/L		01/03/19 10:26	01/04/19 11:05	1
Pentachlorophenol	1.3	U	50	1.3	ug/L		01/03/19 10:26	01/04/19 11:05	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*9.75*	*N*	*ug/L*		*10.97*		*01/03/19 10:26*	*01/04/19 11:05*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*50*		*15 - 59*	*01/03/19 10:26*	*01/04/19 11:05*	*1*
2,4,6-Tribromophenol (Surr)	*71*		*37 - 120*	*01/03/19 10:26*	*01/04/19 11:05*	*1*
Nitrobenzene-d5 (Surr)	*67*		*50 - 101*	*01/03/19 10:26*	*01/04/19 11:05*	*1*
Phenol-d5 (Surr)	*31*		*10 - 50*	*01/03/19 10:26*	*01/04/19 11:05*	*1*
Terphenyl-d14 (Surr)	*88*		*21 - 97*	*01/03/19 10:26*	*01/04/19 11:05*	*1*
2-Fluorobiphenyl (Surr)	*68*		*43 - 108*	*01/03/19 10:26*	*01/04/19 11:05*	*1*

Lab Sample ID: LCS 160-408710/2-A
Matrix: Water
Analysis Batch: 408941

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 408710

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bis(2-ethylhexyl) phthalate	100	99.7		ug/L		100	58 - 111
N-Nitrosodi-n-propylamine	100	73.7		ug/L		74	59 - 115
Pentachlorophenol	100	80.4		ug/L		80	49 - 115

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*48*		*15 - 59*
2,4,6-Tribromophenol (Surr)	*79*		*37 - 120*
Nitrobenzene-d5 (Surr)	*68*		*50 - 101*
Phenol-d5 (Surr)	*30*		*10 - 50*
Terphenyl-d14 (Surr)	*90*		*21 - 97*
2-Fluorobiphenyl (Surr)	*70*		*43 - 108*

Lab Sample ID: 160-32499-1 MS
Matrix: Water
Analysis Batch: 408941

Client Sample ID: B3MC80
Prep Type: Total/NA
Prep Batch: 408710

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Bis(2-ethylhexyl) phthalate	4.8	U	99.8	92.2		ug/L		92	53 - 125
N-Nitrosodi-n-propylamine	3.4	U	99.8	76.5		ug/L		77	64 - 110
Pentachlorophenol	1.2	U	99.8	73.7		ug/L		74	54 - 110

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*48*		*15 - 59*
2,4,6-Tribromophenol (Surr)	*81*		*37 - 120*
Nitrobenzene-d5 (Surr)	*73*		*50 - 101*

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

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

Lab Sample ID: 160-32499-1 MS
Matrix: Water
Analysis Batch: 408941

Client Sample ID: B3MC80
Prep Type: Total/NA
Prep Batch: 408710

Surrogate	MS %Recovery	MS Qualifier	Limits
Phenol-d5 (Surr)	*27*		*10 - 50*
Terphenyl-d14 (Surr)	*90*		*21 - 97*
2-Fluorobiphenyl (Surr)	*73*		*43 - 108*

Lab Sample ID: 160-32499-1 MSD
Matrix: Water
Analysis Batch: 408941

Client Sample ID: B3MC80
Prep Type: Total/NA
Prep Batch: 408710

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-ethylhexyl) phthalate	4.8	U	98.0	101		ug/L		103	53 - 125	9	20
N-Nitrosodi-n-propylamine	3.4	U	98.0	78.9		ug/L		81	64 - 110	3	20
Pentachlorophenol	1.2	U	98.0	79.5		ug/L		81	54 - 110	8	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorophenol (Surr)	*46*		*15 - 59*
2,4,6-Tribromophenol (Surr)	*82*		*37 - 120*
Nitrobenzene-d5 (Surr)	*73*		*50 - 101*
Phenol-d5 (Surr)	*28*		*10 - 50*
Terphenyl-d14 (Surr)	*95*		*21 - 97*
2-Fluorobiphenyl (Surr)	*75*		*43 - 108*

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 160-409954/1-A
Matrix: Water
Analysis Batch: 410012

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 409954

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	3.1	U	5.0	3.1	ug/L		01/09/19 15:40	01/09/19 17:50	1

Lab Sample ID: HLCS 160-409954/3-A
Matrix: Water
Analysis Batch: 410012

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 409954

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	400	416.9		ug/L		104	85 - 115

Lab Sample ID: LCS 160-409954/2-A
Matrix: Water
Analysis Batch: 410012

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 409954

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	200	209.7		ug/L		105	85 - 115

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

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

Lab Sample ID: 160-32499-4 MS — **Client Sample ID: B3MCX5**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410012 — **Prep Batch: 409954**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total	3.1	U	200	208.4		ug/L		104	75 - 125		

Lab Sample ID: 160-32499-4 DU — **Client Sample ID: B3MCX5**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410012 — **Prep Batch: 409954**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Cyanide, Total	3.1	U		3.1	U	ug/L				NC	20

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-410030/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410506 — **Prep Batch: 410030**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	147.3	U	155	155	500	252	pCi/L	01/10/19 14:24	01/10/19 19:04	1

Lab Sample ID: LCS 160-410030/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410506 — **Prep Batch: 410030**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2660	2454		378	500	252	pCi/L	92	80 - 120		

Lab Sample ID: 160-32499-3 MS — **Client Sample ID: B3M8M1**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410506 — **Prep Batch: 410030**

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium	5630		2650	6985		781	500	246	pCi/L	51	75 - 125		

Lab Sample ID: 160-32497-B-1-C DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 410506 — **Prep Batch: 410030**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RPD	RPD Limit
Tritium	638			503.2	y	192	500	250	pCi/L			24	20

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

Method: C-01-1 - Carbon-14 (EERF C-01-1)

Lab Sample ID: MB 160-408305/1-A
Matrix: Water
Analysis Batch: 408497

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 408305

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Carbon-14	-4.98	U	7.06	7.08	20.0	12.2	pCi/L	12/31/18 07:32	01/01/19 16:06	1

Lab Sample ID: LCS 160-408305/2-A
Matrix: Water
Analysis Batch: 408497

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 408305

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Carbon-14			1130	1113		123	20.0	12.3	pCi/L	99	80 - 120		

Lab Sample ID: 160-32456-A-4-D MS
Matrix: Water
Analysis Batch: 408497

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 408305

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Carbon-14	-2.2	U	1130	1059		117	20.0	12.2	pCi/L	94	75 - 125		

Lab Sample ID: 160-32456-A-4-C DU
Matrix: Water
Analysis Batch: 408497

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 408305

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RPD	RPD Limit
Carbon-14	-2.2	U		-4.32	U y	7.07	20.0	12.2	pCi/L			64	20

Method: ST-RC-0079 - Selenium-79 (LSC)

Lab Sample ID: MB 160-408708/1-A
Matrix: Water
Analysis Batch: 409841

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 408708

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Se-79	-4.84	U	11.9	11.9	50.0	21.4	pCi/L	01/03/19 10:15	01/08/19 13:17	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Se	*94.1*		*40 - 110*	*01/03/19 10:15*	*01/08/19 13:17*	*1*

Lab Sample ID: 160-32499-2 DU
Matrix: Water
Analysis Batch: 409841

Client Sample ID: B3M8C3A
Prep Type: Total/NA
Prep Batch: 408708

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RPD	RPD Limit
Se-79	-5.1	U		-4.67	U	12.3	50.0	22.0	pCi/L			8	20

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

Method: ST-RC-0079 - Selenium-79 (LSC) (Continued)

Lab Sample ID: 160-32499-2 DU
Matrix: Water
Analysis Batch: 409841

Client Sample ID: B3M8C3A
Prep Type: Total/NA
Prep Batch: 408708

Carrier	DU %Yield	DU Qualifier	Limits
Se	90.1		40 - 110

Method: TC-02-RC - Technetium-99 (LSC)

Lab Sample ID: MB 160-409981/1-A
Matrix: Water
Analysis Batch: 410981

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 409981

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium-99	-0.0659	U	1.14	1.14	3.00	1.95	pCi/L	01/10/19 07:53	01/13/19 18:54	1

Tracer	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tc-99m	95.8		30 - 105	01/10/19 07:53	01/13/19 18:54	1

Lab Sample ID: LCS 160-409981/2-A
Matrix: Water
Analysis Batch: 410981

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 409981

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Technetium-99			30.9	38.90	o	4.52	3.00	2.50	pCi/L	126	80 - 120		

Tracer	LCS %Yield	LCS Qualifier	Limits
Tc-99m	74.3		30 - 105

Lab Sample ID: LCSD 160-409981/3-A
Matrix: Water
Analysis Batch: 410981

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 409981

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RPD	RPD Limit
Technetium-99			30.9	27.09	y	3.17	3.00	1.80	pCi/L	88	80 - 120	36	20

Tracer	LCSD %Yield	LCSD Qualifier	Limits
Tc-99m	103		30 - 105

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

GC/MS Semi VOA

Prep Batch: 408710

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-32499-1	B3MC80	Total/NA	Water	3510C	
MB 160-408710/1-A	Method Blank	Total/NA	Water	3510C	
LCS 160-408710/2-A	Lab Control Sample	Total/NA	Water	3510C	
160-32499-1 MS	B3MC80	Total/NA	Water	3510C	
160-32499-1 MSD	B3MC80	Total/NA	Water	3510C	

Analysis Batch: 408941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-32499-1	B3MC80	Total/NA	Water	8270D	408710
MB 160-408710/1-A	Method Blank	Total/NA	Water	8270D	408710
LCS 160-408710/2-A	Lab Control Sample	Total/NA	Water	8270D	408710
160-32499-1 MS	B3MC80	Total/NA	Water	8270D	408710
160-32499-1 MSD	B3MC80	Total/NA	Water	8270D	408710

General Chemistry

Prep Batch: 409954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-32499-4	B3MCX5	Total/NA	Water	9010C	
160-32499-5	B3MCX3	Total/NA	Water	9010C	
160-32499-7	B3MDJ5	Total/NA	Water	9010C	
160-32499-8	B3MDJ6	Total/NA	Water	9010C	
160-32499-9	B3MDJ4	Total/NA	Water	9010C	
160-32499-10	B3MDJ3	Total/NA	Water	9010C	
160-32499-11 - RADL	B3MDJ7	Total/NA	Water	9010C	
160-32499-12 - RADL	B3MDJ8	Total/NA	Water	9010C	
MB 160-409954/1-A	Method Blank	Total/NA	Water	9010C	
HLCS 160-409954/3-A	Lab Control Sample	Total/NA	Water	9010C	
LCS 160-409954/2-A	Lab Control Sample	Total/NA	Water	9010C	
160-32499-4 MS	B3MCX5	Total/NA	Water	9010C	
160-32499-4 DU	B3MCX5	Total/NA	Water	9010C	

Analysis Batch: 410012

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-32499-4	B3MCX5	Total/NA	Water	9012B	409954
160-32499-5	B3MCX3	Total/NA	Water	9012B	409954
160-32499-7	B3MDJ5	Total/NA	Water	9012B	409954
160-32499-8	B3MDJ6	Total/NA	Water	9012B	409954
160-32499-9	B3MDJ4	Total/NA	Water	9012B	409954
160-32499-10	B3MDJ3	Total/NA	Water	9012B	409954
160-32499-11 - RADL	B3MDJ7	Total/NA	Water	9012B	409954
160-32499-12 - RADL	B3MDJ8	Total/NA	Water	9012B	409954
MB 160-409954/1-A	Method Blank	Total/NA	Water	9012B	409954
HLCS 160-409954/3-A	Lab Control Sample	Total/NA	Water	9012B	409954
LCS 160-409954/2-A	Lab Control Sample	Total/NA	Water	9012B	409954
160-32499-4 MS	B3MCX5	Total/NA	Water	9012B	409954
160-32499-4 DU	B3MCX5	Total/NA	Water	9012B	409954

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

Rad

Prep Batch: 408305

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-32499-3	B3M8M1	Total/NA	Water	LSC_Dist_Susp	
MB 160-408305/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-408305/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
160-32456-A-4-D MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
160-32456-A-4-C DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 408708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-32499-2	B3M8C3A	Total/NA	Water	Ext_Chrom_LSC	
160-32499-3	B3M8M1	Total/NA	Water	Ext_Chrom_LSC	
MB 160-408708/1-A	Method Blank	Total/NA	Water	Ext_Chrom_LSC	
160-32499-2 DU	B3M8C3A	Total/NA	Water	Ext_Chrom_LSC	

Prep Batch: 409981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-32499-6	B3M8K2	Total/NA	Water	Ext_Chrom_LSC	
MB 160-409981/1-A	Method Blank	Total/NA	Water	Ext_Chrom_LSC	
LCS 160-409981/2-A	Lab Control Sample	Total/NA	Water	Ext_Chrom_LSC	
LCSD 160-409981/3-A	Lab Control Sample Dup	Total/NA	Water	Ext_Chrom_LSC	

Prep Batch: 410030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-32499-3	B3M8M1	Total/NA	Water	LSC_Dist_Susp	
MB 160-410030/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-410030/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
160-32499-3 MS	B3M8M1	Total/NA	Water	LSC_Dist_Susp	
160-32497-B-1-C DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Surrogate Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

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

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

		Percent Surrogate Recovery (Acceptance Limits)					
		2FP	TBP	NBZ	PHL	TPHL	FBP
Lab Sample ID	Client Sample ID	(15-59)	(37-120)	(50-101)	(10-50)	(21-97)	(43-108)
160-32499-1	B3MC80	51	74	66	29	86	73
160-32499-1 MS	B3MC80	48	81	73	27	90	73
160-32499-1 MSD	B3MC80	46	82	73	28	95	75
LCS 160-408710/2-A	Lab Control Sample	48	79	68	30	90	70
MB 160-408710/1-A	Method Blank	50	71	67	31	88	68

Surrogate Legend

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

Tracer/Carrier Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S19-012/W19-012/I19-006

TestAmerica Job ID: 160-32499-1
SDG: SL32499-1

Method: ST-RC-0079 - Selenium-79 (LSC)

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

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Se (40-110)							
160-32499-2	B3M8C3A	93.5							
160-32499-2 DU	B3M8C3A	90.1							
160-32499-3	B3M8M1	80.5							
MB 160-408708/1-A	Method Blank	94.1							

Tracer/Carrier Legend

Se = Se

Method: TC-02-RC - Technetium-99 (LSC)

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

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Tc-99m (30-105)							
160-32499-6	B3M8K2	112 X							
LCS 160-409981/2-A	Lab Control Sample	74.3							
LCSD 160-409981/3-A	Lab Control Sample Dup	103							
MB 160-409981/1-A	Method Blank	95.8							

Tracer/Carrier Legend

Tc-99m = Tc-99m