Analytical Data Package Prepared For

CH2M Hill Plateau Remediation

Radiochemical Analysis By

TestAmerica Inc

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: TARL

Data Package Contains 22 *Pages*

Report No.: 66251

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W07155	F15-027	B30RD0	J5F110424-1	M62JG1AG	9M62JG10	5163018
		B30RD0	J5F110424-1	M62JG1AA	9M62JG10	5163019
		B30RD0	J5F110424-1	M62JG1AJ	9M62JG10	5163020
		B30RD0	J5F110424-1	M62JG1AC	9M62JG10	5163021
		B30RD0	J5F110424-1	M62JG1AK	9M62JG10	5163022
		B30RD0	J5F110424-1	M62JG1AD	9M62JG10	5163023
		B30RD0	J5F110424-1	M62JG4AF	9M62JG40	5169029
		B30RD0	J5F110424-1	M62JG3AE	9M62JG30	5169032

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop – R3-60
Richland, WA 99352

June 29, 2015

Attention: Scot Fitzgerald

SAF Number	:	F15-027
Date SDG Closed	:	June 11, 2015
Number of Samples	:	One (1)
Sample Type	:	Soil
SDG Number	:	W07155
Data Deliverable	:	15-Day / Summary

CASE NARRATIVE

I. Introduction

On June 11, 2015, one soil sample was received at TestAmerica (TARL). Upon receipt, the sample was assigned laboratory ID numbers to correspond with the CH2M specific IDs. The Requested Turnaround time was changed after the samples were received by the lab. For more information refer to the SIR that is attached to this report.

II. Sample Receipt

The sample was received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

Alpha Spectroscopy
Americium 241 by method RL-ALP-003
Plutonium-238, -239/240 by method RL-ALP-002
Gas Proportional Counting
Strontium-90 by method RL-GPC-010

Gamma Spectroscopy
Gamma Spec by method RL-GAM-001
Iodine-129 (LL) by method RL-GAM-002
Liquid Scintillation Counting
Carbon-14 by method RL-LSC-008
Technetium-99 by TEVA method RL-LSC-014
Tritium by method RL-LSC-005

IV. Quality Control

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

The analytical results are reported on a dry weight basis.

QC and sample results are reported in the same units.

V. Comments

Alpha Spectroscopy
Americium 241 by method RL-ALP-003:
The LCS tracer exceeds the 105% acceptance criteria, at 107%, all other results in this batch met acceptance criteria's. No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

Plutonium-238, -239/240 by method RL-ALP-002:
No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

Gas Proportional Counting
Strontium-90 by method RL-GPC-010:
No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

Gamma Spectroscopy
Gamma Spec by method RL-GAM-001:
The MDA for EU-154 exceeds CRDL for B30RD0, its duplicate and the batch blank. The samples were counted for the maximum 1000 minutes. No other analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

Iodine-129 by method RL-GAM-002:
No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

CH2M Hill Plateau Remediation Company
June 29, 2015

Liquid Scintillation Counting

Carbon-14 by method RL-LSC-008:
No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

Technetium-99 by TEVA method RL-LSC-014:
No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

Tritium by method RL-LSC-005:
No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

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 signatures on this report.

Reviewed and approved:

for Whitney Ritari
Project Manager

SAMPLE ISSUE RESOLUTION

SIR NUM	SIR15-340
REV NUM	0
DATE INITIATED	6/16/2015

SAMPLE EVENT INFORMATION

SAF NUM(S)	F15-027
OPERABLE UNIT(S)	100-KR-2
PROJECT(S)	100-KE FSB
SAMPLE EVENT TITLE(S)	Characterization Boreholes in UPR-100-K-1 and 1116-KE-3 Waste Sites
LABORATORY	TestAmerica Incorporated, Richland

SAMPLING INFORMATION

NUMBER OF SAMPLES	1
SAMPLE NUMBERS	B30RD0
SAMPLE MATRIX	SOIL
COLLECTION DATE	5/19/2015 - 5/19/2015
SDG NUM	W07155

ISSUE BACKGROUND

CLASS	Sample Management Issues
TYPE	Turnaround Time and Due Date Modification
DESCRIPTION	Sample B30RD0 was originally requested on a 7 day turn around. TARL had to divert the U isotopic analysis to TASL and the 7 day turn around was not achievable.

DISPOSITION

DESCRIPTION	Proposed Disposition: Extend the turn around time to 15 days (standard for soil) and report all analysis in a single data report.
JUSTIFICATION	Final Disposition: Accept proposed resolution SUBMITTED BY: Scot Fitzgerald DATE: 06/16/2015 ACCEPTED BY: Whitney Ritari DATE: 06/16/2015

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**TestAmerica Richland's SOP No.**
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/?n), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
CSU (#s) ***u_c Combined Standard Uncert.***	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, *u_c the combined standard uncertainty*. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the **Work Order** Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt($TPUs^2 + TPUd^2$)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-027-014	PAGE 1 OF 1
COLLECTOR D.W. Brotherton/CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR TODAK, D	PRICE CODE ~~8N~~ COS JCH 6/11/15	DATA TURNAROUND ~~45 Days / 45 Days~~ 7 Days / 7 Days JCH 6/11/15
SAMPLING LOCATION C8796, Interval 8 REQ	PROJECT DESIGNATION 100-KE Characterization Boreholes - Soil		SAF NO. F15-027	AIR QUALITY ☐	
ICE CHEST NO. N/A	FIELD LOGBOOK NO. ~~HNF-N~~ 645-3/4	ACTUAL SAMPLE DEPTH Ft. 36.7-38.3	COA 303581	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO JCH 6/11/15 ~~222-S Lab Operations~~ TARL	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	None
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	*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.	HOLDING TIME	None
		TYPE OF CONTAINER	P
		NO. OF CONTAINER(S)	1
		VOLUME	125mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

J5F110424
W07155
Due 6-18-15

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B30RD0	SOIL	5-19-15	0853	✓

M62J6

J5F110424

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM D.W. Brotherton/CHPRC — DATE/TIME 5-19-15 0930	RECEIVED BY/STORED IN SSU #2 — DATE/TIME 5-19-15 0930	
RELINQUISHED BY/REMOVED FROM SSU #2 — DATE/TIME 6-11-15 0100	RECEIVED BY/STORED IN Ed Kauer CHPRC — DATE/TIME 6-11-15 1000	
RELINQUISHED BY/REMOVED FROM E.L. Kauer/CHPRC — DATE/TIME JUN 11 2015 1130	RECEIVED BY/STORED IN B.E. Briggs CHPRC — DATE/TIME JUN 11 2015 1130	
RELINQUISHED BY/REMOVED FROM B.E. Briggs CHPRC — DATE/TIME JUN 11 2015 1345	RECEIVED BY/STORED IN J. Bock, TARL — DATE/TIME JUN 11 2015 1345	
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME	
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME	
RELINQUISHED BY/REMOVED FROM — DATE/TIME	RECEIVED BY/STORED IN — DATE/TIME	

SPECIAL INSTRUCTIONS

RADSCREEN ALIQUOT TO BE SUB-SAMPLED BY LAB AND IS ON 24 HOUR TURN; ** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRVL-15-037
(1) Moisture Content - D2216; 6010_METALS_ICP: COMMON {Chromium}; Actinides ICPMS: COMMON {Uranium-233, Uranium-234, Uranium-235, Uranium-238}; GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON {Americium-241}; C14_LSC: COMMON; PUISO_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON; I129_SEP_LEPS_GS: COMMON {Iodine-129}; Rad Screen;

TRVL-15-037

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

PRINTED ON 5/11/2015

A-6003-618 (REV 2)

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Sample Check-in List

Date/Time Received: 6-11-15 | 1345 Container GM Screen Result: (Airlock) 20 cpm Initials [ ]
Sample GM Screen Result (Sample Receiving) 0 cpm Initials [ ]

Client: FLH SDG #: r W07155 SAF #: F15-027 NA [ ]

Lot Number: JSF110424

Chain of Custody # F15-027-014

Shipping Container ID or Air Bill Number : _____ NA [ ]

Samples received inside shipping container/cooler/box Yes [ ] Continue with 1 through 4. Initial appropriate response.
No [ ] Go to 5, add comment to #16.

1. Custody Seals on shipping container intact? Yes [ ] No [ ] No Custody Seal [ ]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [ ]
3. Cooler temperature: 3.4 °C IC NA [ ]
4. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [ ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [ ] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 1
7. Containers received: 1 x 125mLp
8. Sample holding times exceeded? NA [ ] Yes [ ] No [ ]
9. Samples have: ____tape ____hazard labels ____custody seals ____appropriate sample labels
10. Matrix: ____A (FLT, Wipe, Solid, Soil) ____I (Water) ____S (Air, Niosh 7400) ____T (Biological, Ni-63)
11. Samples:
    ____are in good condition ____are leaking ____are broken
    ____have air bubbles (Only for samples requiring no head space) ____Other _____
12. Sample pH appropriate for analysis requested Yes [ ] No [ ] NA [ ]
    (If acidification is necessary go to pH area & document sample ID, initial pH, amount of HNO_3 added and pH after addition on table)
13. Were any anomalies identified in sample receipt? Yes [ ] No [ ]
14. Description of anomalies (include sample numbers): NA [ ] _____
15. Sample Location, Sample Collector Listed on COC? * Yes [ ] No [ ]
    *For documentation only. No corrective action needed.
16. Additional Information: N/A

[ ] Client/Courier denied temperature check. [ ] Client/Courier unpack cooler.

Sample Check-in List completed by Sample Custodian:
Signature: [signature] Date: 6-11-15

Client Notification needed? Yes [ ] No [ ] Date: _____
By: _____
Person contacted: _____

[ ] No action necessary; process as is

Project Manager Whitney McCutari Date 6/11/15

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Sample Results Summary

Date: 29-Jun-15

TestAmerica Inc TARL

Ordered by Method, Batch No., Client Sample ID.

Report No. : 66251

SDG No: W07155

Batch	Client Id Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
5169029 PUISO_PLATE_AEA									
B30RD0									
	M62JG4AF	Pu-238	-1.91E-03 +- 1.6E-02	U	pCi/g	99%	3.97E-02	1.00E+00	
		PU239/40	1.40E-02 +- 2.3E-02	U	pCi/g	99%	3.97E-02	1.00E+00	
B30RD0 DUP									
	M62JG1AW	Pu-238	7.27E-03 +- 1.6E-02	U	pCi/g	85%	3.18E-02	1.00E+00	
		PU239/40	1.52E-02 +- 2.2E-02	U	pCi/g	85%	3.18E-02	1.00E+00	
5169032 AMCMISO_EIE_PLT_AEA									
B30RD0									
	M62JG3AE	AMERICIUM 241	-5.86E-04 +- 1.5E-02	U	pCi/g	91%	2.95E-02	1.00E+00	
B30RD0 DUP									
	M62JG2AX	AMERICIUM 241	6.05E-03 +- 1.3E-02	U	pCi/g	105%	2.65E-02	1.00E+00	
5163020 GAMMA_GS									
B30RD0									
	M62JG1AJ	CO-60	-5.84E-03 +- 2.5E-02	U	pCi/g		4.18E-02	5.00E-02	
		CS-137	3.95E-03 +- 2.2E-02	U	pCi/g		3.77E-02	1.00E-01	
		EU-152	9.19E-03 +- 4.7E-02	U	pCi/g		7.93E-02	1.00E-01	
		EU-154	2.03E-02 +- 7.6E-02	U	pCi/g		1.32E-01	1.00E-01	
		EU-155	1.39E-03 +- 3.3E-02	U	pCi/g		5.57E-02	1.00E-01	
B30RD0 DUP									
	M62JG1AN	CO-60	-4.39E-03 +- 2.2E-02	U	pCi/g		3.76E-02	5.00E-02	-28.3
		CS-137	2.38E-02 +- 2.0E-02	U	pCi/g		3.52E-02	1.00E-01	143.1
		EU-152	5.97E-04 +- 3.8E-02	U	pCi/g		6.29E-02	1.00E-01	175.6
		EU-154	-4.51E-02 +- 7.5E-02	U	pCi/g		1.23E-01	1.00E-01	-526.8
		EU-155	3.05E-02 +- 2.9E-02	U	pCi/g		3.77E-02	1.00E-01	182.5
5163018 I129_SEP_LEPS_GS									
B30RD0									
	M62JG1AG	I129	1.42E-01 +- 1.5E-01	U	pCi/g		1.74E-01	2.00E+00	
B30RD0 DUP									
	M62JG1AL	I129	3.35E-02 +- 7.5E-02	U	pCi/g		1.40E-01	2.00E+00	123.7
5163019 SRTOT_SEP_PRECIP_GPC									
B30RD0									
	M62JG1AA	STRONTIUM	1.98E+00 +- 5.9E-01		pCi/g	77%	4.95E-01	1.00E+00	
B30RD0 DUP									
	M62JG1AM	STRONTIUM	2.00E+00 +- 6.0E-01		pCi/g	78%	4.98E-01	1.00E+00	1.3
5163021 TRITIUM_DIST_LSC									
B30RD0									
	M62JG1AC	H-3	9.84E-01 +- 1.9E-01		pCi/g	100%	2.90E-01	3.00E+01	
B30RD0 DUP									

TestAmerica Inc

rptTALRchSaSummary2 V5.3.7 A2002

RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

Sample Results Summary

TestAmerica Inc TARL

Ordered by Method, Batch No., Client Sample ID.

Date: 29-Jun-15

Report No. : 66251

SDG No: W07155

Batch	Client Id Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
5163021 TRITIUM_DIST_LSC									
B30RD0 DUP									
	M62JG1AP	H-3	1.04E+00 +- 2.5E-01		pCi/g	100%	4.16E-01	3.00E+01	5.2
5163022 TC99_ETVDSK_LSC									
B30RD0									
	M62JG1AK	Tc-99	-1.69E-02 +- 2.8E-01	U	pCi/g	100%	6.03E-01	1.50E+00	
B30RD0 DUP									
	M62JG1AQ	Tc-99	2.29E-01 +- 2.7E-01	U	pCi/g	100%	5.76E-01	1.50E+00	231.8
5163023 C14_LSC									
B30RD0									
	M62JG1AD	C-14	1.22E-02 +- 1.0E-01	U	pCi/g	100%	1.87E-01	5.00E+00	
B30RD0 DUP									
	M62JG1AR	C-14	3.89E-02 +- 1.0E-01	U	pCi/g	100%	1.91E-01	5.00E+00	104.3

No. of Results: 26

TestAmerica Inc

rptTALRchSaSummary2 V5.3.7
A2002

RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

QC Results Summary

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Date: 29-Jun-15

Report No. : 66251

SDG No.: W07155

Batch Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
PUISO_PLATE_AEA								
5169029 BLANK QC,								
M63WE1AA	Pu-238	6.21E-03 +- 1.4E-02	U	pCi/g	100%			2.72E-02
	PU239/40	2.64E-02 +- 2.7E-02	U	pCi/g	100%			2.72E-02
5169029 LCS,								
M63WE1AC	PU239/40	4.15E+00 +- 7.3E-01		pCi/g	100%	100%	0.0	2.60E-02
AMCMISO_EIE_PLT_AEA								
5169032 BLANK QC,								
M63WH2AA	AMERICIUM 241	1.30E-02 +- 1.9E-02	U	pCi/g	105%			2.72E-02
5169032 LCS,								
M63WH2AC	AMERICIUM 241	3.92E+00 +- 7.0E-01		pCi/g	107%	93%	-0.1	2.96E-02
GAMMA_GS								
5163020 BLANK QC,								
M62L91AA	CO-60	6.05E-03 +- 2.0E-02	U	pCi/g				3.58E-02
	CS-137	-1.59E-02 +- 2.1E-02	U	pCi/g				3.31E-02
	EU-152	-3.27E-02 +- 4.9E-02	U	pCi/g				8.04E-02
	EU-154	-8.44E-03 +- 6.2E-02	U	pCi/g				1.06E-01
	EU-155	3.16E-02 +- 3.9E-02	U	pCi/g				6.73E-02
5163020 LCS,								
M62L91AC	AMERICIUM 241	3.19E+01 +- 3.5E+00		pCi/g		80%	-0.2	5.50E-02
	CO-60	9.61E+00 +- 1.1E+00		pCi/g		85%	-0.2	3.00E-02
	CS-137	3.54E+01 +- 4.2E+00		pCi/g		89%	-0.1	3.80E-02
I129_SEP_LEPS_GS								
5163018 BLANK QC,								
M62L71AA	I129	-4.63E-03 +- 1.3E-02	U	pCi/g				2.28E-02
5163018 LCS,								
M62L71AC	I129	2.22E+01 +- 2.8E+00		pCi/g		112%	0.1	2.18E-01
SRTOT_SEP_PRECIP_GPC								
5163019 BLANK QC,								
M62L81AA	STRONTIUM	9.81E-02 +- 2.3E-01	U	pCi/g	77%			5.11E-01
5163019 LCS,								
M62L82AC	STRONTIUM	3.67E+00 +- 9.4E-01		pCi/g	83%	115%	0.1	3.83E-01
TRITIUM_DIST_LSC								
5163021 BLANK QC,								
M62MA1AA	H-3	-3.29E-02 +- 6.9E-02	U	pCi/g	100%			1.62E-01
TC99_ETVDSK_LSC								
5163022 MATRIX SPIKE, B30RD0								
M62JG1AV	Tc-99	1.94E+02 +- 4.9E+00		pCi/g	100%	86%	-0.1	5.98E-01
5163022 BLANK QC,								
M62MC1AA	Tc-99	-9.10E-02 +- 2.6E-01	U	pCi/g	100%			5.66E-01
5163022 LCS,								
M62MC1AC	Tc-99	2.96E+01 +- 1.0E+00		pCi/g	100%	88%	-0.1	5.88E-01
C14_LSC								

TestAmerica Inc
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Bias - (Result/Expected)-1 as defined by ANSI N13.30.

U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

QC Results Summary
TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Date: 29-Jun-15

Report No. : 66251

SDG No.: W07155

Batch Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
5163023 BLANK QC,								
M62MD1AA	C-14	1.95E-02 +- 1.0E-01	U	pCi/g	100%			1.88E-01
5163023 LCS,								
M62MD1AC	C-14	7.36E+00 +- 5.2E-01		pCi/g	100%	101%	0.0	1.92E-01
TRITIUM_DIST_LSC								
5167020 LCS,								
M62MA2AC	H-3	6.74E-01 +- 1.2E-01		pCi/g	100%	98%	0.0	1.67E-01

No. of Results: 24

TestAmerica Inc
rptSTLRchQcSummary V5.3.7 A2002

Bias - (Result/Expected)-1 as defined by ANSI N13.30.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 29-Jun-15

Lab Name:	**TestAmerica Inc**	**SDG:**	W07155	**Collection Date:**	5/19/2015 8:53:00 AM
Lot-Sample No.:	**J5F110424-1**	**Report No. :**	66251	**Received Date:**	6/11/2015 1:45:00 PM
Client Sample ID:	**B30RD0**	**COC No. :**	F15-027-014	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5163018	I129_SEP_LEPS_GS			**Work Order:**	M62JG1AG		**Report DB ID:**	9M62JG10				
I129	**1.42E-01**	U	1.5E-01	1.5E-01	1.74E-01	pCi/g		*0.82*	6/15/15 06:49 a		33.1	LEP4$1
							2.00E+00	*(1.9)*			g	
Batch: 5163019	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M62JG1AA		**Report DB ID:**	9M62JG10				
STRONTIUM	**1.98E+00**		3.9E-01	5.9E-01	4.95E-01	pCi/g	77%	*(4.)*	6/15/15 03:03 p		2.03	GPC31A
						2.30E-01	1.00E+00	*(6.7)*			g	
Batch: 5163020	GAMMA_GS			**Work Order:**	M62JG1AJ		**Report DB ID:**	9M62JG10				
CO-60	**-5.84E-03**	U	2.5E-02	2.5E-02	4.18E-02	pCi/g		*-0.14*	6/12/15 11:12 a		33.1	GER19$1
							5.00E-02	*-0.47*			g	
CS-137	**3.95E-03**	U	2.2E-02	2.2E-02	3.77E-02	pCi/g		*0.1*	6/12/15 11:12 a		33.1	GER19$1
							1.00E-01	*0.36*			g	
EU-152	**9.19E-03**	U	4.7E-02	4.7E-02	7.93E-02	pCi/g		*0.12*	6/12/15 11:12 a		33.1	GER19$1
							1.00E-01	*0.39*			g	
EU-154	**2.03E-02**	U	7.6E-02	7.6E-02	1.32E-01	pCi/g		*0.15*	6/12/15 11:12 a		33.1	GER19$1
							1.00E-01	*0.54*			g	
EU-155	**1.39E-03**	U	3.3E-02	3.3E-02	5.57E-02	pCi/g		*0.03*	6/12/15 11:12 a		33.1	GER19$1
							1.00E-01	*0.08*			g	
Batch: 5163021	TRITIUM_DIST_LSC			**Work Order:**	M62JG1AC		**Report DB ID:**	9M62JG10				
H-3	**9.84E-01**		1.8E-01	1.9E-01	2.90E-01	pCi/g	100%	*(3.4)*	6/13/15 05:39 a		12.6	LSC8
						1.32E-01	3.00E+01	*(10.3)*			g	
Batch: 5163022	TC99_ETVDSK_LSC			**Work Order:**	M62JG1AK		**Report DB ID:**	9M62JG10				

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V5.3.7 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 29-Jun-15

Lab Name:	TestAmerica Inc	**SDG:**	W07155	**Collection Date:**	5/19/2015 8:53:00 AM
Lot-Sample No.:	J5F110424-1	**Report No. :**	66251	**Received Date:**	6/11/2015 1:45:00 PM
Client Sample ID:	B30RD0	**COC No. :**	F15-027-014	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Tc-99	-1.69E-02	U	2.5E-01	2.8E-01	6.03E-01	pCi/g	100%	-0.03	6/15/15 07:08 p		1.99	LSC9
						2.89E-01	1.50E+00	-0.12			g	
Batch: 5163023	C14_LSC			**Work Order:**	M62JG1AD		**Report DB ID:**	9M62JG10				
C-14	1.22E-02	U	8.0E-02	1.0E-01	1.87E-01	pCi/g	100%	0.07	6/14/15 10:31 a		5.1	LSC4
						9.12E-02	5.00E+00	0.25			g	
Batch: 5169029	PUISO_PLATE_AEA			**Work Order:**	M62JG4AF		**Report DB ID:**	9M62JG40				
Pu-238	-1.91E-03	U	1.6E-02	1.6E-02	3.97E-02	pCi/g	99%	-0.05	6/25/15 12:01 p		1.04	ALP39
						9.99E-03	1.00E+00	-0.24			g	
PU239/40	1.40E-02	U	2.3E-02	2.3E-02	3.97E-02	pCi/g	99%	0.35	6/25/15 12:01 p		1.04	ALP39
						9.99E-03	1.00E+00	(1.2)			g	
Batch: 5169032	AMCMISO_EIE_PLT_AEA			**Work Order:**	M62JG3AE		**Report DB ID:**	9M62JG30				
AMERICIUM 241	-5.86E-04	U	1.5E-02	1.5E-02	2.95E-02	pCi/g	91%	-0.02	6/25/15 01:19 a		1.04	ALP444
						6.85E-03	1.00E+00	-0.08			g	

No. of Results: 13 **Comments:**

TestAmerica Inc
rptSTLRchSample
V5.3.7 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM II

Date: 29-Jun-15

DUPLICATE RESULTS

Lab Name:	**TestAmerica Inc**	**SDG:**	W07155	**Collection Date:**	5/19/2015 8:53:00 AM
Lot-Sample No.:	**J5F110424-1**	**Report No. :**	66251	**Received Date:**	6/11/2015 1:45:00 PM
Client Sample ID:	**B30RD0 DUP**	**COC No. :**	F15-027-014	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5163018	I129_SEP_LEPS_GS			**Work Order:**	M62JG1AL	**Report DB ID:**	M62JG1LR		**Orig Sa DB ID:** 9M62JG10			
I129	3.35E-02	U	7.5E-02	7.5E-02	1.40E-01	pCi/g		0.24	6/15/15 10:17 a		33.1	LEP5$1
	1.42E-01	U	**RPD**	**123.7**		2.00E+00		0.89			g	
Batch: 5163019	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M62JG1AM	**Report DB ID:**	M62JG1MR		**Orig Sa DB ID:** 9M62JG10			
STRONTIUM	2.00E+00		3.9E-01	6.0E-01	4.98E-01	pCi/g	78%	(4.)	6/15/15 03:03 p		2.0	GPC31B
	1.98E+00		**RPD**	**1.3**		1.00E+00		(6.7)			g	
Batch: 5163020	GAMMA_GS			**Work Order:**	M62JG1AN	**Report DB ID:**	M62JG1NR		**Orig Sa DB ID:** 9M62JG10			
CO-60	-4.39E-03	U	2.2E-02	2.2E-02	3.76E-02	pCi/g		-0.12	6/15/15 01:49 p		33.1	GER16$1
	-5.84E-03	U	**RPD**	**-28.3**		5.00E-02		-0.4			g	
CS-137	2.38E-02	U	2.0E-02	2.0E-02	3.52E-02	pCi/g		0.68	6/15/15 01:49 p		33.1	GER16$1
	3.95E-03	U	**RPD**	**143.1**		1.00E-01		(2.4)			g	
EU-152	5.97E-04	U	3.8E-02	3.8E-02	6.29E-02	pCi/g		0.01	6/15/15 01:49 p		33.1	GER16$1
	9.19E-03	U	**RPD**	**175.6**		1.00E-01		0.03			g	
EU-154	-4.51E-02	U	7.5E-02	7.5E-02	1.23E-01	pCi/g		-0.37	6/15/15 01:49 p		33.1	GER16$1
	2.03E-02	U	**RPD**	**-526.8**		1.00E-01		-(1.2)			g	
EU-155	3.05E-02	U	2.9E-02	2.9E-02	3.77E-02	pCi/g		0.81	6/15/15 01:49 p		33.1	GER16$1
	1.39E-03	U	**RPD**	**182.5**		1.00E-01		(2.1)			g	
Batch: 5163021	TRITIUM_DIST_LSC			**Work Order:**	M62JG1AP	**Report DB ID:**	M62JG1PR		**Orig Sa DB ID:** 9M62JG10			
H-3	1.04E+00		2.3E-01	2.5E-01	4.16E-01	pCi/g	100%	(2.5)	6/13/15 06:00 a		11.9	LSC8
	9.84E-01		**RPD**	**5.2**		3.00E+01		(8.2)			g	

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RPD - Relative Percent Difference.
MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM II

Date: 29-Jun-15

DUPLICATE RESULTS

Lab Name:	TestAmerica Inc	**SDG:**	W07155	**Collection Date:**	5/19/2015 8:53:00 AM
Lot-Sample No.:	J5F110424-1	**Report No. :**	66251	**Received Date:**	6/11/2015 1:45:00 PM
Client Sample ID:	B30RD0 DUP	**COC No. :**	F15-027-014	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5163022	TC99_ETVDSK_LSC			**Work Order:**	M62JG1AQ	**Report DB ID:**	M62JG1QR		**Orig Sa DB ID:** 9M62JG10			
Tc-99	2.29E-01	U	2.5E-01	2.7E-01	5.76E-01	pCi/g	100%	0.4	6/15/15 08:10 p		2.07	LSC9
	-1.69E-02	U	**RPD**	**231.8**		1.50E+00		(1.7)			g	
Batch: 5163023	C14_LSC			**Work Order:**	M62JG1AR	**Report DB ID:**	M62JG1RR		**Orig Sa DB ID:** 9M62JG10			
C-14	3.89E-02	U	8.2E-02	1.0E-01	1.91E-01	pCi/g	100%	0.2	6/14/15 12:34 p		5.0	LSC4
	1.22E-02	U	**RPD**	**104.3**		5.00E+00		0.76			g	
Batch: 5169029	PUISO_PLATE_AEA			**Work Order:**	M62JG1AW	**Report DB ID:**	M62JG1WR		**Orig Sa DB ID:**			
Pu-238	7.27E-03	U	1.6E-02	1.6E-02	3.18E-02	pCi/g	85%	0.23	6/24/15 07:22 p		1.05	ALP441
			RPD			1.00E+00		0.91			g	
PU239/40	1.52E-02	U	2.2E-02	2.2E-02	3.18E-02	pCi/g	85%	0.48	6/24/15 07:22 p		1.05	ALP441
			RPD			1.00E+00		(1.3)			g	
									Alpha Spec Result Sum = 2.2E-02			
Batch: 5169032	AMCMISO_EIE_PLT_AEA			**Work Order:**	M62JG2AX	**Report DB ID:**	M62JG2XR		**Orig Sa DB ID:**			
AMERICIUM 241	6.05E-03	U	1.3E-02	1.3E-02	2.65E-02	pCi/g	105%	0.23	6/25/15 09:04 p		1.05	ALP444
			RPD			1.00E+00		0.91			g	
									Alpha Spec Result Sum = 2.8E-02			

No. of Results: 13 **Comments:**

TestAmerica Inc
rptSTLRchDupV5.
3.7 A2002

RPD - Relative Percent Difference.
MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 29-Jun-15

Lab Name: TestAmerica Inc

Matrix: SOIL

SDG: W07155

Report No. : 66251

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5163023	C14_LSC			**Work Order:**	M62MD1AA		**Report DB ID:**	M62MD1AB				
C-14	1.95E-02	U	8.0E-02	1.0E-01	1.88E-01	pCi/g	100%	0.1	6/14/15 02:38 p		5.1	LSC4
					9.18E-02	5.00E+01		0.39			g	
Batch: 5169032	AMCMISO_EIE_PLT_AEA			**Work Order:**	M63WH2AA		**Report DB ID:**	M63WH2AB				
AMERICIUM 241	1.30E-02	U	1.9E-02	1.9E-02	2.72E-02	pCi/g	105%	0.48	6/25/15 09:05 p		1.04	ALP448
					6.31E-03	1.00E+00		(1.3)			g	
Batch: 5169029	PUISO_PLATE_AEA			**Work Order:**	M63WE1AA		**Report DB ID:**	M63WE1AB				
Pu-238	6.21E-03	U	1.4E-02	1.4E-02	2.72E-02	pCi/g	100%	0.23	6/24/15 07:23 p		1.04	ALP446
					6.31E-03	1.00E+00		0.91			g	
PU239/40	2.64E-02	U	2.7E-02	2.7E-02	2.72E-02	pCi/g	100%	0.97	6/24/15 07:23 p		1.04	ALP446
					6.31E-03	1.00E+00		(1.9)			g	
Batch: 5163022	TC99_ETVDSK_LSC			**Work Order:**	M62MC1AA		**Report DB ID:**	M62MC1AB				
Tc-99	-9.10E-02	U	2.3E-01	2.6E-01	5.66E-01	pCi/g	100%	-0.16	6/15/15 10:14 p		2.11	LSC9
					2.71E-01	1.50E+00		-0.7			g	
Batch: 5163021	TRITIUM_DIST_LSC			**Work Order:**	M62MA1AA		**Report DB ID:**	M62MA1AB				
H-3	-3.29E-02	U	6.1E-02	6.9E-02	1.62E-01	pCi/g	100%	-0.2	6/13/15 06:22 a		39.2	LSC8
					7.41E-02	3.00E+01		-0.95			g	
Batch: 5163020	GAMMA_GS			**Work Order:**	M62L91AA		**Report DB ID:**	M62L91AB				
CO-60	6.05E-03	U	2.0E-02	2.0E-02	3.58E-02	pCi/g		0.17	6/12/15 11:12 a		52.0	GER6$1
						5.00E-02		0.6			g	
CS-137	-1.59E-02	U	2.1E-02	2.1E-02	3.31E-02	pCi/g		-0.48	6/12/15 11:12 a		52.0	GER6$1
						1.00E-01		-(1.6)			g	

TestAmerica Inc
rptSTLRchBlank
V5.3.7 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

June 29, 2015

FORM II

BLANK RESULTS

Date: 29-Jun-15

Lab Name: TestAmerica Inc

Matrix: SOIL

SDG: W07155

Report No. : 66251

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
EU-152	-3.27E-02	U	4.9E-02	4.9E-02	8.04E-02	pCi/g		-0.41	6/12/15 11:12 a		52.0	GER6$1
						1.00E-01		-(1.3)			g	
EU-154	-8.44E-03	U	6.2E-02	6.2E-02	1.06E-01	pCi/g		-0.08	6/12/15 11:12 a		52.0	GER6$1
						1.00E-01		-0.27			g	
EU-155	3.16E-02	U	3.9E-02	3.9E-02	6.73E-02	pCi/g		0.47	6/12/15 11:12 a		52.0	GER6$1
						1.00E-01		(1.6)			g	
Batch: 5163018	I129_SEP_LEPS_GS			**Work Order:**	M62L71AA		**Report DB ID:**	M62L71AB				
I129	-4.63E-03	U	1.3E-02	1.3E-02	2.28E-02	pCi/g		-0.2	6/15/15 06:50 a		50.0	LEP5$1
						2.00E+00		-0.72			g	
Batch: 5163019	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M62L81AA		**Report DB ID:**	M62L81AB				
STRONTIUM	9.81E-02	U	2.3E-01	2.3E-01	5.11E-01	pCi/g	77%	0.19	6/15/15 03:03 p		2.05	GPC31C
					2.38E-01	1.00E+00		0.85			g	

No. of Results: 13 **Comments:**

TestAmerica Inc
rptSTLRchBlank
V5.3.7 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM II

LCS RESULTS

Date: 29-Jun-15

Lab Name: TestAmerica Inc

SDG: W07155

Matrix: SOIL

Report No. : 66251

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 5163023	C14_LSC			**Work Order:**	M62MD1AC		**Report DB ID:**	M62MD1CS					
C-14	7.36E+00		1.8E-01	5.2E-01	1.92E-01	pCi/g	100%	7.27E+00	1.46E-01	101%	6/14/15 04:42 p	5.0	LSC4
							Rec Limits:	70	130	0.0		g	
Batch: 5169032	AMCMISO_EIE_PLT_AEA			**Work Order:**	M63WH2AC		**Report DB ID:**	M63WH2CS					
AMERICIUM 241	3.92E+00		3.2E-01	7.0E-01	2.96E-02	pCi/g	107%	4.19E+00	4.24E-02	93%	6/25/15 09:05 p	1.09	ALP441
							Rec Limits:	70	130	-0.1		g	
Batch: 5169029	PUISO_PLATE_AEA			**Work Order:**	M63WE1AC		**Report DB ID:**	M63WE1CS					
PU239/40	4.15E+00		3.3E-01	7.3E-01	2.60E-02	pCi/g	100%	4.13E+00	4.84E-02	100%	6/24/15 07:24 p	1.09	ALP448
							Rec Limits:	70	130	0.0		g	
Batch: 5163022	TC99_ETVDSK_LSC			**Work Order:**	M62MC1AC		**Report DB ID:**	M62MC1CS					
Tc-99	2.96E+01		7.6E-01	1.0E+00	5.88E-01	pCi/g	100%	3.34E+01	3.44E-01	88%	6/15/15 11:16 p	2.03	LSC9
							Rec Limits:	70	130	-0.1		g	
Batch: 5167020	TRITIUM_DIST_LSC			**Work Order:**	M62MA2AC		**Report DB ID:**	M62MA2cS					
H-3	6.74E-01		1.1E-01	1.2E-01	1.67E-01	pCi/g	100%	6.89E-01	2.07E-02	98%	6/16/15 11:41 p	39.7	LSC4
							Rec Limits:	70	130	0.0		g	
Batch: 5163020	GAMMA_GS			**Work Order:**	M62L91AC		**Report DB ID:**	M62L91CS					
AMERICIUM 241	3.19E+01		3.5E+00	3.5E+00	5.50E-02	pCi/g		4.00E+01	5.65E-03	80%	6/12/15 02:19 p	54.51	GER18$1
							Rec Limits:	70	130	-0.2		g	
CO-60	9.61E+00		1.1E+00	1.1E+00	3.00E-02	pCi/g		1.13E+01	1.60E-03	85%	6/12/15 02:19 p	54.51	GER18$1
							Rec Limits:	70	130	-0.2		g	
CS-137	3.54E+01		4.2E+00	4.2E+00	3.80E-02	pCi/g		3.99E+01	5.64E-03	89%	6/12/15 02:19 p	54.51	GER18$1
							Rec Limits:	70	130	-0.1		g	
Batch: 5163018	I129_SEP_LEPS_GS			**Work Order:**	M62L71AC		**Report DB ID:**	M62L71CS					

TestAmerica Inc **Bias** - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V5.3.7 A2002

FORM II

LCS RESULTS

Date: 29-Jun-15

Lab Name: TestAmerica Inc

SDG: W07155

Matrix: SOIL

Report No. : 66251

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
I129	2.22E+01		2.8E+00	2.8E+00	2.18E-01	pCi/g		1.98E+01	1.87E-01	112%	6/15/15 10:19 a	64.95	LEP4$1
							Rec Limits:	70	130	0.1		g	
Batch: 5163019	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M62L82AC		**Report DB ID:**	M62L82CS					
STRONTIUM	3.67E+00		4.1E-01	9.4E-01	3.83E-01	pCi/g	83%	3.20E+00	1.23E-01	115%	6/16/15 10:48 a	2.13	GPC32A
							Rec Limits:	70	130	0.1		g	

No. of Results: 10 **Comments:**

TestAmerica Inc **Bias** - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V5.3.7 A2002

FORM II

MATRIX SPIKE RESULTS

Date: 29-Jun-15

Lab Name: TestAmerica Inc **SDG:** W07155

Lot-Sample No.: J5F110424-1, B30RD0 **Report No. :** 66251 **Matrix:** SOIL

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	CSU (2 s)	MDC|MDA	Rpt Unit	Yield	Rec-overy	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 5163022	**Work Order:** M62JG1AV			**Report DB ID:** M62JG1VW			**Orig Sa DB ID:** 9M62JG10					
Tc-99	1.94E+02		1.9E+00	4.9E+00	5.98E-01	pCi/g	100%	85.60%	2.27E+02	6/15/15 09:12 p	2.0	TC99_ETVDSK_LSC
	-1.69E-02								1.29E+00		g	LSC9

Number of Results: 1

Comments:

TestAmerica Inc
rptSTLRchMs
V5.3.7 A2002

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
Bias - (Result/Expected)-1 as defined by ANSI N13.30.

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: 160-12288-1
TestAmerica Sample Delivery Group: W07155
Client Project/Site: F15-027

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

Attn: Mr. Scot Fitzgerald

Authorized for release by:
6/29/2015 10:29:59 AM

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

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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

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

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Job ID: 160-12288-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2MHill Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352
June 29, 2015
Attention: Scot Fitzgerald

SDG	: W07155
Number of Samples	: 1 sample
Sample Matrix	: Soil
Data Deliverable	: Summary
Date SDG Closed	: June 12, 2015

II. Introduction

On June 12, 1 sample was received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criteria. See the COC and receipt checklists for documentation of any variations on receipt conditions and temperature. Upon receipt, samples were given laboratory Ids to correspond with specific client Ids. Please refer to the Sample Summary sheets attached to this case narrative. This report is incomplete without the narrative.

The following SAFs are associated with this SDG: F15-027

III. Analytical Results/ Methodology

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

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

Note: For Metals analyses, per standard practice, all 6020 water and soil samples are initially prepared at 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate flagging unless otherwise noted in the case narrative.

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

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

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

IV. Definitions

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

Job ID: 160-12288-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

MS- Matrix Spike
MSD- Matrix Spike Duplicate

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

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

- **B** - For inorganic analyses, the sample result is greater than the MDL but less than the RL.
- **B** - For organic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **J** - For organic analyses, the sample is estimated and less than the RL.
- **C** - For inorganic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **D** - For all analyses, the sample result was obtained from the analysis of a dilution. For Metals analyses, per standard practice, all solid samples are initially prepared at a 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate qualification unless otherwise noted in the case narrative.
- **N** - For inorganics and GC analyses, the spike/spike duplicate recoveries are outside QC limits.
- **T** - For GCMS analyses, the spike/spike duplicate recoveries are outside QC limits.
- **O**- For all analyses, the LCS (LCSD) recoveries are outside QC limits.
- **M**- For inorganic analyses, the precision was outside control limits.
- **P -** For organic analyses (PCB/Pests only), the aroclor target analyte has greater than 25% difference for detected concentrations between the two GC columns.

ICP Metals - Chromium

Batch: 196420

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with prep batch 195515. A LCS/LCSD was prepped to show precision. B30RD0 (160-12288-1)

The following samples were diluted due to the presence of iron which interferes with chromium: B30RD0 (160-12288-1) and (160-12288-A-SD). Elevated reporting limits (RLs) are provided.

ICPMS Uranium

Batch: 197500

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with prep batch 195514. A LCS/LCSD was prepped to show precision. B30RD0 (160-12288-1)

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

Job ID: 160-12288-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-12288-1
SDG Number: SL1821

Login Number: 12288
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	0.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	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 821821

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F15-027-014

COLLECTOR
D.W. Brotherton/CHPRC

COMPANY CONTACT
SUMNER, LC

TELEPHONE NO.
376-3922

PROJECT COORDINATOR
TODAK, D

PRICE CODE ~~8N~~ C05 JLH 6/11/15

DATA TURNAROUND ~~45 Days / 45 Days~~ 7 Days / 7 Days JLH 6/11/15

SAMPLING LOCATION
C8796, Interval 8 REQ

PROJECT DESIGNATION
100-KE Characterization Boreholes - Soil

SAF NO.
F15-027

AIR QUALITY ☐

ICE CHEST NO.

FIELD LOGBOOK NO.
~~HNF-N~~ 645-3/4

ACTUAL SAMPLE DEPTH Ft.
36.7-38.3

COA
303581

METHOD OF SHIPMENT
GOVERNMENT VEHICLE

ORIGINAL

SHIPPED TO JLH 6/11/15 N/A
~~222-S Lab Operations~~ TARL

OFFSITE PROPERTY NO.
N/A

BILL OF LADING/AIR BILL NO.
N/A

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

PRESERVATION	None
HOLDING TIME	None
TYPE OF CONTAINER	P
NO. OF CONTAINER(S)	1
VOLUME	125mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

JSF110424
W07155
Due 6-18-15

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B30RD0	SOIL	5-19-15	0853	M62JG

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
D.W. Brotherton/CHPRC	5-19-15 0930	SSU #2	5-19-15 0930
SSU #2	6-11-15 0100	Ed Kauer CHPRC	6-11-15 1000
E.L. Kauer/CHPRC	JUN 11 2015 1130	B.E. Briggs CHPRC	JUN 11 2015 1130
B.E. Briggs CHPRC	JUN 11 2015 1345	J. Bock, TARL	JUN 11 2015 1345
J. Bock TARL	6-11-15 1450	J.H. Clarke	6-12-15 0915

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS
RADSCREEN ALIQUOT TO BE SUB-SAMPLED BY LAB AND IS ON 24 HOUR TURN; ** The GKI associated with this SAF shall be provided to 222-S laboratory prior to sample receipt. TRVL-15-037
(1) Moisture Content - D2216; 6010_METALS_ICP: COMMON {Chromium}; Actinides ICPMS: COMMON {Uranium-233, Uranium-234, Uranium-235, Uranium-238}; GAMMA_GS: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON {Americium-241}; C14_LSC: COMMON; PUISO_IE_PRECIP_AEA: COMMON; SRTOT_SEP_PRECIP_GPC: COMMON; TC99_EIE_LSC: COMMON; TRITIUM_DIST_LSC: COMMON; I129_SEP_LEPS_GS: COMMON {Iodine-129}; Rad Screen;

TRVL-15-037

LABORATORY SECTION RECEIVED BY — TITLE — DATE/TIME

FINAL SAMPLE DISPOSITION DISPOSAL METHOD — DISPOSED BY — DATE/TIME

PRINTED ON 5/11/2015

A-6003-618 (REV 2)

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773816014881

Ship (P/U) date :
Thur 6/11/2015 3:25 pm

RICHLAND, WA US

Delivered
Signed for by: B.DANIELS

Actual delivery :
Fri 6/12/2015 9:09 am

EARTH CITY, MO US

Travel History

Date/Time	Activity	Location
- 6/12/2015 - Friday		
9:09 am	Delivered	EARTH CITY, MO
6:31 am	On FedEx vehicle for delivery	EARTH CITY, MO
6:22 am	At local FedEx facility	EARTH CITY, MO
5:25 am	At destination sort facility	BERKELEY, MO
4:40 am	Departed FedEx location	MEMPHIS, TN
12:41 am	Arrived at FedEx location	MEMPHIS, TN
- 6/11/2015 - Thursday		
5:11 pm	Shipment cancelled by sender	
5:01 pm	Left FedEx origin facility	PASCO, WA
3:25 pm	Picked up	PASCO, WA

Shipment Facts

Tracking number	773816014881	Service	FedEx Priority Overnight
Weight	7 lbs / 3.18 kgs	Dimensions	12x9x11 in
Delivered To	Shipping/Receiving	Total pieces	1
Total shipment weight	7 lbs / 3.18 kgs	Shipper reference	CH2MHILL
Packaging	Your Packaging	Special handling section	Deliver Weekday

FedEx. Search Subm

Customer Focus
New Customer Center
Small Business Center
Service Guide
Customer Support

Company Information
About FedEx
Careers
Investor Relations

Featured Services
FedEx One Rate
FedEx SameDay
FedEx Home Delivery
Healthcare Solutions
Online Retail Solutions
Packaging Services
Ancillary Clearance Services

Other Resources
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Developer Resource Center
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Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-027

TestAmerica Job ID: 160-12288-1
SDG: W07155

Qualifiers

Metals

Qualifier	Qualifier Description
B	Estimated result. Result is less than the RL, but greater than MDL
D	The reported value is from a dilution.
U	Analyzed for but not detected.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-027

TestAmerica Job ID: 160-12288-1
SDG: W07155

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL SL
6020A	Metals (ICP/MS), Isotopic Uranium	SW846	TAL SL
Moisture	Percent Moisture	EPA	TAL SL
6020A Activity	Metals (ICP/MS), Isotopic Uranium (Activity)	SW846	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

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: F15-027

TestAmerica Job ID: 160-12288-1
SDG: W07155

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-12288-1	B30RD0	Solid	05/19/15 08:53	06/12/15 09:15

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-027

TestAmerica Job ID: 160-12288-1
SDG: W07155

Method: 6010C - Metals (ICP)

Client Sample ID: B30RD0
Date Collected: 05/19/15 08:53
Date Received: 06/12/15 09:15

Lab Sample ID: 160-12288-1
Matrix: Solid
Percent Solids: 94.9

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	8.6	B D	9.4	1.3	mg/Kg	☼	06/16/15 10:17	06/19/15 15:58	10

Method: 6020A - Metals (ICP/MS), Isotopic Uranium

Client Sample ID: B30RD0
Date Collected: 05/19/15 08:53
Date Received: 06/12/15 09:15

Lab Sample ID: 160-12288-1
Matrix: Solid
Percent Solids: 94.9

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
U-233	0.0014	U	0.0047	0.0014	mg/Kg	☼	06/16/15 10:15	06/25/15 17:26	2
U-234	0.00028	U	0.0047	0.00028	mg/Kg	☼	06/16/15 10:15	06/25/15 17:26	2
U-235	0.0025	B	0.0047	0.0019	mg/Kg	☼	06/16/15 10:15	06/25/15 17:26	2
U-238	0.34		0.0047	0.00028	mg/Kg	☼	06/16/15 10:15	06/25/15 17:26	2

Method: 6020A Activity - Metals (ICP/MS), Isotopic Uranium (Activity)

Client Sample ID: B30RD0
Date Collected: 05/19/15 08:53
Date Received: 06/12/15 09:15

Lab Sample ID: 160-12288-1
Matrix: Solid
Percent Solids: 94.9

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
U-233	0.774	U	0.339	0.346	45.1	13.5	pCi/g	06/16/15 10:15	06/25/15 17:26	2
U-234	0.126	U	0.141	0.141	29.1	1.75	pCi/g	06/16/15 10:15	06/25/15 17:26	2
U-235	0.00548		0.000202	0.000543	0.0101	0.00412	pCi/g	06/16/15 10:15	06/25/15 17:26	2
U-238	0.114		0.00197	0.0107	0.00157	0.0000946	pCi/g	06/16/15 10:15	06/25/15 17:26	2

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-027

TestAmerica Job ID: 160-12288-1
SDG: W07155

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 160-195515/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196420 — **Prep Batch: 195515**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.13	U	0.92	0.13	mg/Kg		06/16/15 10:17	06/19/15 15:46	1

Lab Sample ID: LCDSRM 160-195515/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196420 — **Prep Batch: 195515**

Analyte	Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	164	159.9		mg/Kg		97.5	70.7 - 129.9	2	20

Lab Sample ID: LCSSRM 160-195515/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196420 — **Prep Batch: 195515**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	164	163.8		mg/Kg		99.9	70.7 - 129.9

Method: 6020A - Metals (ICP/MS), Isotopic Uranium

Lab Sample ID: MB 160-195514/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 197500 — **Prep Batch: 195514**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
U-233	0.0014	U	0.0046	0.0014	mg/Kg		06/16/15 10:15	06/25/15 17:12	2
U-234	0.00028	U	0.0046	0.00028	mg/Kg		06/16/15 10:15	06/25/15 17:12	2
U-235	0.0019	U	0.0046	0.0019	mg/Kg		06/16/15 10:15	06/25/15 17:12	2
U-238	0.00028	U	0.0046	0.00028	mg/Kg		06/16/15 10:15	06/25/15 17:12	2

Lab Sample ID: LCS 160-195514/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 197500 — **Prep Batch: 195514**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
U-234	0.00761	0.00765		mg/Kg		101	80 - 120
U-235	0.446	0.462		mg/Kg		104	80 - 120
U-238	0.462	0.474		mg/Kg		103	80 - 120

Lab Sample ID: LCSD 160-195514/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 197500 — **Prep Batch: 195514**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
U-234	0.00771	0.00797		mg/Kg		103	80 - 120	4	20
U-235	0.452	0.472		mg/Kg		104	80 - 120	2	20
U-238	0.469	0.485		mg/Kg		103	80 - 120	2	20

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-027

TestAmerica Job ID: 160-12288-1
SDG: W07155

Method: 6020A Activity - Metals (ICP/MS), Isotopic Uranium (Activity)

Lab Sample ID: MB 160-195514/1-A
Matrix: Solid
Analysis Batch: 197501

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 195514

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
U-233	0.775	U	0.172	0.186	44.5	13.3	pCi/g	06/16/15 10:15	06/25/15 17:12	2
U-234	-0.0241	U	0.175	0.175	28.7	1.72	pCi/g	06/16/15 10:15	06/25/15 17:12	2
U-235	0.0000674	U	0.0000581	0.0000585	0.00997	0.00406	pCi/g	06/16/15 10:15	06/25/15 17:12	2
U-238	-0.0000151	U	0.0000432	0.0000432	0.00155	0.0000932	pCi/g	06/16/15 10:15	06/25/15 17:12	2

Lab Sample ID: LCS 160-195514/2-A
Matrix: Solid
Analysis Batch: 197501

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 195514

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
U-234	47.3	47.57		4.41	28.6	1.72	pCi/g	101	80 - 120
U-235	0.964	0.998		0.0930	0.00994	0.00405	pCi/g	104	80 - 120
U-238	0.155	0.159		0.0151	0.00155	0.0000929	pCi/g	103	80 - 120

Lab Sample ID: LCSD 160-195514/3-A
Matrix: Solid
Analysis Batch: 197501

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 195514

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
U-234	48.0	49.59		4.85	29.0	1.74	pCi/g	103	80 - 120	0.22	1
U-235	0.977	1.020		0.0978	0.0101	0.00411	pCi/g	104	80 - 120	0.12	1
U-238	0.158	0.163		0.0155	0.00157	0.0000942	pCi/g	103	80 - 120	0.12	1

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-027

TestAmerica Job ID: 160-12288-1
SDG: W07155

Metals

Prep Batch: 195514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-12288-1	B30RD0	Total/NA	Solid	3050B	
LCS 160-195514/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 160-195514/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
MB 160-195514/1-A	Method Blank	Total/NA	Solid	3050B	

Prep Batch: 195515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-12288-1	B30RD0	Total/NA	Solid	3050B	
LCDSRM 160-195515/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
LCSSRM 160-195515/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 160-195515/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 196420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-12288-1	B30RD0	Total/NA	Solid	6010C	195515
LCDSRM 160-195515/3-A	Lab Control Sample Dup	Total/NA	Solid	6010C	195515
LCSSRM 160-195515/2-A	Lab Control Sample	Total/NA	Solid	6010C	195515
MB 160-195515/1-A	Method Blank	Total/NA	Solid	6010C	195515

Analysis Batch: 197500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-12288-1	B30RD0	Total/NA	Solid	6020A	195514
LCS 160-195514/2-A	Lab Control Sample	Total/NA	Solid	6020A	195514
LCSD 160-195514/3-A	Lab Control Sample Dup	Total/NA	Solid	6020A	195514
MB 160-195514/1-A	Method Blank	Total/NA	Solid	6020A	195514

General Chemistry

Analysis Batch: 195720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-12288-1	B30RD0	Total/NA	Solid	Moisture	
160-12328-A-1 DU	Duplicate	Total/NA	Solid	Moisture	

Rad

Prep Batch: 195514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-12288-1	B30RD0	Total/NA	Solid	3050B	
LCS 160-195514/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 160-195514/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
MB 160-195514/1-A	Method Blank	Total/NA	Solid	3050B	