SAF-RC-238
Characterization of Surface Soils
At 100-K-64 & 100-K-111
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 9/4/13
INITIAL/DATE

COMMENTS:

SDG J01910 SAF-RC-238

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

Sample Location: 100-K-111 – 100-K-111 East Sample Area (statistical only)

Analytical Data Package Prepared For

Washington Closure Hanford

Radiochemical Analysis By

TestAmerica Inc

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

Assigned Laboratory Code: TARL

Data Package Contains _____ Pages

Report No.: 56791

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.
J01910	RC-238	J1RR63	J3H140427-1	M1MD91AG	9M1MD910	3226058
		J1RR63	J3H140427-1	M1MD91AC	9M1MD910	3226059
		J1RR63	J3H140427-1	M1MD91AH	9M1MD910	3226060
		J1RR63	J3H140427-1	M1MD91AF	9M1MD910	3226061
		J1RR63	J3H140427-1	M1MD91AD	9M1MD910	3226062
		J1RR63	J3H140427-1	M1MD91AE	9M1MD910	3226063
		J1RR63	J3H140427-1	M1MD91AA	9M1MD910	3231054
		J1RR64	J3H140427-2	M1MEA1AG	9M1MEA10	3226058
		J1RR64	J3H140427-2	M1MEA1AC	9M1MEA10	3226059
		J1RR64	J3H140427-2	M1MEA1AH	9M1MEA10	3226060
		J1RR64	J3H140427-2	M1MEA1AF	9M1MEA10	3226061
		J1RR64	J3H140427-2	M1MEA1AD	9M1MEA10	3226062
		J1RR64	J3H140427-2	M1MEA1AE	9M1MEA10	3226063
		J1RR64	J3H140427-2	M1MEA1AA	9M1MEA10	3231054
		J1RR65	J3H140427-3	M1MEC1AG	9M1MEC10	3226058
		J1RR65	J3H140427-3	M1MEC1AC	9M1MEC10	3226059
		J1RR65	J3H140427-3	M1MEC1AH	9M1MEC10	3226060
		J1RR65	J3H140427-3	M1MEC1AF	9M1MEC10	3226061
		J1RR65	J3H140427-3	M1MEC1AD	9M1MEC10	3226062
		J1RR65	J3H140427-3	M1MEC1AE	9M1MEC10	3226063
		J1RR65	J3H140427-3	M1MEC1AA	9M1MEC10	3231054

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

August 31, 2013

Attention: Joan Kessner

SAF Number	:	RC-238
Date SDG Closed	:	August 14, 2013
Number of Samples	:	Three (3)
Sample Type	:	Soil
SDG Number	:	J01910
Data Deliverable	:	15– Day / Summary

CASE NARRATIVE

I. Introduction

On August 14, 2013, three soil samples were received at TestAmerica for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Washington Closure Hanford (WCH) specific ID:

WCH ID#	TARL ID#	MATRIX	DATE OF RECEIPT
J1RR63	M1MD9	SOIL	08/14/13
J1RR64	M1MEA	SOIL	08/14/13
J1RR65	M1MEC	SOIL	08/14/13

II. Sample Receipt

The samples were 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
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
Liquid Scintillation Counting
Tritium by method RL-LSC-005
Carbon-14 by method RL-LSC-008
Nickel-63 by method RL-LCS-017
Chemical Analysis
Hexavalent Chromium by EPA method 7196A

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.

QC and sample results are reported in the same units.

V. Comments

Alpha Spectroscopy
Plutonium-238, -239/240 by method RL-ALP-002:
The LCS, batch blank, samples and sample duplicate (J1RR63) results are within contractual requirements.

Gas Proportional Counting
Strontium-90 by method RL-GPC-010:
The LCS, batch blank, samples and sample duplicate (J1RR64) results are within contractual requirements.

Gamma Spectroscopy
Gamma Spec by method RL-GAM-001:
The CRDL was not met for some of the analytes. Except as noted, the LCS, batch blank, samples and sample duplicate (J1RR64) results are within contractual requirements.

Liquid Scintillation Counting
Tritium by method RL-LSC-005:
The LCS, batch blank, samples and sample duplicate (J1RR63) results are within contractual requirements.

Carbon-14 by method RL-LSC-008:
The LCS, batch blank, samples and sample duplicate (J1RR65) results are within contractual requirements.

Nickel-63 by method RL-LCS-017:
The LCS, batch blank, samples and sample duplicate (J1RR64) results are within contractual requirements.

Chemical Analysis
Hexavalent Chromium by EPA method 7196A
The LCS, batch blank, samples, sample duplicate (J1RR63) and sample matrix spike (J1RR63) results are within contractual requirements.

Washington Closure Hanford
August 31, 2013

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:

Rhonda Wagar
Project Manager

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.
Total Uncert (#s) ***u_c - Combined Uncertainty.***	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 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.

Sample Results Summary

TestAmerica Inc TARL

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

Date: 31-Aug-13

Report No. : 56791

SDG No: J01910

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
3226060 C14_LSC									
J1RR63									
	M1MD91AH	C-14	-1.91E-01 +- 2.1E-01	U	pCi/g	100%	4.70E-01	5.00E+01	
J1RR64									
	M1MEA1AH	C-14	-1.28E-01 +- 2.1E-01	U	pCi/g	100%	4.65E-01	5.00E+01	
J1RR65									
	M1MEC1AH	C-14	-4.75E-02 +- 2.1E-01	U	pCi/g	100%	4.67E-01	5.00E+01	
J1RR65 DUP									
	M1MEC1AJ	C-14	-2.14E-01 +- 2.0E-01	U	pCi/g	100%	4.66E-01	5.00E+01	-127.3
3226063 PUISO_PLATE_AEA									
J1RR63									
	M1MD91AE	Pu-238	-5.90E-04 +- 3.0E-02	U	pCi/g	100%	5.37E-02	1.00E+00	
		PU239/40	5.90E-02 +- 6.0E-02	U	pCi/g	100%	5.37E-02	1.00E+00	
J1RR63 DUP									
	M1MD91AK	Pu-238	-1.10E-03 +- 2.7E-02	U	pCi/g	100%	5.52E-02	1.00E+00	-60.0
		PU239/40	2.69E-02 +- 3.9E-02	U	pCi/g	100%	4.99E-02	1.00E+00	74.9
J1RR64									
	M1MEA1AE	Pu-238	0.00E+00 +- 2.8E-02	U	pCi/g	99%	5.11E-02	1.00E+00	
		PU239/40	1.40E-02 +- 2.8E-02	U	pCi/g	99%	5.11E-02	1.00E+00	
J1RR65									
	M1MEC1AE	Pu-238	0.00E+00 +- 2.8E-02	U	pCi/g	98%	5.08E-02	1.00E+00	
		PU239/40	1.34E-02 +- 2.8E-02	U	pCi/g	98%	5.08E-02	1.00E+00	
3226058 GAMMA_GS									
J1RR63									
	M1MD91AG	CO-60	1.58E-02 +- 1.9E-02	U	pCi/g		3.49E-02	5.00E-02	
		CS-137	7.84E-02 +- 3.3E-02		pCi/g		3.10E-02	1.00E-01	
		EU-152	-2.70E-03 +- 4.8E-02	U	pCi/g		8.08E-02	1.00E-01	
		EU-154	1.71E-02 +- 5.9E-02	U	pCi/g		1.05E-01	1.00E-01	
		EU-155	9.14E-02 +- 5.1E-02	U	pCi/g		8.87E-02	1.00E-01	
		K-40	1.72E+01 +- 2.1E+00		pCi/g		2.76E-01		
J1RR64									
	M1MEA1AG	CO-60	-1.19E-02 +- 2.0E-02	U	pCi/g		3.41E-02	5.00E-02	
		CS-137	7.70E-03 +- 2.1E-02	U	pCi/g		3.66E-02	1.00E-01	
		EU-152	1.63E-02 +- 1.6E-01	U	pCi/g		1.04E-01	1.00E-01	
		EU-154	2.49E-02 +- 7.2E-02	U	pCi/g		1.27E-01	1.00E-01	
		EU-155	2.95E-02 +- 7.6E-02	U	pCi/g		1.28E-01	1.00E-01	
		K-40	1.84E+01 +- 2.3E+00		pCi/g		3.04E-01		
J1RR64 DUP									
	M1MEA1AJ	CO-60	7.08E-03 +- 1.9E-02	U	pCi/g		3.38E-02	5.00E-02	-785.9

TestAmerica Inc

rptSTLRchSaSummary2 V5.2.23 A2002

RPD - Relative Percent Difference.

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

Sample Results Summary

TestAmerica Inc TARL

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

Date: 31-Aug-13

Report No. : 56791

SDG No: J01910

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
3226058 GAMMA_GS									
J1RR64 DUP									
	M1MEA1AJ	CS-137	-3.41E-03 +- 1.8E-02	U	pCi/g		3.09E-02	1.00E-01	517.4
		EU-152	-2.01E-02 +- 4.6E-02	U	pCi/g		7.62E-02	1.00E-01	-1945.9
		EU-154	3.43E-03 +- 5.9E-02	U	pCi/g		1.04E-01	1.00E-01	151.6
		EU-155	7.86E-02 +- 5.2E-02	U	pCi/g		9.10E-02	1.00E-01	90.9
		K-40	1.86E+01 +- 2.3E+00		pCi/g		2.75E-01		0.9
J1RR65									
	M1MEC1AG	CO-60	-7.42E-03 +- 1.8E-02	U	pCi/g		2.99E-02	5.00E-02	
		CS-137	3.46E-02 +- 2.0E-02	U	pCi/g		3.64E-02	1.00E-01	
		EU-152	1.28E-02 +- 4.5E-02	U	pCi/g		7.66E-02	1.00E-01	
		EU-154	6.41E-02 +- 6.2E-02	U	pCi/g		1.14E-01	1.00E-01	
		EU-155	2.41E-02 +- 5.1E-02	U	pCi/g		8.72E-02	1.00E-01	
		K-40	1.86E+01 +- 2.3E+00		pCi/g		2.59E-01		
3226059 SRTOT_SEP_PRECIP_GPC									
J1RR63									
	M1MD91AC	STRONTIUM	8.05E-02 +- 1.1E-01	U	pCi/g	91%	2.34E-01		
J1RR64									
	M1MEA1AC	STRONTIUM	2.07E-02 +- 1.1E-01	U	pCi/g	84%	2.62E-01		
J1RR64 DUP									
	M1MEA1AK	STRONTIUM	7.28E-03 +- 9.9E-02	U	pCi/g	84%	2.35E-01		95.9
J1RR65									
	M1MEC1AC	STRONTIUM	1.75E-01 +- 1.3E-01	U	pCi/g	83%	2.40E-01		
3226061 906.0_H3_LSC									
J1RR63									
	M1MD91AF	H-3	-1.90E-02 +- 3.7E-02	U	pCi/g	100%	1.01E-01	4.00E+02	
J1RR63 DUP									
	M1MD91AJ	H-3	3.36E-02 +- 3.3E-02	U	pCi/g	100%	8.03E-02	4.00E+02	719.5
J1RR64									
	M1MEA1AF	H-3	8.48E-03 +- 4.0E-02	U	pCi/g	100%	8.76E-02	4.00E+02	
J1RR65									
	M1MEC1AF	H-3	-1.07E-02 +- 2.1E-02	U	pCi/g	100%	4.74E-02	4.00E+02	
3226062 NI63_LSC									
J1RR63									
	M1MD91AD	Ni-63	5.90E+00 +- 3.9E+00	U	pCi/g	92%	6.08E+00	3.00E+01	
J1RR64									
	M1MEA1AD	Ni-63	1.66E+00 +- 3.5E+00	U	pCi/g	95%	5.78E+00	3.00E+01	
J1RR64 DUP									
	M1MEA1AL	Ni-63	5.66E+00 +- 3.8E+00	U	pCi/g	89%	6.07E+00	3.00E+01	109.3

TestAmerica Inc

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RPD - Relative Percent Difference.

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

Sample Results Summary

Date: 31-Aug-13

TestAmerica Inc TARL

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

Report No. : 56791

SDG No: J01910

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
3226062	**NI63_LSC**								
	J1RR65								
	M1MEC1AD	Ni-63	6.13E+00 +- 3.9E+00		pCi/g	93%	5.91E+00	3.00E+01	
3231054	**7196_CR6**								
	J1RR63								
	M1MD91AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	M1MD91AN	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	0.0
	J1RR64								
	M1MEA1AA	HEXCHROME	3.90E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1RR65								
	M1MEC1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	

No. of Results: 52

TestAmerica Inc

rptSTLRchSaSummary2 V5.2.23 A2002

RPD - Relative Percent Difference.

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

QC Results Summary

Date: 31-Aug-13

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 56791 **SDG No.:** J01910

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
C14_LSC								
3226060 BLANK QC,								
M1MJE1AA	C-14	-8.69E-02 +- 2.1E-01	U	pCi/g	100%			4.64E-01
3226060 LCS,								
M1MJE1AC	C-14	7.04E+00 +- 5.9E-01		pCi/g	100%	97%	0.0	4.63E-01
PUISO_PLATE_AEA								
3226063 BLANK QC,								
M1MJH1AA	Pu-238	-1.26E-03 +- 3.2E-02	U	pCi/g	92%			6.33E-02
	PU239/40	1.45E-02 +- 3.2E-02	U	pCi/g	92%			6.33E-02
3226063 LCS,								
M1MJH1AC	PU239/40	5.78E+00 +- 1.3E+00		pCi/g	67%	87%	-0.1	7.38E-02
GAMMA_GS								
3226058 BLANK QC,								
M1MJC1AA	CO-60	3.61E-04 +- 1.0E-02	U	pCi/g				1.85E-02
	CS-137	1.82E-03 +- 1.1E-02	U	pCi/g				2.03E-02
	EU-152	-2.12E-02 +- 4.0E-02	U	pCi/g				5.43E-02
	EU-154	8.11E-03 +- 3.2E-02	U	pCi/g				5.95E-02
	EU-155	-2.17E-02 +- 3.3E-02	U	pCi/g				5.36E-02
	K-40	-5.17E-02 +- 1.6E-01	U	pCi/g				3.03E-01
3226058 LCS,								
M1MJC1AC	CS-137	1.00E+00 +- 1.2E-01		pCi/g		97%	0.0	3.06E-02
	RA-226	8.88E-01 +- 1.3E-01		pCi/g		78%	-0.2	5.97E-02
	RA-228	6.37E-01 +- 1.3E-01		pCi/g		90%	-0.1	9.95E-02
	U-238	9.76E-01 +- 1.5E-01		pCi/g		81%	-0.2	6.89E-02
SRTOT_SEP_PRECIP_GPC								
3226059 BLANK QC,								
M1MJD1AA	STRONTIUM	-2.31E-03 +- 9.4E-02	U	pCi/g	97%			2.24E-01
3226059 LCS,								
M1MJD1AC	STRONTIUM	2.25E+00 +- 5.7E-01		pCi/g	88%	99%	0.0	2.40E-01
906.0_H3_LSC								
3226061 BLANK QC,								
M1MJF1AA	H-3	-4.69E-03 +- 6.1E-02	U	pCi/g	100%			1.35E-01
3226061 LCS,								
M1MJF1AC	H-3	4.46E-01 +- 6.6E-02		pCi/g	100%	85%	-0.2	9.81E-02
NI63_LSC								
3226062 BLANK QC,								
M1MJG1AA	Ni-63	8.23E+00 +- 4.0E+00		pCi/g	85%			6.08E+00
3226062 LCS,								
M1MJG1AC	Ni-63	2.61E+02 +- 2.9E+01		pCi/g	92%	89%	-0.1	5.82E+00
7196_CR6								
3231054 MATRIX SPIKE, J1RR63								
M1MD91AL	HEXCHROME	2.35E+01 +- 0.0E+00		mg/kg	N/A	82%	-0.2	1.55E-01
3231054 LCS,								

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

rptSTLRchQcSummary V5.2.23 A2002 **U Qual** - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

QC Results Summary

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Date: 31-Aug-13

Report No. : 56791

SDG No.: J01910

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
M1NJK1AC	HEXCHROME	1.74E+01 +- 0.0E+00		mg/kg	N/A	92%	-0.1	1.55E-01
3231054 BLANK QC,								
M1NJK1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A			1.55E-01

No. of Results: 24

TestAmerica Inc

rptSTLRchQcSummary V5.2.23
A2002

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

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

FORM I

SAMPLE RESULTS

Date: 31-Aug-13

Lab Name:	TestAmerica Inc	**SDG:**	J01910	**Collection Date:**	8/12/2013 9:00:00 AM
Lot-Sample No.:	J3H140427-1	**Report No. :**	56791	**Received Date:**	8/14/2013 11:07:00 AM
Client Sample ID:	J1RR63	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 3226058	GAMMA_GS			**Work Order:**	M1MD91AG		**Report DB ID:**	9M1MD910				
CO-60	1.58E-02	U	1.9E-02	1.9E-02	3.49E-02	pCi/g		*0.45*	8/22/13 07:49 a		322.2	GER11$1
							5.00E-02	*(1.7)*			g	
CS-137	7.84E-02		3.3E-02	3.3E-02	3.10E-02	pCi/g		*(2.5)*	8/22/13 07:49 a		322.2	GER11$1
							1.00E-01	*(4.8)*			g	
EU-152	-2.70E-03	U	4.8E-02	4.8E-02	8.08E-02	pCi/g		*-0.03*	8/22/13 07:49 a		322.2	GER11$1
							1.00E-01	*-0.11*			g	
EU-154	1.71E-02	U	5.9E-02	5.9E-02	1.05E-01	pCi/g		*0.16*	8/22/13 07:49 a		322.2	GER11$1
							1.00E-01	*0.58*			g	
EU-155	9.14E-02	U	5.1E-02	5.1E-02	8.87E-02	pCi/g		*(1.)*	8/22/13 07:49 a		322.2	GER11$1
							1.00E-01	*(3.6)*			g	
K-40	1.72E+01		2.1E+00	2.1E+00	2.76E-01	pCi/g		*(62.2)*	8/22/13 07:49 a		322.2	GER11$1
								(16.)			g	
Batch: 3226059	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M1MD91AC		**Report DB ID:**	9M1MD910				
STRONTIUM	8.05E-02	U	1.1E-01	1.1E-01	2.34E-01	pCi/g	91%	*0.34*	8/29/13 07:37 p		3.04	GPC31D
						1.09E-01		*(1.5)*			g	
Batch: 3226060	C14_LSC			**Work Order:**	M1MD91AH		**Report DB ID:**	9M1MD910				
C-14	-1.91E-01	U	1.8E-01	2.1E-01	4.70E-01	pCi/g	100%	*-0.41*	8/29/13 09:27 p		5.001	LSC8
						2.21E-01	5.00E+01	*-(1.8)*			g	
Batch: 3226061	906.0_H3_LSC			**Work Order:**	M1MD91AF		**Report DB ID:**	9M1MD910				
H-3	-1.90E-02	U	3.4E-02	3.7E-02	1.01E-01	pCi/g	100%	*-0.19*	8/27/13 10:19 p		50.4	LSC3
						4.73E-02	4.00E+02	*-(1.)*			g	

TestAmerica Inc
rptSTLRchSample
V5.2.23 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 31-Aug-13

Lab Name:	**TestAmerica Inc**	**SDG:**	J01910	**Collection Date:**	8/12/2013 9:00:00 AM
Lot-Sample No.:	**J3H140427-1**	**Report No. :**	56791	**Received Date:**	8/14/2013 11:07:00 AM
Client Sample ID:	**J1RR63**	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 3226062	NI63_LSC			**Work Order:**	M1MD91AD		**Report DB ID:**	9M1MD910				
Ni-63	**5.90E+00**	U	2.7E+00	3.9E+00	6.08E+00	pCi/g	92%	*0.97*	8/31/13 09:01 a		0.5	LSC9
						2.89E+00	3.00E+01	*(3.)*			g	
Batch: 3226063	PUISO_PLATE_AEA			**Work Order:**	M1MD91AE		**Report DB ID:**	9M1MD910				
Pu-238	**-5.90E-04**	U	3.0E-02	3.0E-02	5.37E-02	pCi/g	100%	*-0.01*	8/27/13 08:44 p		1.0	ALP439
						6.87E-03	1.00E+00	*-0.04*			g	
PU239/40	**5.90E-02**	U	5.9E-02	6.0E-02	5.37E-02	pCi/g	100%	*(1.1)*	8/27/13 08:44 p		1.0	ALP439
						6.86E-03	1.00E+00	*(2.)*			g	
Batch: 3231054	7196_CR6			**Work Order:**	M1MD91AA		**Report DB ID:**	9M1MD910				
HEXCHROME	**1.55E-01**	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	8/28/13 11:15 a		2.513	
							1.55E-01	*N/A*			g	

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

TestAmerica Inc
rptSTLRchSample
V5.2.23 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 31-Aug-13

Lab Name:	**TestAmerica Inc**	**SDG:**	J01910	**Collection Date:**	8/12/2013 12:47:00 PM
Lot-Sample No.:	**J3H140427-2**	**Report No. :**	56791	**Received Date:**	8/14/2013 11:07:00 AM
Client Sample ID:	**J1RR64**	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 3226058	GAMMA_GS			**Work Order:**	M1MEA1AG		**Report DB ID:**	9M1MEA10				
CO-60	-1.19E-02	U	2.0E-02	2.0E-02	3.41E-02	pCi/g		-0.35	8/22/13 05:17 p		314.1	GER10$1
							5.00E-02	-(1.2)			g	
CS-137	7.70E-03	U	2.1E-02	2.1E-02	3.66E-02	pCi/g		0.21	8/22/13 05:17 p		314.1	GER10$1
							1.00E-01	0.74			g	
EU-152	1.63E-02	U	1.6E-01	1.6E-01	1.04E-01	pCi/g		0.16	8/22/13 05:17 p		314.1	GER10$1
							1.00E-01	0.2			g	
EU-154	2.49E-02	U	7.2E-02	7.2E-02	1.27E-01	pCi/g		0.2	8/22/13 05:17 p		314.1	GER10$1
							1.00E-01	0.69			g	
EU-155	2.95E-02	U	7.6E-02	7.6E-02	1.28E-01	pCi/g		0.23	8/22/13 05:17 p		314.1	GER10$1
							1.00E-01	0.77			g	
K-40	1.84E+01		2.3E+00	2.3E+00	3.04E-01	pCi/g		(60.6)	8/22/13 05:17 p		314.1	GER10$1
								(16.1)			g	
Batch: 3226059	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M1MEA1AC		**Report DB ID:**	9M1MEA10				
STRONTIUM	2.07E-02	U	1.1E-01	1.1E-01	2.62E-01	pCi/g	84%	0.08	8/29/13 07:37 p		3.03	GPC32A
						1.22E-01		0.37			g	
Batch: 3226060	C14_LSC			**Work Order:**	M1MEA1AH		**Report DB ID:**	9M1MEA10				
C-14	-1.28E-01	U	1.8E-01	2.1E-01	4.65E-01	pCi/g	100%	-0.27	8/29/13 09:49 p		5.07	LSC8
						2.19E-01	5.00E+01	-(1.2)			g	
Batch: 3226061	906.0_H3_LSC			**Work Order:**	M1MEA1AF		**Report DB ID:**	9M1MEA10				
H-3	8.48E-03	U	3.6E-02	4.0E-02	8.76E-02	pCi/g	100%	0.1	8/27/13 11:47 p		51.7	LSC3
						4.10E-02	4.00E+02	0.42			g	

TestAmerica Inc
rptSTLRchSample
V5.2.23 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 31-Aug-13

Lab Name:	TestAmerica Inc	**SDG:**	J01910	**Collection Date:**	8/12/2013 12:47:00 PM
Lot-Sample No.:	J3H140427-2	**Report No. :**	56791	**Received Date:**	8/14/2013 11:07:00 AM
Client Sample ID:	J1RR64	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 3226062	NI63_LSC			**Work Order:**	M1MEA1AD		**Report DB ID:**	9M1MEA10				
Ni-63	1.66E+00	U	2.4E+00	3.5E+00	5.78E+00	pCi/g	95%	*0.29*	8/31/13 09:22 a		0.51	LSC9
						2.74E+00	3.00E+01	*0.96*			g	
Batch: 3226063	PUISO_PLATE_AEA			**Work Order:**	M1MEA1AE		**Report DB ID:**	9M1MEA10				
Pu-238	0.00E+00	U	0.0E+00	2.8E-02	5.11E-02	pCi/g	99%	*0.*	8/27/13 08:45 p		1.01	ALP445
						6.54E-03	1.00E+00	*0.*			g	
PU239/40	1.40E-02	U	2.8E-02	2.8E-02	5.11E-02	pCi/g	99%	*0.27*	8/27/13 08:45 p		1.01	ALP445
						6.53E-03	1.00E+00	*1.*			g	
Batch: 3231054	7196_CR6			**Work Order:**	M1MEA1AA		**Report DB ID:**	9M1MEA10				
HEXCHROME	3.90E-01			0.0E+00	1.55E-01	mg/kg	N/A	*(2.5)*	8/28/13 11:15 a		2.5119	
							1.55E-01	*N/A*			g	

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

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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 31-Aug-13

Lab Name:	TestAmerica Inc	**SDG:**	J01910	**Collection Date:**	8/12/2013 1:00:00 PM
Lot-Sample No.:	J3H140427-3	**Report No. :**	56791	**Received Date:**	8/14/2013 11:07:00 AM
Client Sample ID:	J1RR65	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 3226058	GAMMA_GS			**Work Order:**	M1MEC1AG		**Report DB ID:**	9M1MEC10				
CO-60	-7.42E-03	U	1.8E-02	1.8E-02	2.99E-02	pCi/g		-0.25	8/22/13 06:23 p		330.2	GER11$1
							5.00E-02	-0.84			g	
CS-137	3.46E-02	U	2.0E-02	2.0E-02	3.64E-02	pCi/g		0.95	8/22/13 06:23 p		330.2	GER11$1
							1.00E-01	(3.4)			g	
EU-152	1.28E-02	U	4.5E-02	4.5E-02	7.66E-02	pCi/g		0.17	8/22/13 06:23 p		330.2	GER11$1
							1.00E-01	0.57			g	
EU-154	6.41E-02	U	6.2E-02	6.2E-02	1.14E-01	pCi/g		0.56	8/22/13 06:23 p		330.2	GER11$1
							1.00E-01	(2.1)			g	
EU-155	2.41E-02	U	5.1E-02	5.1E-02	8.72E-02	pCi/g		0.28	8/22/13 06:23 p		330.2	GER11$1
							1.00E-01	0.94			g	
K-40	1.86E+01		2.3E+00	2.3E+00	2.59E-01	pCi/g		(71.8)	8/22/13 06:23 p		330.2	GER11$1
								(16.2)			g	
Batch: 3226059	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M1MEC1AC		**Report DB ID:**	9M1MEC10				
STRONTIUM	1.75E-01	U	1.2E-01	1.3E-01	2.40E-01	pCi/g	83%	0.73	8/29/13 07:37 p		3.01	GPC32C
						1.11E-01		(2.7)			g	
Batch: 3226060	C14_LSC			**Work Order:**	M1MEC1AH		**Report DB ID:**	9M1MEC10				
C-14	-4.75E-02	U	1.9E-01	2.1E-01	4.67E-01	pCi/g	100%	-0.1	8/29/13 10:11 p		5.048	LSC8
						2.19E-01	5.00E+01	-0.45			g	
Batch: 3226061	906.0_H3_LSC			**Work Order:**	M1MEC1AF		**Report DB ID:**	9M1MEC10				
H-3	-1.07E-02	U	1.8E-02	2.1E-02	4.74E-02	pCi/g	100%	-0.23	8/28/13 12:30 a		53.2	LSC3
						2.22E-02	4.00E+02	-(1.)			g	

TestAmerica Inc
rptSTLRchSample
V5.2.23 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 31-Aug-13

Lab Name:	TestAmerica Inc	**SDG:**	J01910	**Collection Date:**	8/12/2013 1:00:00 PM
Lot-Sample No.:	J3H140427-3	**Report No. :**	56791	**Received Date:**	8/14/2013 11:07:00 AM
Client Sample ID:	J1RR65	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 3226062	NI63_LSC			**Work Order:**	M1MEC1AD		**Report DB ID:**	9M1MEC10				
Ni-63	6.13E+00		2.7E+00	3.9E+00	5.91E+00	pCi/g	93%	*(1.)*	8/31/13 10:05 a		0.51	LSC9
						2.81E+00	3.00E+01	*(3.2)*			g	
Batch: 3226063	PUISO_PLATE_AEA			**Work Order:**	M1MEC1AE		**Report DB ID:**	9M1MEC10				
Pu-238	0.00E+00	U	0.0E+00	2.8E-02	5.08E-02	pCi/g	98%	*0.*	8/27/13 08:45 p		1.03	ALP446
						6.50E-03	1.00E+00	*0.*			g	
PU239/40	1.34E-02	U	2.8E-02	2.8E-02	5.08E-02	pCi/g	98%	*0.26*	8/27/13 08:45 p		1.03	ALP446
						6.49E-03	1.00E+00	*0.96*			g	
Batch: 3231054	7196_CR6			**Work Order:**	M1MEC1AA		**Report DB ID:**	9M1MEC10				
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	8/28/13 11:15 a		2.5141	
							1.55E-01	*N/A*			g	

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

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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

Date: 31-Aug-13

DUPLICATE RESULTS

Lab Name:	TestAmerica Inc	**SDG:**	J01910	**Collection Date:**	8/12/2013 9:00:00 AM
Lot-Sample No.:	J3H140427-1	**Report No. :**	56791	**Received Date:**	8/14/2013 11:07:00 AM
Client Sample ID:	J1RR63	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3231054	7196_CR6			**Work Order:** M1MD91AN		**Report DB ID:** M1MD91ER			**Orig Sa DB ID:** 9M1MD910			
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	8/28/13 11:15 a		2.4991	
	1.55E-01	U	**RPD**	**0.0**		1.55E-01		N/A			g	

No. of Results: 1 **Comments:**

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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

Date: 31-Aug-13

DUPLICATE RESULTS

Lab Name:	**TestAmerica Inc**	**SDG:**	J01910	**Collection Date:**	8/12/2013 9:00:00 AM
Lot-Sample No.:	**J3H140427-1**	**Report No. :**	56791	**Received Date:**	8/14/2013 11:07:00 AM
Client Sample ID:	**J1RR63 DUP**	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3226061	906.0_H3_LSC			**Work Order:** M1MD91AJ		**Report DB ID:** M1MD91JR			**Orig Sa DB ID:** 9M1MD910			
H-3	3.36E-02	U	3.1E-02	3.3E-02	8.03E-02	pCi/g	100%	0.42	8/27/13 11:03 p		50.8	LSC3
	-1.90E-02	U	**RPD**	**719.5**		4.00E+02		(2.)			g	
Batch: 3226063	PUISO_PLATE_AEA			**Work Order:** M1MD91AK		**Report DB ID:** M1MD91KR			**Orig Sa DB ID:** 9M1MD910			
Pu-238	-1.10E-03	U	2.7E-02	2.7E-02	5.52E-02	pCi/g	100%	-0.02	8/27/13 08:44 p		1.03	ALP441
	-5.90E-04	U	**RPD**	**-60.0**		1.00E+00		-0.08			g	
PU239/40	2.69E-02	U	3.9E-02	3.9E-02	4.99E-02	pCi/g	100%	0.54	8/27/13 08:44 p		1.03	ALP441
	5.90E-02	U	**RPD**	**74.9**		1.00E+00		(1.4)			g	

Alpha Spec Result Sum = 2.6E-02

No. of Results: 3 **Comments:**

TestAmerica Inc RPD - Relative Percent Difference.

rptSTLRchDupV5.2.23 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

Date: 31-Aug-13

DUPLICATE RESULTS

Lab Name:	TestAmerica Inc	**SDG:**	J01910	**Collection Date:**	8/12/2013 12:47:00 PM
Lot-Sample No.:	J3H140427-2	**Report No. :**	56791	**Received Date:**	8/14/2013 11:07:00 AM
Client Sample ID:	J1RR64 DUP	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3226058	GAMMA_GS			**Work Order:** M1MEA1AJ		**Report DB ID:** M1MEA1JR			**Orig Sa DB ID:** 9M1MEA10			
CO-60	7.08E-03	U	1.9E-02	1.9E-02	3.38E-02	pCi/g		0.21	8/22/13 11:29 p		314.1	GER11$1
	-1.19E-02	U	**RPD**	**-785.9**		5.00E-02		0.76			g	
CS-137	-3.41E-03	U	1.8E-02	1.8E-02	3.09E-02	pCi/g		-0.11	8/22/13 11:29 p		314.1	GER11$1
	7.70E-03	U	**RPD**	**517.4**		1.00E-01		-0.37			g	
EU-152	-2.01E-02	U	4.6E-02	4.6E-02	7.62E-02	pCi/g		-0.26	8/22/13 11:29 p		314.1	GER11$1
	1.63E-02	U	**RPD**	**-1945.9**		1.00E-01		-0.87			g	
EU-154	3.43E-03	U	5.9E-02	5.9E-02	1.04E-01	pCi/g		0.03	8/22/13 11:29 p		314.1	GER11$1
	2.49E-02	U	**RPD**	**151.6**		1.00E-01		0.12			g	
EU-155	7.86E-02	U	5.2E-02	5.2E-02	9.10E-02	pCi/g		0.86	8/22/13 11:29 p		314.1	GER11$1
	2.95E-02	U	**RPD**	**90.9**		1.00E-01		(3.)			g	
K-40	1.86E+01		2.3E+00	2.3E+00	2.75E-01	pCi/g		(67.5)	8/22/13 11:29 p		314.1	GER11$1
	1.84E+01		**RPD**	**0.9**				(16.1)			g	
Batch: 3226059	SRTOT_SEP_PRECIP_GPC			**Work Order:** M1MEA1AK		**Report DB ID:** M1MEA1KR			**Orig Sa DB ID:** 9M1MEA10			
STRONTIUM	7.28E-03	U	9.9E-02	9.9E-02	2.35E-01	pCi/g	84%	0.03	8/29/13 07:37 p		3.0	GPC32B
	2.07E-02	U	**RPD**	**95.9**				0.15			g	
Batch: 3226062	NI63_LSC			**Work Order:** M1MEA1AL		**Report DB ID:** M1MEA1LR			**Orig Sa DB ID:** 9M1MEA10			
Ni-63	5.66E+00	U	2.7E+00	3.8E+00	6.07E+00	pCi/g	89%	0.93	8/31/13 09:44 a		0.52	LSC9
	1.66E+00	U	**RPD**	**109.3**		3.00E+01		(3.)			g	

No. of Results: 8 **Comments:**

TestAmerica Inc
rptSTLRchDupV5.
2.23 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

Date: 31-Aug-13

DUPLICATE RESULTS

Lab Name:	TestAmerica Inc	**SDG:**	J01910	**Collection Date:**	8/12/2013 1:00:00 PM
Lot-Sample No.:	J3H140427-3	**Report No. :**	56791	**Received Date:**	8/14/2013 11:07:00 AM
Client Sample ID:	J1RR65 DUP	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3226060	C14_LSC			**Work Order:** M1MEC1AJ		**Report DB ID:** M1MEC1JR			**Orig Sa DB ID:** 9M1MEC10			
C-14	-2.14E-01	U	1.8E-01	2.0E-01	4.66E-01	pCi/g	100%	-0.46	8/29/13 10:32 p		5.057	LSC8
	-4.75E-02	U	**RPD**	**-127.3**		5.00E+01		-(2.1)			g	

No. of Results: 1 **Comments:**

TestAmerica Inc
rptSTLRchDupV5.
2.23 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 31-Aug-13

Lab Name: TestAmerica Inc

SDG: J01910

Matrix: SOIL

Report No. : 56791

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3231054	7196_CR6			**Work Order:**	M1NJK1AA		**Report DB ID:**	M1NJK1AB				
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	8/28/13 11:15 a		2.5	
						1.55E-01		N/A			g	
Batch: 3226060	C14_LSC			**Work Order:**	M1MJE1AA		**Report DB ID:**	M1MJE1AB				
C-14	-8.69E-02	U	1.8E-01	2.1E-01	4.64E-01	pCi/g	100%	-0.19	8/29/13 10:54 p		5.08	LSC8
					2.18E-01	5.00E+01		-0.83			g	
Batch: 3226063	PUISO_PLATE_AEA			**Work Order:**	M1MJH1AA		**Report DB ID:**	M1MJH1AB				
Pu-238	-1.26E-03	U	3.2E-02	3.2E-02	6.33E-02	pCi/g	92%	-0.02	8/27/13 08:45 p		1.01	ALP447
					1.04E-02	1.00E+00		-0.08			g	
PU239/40	1.45E-02	U	3.2E-02	3.2E-02	6.33E-02	pCi/g	92%	0.23	8/27/13 08:45 p		1.01	ALP447
					1.04E-02	1.00E+00		0.92			g	
Batch: 3226062	NI63_LSC			**Work Order:**	M1MJG1AA		**Report DB ID:**	M1MJG1AB				
Ni-63	8.23E+00		2.8E+00	4.0E+00	6.08E+00	pCi/g	85%	(1.4)	8/31/13 10:26 a		0.54	LSC9
					2.89E+00	3.00E+01		(4.1)			g	
Batch: 3226061	906.0_H3_LSC			**Work Order:**	M1MJF1AA		**Report DB ID:**	M1MJF1AB				
H-3	-4.69E-03	U	5.4E-02	6.1E-02	1.35E-01	pCi/g	100%	-0.03	8/28/13 01:13 a		60.0	LSC3
					6.32E-02	4.00E+02		-0.15			g	
Batch: 3226058	GAMMA_GS			**Work Order:**	M1MJC1AA		**Report DB ID:**	M1MJC1AB				
CO-60	3.61E-04	U	1.0E-02	1.0E-02	1.85E-02	pCi/g		0.02	8/22/13 11:30 p		348.0	GER10$1
						5.00E-02		0.07			g	
CS-137	1.82E-03	U	1.1E-02	1.1E-02	2.03E-02	pCi/g		0.09	8/22/13 11:30 p		348.0	GER10$1
						1.00E-01		0.32			g	

TestAmerica Inc
rptSTLRchBlank
V5.2.23 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II
BLANK RESULTS

Date: 31-Aug-13

Lab Name: TestAmerica Inc
Matrix: SOIL

SDG: J01910
Report No. : 56791

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
EU-152	-2.12E-02	U	4.0E-02	4.0E-02	5.43E-02	pCi/g		-0.39	8/22/13 11:30 p		348.0	GER10$1
						1.00E-01		-(1.1)			g	
EU-154	8.11E-03	U	3.2E-02	3.2E-02	5.95E-02	pCi/g		0.14	8/22/13 11:30 p		348.0	GER10$1
						1.00E-01		0.51			g	
EU-155	-2.17E-02	U	3.3E-02	3.3E-02	5.36E-02	pCi/g		-0.4	8/22/13 11:30 p		348.0	GER10$1
						1.00E-01		-(1.3)			g	
K-40	-5.17E-02	U	1.6E-01	1.6E-01	3.03E-01	pCi/g		-0.17	8/22/13 11:30 p		348.0	GER10$1
								-0.66			g	
Batch: 3226059	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M1MJD1AA		**Report DB ID:**	M1MJD1AB				
STRONTIUM	-2.31E-03	U	9.4E-02	9.4E-02	2.24E-01	pCi/g	97%	-0.01	8/29/13 07:37 p		3.04	GPC32D
					1.04E-01			-0.05			g	

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

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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

LCS RESULTS

Date: 31-Aug-13

Lab Name: TestAmerica Inc

SDG: J01910

Matrix: SOIL

Report No. : 56791

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 3231054	7196_CR6			**Work Order:**	M1NJK1AC		**Report DB ID:**	M1NJK1AS					
HEXCHROME	1.74E+01			0.0E+00	1.55E-01	mg/kg	N/A	1.90E+01		92%	8/28/13 11:15 a	2.5	
							Rec Limits:	80	120	-0.1		g	
Batch: 3226060	C14_LSC			**Work Order:**	M1MJE1AC		**Report DB ID:**	M1MJE1CS					
C-14	7.04E+00		4.2E-01	5.9E-01	4.63E-01	pCi/g	100%	7.28E+00	1.5E-01	97%	8/29/13 11:16 p	5.087	LSC8
							Rec Limits:			0.0		g	
Batch: 3226063	PUISO_PLATE_AEA			**Work Order:**	M1MJH1AC		**Report DB ID:**	M1MJH1CS					
PU239/40	5.78E+00		6.8E-01	1.3E+00	7.38E-02	pCi/g	67%	6.64E+00	2.0E-01	87%	8/27/13 08:46 p	1.04	ALP448
							Rec Limits:	70	130	-0.1		g	
Batch: 3226062	NI63_LSC			**Work Order:**	M1MJG1AC		**Report DB ID:**	M1MJG1CS					
Ni-63	2.61E+02		9.2E+00	2.9E+01	5.82E+00	pCi/g	92%	2.94E+02	4.9E+00	89%	8/31/13 10:47 a	0.52	LSC9
							Rec Limits:	70	130	-0.1		g	
Batch: 3226061	906.0_H3_LSC			**Work Order:**	M1MJF1AC		**Report DB ID:**	M1MJF1CS					
H-3	4.46E-01		6.0E-02	6.6E-02	9.81E-02	pCi/g	100%	5.26E-01	1.6E-02	85%	8/28/13 01:57 a	57.3	LSC3
							Rec Limits:	70	130	-0.2		g	
Batch: 3226058	GAMMA_GS			**Work Order:**	M1MJC1AC		**Report DB ID:**	M1MJC1CS					
CS-137	1.00E+00		1.2E-01	1.2E-01	3.06E-02	pCi/g		1.03E+00	1.1E-02	97%	8/23/13 04:35 p	350.1	GER10$1
							Rec Limits:	70	130	0.0		g	
RA-226	8.88E-01		1.3E-01	1.3E-01	5.97E-02	pCi/g		1.14E+00	1.2E-02	78%	8/23/13 04:35 p	350.1	GER10$1
							Rec Limits:	70	130	-0.2		g	
RA-228	6.37E-01		1.3E-01	1.3E-01	9.95E-02	pCi/g		7.05E-01	7.3E-03	90%	8/23/13 04:35 p	350.1	GER10$1
							Rec Limits:	70	130	-0.1		g	

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

rptSTLRchLcs
V5.2.23 A2002

FORM II

LCS RESULTS

Date: 31-Aug-13

Lab Name: TestAmerica Inc

SDG: J01910

Matrix: SOIL

Report No. : 56791

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
U-238	9.76E-01		1.5E-01	1.5E-01	6.89E-02	pCi/g		1.20E+00	1.2E-02	81%	8/23/13 04:35 p	350.1	GER10$1
							Rec Limits:	70	130	-0.2		g	
Batch: 3226059	SRTOT_SEP_PRECIP_GPC			Work Order:	M1MJD1AC		Report DB ID:	M1MJD1CS					
STRONTIUM	2.25E+00		2.6E-01	5.7E-01	2.40E-01	pCi/g	88%	2.26E+00	4.7E-02	99%	8/29/13 08:40 p	3.02	GPC31A
							Rec Limits:	70	130	0.0		g	

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

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

rptSTLRchLcs
V5.2.23 A2002

FORM II

MATRIX SPIKE RESULTS

Date: 31-Aug-13

Lab Name: TestAmerica Inc **SDG:** J01910

Lot-Sample No.: J3H140427-1, J1RR63 **Report No. :** 56791 **Matrix:** SOIL

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Rpt Unit, CRDL	Yield	Rec-overy	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 3231054	Work Order:	M1MD91AL		Report DB ID:	M1MD91CW		Orig Sa DB ID:	9M1MD910				
HEXCHROME	2.35E+01			0.0E+00	1.55E-01	mg/kg	N/A	81.69%	2.88E+01	8/28/13 11:15 a	2.5	7196_CR6
	1.55E-01										g	

Number of Results: 1

Comments:

TestAmerica Inc
rptSTLRchMs
V5.2.23 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

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

8/28/2013 6:56:37 PM

Lot No., Due Date: J3H140427; 08/29/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3226063; RPUISO Pulso by ALP
SDG, Matrix: J01910; SOIL

1.0 COC			
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes ✓	No	N/A
2.0 QC Batch			
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	Yes ✓	No	N/A
2.2 Are the QC appropriate for the analysis included in the batch?	Yes ✓	No	N/A
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	Yes ✓	No	N/A
2.4 Does the Worksheets include a Tracer Vial label for each sample?	Yes ✓	No	N/A
3.0 QC & Samples			
3.1 Is the blank results, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.2 Is the LCS result, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.3 Are the MS/MSD results, yields, and MDA within contract limits?	Yes	No	N/A ✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	Yes ✓	No	N/A
3.5 Are the sample yields and MDAs within contract limits?	Yes ✓	No	N/A
4.0 Raw Data			
4.1 Were results calculated in the correct units?	Yes ✓	No	N/A
4.2 Were analysis volumes entered correctly?	Yes ✓	No	N/A
4.3 Were Yields entered correctly?	Yes	No	N/A ✓
4.4 Were spectra reviewed/meet contractual requirements?	Yes ✓	No	N/A
4.5 Were raw counts reviewed for anomalies?	Yes ✓	No	N/A
5.0 Other			
5.1 Are all nonconformances included and noted?	Yes	No	N/A ✓
5.2 Are all required forms filled out?	Yes ✓	No	N/A
5.3 Was the correct methodology used?	Yes ✓	No	N/A
5.4 Was transcription checked?	Yes ✓	No	N/A
5.5 Were all calculations checked at a minimum frequency?	Yes	No	N/A ✓
5.6 Are worksheet entries complete and correct?	Yes ✓	No	N/A

6.0 Comments on any No response:

First Level Lisa Antonson **Date** 8/28/13

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 32260063

Review Item	Yes (√)	No (√)	NA (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Non-conformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: CRQL = 1.0 pCi/gm

Second Level Review: [signature] Date: 8/29/13

LS-038B, Rev. 10, 9/07

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

8/30/2013 8:08:35 AM

Lot No., Due Date: J3H140427; 08/29/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3226059; RSRTOT SrTot by GPC
SDG, Matrix: J01910; SOIL

1.0 COC			
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes ✓	No	N/A
2.0 QC Batch			
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	Yes ✓	No	N/A
2.2 Are the QC appropriate for the analysis included in the batch?	Yes ✓	No	N/A
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	Yes ✓	No	N/A
2.4 Does the Worksheets include a Tracer Vial label for each sample?	Yes ✓	No	N/A
3.0 QC & Samples			
3.1 Is the blank results, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.2 Is the LCS result, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.3 Are the MS/MSD results, yields, and MDA within contract limits?	Yes	No	N/A ✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	Yes ✓	No	N/A
3.5 Are the sample yields and MDAs within contract limits?	Yes ✓	No	N/A
4.0 Raw Data			
4.1 Were results calculated in the correct units?	Yes ✓	No	N/A
4.2 Were analysis volumes entered correctly?	Yes ✓	No	N/A
4.3 Were Yields entered correctly?	Yes ✓	No	N/A
4.4 Were spectra reviewed/meet contractual requirements?	Yes	No	N/A ✓
4.5 Were raw counts reviewed for anomalies?	Yes ✓	No	N/A
5.0 Other			
5.1 Are all nonconformances included and noted?	Yes	No	N/A ✓
5.2 Are all required forms filled out?	Yes ✓	No	N/A
5.3 Was the correct methodology used?	Yes ✓	No	N/A
5.4 Was transcription checked?	Yes ✓	No	N/A
5.5 Were all calculations checked at a minimum frequency?	Yes	No	N/A ✓
5.6 Are worksheet entries complete and correct?	Yes ✓	No	N/A

6.0 Comments on any No response:

Thomas B McEl

First Level _____ **Date** 8/30/13

TestAmerica Richland
QAS_RADCALCv4.8.44

Page 1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 3226059

Review Item	Yes (√)	No (√)	NA (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Non-conformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: CRQL = 1.0 pCi/g

Second Level Review: [signature] Date: 8/30/13

LS-038B, Rev. 10, 9/07

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

8/29/2013 4:09:02 PM

Lot No., Due Date: J3H140427; 08/29/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3226058; RGAMMA Gamma by GER
SDG, Matrix: J01910; SOIL

1.0 COC

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes ✓	No	N/A

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	Yes ✓	No	N/A
2.2 Are the QC appropriate for the analysis included in the batch?	Yes ✓	No	N/A
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	Yes ✓	No	N/A
2.4 Does the Worksheets include a Tracer Vial label for each sample?	Yes	No	N/A ✓

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.2 Is the LCS result, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.3 Are the MS/MSD results, yields, and MDA within contract limits?	Yes	No	N/A ✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	Yes ✓	No	N/A
3.5 Are the sample yields and MDAs within contract limits?	Yes ✓	No	N/A

4.0 Raw Data

4.1 Were results calculated in the correct units?	Yes ✓	No	N/A
4.2 Were analysis volumes entered correctly?	Yes ✓	No	N/A
4.3 Were Yields entered correctly?	Yes	No	N/A ✓
4.4 Were spectra reviewed/meet contractual requirements?	Yes ✓	No	N/A
4.5 Were raw counts reviewed for anomalies?	Yes ✓	No	N/A

5.0 Other

5.1 Are all nonconformances included and noted?	Yes ✓	No	N/A
5.2 Are all required forms filled out?	Yes ✓	No	N/A
5.3 Was the correct methodology used?	Yes ✓	No	N/A
5.4 Was transcription checked?	Yes ✓	No	N/A
5.5 Were all calculations checked at a minimum frequency?	Yes	No	N/A ✓
5.6 Are worksheet entries complete and correct?	Yes ✓	No	N/A

6.0 Comments on any No response:
NCM 10-24496

First Level Lisa Antosh **Date** 8/29/13

TestAmerica Richland
QAS_RADCALCv4.8.44

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 3226058

Review Item	Yes (√)	No (√)	NA (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓	✓	
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Non-conformances included and noted?	✓		
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: SRDL = 0.1 pCi/g
See Nom #: 10-24496

Second Level Review: [signature] Date: 8/29/13

LS-038B, Rev. 10, 9/07

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-24496**
NCM Initiated By: Lisa Antonson
Date Opened: 08/29/2013
Date Closed:

Classification: **Anomaly**
Status: **PMREVIEW**
Production Area: Counting
Tests: Gamma by GER
Lot #'s (Sample #'s): J3H140000 (58), J3H140427 (1,2,3),
QC Batches: 3226058,

Nonconformance: MDA not met
Subcategory: Data accepted

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	08/29/2013	The following do not meet CRDL: M1MD9, M1MEA (DUP), and M1MEC Eu-154 M1MEA1AG Eu-152, Eu-154 and Eu-155. M1MJC (LCS) Eu-155

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	08/29/2013	None

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

Verified By	Due Date	Status	Notes
		This section not yet completed by QA.	

Approval History

Date Approved	Approved By	Position

Date Printed: 8/29/2013

Page 1 of 1

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

8/30/2013 9:45:17 AM

Lot No., Due Date: J3H140427; 08/29/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3226061; RTRITIUM H-3 by LSC
SDG, Matrix: J01910; SOIL

1.0 COC			
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes ✓	No	N/A
2.0 QC Batch			
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	Yes ✓	No	N/A
2.2 Are the QC appropriate for the analysis included in the batch?	Yes ✓	No	N/A
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	Yes ✓	No	N/A
2.4 Does the Worksheets include a Tracer Vial label for each sample?	Yes	No	N/A ✓
3.0 QC & Samples			
3.1 Is the blank results, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.2 Is the LCS result, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.3 Are the MS/MSD results, yields, and MDA within contract limits?	Yes	No	N/A ✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	Yes ✓	No	N/A
3.5 Are the sample yields and MDAs within contract limits?	Yes ✓	No	N/A
4.0 Raw Data			
4.1 Were results calculated in the correct units?	Yes ✓	No	N/A
4.2 Were analysis volumes entered correctly?	Yes ✓	No	N/A
4.3 Were Yields entered correctly?	Yes	No	N/A ✓
4.4 Were spectra reviewed/meet contractual requirements?	Yes	No	N/A ✓
4.5 Were raw counts reviewed for anomalies?	Yes ✓	No	N/A
5.0 Other			
5.1 Are all nonconformances included and noted?	Yes	No	N/A ✓
5.2 Are all required forms filled out?	Yes ✓	No	N/A
5.3 Was the correct methodology used?	Yes ✓	No	N/A
5.4 Was transcription checked?	Yes ✓	No	N/A
5.5 Were all calculations checked at a minimum frequency?	Yes	No	N/A ✓
5.6 Are worksheet entries complete and correct?	Yes ✓	No	N/A
6.0 Comments on any No response:			

First Level Thomas O'Neil Date 8/30/13

TestAmerica Richland
QAS_RADCALCv4.8.44

Page 1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 3226001

Review Item	Yes (√)	No (√)	NA (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Non-conformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: CRDL = 400pCi/g

Second Level Review: [signature] Date: 8/30/13

LS-038B, Rev. 10, 9/07

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

8/30/2013 3:38:52 PM

Lot No., Due Date: J3H140427; 08/29/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3226060; RC14LSCC C-14 Digestion
SDG, Matrix: J01910; SOIL

1.0 COC			
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes ✓	No	N/A
2.0 QC Batch			
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	Yes ✓	No	N/A
2.2 Are the QC appropriate for the analysis included in the batch?	Yes ✓	No	N/A
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	Yes ✓	No	N/A
2.4 Does the Worksheets include a Tracer Vial label for each sample?	Yes	No	N/A ✓
3.0 QC & Samples			
3.1 Is the blank results, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.2 Is the LCS result, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.3 Are the MS/MSD results, yields, and MDA within contract limits?	Yes	No	N/A ✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	Yes ✓	No	N/A
3.5 Are the sample yields and MDAs within contract limits?	Yes ✓	No	N/A
4.0 Raw Data			
4.1 Were results calculated in the correct units?	Yes ✓	No	N/A
4.2 Were analysis volumes entered correctly?	Yes ✓	No	N/A
4.3 Were Yields entered correctly?	Yes	No	N/A ✓
4.4 Were spectra reviewed/meet contractual requirements?	Yes	No	N/A ✓
4.5 Were raw counts reviewed for anomalies?	Yes ✓	No	N/A
5.0 Other			
5.1 Are all nonconformances included and noted?	Yes	No	N/A ✓
5.2 Are all required forms filled out?	Yes ✓	No	N/A
5.3 Was the correct methodology used?	Yes ✓	No	N/A
5.4 Was transcription checked?	Yes ✓	No	N/A
5.5 Were all calculations checked at a minimum frequency?	Yes	No	N/A ✓
5.6 Are worksheet entries complete and correct?	Yes ✓	No	N/A

6.0 Comments on any No response:

Thomas D M

First Level _____ **Date** 8/30/13

TestAmerica Richland
QAS_RADCALCv4.8.44

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 3226060

Review Item	Yes (√)	No (√)	NA (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Non-conformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: CRDL = 50.0 pCi/g

Second Level Review: [signature] Date: 8/30/13

LS-038B, Rev. 10, 9/07

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

8/31/2013 11:48:13 AM

Lot No., Due Date: J3H140427; 08/29/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3226062; RNI63 Ni-63 by LSC
SDG, Matrix: J01910; SOIL

1.0 COC	
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes ✓ No N/A
2.0 QC Batch	
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	Yes ✓ No N/A
2.2 Are the QC appropriate for the analysis included in the batch?	Yes ✓ No N/A
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	Yes ✓ No N/A
2.4 Does the Worksheets include a Tracer Vial label for each sample?	Yes ✓ No N/A
3.0 QC & Samples	
3.1 Is the blank results, yield, and MDA within contract limits?	Yes ✓ No N/A
3.2 Is the LCS result, yield, and MDA within contract limits?	Yes ✓ No N/A
3.3 Are the MS/MSD results, yields, and MDA within contract limits?	Yes No N/A ✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	Yes ✓ No N/A
3.5 Are the sample yields and MDAs within contract limits?	Yes ✓ No N/A
4.0 Raw Data	
4.1 Were results calculated in the correct units?	Yes ✓ No N/A
4.2 Were analysis volumes entered correctly?	Yes ✓ No N/A
4.3 Were Yields entered correctly?	Yes ✓ No N/A
4.4 Were spectra reviewed/meet contractual requirements?	Yes No N/A ✓
4.5 Were raw counts reviewed for anomalies?	Yes ✓ No N/A
5.0 Other	
5.1 Are all nonconformances included and noted?	Yes No N/A ✓
5.2 Are all required forms filled out?	Yes ✓ No N/A
5.3 Was the correct methodology used?	Yes ✓ No N/A
5.4 Was transcription checked?	Yes ✓ No N/A
5.5 Were all calculations checked at a minimum frequency?	Yes No N/A ✓
5.6 Are worksheet entries complete and correct?	Yes ✓ No N/A
6.0 Comments on any No response:	

Thomas D McE

First Level _____ **Date** 8/31/13

TestAmerica Richland
QAS_RADCALCv4.8.44

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 3726002

Review Item	Yes (√)	No (√)	NA (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Non-conformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: CRDL = 30pCi/g

Second Level Review: [signature] Date: ~~8/30~~ 8/31/13 FW 8/31/13

LS-038B, Rev. 10, 9/07

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Richland Laboratory
Data Review Check List
Hexavalent Chromium

Batch Number(s):	3231054	Lab Sample Numbers or SDG:	J01910

Method/Test/Parameter: Cr+6 ☐ RL-WC-003(Aqueous) ☒ RL-WC-004(Solid)

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration 1. Performed at required frequency with required number of levels?	✓			✓
2. Correlation coefficient greater than 0.97?	✓			✓
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within 10% of expected?	✓			✓
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			✓
B. Continuing Calibration 1. CCV analyzed at required frequency and all parameters within 10% of expected?	✓			✓
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓
C. Sample Analysis 1. Were any samples with concentrations above the linear range diluted and reanalyzed?			✓	✓
2. Were all sample holding times met?	✓			✓
D. QC Samples 1. All results for the preparation blank below limits?	✓			✓
2. LCS percent recovery within 85-115%	✓			✓
3. $PbCrO_4$ percent recovery within 75-125%?	✓			✓
4. Sample and Duplicate within 20% (aqueous) or 35% (solid) RPD?			✓	✓
5. MS or MS/MSD recoveries within 85-115% (aqueous) or 75-125% (solid)?	✓			✓
6. On MS failure, PDMS within 85-115%?			✓	✓
E. Other 1. Are all nonconformances included and noted?			✓	✓
2. Is the correct date and time of analysis shown?	✓			✓
3. Did the analyst sign and date the front page of the analytical run?	✓			✓
4. Correct methodology used?	✓			✓
5. Transcriptions checked?	✓			✓
6. Calculations checked at minimum frequency?	✓			✓
7. Units checked?	✓			✓

Comments on any "No" response or list NCM number:

Analyst H. Rahari Date 8/29/13 2nd Review [signature] Date 9/24/13

CG-231 Rev 1 5/12

Washington Closure Hanford — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-238-005 | Page 1 of 2 | 8-12-13 CMB

Collector: J4 8.12.13 ~~WHITE EG~~ B. Moeller	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8C	Data Turnaround: 15 Days		
Project Designation: 100K Shoreline Characterization	Sampling Location: 100-K-111 - 100-K-111 East Sample area (statistical only)		SAF No.: RC-238
Ice Chest No.: NA	Field Logbook No.: EL-1668	COA: 0ESKSH6520	Method of Shipment: Local Delivery
Shipped To: TestAmerica - Richland	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS: NA

Special Handling and/or Storage: Cool 4C 8-12-13 CMB

Preservation	Cool 4C	None	None	None							
Type of Container	G/P	G/P	G/P	G/P							
No. of Container(s)	1	1	1	1							
Volume	250mL	500mL	250mL	250mL							
SAMPLE ANALYSIS	...nium Hex (7196 ...xavalent ...omium)	See item (2) in Special Instructions	Isotopic Plutonium; Nickel-63; Strontium-89,90 – Total Sr	Carbon-14; Tritium - H3				RCF			

J3H140427 J01910 Due 8-29-13

Sample No.	Matrix	Sample Date	Sample Time										
J1RR63	SOIL	8.12.13	0900	X	X	X	X		E-5		35979	mimD9	
J1RR64	SOIL	8.12.13	1247	X	X	X	X		E-2	L	35980	mimEA	
J1RR65	SOIL	8.12.13	1300	X	X	X	X		E-2	L	35981	mimEC	
	SOIL												
	SOIL												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Brooke Moeller	8/12/13 - 1340	Joan Kessner	8.12.13 1340
Joan Kessner	8.12.13 1510	Cinda Bingham	8-12-13 1510
Cinda Bingham	8-12-13 1600	1060 Battelle, fridge 1A	8-12-13 1600
1060 Battelle, fridge 1A,	8.14.13 0815	Cinda Bingham	8.14.13 0815
Cinda Bingham	8.14.13 1107	J. Lock	8-14-13 1107

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

SPECIAL INSTRUCTIONS

(2) Gamma Spec (Client List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

REVIEWED BY K. Wood via email DATE 8.14.13

WCH-EE-011

Generated Date/Time: 06/27/2013 08:47, PDT

Washington Closure Hanford — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-238-005 | Page 2 of 2

Collector: ~~WHITE, EC~~ B. Moeller	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8C	Data Turnaround: 15 Days		
Project Designation: 100K Shoreline Characterization	Sampling Location: 100-K-111 - 100-K-111 East Sample area (statistical only)		SAF No.: RC-238
Ice Chest No.: NA	Field Logbook No.: EL-1668	COA: 0ESKSH6520	Method of Shipment: Local Delivery
Shipped To: Radiological Counting Facility / TAIR	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS: NA

Special Handling and/or Storage: NA

J3H140427
J019:0
Due 8-29-13

SAMPLE ANALYSIS

Preservation	None												
Type of Container	G/P												
No. of Container(s)	1												
Volume	~~60g~~ J1f 500 ml 8.12.13												
RCF GEA Shipping Screen													
Sample No.	Matrix	Sample Date	Sample Time										
J1RR63	SOIL	8.12.13	0900	X	35979	533g	E6						
J1RR64	SOIL	8.12.13	1247	X	35980	574g	E2						
J1RR65	SOIL	8.12.13	1300	X	35981	507g	E2						
	SOIL												
	SOIL												

CHAIN OF POSSESSION ** 8.14.13 cmB — Sign/Print Names ** 8.14.13 cmB

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Brooke Moeller	8-12-13 ~~1210~~ 1340	Joan Harrison	1340 ~~1240~~ 8.12.13
Joan Harrison	8.12.13 ~~1410~~ 1510	Cindra Bingham	8-12-13 1510
Cindra Bingham	8-12-13 1605	1000 Battelle, fridge 1B	1605 8-12-13
1000 Battelle, fridge 1B	8-13-13 0800	Cindra Bingham	8-13-13 0800
Cindra Bingham WCH	8-13-13 1015	RCF D. Miller	1015 8-13-13
RCF D. Miller	8-14-13 0740	Cindra Bingham	8-14-13 0740
Cindra Bingham WCH	8-14-13 1107	J Beck TAIR	8-14-13 1107

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

SPECIAL INSTRUCTIONS

* Samples transhipped to TAIR (on pg. 1) for Gamma Spec. 8.14.13 cmB

** Time changed for telecon w/ J. Harrie 8.14.13 cmB

REVIEWED BY K. Wood via email DATE 8.14.13

WCH-EE-011

Generated Date/Time: 06/27/2013 08:47, PDT

Analysis Report for RCF35979

J1RR63 SAF:RC-238 100K/100-K-111 East Sample Area 500ml aG

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF35979
Sample Description	: J1RR63 SAF:RC-238 100K/100-K-111 East Sample Area 500ml aG
Sample Type	: Non Standard Geometry
Sample Size	: 5.330E+02 grams
Facility	: Default
Sample Taken On	: 8/12/2013 9:00:00AM
Acquisition Started	: 8/13/2013 11:39:47AM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE2
Geometry	: 50 ml Pill Box
Live Time	: 3600.0 seconds
Real Time	: 3600.7 seconds
Dead Time	: 0.02 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 40 - 4096
Peak Area Range (in channels)	: 40 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 7/1/2013
Efficiency Calibration Used Done On	: 3/11/2013
Efficiency Calibration Description	: REGE2 50ml PB EC031113 SN92492
Sample Number	: 34189

"Qualitative Only"

INTERFERENCE CORRECTED REPORT

Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40		0.981	4.99E+00	4.59E-01	
CS-137		0.996	1.56E-02	1.31E-02	
PB-212		0.710	2.03E-01	2.13E-02	
RA-226d	@	0.789	1.82E-01	1.97E-02	
TH-232d		0.998	1.99E-01	2.02E-02	

Analysis Report for RCF35980

J1RR64 SAF:RC-238 100K/100-K-111 East Sample Area 500ml aG

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF35980
Sample Description	: J1RR64 SAF:RC-238 100K/100-K-111 East Sample Area 500ml aG
Sample Type	: Non Standard Geometry
Sample Size	: 5.740E+02 grams
Facility	: Default
Sample Taken On	: 8/12/2013 12:47:00PM
Acquisition Started	: 8/13/2013 1:22:41PM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: NEWBEGE
Geometry	: 50 ml Pill Box
Live Time	: 3600.0 seconds
Real Time	: 3600.8 seconds
Dead Time	: 0.02 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 40 - 4096
Peak Area Range (in channels)	: 40 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 6/24/2013
Efficiency Calibration Used Done On	: 2/22/2013
Efficiency Calibration Description	: NBEGE 50ml PB EC022213 SN92492
Sample Number	: 34192

"Qualitative Only"

INTERFERENCE CORRECTED REPORT

Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40		0.997	4.25E+00	4.00E-01	
PB-212		0.709	1.85E-01	1.80E-02	
RA-226d	@	0.827	1.53E-01	1.66E-02	
TH-232d		0.996	1.74E-01	1.55E-02	

Analysis Report for RCF35981

J1RR65 SAF:RC-238 100K/100-K-111 East Sample Area 500ml aG

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF35981
Sample Description	: J1RR65 SAF:RC-238 100K/100-K-111 East Sample Area 500ml aG
Sample Type	: Non Standard Geometry
Sample Size	: 5.070E+02 grams
Facility	: Default
Sample Taken On	: 8/12/2013 1:00:00PM
Acquisition Started	: 8/13/2013 1:22:48PM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE2
Geometry	: 50 ml Pill Box
Live Time	: 3600.0 seconds
Real Time	: 3600.7 seconds
Dead Time	: 0.02 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 40 - 4096
Peak Area Range (in channels)	: 40 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 7/1/2013
Efficiency Calibration Used Done On	: 3/11/2013
Efficiency Calibration Description	: REGE2 50ml PB EC031113 SN92492
Sample Number	: 34193

"Qualitative Only"

INTERFERENCE CORRECTED REPORT

Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40		0.984	5.38E+00	4.93E-01	
PB-212		0.710	1.93E-01	2.18E-02	
RA-226d	@	0.774	1.83E-01	2.34E-02	
TH-232d		0.997	2.03E-01	2.19E-02	
U-235		0.543	2.97E-02	1.82E-02	

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Sample Check-in List

Date/Time Received: 8-14-13 / 1107 Container GM Screen Result: (Airlock) 300 cpm Initials [ ]
Sample GM Screen Result (Sample Receiving) 600 cpm Initials [ ]

Client: WCH SDG #: JO 1910 SAF #: RC-238 NA [ ]

Lot Number: J3H140427

Chain of Custody # RC-238-005

Shipping Container ID or Air Bill Number : hand delivered 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 on Ice 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): 3
7. Containers received: 3x 500 mLAG; 9x 250 mLAG
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: 8-14-13

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

[X] No action necessary; process as is

Project Manager [signature] Date 8/14/13

LS-023 Rev. 17, 05/13

8/16/2013 1:04:45 PM

Sample Preparation/Analysis

Balance Id:1120373922

127642, Washington Closure Hanford LLC , Bechtel Hanford, Inc.

6A Pu Prp PRP003/PRP005, Sep ALP002(ALP015)
SO Plutonium-238,239/40 by Alpha Spec
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 08/29/2013

Sep1 DT/Tm Tech:

Batch: 3226063 SOIL pCi/g PM, Quote: RW2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: DWEA, 3226058 AXTA, 3226059 CHTH, 3226060 5STC, 3226061 ATS6, 3226062 AFS4, 3226063 6ASO,

Prep Tech: SannohS

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 M1MD9-1-AE J3H140427-1-SAMP 08/12/2013 09:00			1.00g,in AmtRec: 1X500MLAG;3X250MLAG	1.00g #Containers: 4	PUTC13671 08/12/13,pd 01/01/10,r				100 min	439 ~~443~~ 8/27/1300 Scr: Alpha:		2143	8/27/1300 Beta:
2 M1MD9-1-AK-X J3H140427-1-DUP 08/12/2013 09:00			1.03g,in AmtRec: 1X500MLAG;3X250MLAG	1.03g #Containers: 4	PUTC13672 08/12/13,pd 01/01/10,r					441 ~~442~~ 8/27/1300 Scr: Alpha:			Beta:
3 M1MEA-1-AE J3H140427-2-SAMP 08/12/2013 12:47			1.01g,in AmtRec: 1X500MLAG;3X250MLAG	1.01g #Containers: 4	PUTC13673 08/12/13,pd 01/01/10,r					445 Scr: Alpha:			Beta:
4 M1MEC-1-AE J3H140427-3-SAMP 08/12/2013 13:00			1.03g,in AmtRec: 1X500MLAG;3X250MLAG	1.03g #Containers: 4	PUTC13674 08/12/13,pd 01/01/10,r					446 Scr: Alpha:			Beta:
5 M1MJH-1-AA-B J3H140000-63-BLK 08/14/2013 17:27 pd			1.01g,in AmtRec:	1.01g #Containers: 1	PUTC13675 08/12/13,pd 01/01/10,r					447 Scr: Alpha:			Beta:
6 M1MJH-1-AC-C J3H140000-63-LCS 08/14/2013 17:27 pd			1.04g,in AmtRec:	1.04g #Containers: 1	PUSK1022 08/12/13,pd 01/01/10,r					448 Scr: Alpha:			Beta:

8/16/2013 1:04:47 PM

Sample Preparation/Analysis

6A Pu Prp PRP003/PRP005, Sep ALP002(ALP015)
SO Plutonium-238,239/40 by Alpha Spec
5I CLIENT: HANFORD

Balance Id:1120373922

Pipet #: _____

AnalyDueDate: 08/29/2013

Sep1 DT/Tm Tech:

Batch: 3226063 pCi/g

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: SannohS

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

Comments: M1MD9-SAMP "CommentsISV-Recount DUP On a Different Detector"
M1MJH-BLK CommentsS-13-00041,P-13-00395,P-13-00403

All Clients for Batch:
127642, Washington Closure Hanford LLC Bechtel Hanford, Inc. , RW2, 27038

M1MD91AE-SAMP Constituent List:

PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						

M1MJH1AA-BLK:

PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:	RPD:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						

M1MJH1AC-LCS:

PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

M1MD91AE-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M1MJH1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M1MJH1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

8/28/2013 6:54:42 PM

ICOC Fraction Transfer/Status Report

ByDate: 8/28/2012, 9/2/2013, Batch: '3226063', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3226063						
AC		**Rev1C**	**SannohS**	8/16/2013 12:58:04		
SC			mcginnist	IsBatched	8/14/2013 5:47:07 PM	ICOC_RADCALC v4.8.49
SC			SannohS	InPrep	8/16/2013 12:58:04 PM	RL-PRP-003 REVISION 4
SC			SannohS	Prep1C	8/20/2013 1:33:28 PM	RL-PRP-003 REVISION 4
SC			JorgensonD	Sep1C	8/27/2013 8:04:44 AM	RL-ALP-001 REVISION 3
SC			RichardsonB	Sep2C	8/27/2013 1:58:54 PM	RL-ALP-016 REVISION 3
SC			NortonJ	InCnt1	8/27/2013 3:55:02 PM	RL-CI-008 REVISION 3
SC			antonsonl	Rev1C	8/28/2013 6:54:32 PM	RL-DR-001 Rev 4
AC			**SannohS**	8/20/2013 1:33:28 PM		
AC			**JorgensonD**	8/27/2013 8:04:44		
AC			**RichardsonB**	8/27/2013 1:58:54 PM		
AC			**NortonJ**	8/27/2013 3:55:02 PM		
AC			**antonsonl**	8/28/2013 6:54:32 PM		

AC: Accepting Entry; SC: Status Change

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Grp Rec Cnt:6

ICOCFractions v4.8.44

8/29/2013 10:40:16 AM

Sample Preparation/Analysis

Balance Id:1120373922

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

CH Sr-Total Prp PRP003, Sep GPC003
TH Total Strontium by GPC
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 08/29/2013

Sep1 DT/Tm Tech: 08/28/2013 16:20,JorgensonD

Batch: 3226059 SOIL pCi/g PM, Quote: RW2, 27038

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: WindischT,SannohS

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 M1MD9-1-AC J3H140427-1-SAMP 08/12/2013 09:00			3.04g,in	3.04g	SRTC1231 08/14/13			11.0mg	50	31 D 8/29/13	2041	8/29/13	
			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4		08/28/2013 16:20,s1			Scr:	Alpha:		Beta:
2 M1MEA-1-AC J3H140427-2-SAMP 08/12/2013 12:47			3.03g,in	3.03g	SRTC1232 08/14/13			10.2mg		32A			
			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4					Scr:	Alpha:		Beta:
3 M1MEA-1-AK-X J3H140427-2-DUP 08/12/2013 12:47			3.00g,in	3.00g	SRTC1233 08/14/13			10.2mg		32B			
			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4					Scr:	Alpha:		Beta:
4 M1MEC-1-AC J3H140427-3-SAMP 08/12/2013 13:00			3.01g,in	3.01g	SRTC1234 08/14/13			10.1mg		32C			
			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4					Scr:	Alpha:		Beta:
5 M1MJD-1-AA-B J3H140000-59-BLK 08/14/2013 17:27 pd			3.04g,in	3.04g	SRTC1235 08/14/13			11.7mg		32D			
			AmtRec:		#Containers: 1					Scr:	Alpha:		Beta:
6 M1MJD-1-AC-C J3H140000-59-LCS 08/14/2013 17:27 pd			3.02g,in	3.02g	STSF0296 07/29/13			10.6mg		31A	2105		
			AmtRec:		#Containers: 1					Scr:	Alpha:		Beta:

8/29/2013 10:40:17 AM

Sample Preparation/Analysis

CH Sr-Total Prp PRP003, Sep GPC003
TH Total Strontium by GPC
5I CLIENT: HANFORD

Balance Id:1120373922

Pipet #: _____

AnalyDueDate: 08/29/2013

Sep1 DT/Tm Tech:

Batch: 3226059 pCi/g

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: SannohS

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

Comments: M1MD9-SAMP "CommentsISV-Recount DUP On a Different Detector"
M1MJD-BLK CommentsP-13-00395,S-13-00041

All Clients for Batch:
127642, Washington Closure Hanford LLC Bechtel Hanford, Inc. , RW2, 27038

M1MD91AC-SAMP Constituent List:

Sr-90	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35

M1MJD1AA-BLK:

Sr-90	RDL:1	pCi/g	LCL:	UCL:	RPD:

M1MJD1AC-LCS:

Sr-90	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35

M1MD91AC-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M1MJD1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M1MJD1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

8/30/2013 8:16:55 AM

ICOC Fraction Transfer/Status Report

ByDate: 8/30/2012, 9/4/2013, Batch: '3226059', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3226059						
AC		**Rev1C**	**SannohS**	8/20/2013 1:34:15 PM		
SC			mcginnist	IsBatched	8/14/2013 5:46:37 PM	ICOC_RADCALC v4.8.49
SC			SannohS	Prep1C	8/20/2013 1:34:15 PM	RL-PRP-003 REVISION 4
SC			JorgensonD	Sep2C	8/29/2013 2:06:07 PM	RL-GPC-010 REVISION 2
SC			NortonJ	InCnt1	8/29/2013 2:33:54 PM	RL-CI-006 REVISION 3
SC			DawkinsO	CalcC	8/30/2013 3:32:02 AM	RL-CI-006 REVISION 4
SC			mcginnist	Rev1C	8/30/2013 8:07:39 AM	RL-DR-001 Rev 4
AC			**JorgensonD**	8/29/2013 2:06:07 PM		
AC			**NortonJ**	8/29/2013 2:33:54 PM		
AC			**DawkinsO**	8/30/2013 3:32:02		
AC			**mcginnist**	8/30/2013 8:07:39		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 5

ICOCFractions v4.8.44

8/16/2013 11:05:11 AM

Sample Preparation/Analysis

Balance Id:1120421763

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

AX Gamma Prp PRP003/GAM001
TA Gamma by HPGE
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 08/29/2013

Sep1 DT/Tm Tech:

Batch: 3226058 **SOIL** **pCi/g** **PM, Quote: RW2, 27038**
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: SannohS

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 M1MD9-1-AG J3H140427-1-SAMP 08/12/2013 09:00			322.20g,in AmtRec: 1X500MLAG;3X250MLAG	322.20g #Containers: 4				S200	200 min. Scr:	G11 Alpha:	1109 Beta:	8/22/13 HC	
2 M1MEA-1-AG J3H140427-2-SAMP 08/12/2013 12:47			314.10g,in AmtRec: 1X500MLAG;3X250MLAG	314.10g #Containers: 4					Scr:	G10 Alpha:	2037 Beta:	8/22/13 OHC	
3 M1MEA-1-AJ-X J3H140427-2-DUP 08/12/2013 12:47			AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4			I-S-V		Scr:	G11 Alpha:	0249 Beta:		
4 M1MEC-1-AG J3H140427-3-SAMP 08/12/2013 13:00			330.20g,in AmtRec: 1X500MLAG;3X250MLAG	330.20g #Containers: 4				S200	Scr:	G11 Alpha:	2143 Beta:		
5 M1MJC-1-AA-B J3H140000-58-BLK 08/14/2013 17:27 pd			348.00g,in AmtRec:	348.00g #Containers: 1					Scr:	G10 Alpha:	0250 Beta:		
6 M1MJC-1-AC-C J3H140000-58-LCS 08/14/2013 17:27 pd			350.10g,in AmtRec:	350.10g #Containers: 1	QC20009 08/04/09,pd 08/01/09,r				Scr:	G10 Alpha:	1955 Beta:	8/23/13 00	

8/16/2013 11:05:12 AM

Sample Preparation/Analysis

AX Gamma Prp PRP003/GAM001
TA Gamma by HPGE
5I CLIENT: HANFORD

Balance Id:1120421763

Pipet #: _____

AnalyDueDate: 08/29/2013

Sep1 DT/Tm Tech:

Batch: 3226058 pCi/g
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: SannohS

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

Comments: M1MD9-SAMP "CommentsISV-Recount DUP On a Different Detector"

All Clients for Batch:
127642, Washington Closure Hanford LLC Bechtel Hanford, Inc. , RW2, 27038

M1MD91AG-SAMP Constituent List:

Co-60	RDL:5.00E-02	pCi/g	LCL:	UCL:	RPD:	Cs-137	RDL:1.00E-01	pCi/g	LCL:70	UCL:130	RPD:35
Cs-137DA	RDL:1.00E-01	pCi/g	LCL:70	UCL:130	RPD:35	Eu-152	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Eu-154	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-155	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
K-40	RDL:	pCi/g	LCL:	UCL:	RPD:						

M1MJC1AA-BLK:

Co-60	RDL:5.00E-02	pCi/g	LCL:	UCL:	RPD:	Cs-137	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Cs-137DA	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-152	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Eu-154	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-155	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
K-40	RDL:	pCi/g	LCL:	UCL:	RPD:						

M1MJC1AC-LCS:

Cs-137	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35	Cs-137DA	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35
K-40	RDL:--	pCi/g	LCL:70	UCL:130	RPD:35	Ra-226	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35
RA-228	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35	RA-228DA	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35
U-238	RDL:	pCi/g	LCL:70	UCL:130	RPD:35						

M1MD91AG-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M1MJC1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M1MJC1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

8/29/2013 4:04:43 PM

ICOC Fraction Transfer/Status Report

ByDate: 8/29/2012, 9/3/2013, Batch: '3226058', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3226058						
AC		**Rev1C**	**SannohS**	8/16/2013 10:55:22		
SC			mcginnist	IsBatched	8/14/2013 5:46:35 PM	ICOC_RADCALC v4.8.49
SC			SannohS	InPrep	8/16/2013 10:55:22 AM	RL-GAM-001 REVISION 2
SC			SannohS	Prep1C	8/16/2013 11:07:07 AM	RL-GAM-001 REVISION 2
SC			NortonJ	InCnt1	8/16/2013 12:11:32 PM	RL-CI-007 REVISION 3
SC			DawkinsO	CalcC	8/27/2013 1:14:04 AM	RL-CI-007 REVISION 3
SC			antonsonl	Rev1C	8/29/2013 4:04:21 PM	RL-DR-001 Rev 4
AC			**SannohS**	8/16/2013 11:07:07		
AC			**NortonJ**	8/16/2013 12:11:32		
AC			**DawkinsO**	8/27/2013 1:14:04		
AC			**antonsonl**	8/29/2013 4:04:21 PM		

AC: Accepting Entry, SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 5

ICOCFractions v4.8.44

8/14/2013 5:27:44 PM

Sample Preparation/Analysis

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

AnalyDueDate: 08/29/2013

AT H-3 Prp/Sep LSC002
S6 Tritium by Liquid Scint
5I CLIENT: HANFORD

PRIORITY

Batch: 3226061 **SOIL** **pCi/g** **PM, Quote: RW2, 27038**
SEQ Batch, Test: None

Balance Id:
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech:

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 M1MD9-1-AF													
J3H140427-1-SAMP													
08/12/2013 09:00			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
2 M1MD9-1-AJ-X													
J3H140427-1-DUP													
08/12/2013 09:00			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
3 M1MEA-1-AF													
J3H140427-2-SAMP													
08/12/2013 12:47			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
4 M1MEC-1-AF													
J3H140427-3-SAMP													
08/12/2013 13:00			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
5 M1MJF-1-AA-B													
J3H140000-61-BLK													
08/14/2013 17:27 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
6 M1MJF-1-AC-C													
J3H140000-61-LCS													
08/14/2013 17:27 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
7 M1MJF-1-AD-BN													
J3H140000-61-IBLK													
08/14/2013 17:27 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

8/14/2013 5:27:45 PM

Sample Preparation/Analysis

AT H-3 Prp/Sep LSC002
S6 Tritium by Liquid Scint
5I CLIENT: HANFORD

Balance Id:
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech:

AnalyDueDate: 08/29/2013

Batch: 3226061 pCi/g
SEQ Batch, Test: None

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

Comments:

All Clients for Batch:
127642, Washington Closure Hanford LLC Bechtel Hanford, Inc. , RW2, 27038

M1MD91AF-SAMP Constituent List:

M1MJF1AA-BLK:

M1MJF1AC-LCS:

M1MJF1AD-IBLK:

M1MD91AF-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1MJF1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1MJF1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1MJF1AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

8/30/2013 9:44:28 AM

ICOC Fraction Transfer/Status Report

ByDate: 8/30/2012, 9/4/2013, Batch: '3226061', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3226061						
AC		**Rev1C**	**NortonP**	8/27/2013 2:57:56 PM		
SC			nortonp	IsBatched	8/24/2013 10:20:38 AM	ICOC_RADCALC v4.8.49
SC			NortonP	Sep1C	8/27/2013 2:57:56 PM	RL-LSC-002 REVISION 4
SC			NortonJ	InCnt1	8/27/2013 3:59:01 PM	RL-CI-005 REVISION 3
SC			BullJ	CalcC	8/29/2013 3:46:19 PM	RL-CI-005 REVISION 3
SC			mcginnist	Rev1C	8/30/2013 9:44:22 AM	RL-DR-001 Rev 4
AC			**NortonJ**	8/27/2013 3:59:01 PM		
AC			**BullJ**	8/29/2013 3:46:19 PM		
AC			**mcginnist**	8/30/2013 9:44:22		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 4

ICOCFractions v4.8.44

8/29/2013 12:14:43 PM

Sample Preparation/Analysis

127642, Washington Closure Hanford LLC ,
Bechtel Hanford, Inc.

5S C-14 Prp/Sep LSC008
TC C-14 by LSC, Carbosorb
01 STANDARD TEST SET

Balance Id:
Pipet #:

AnalyDueDate: 08/29/2013

Sep1 DT/Tm Tech:

Batch: 3226060 SOIL pCi/g PM, Quote: RW2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 3226058 AXTA, 3226059 CHTH, 3226060 5STC, 3226061 ATS6, 3226062 AFS4, 3226063 6ASO, 3231054 DWEA,

Prep Tech: WindischT

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 M1MD9-1-AH			5.001g,in	5.001g									
J3H140427-1-SAMP													
08/12/2013 09:00			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
2 M1MEA-1-AH			5.07g,in	5.07g									
J3H140427-2-SAMP													
08/12/2013 12:47			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
3 M1MEC-1-AH			5.048g,in	5.048g									
J3H140427-3-SAMP													
08/12/2013 13:00			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
4 M1MEC-1-AJ-X			5.057g,in	5.057g									
J3H140427-3-DUP													
08/12/2013 13:00			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
5 M1MJE-1-AA-B			5.08g,in	5.08g									
J3H140000-60-BLK													
08/14/2013 17:27 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
6 M1MJE-1-AC-C			5.087g,in	5.087g	CSB1312								
J3H140000-60-LCS					08/26/13,pd 11/08/12,r								
08/14/2013 17:27 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
7 M1MJE-1-AD-BN													
J3H140000-60-IBLK													
08/14/2013 17:27 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

8/29/2013 12:14:45 PM

Sample Preparation/Analysis

5S C-14 Prp/Sep LSC008
TC C-14 by LSC, Carbosorb
01 STANDARD TEST SET

Balance Id:
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech:

AnalyDueDate: 08/29/2013

Batch: 3226060 pCi/g
SEQ Batch, Test: None

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

Comments: M1MD9-SAMP "CommentsISV-Recount DUP On a Different Detector"

```
All Clients for Batch:
   127642, Washington Closure Hanford LLC          Bechtel Hanford, Inc.        ,  RW2, 27038

M1MD91AH-SAMP Constituent List:
  C-14        RDL:5.00E+01    pCi/g     LCL:        UCL:        RPD:
M1MJE1AA-BLK:
  C-14        RDL:5.00E+01    pCi/g     LCL:        UCL:        RPD:
M1MJE1AC-LCS:

M1MJE1AD-IBLK:
  C-14        RDL:5.00E+01    pCi/g     LCL:        UCL:        RPD:

M1MD91AH-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1MJE1AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1MJE1AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1MJE1AD-IBLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

8/30/2013 3:37:43 PM

ICOC Fraction Transfer/Status Report

ByDate: 8/30/2012, 9/4/2013, Batch: '3226060', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3226060						
AC		**Rev1C**	**WindischT**	8/29/2013 12:54:59		
SC			rogersa	IsBatched	8/19/2013 9:46:10 AM	ICOC_RADCALC v4.8.49
SC			WindischT	Sep1C	8/29/2013 12:54:59 PM	RL-LSC-008 REVISION 3
SC			BullJ	InCnt1	8/29/2013 1:42:08 PM	RL-CI-005 REVISION 3
SC			BullJ	CalcC	8/30/2013 12:27:32 PM	RL-CI-005 REVISION 3
SC			mcginnist	Rev1C	8/30/2013 3:37:34 PM	RL-DR-001 Rev 4
AC			**BullJ**	8/29/2013 1:42:08 PM		
AC			**BullJ**	8/30/2013 12:27:32		
AC			**mcginnist**	8/30/2013 3:37:34 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 4

ICOCFractions v4.8.44

8/16/2013 12:50:08 PM

Sample Preparation/Analysis

Balance Id:1120373922

127642, Washington Closure Hanford LLC ,
Bechtel Hanford, Inc.

AF Ni-63 Prp PRP003/PRP005, Sep LSC017
S4 Nickel by ICP and Nickel-63 by Liquid Scint
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 08/29/2013

Sep1 DT/Tm Tech:

Batch: 3226062 SOIL pCi/g PM, Quote: RW2, 27038

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: SannohS

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 M1MD9-1-AD J3H140427-1-SAMP 08/12/2013 09:00			0.50g,in AmtRec: 1X500MLAG;3X250MLAG	0.50g #Containers: 4	NITA10194 08/05/13				20min Scr:		Alpha:		Beta:
2 M1MEA-1-AD J3H140427-2-SAMP 08/12/2013 12:47			0.51g,in AmtRec: 1X500MLAG;3X250MLAG	0.51g #Containers: 4	NITA10195 08/05/13				Scr:		Alpha:		Beta:
3 M1MEA-1-AL-X J3H140427-2-DUP 08/12/2013 12:47			0.52g,in AmtRec: 1X500MLAG;3X250MLAG	0.52g #Containers: 4	NITA10196 08/05/13				Scr:		Alpha:		Beta:
4 M1MEC-1-AD J3H140427-3-SAMP 08/12/2013 13:00			0.51g,in AmtRec: 1X500MLAG;3X250MLAG	0.51g #Containers: 4	NITA10197 08/05/13				Scr:		Alpha:		Beta:
5 M1MJG-1-AA-B J3H140000-62-BLK 08/14/2013 17:27 pd			0.54g,in AmtRec:	0.54g #Containers: 1	NITA10198 08/05/13				Scr:		Alpha:		Beta:
6 M1MJG-1-AC-C J3H140000-62-LCS 08/14/2013 17:27 pd			0.52g,in AmtRec:	0.52g #Containers: 1	NISA1941 07/23/13				Scr:		Alpha:		Beta:
7 M1MJG-1-AD-BN J3H140000-62-IBLK 08/14/2013 17:27 pd			AmtRec:	#Containers: 1					Scr:		Alpha:		Beta:

8/16/2013 12:50:10 PM

Sample Preparation/Analysis

AF Ni-63 Prp PRP003/PRP005, Sep LSC017
S4 Nickel by ICP and Nickel-63 by Liquid Scint
5I CLIENT: HANFORD

AnalyDueDate: 08/29/2013

Batch: 3226062 **pCi/g**
SEQ Batch, Test: None

Balance Id:
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech:

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

Comments: M1MD9-SAMP "CommentsISV-Recount DUP On a Different Detector"
M1MJG-BLK CommentsS-13-00041,P-13-00395,P-13-00403

```
All Clients for Batch:
   127642, Washington Closure Hanford LLC          Bechtel Hanford, Inc.        ,  RW2, 27038

M1MD91AD-SAMP Constituent List:
  Ni-63       RDL:30          pCi/g     LCL:70      UCL:130     RPD:35
M1MJG1AA-BLK:
  Ni-63       RDL:30          pCi/g     LCL:        UCL:        RPD:
M1MJG1AC-LCS:
  Ni-63       RDL:30          pCi/g     LCL:70      UCL:130     RPD:35
M1MJG1AD-IBLK:
  Ni-63       RDL:30          pCi/g     LCL:        UCL:        RPD:

M1MD91AD-SAMP Calc Info:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1MJG1AA-BLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1MJG1AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1MJG1AD-IBLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

8/31/2013 11:49:33 AM

ICOC Fraction Transfer/Status Report

ByDate: 8/31/2012, 9/5/2013, Batch: '3226062', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting				Comments
3226062							
AC		**Rev1C**	**SannohS**	8/20/2013 1:33:12 PM			
SC			mcginnist	IsBatched	8/14/2013 5:47:04 PM		ICOC_RADCALC v4.8.49
SC			SannohS	Prep1C	8/20/2013 1:33:12 PM		RL-PRP-003 REVISION 4
SC			JorgensonD	Sep2C	8/30/2013 4:57:30 PM		RL-LSC-017 REVISION 3
SC			DawkinsO	InCnt1	8/30/2013 6:28:25 PM		RL-CI-005 REVISION 3
SC			NortonJ	CalcC	8/31/2013 11:42:54 AM		RL-CI-005 REVISION 3
SC			mcginnist	Rev1C	8/31/2013 11:47:08 AM		RL-DR-001 Rev 4
AC			**JorgensonD**	8/30/2013 4:57:30 PM			
AC			**DawkinsO**	8/30/2013 6:28:25 PM			
AC			**NortonJ**	8/31/2013 11:42:54			
AC			**mcginnist**	8/31/2013 11:47:08			

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 5

ICOCFractions v4.8.44

8/19/2013 1:39:01 PM

Sample Preparation/Analysis

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

DW Alkaline Digestion by method 3060A
EA Chromium, Hexavalent (7196A)
5I CLIENT: HANFORD

Balance Id:

Pipet #:

AnalyDueDate: 08/29/2013

Sep1 DT/Tm Tech:

Batch: 3231054 SOIL mg/kg PM, Quote: RW2, 27038

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech:

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 M1MD9-1-AA													
J3H140427-1-SAMP													
08/12/2013 09:00			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
2 M1MD9-1-AL-S													
J3H140427-1-MS													
08/12/2013 09:00			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
3 M1MD9-1-AM-D													
J3H140427-1-MSD													
08/12/2013 09:00			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
4 M1MD9-1-AN-X													
J3H140427-1-DUP													
08/12/2013 09:00			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
5 M1MEA-1-AA													
J3H140427-2-SAMP													
08/12/2013 12:47			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
6 M1MEC-1-AA													
J3H140427-3-SAMP													
08/12/2013 13:00			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
7 M1NJK-1-AA-B													
J3H190000-54-BLK													
08/19/2013 13:39 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

8/19/2013 1:39:01 PM

Sample Preparation/Analysis

DW Alkaline Digestion by method 3060A
EA Chromium, Hexavalent (7196A)
5I CLIENT: HANFORD

AnalyDueDate: 08/29/2013

Batch: 3231054 mg/kg
SEQ Batch, Test: None

Balance Id:
Pipet #: _____
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech:

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
8 M1NJK-1-AC-C													
J3H190000-54-LCS													
08/19/2013 13:39 pd			AmtRec:		#Containers: 1					Scr:	Alpha:		Beta:

Comments: M1MD9-SAMP "CommentsISV-Recount DUP On a Different Detector"

```
All Clients for Batch:
   127642, Washington Closure Hanford LLC          Bechtel Hanford, Inc.        ,  RW2, 27038

M1MD91AA-SAMP Constituent List:
  HEXCHROME   RDL:.1548      mg/kg     LCL:80      UCL:120     RPD:20
M1MD91AL-MS Constituent List:

M1MD91AM-MSD:

M1NJK1AA-BLK:

M1NJK1AC-LCS:

M1MD91AA-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1MD91AL-MS Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1MD91AM-MSD:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1NJK1AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1NJK1AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

ANALYTICAL REPORT

Job Number: 280-45538-1

SDG Number: J01910

Job Description: SAF# RC-238

For:
Washington Closure Hanford
2620 Fermi Avenue
Richland, WA 99354

Attention: Joan H Kessner

Approved for release.
Kae E Yoder
Project Manager II
8/28/2013 12:33 AM

Kae E Yoder, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0190
kae.yoder@testamericainc.com
08/28/2013

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-45538-1

SDG #: J01910
SAF#: RC-238

Date SDG Closed: August 15, 2013
Data Deliverable: 15 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1RR63	280-45538-1	6010/7471	6010B/7471A
J1RR64	280-45538-2	6010/7471	6010B/7471A
J1RR65	280-45538-3	6010/7471	6010B/7471A

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed in this Case Narrative. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the signature on the Report Cover.

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted. Calculations are performed before rounding to avoid round-off errors in calculated results.

This report includes reporting limits (RLs) less than TestAmerica Denver's practical quantitation limits. These reporting limits are being used specifically at the client's request to meet the needs of this project. Please note that data are not normally reported to these levels without qualification, since they are inherently less reliable and potentially less defensible than required by the current NELAC standards.

The results, RLs and MDLs included in this report have been adjusted for dry weight, as appropriate.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 8/15/2013 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4º C.

TOTAL METALS - SW846 6010B/7471A
Low levels of Copper and Zinc are present in the method blank associated with batch 280-187426. Because the concentrations in the method blank are not present at levels greater than half the reporting limit or the associated sample amounts are twenty times greater than the method blank concentration, corrective action is deemed unnecessary.

Silicon was recovered outside the control limits, biased low, in the LCS associated with batch 280-187426 and in the Matrix Spike performed on sample J1RR63 in batch 280-187426. The associated sample results have been flagged "N". Silicon is a poor performer and has a history of reacting inconsistently. Data are reported as is.

It can be noted that the sample amount was greater than four times the spike amount for Aluminum, Iron and Manganese in the Matrix Spike performed on sample J1RR63; therefore, control limits are not applicable.

The duplicate analysis of sample J1RR63 exhibited RPD data outside the control limits for Silicon, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

DATA REPORTING QUALIFIERS

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Lab Section	Qualifier	Description
Metals		
	U	Analyzed for but not detected.
	B	Estimated result. Result is less than the RL, but greater than MDL
	4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
	N	Recovery exceeds upper or lower control limits
	M	Sample duplicate precision not met.

SAMPLE SUMMARY

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-45538-1	J1RR63	Solid	08/12/2013 0900	08/15/2013 0900
280-45538-2	J1RR64	Solid	08/12/2013 1247	08/15/2013 0900
280-45538-3	J1RR65	Solid	08/12/2013 1300	08/15/2013 0900

METHOD SUMMARY

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Metals (ICP)	TAL DEN	SW846 6010B	
Preparation, Metals	TAL DEN		SW846 3050B
Mercury (CVAA)	TAL DEN	SW846 7471A	
Preparation, Mercury	TAL DEN		SW846 7471A
ASTM D-2216	TAL DEN	ASTM D-2216	

Lab References:

TAL DEN = TestAmerica Denver

Method References:

ASTM = ASTM International

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

METHOD / ANALYST SUMMARY

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Method	Analyst	Analyst ID
SW846 6010B	Harre, John K	JKH
SW846 7471A	Mooney, Joseph C	JM
ASTM D-2216	McKittrick, Ian B	IBM

SAMPLE RESULTS

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Client Sample ID: **J1RR63**

Lab Sample ID: 280-45538-1
Client Matrix: Solid
% Moisture: 1.7

Date Sampled: 08/12/2013 0900
Date Received: 08/15/2013 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-187856	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-187426	Lab File ID:	26A1081913.asc
Dilution:	1.0			Initial Weight/Volume:	1.18 g
Analysis Date:	08/19/2013 1228			Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		7600		1.3	4.3
Antimony		0.40	B	0.33	0.52
Arsenic		3.0		0.57	0.86
Barium		60.0		0.065	0.43
Beryllium		0.21		0.028	0.17
Boron		1.6	B	0.84	1.7
Cadmium		0.13	B	0.035	0.17
Calcium		3030		12.2	43.1
Chromium		13.2		0.050	0.17
Cobalt		5.4		0.086	0.86
Copper		9.2		0.19	0.86
Iron		15200		3.3	4.3
Lead		5.8		0.23	0.43
Magnesium		3570		3.2	17.2
Manganese		236		0.086	0.86
Molybdenum		0.22	U	0.22	1.7
Nickel		11.2		0.11	3.4
Potassium		1640		35.3	259
Selenium		0.74	U	0.74	0.86
Silicon		233	N M	4.9	8.6
Silver		0.14	U	0.14	0.17
Sodium		137		50.8	103
Vanadium		29.9		0.081	1.7

Analysis Method:	6010B	Analysis Batch:	280-188976	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-187426	Lab File ID:	25A1082613.asc
Dilution:	1.0			Initial Weight/Volume:	1.18 g
Analysis Date:	08/26/2013 1415			Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Zinc		39.3		0.34	0.86

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-188146	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-187909	Lab File ID:	130820ad.txt
Dilution:	1.0			Initial Weight/Volume:	.53 g
Analysis Date:	08/20/2013 2243			Final Weight/Volume:	50 mL
Prep Date:	08/20/2013 1430				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0064	U	0.0064	0.020

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Client Sample ID: **J1RR64**

Lab Sample ID: 280-45538-2
Client Matrix: Solid
% Moisture: 2.0

Date Sampled: 08/12/2013 1247
Date Received: 08/15/2013 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-187856	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-187426	Lab File ID:	26A1081913.asc
Dilution:	1.0			Initial Weight/Volume:	1.13 g
Analysis Date:	08/19/2013 1237			Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		8300		1.4	4.5
Antimony		0.34	U	0.34	0.54
Arsenic		2.8		0.60	0.90
Barium		65.9		0.069	0.45
Beryllium		0.25		0.030	0.18
Boron		1.2	B	0.88	1.8
Cadmium		0.10	B	0.037	0.18
Calcium		3080		12.7	45.2
Chromium		13.9		0.052	0.18
Cobalt		6.3		0.090	0.90
Copper		10.2		0.20	0.90
Iron		16500		3.4	4.5
Lead		4.3		0.24	0.45
Magnesium		4110		3.3	18.1
Manganese		254		0.090	0.90
Molybdenum		0.23	U	0.23	1.8
Nickel		13.0		0.11	3.6
Potassium		1350		37.0	271
Selenium		0.78	U	0.78	0.90
Silicon		166	N	5.1	9.0
Silver		0.14	U	0.14	0.18
Sodium		136		53.3	108
Vanadium		31.1		0.085	1.8

Analysis Method:	6010B	Analysis Batch:	280-188976	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-187426	Lab File ID:	25A1082613.asc
Dilution:	1.0			Initial Weight/Volume:	1.13 g
Analysis Date:	08/26/2013 1424			Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Zinc		34.6		0.36	0.90

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-188146	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-187909	Lab File ID:	130820ad.txt
Dilution:	1.0			Initial Weight/Volume:	.66 g
Analysis Date:	08/20/2013 2250			Final Weight/Volume:	50 mL
Prep Date:	08/20/2013 1430				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0051	U	0.0051	0.016

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Client Sample ID: **J1RR65**

Lab Sample ID: 280-45538-3
Client Matrix: Solid
% Moisture: 1.9

Date Sampled: 08/12/2013 1300
Date Received: 08/15/2013 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-187856	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-187426	Lab File ID:	26A1081913.asc
Dilution:	1.0			Initial Weight/Volume:	1.12 g
Analysis Date:	08/19/2013 1239			Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6890		1.4	4.5
Antimony		0.35	U	0.35	0.55
Arsenic		2.8		0.60	0.91
Barium		50.9		0.069	0.45
Beryllium		0.21		0.030	0.18
Boron		1.2	B	0.89	1.8
Cadmium		0.13	B	0.037	0.18
Calcium		2820		12.8	45.5
Chromium		12.8		0.053	0.18
Cobalt		5.0		0.091	0.91
Copper		7.5		0.20	0.91
Iron		14500		3.5	4.5
Lead		4.6		0.25	0.45
Magnesium		3680		3.4	18.2
Manganese		208		0.091	0.91
Molybdenum		0.24	U	0.24	1.8
Nickel		11.4		0.11	3.6
Potassium		1420		37.3	273
Selenium		0.78	U	0.78	0.91
Silicon		215	N	5.1	9.1
Silver		0.15	U	0.15	0.18
Sodium		109		53.7	109
Vanadium		27.4		0.086	1.8

Analysis Method:	6010B	Analysis Batch:	280-188976	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-187426	Lab File ID:	25A1082613.asc
Dilution:	1.0			Initial Weight/Volume:	1.12 g
Analysis Date:	08/26/2013 1427			Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Zinc		36.8		0.36	0.91

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-188146	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-187909	Lab File ID:	130820ad.txt
Dilution:	1.0			Initial Weight/Volume:	.69 g
Analysis Date:	08/20/2013 2257			Final Weight/Volume:	50 mL
Prep Date:	08/20/2013 1430				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0049	U	0.0049	0.015

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

General Chemistry

Client Sample ID: **J1RR63**

Lab Sample ID: 280-45538-1
Client Matrix: Solid

Date Sampled: 08/12/2013 0900
Date Received: 08/15/2013 0900

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.7		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-187951 Analysis Date: 08/20/2013 1159 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

General Chemistry

Client Sample ID: **J1RR64**

Lab Sample ID: 280-45538-2
Client Matrix: Solid

Date Sampled: 08/12/2013 1247
Date Received: 08/15/2013 0900

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	2.0		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-187951 Analysis Date: 08/20/2013 1159 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

General Chemistry

Client Sample ID: **J1RR65**

Lab Sample ID: 280-45538-3
Client Matrix: Solid

Date Sampled: 08/12/2013 1300
Date Received: 08/15/2013 0900

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.9		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-187951 Analysis Date: 08/20/2013 1159 DryWt Corrected: N

QUALITY CONTROL RESULTS

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Method Blank - Batch: 280-187426

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-187426/1-A	Analysis Batch:	280-187856	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-187426	Lab File ID:	26A1081913.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	08/19/2013 1223	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Aluminum	1.6	U	1.6	5.0
Antimony	0.38	U	0.38	0.60
Arsenic	0.66	U	0.66	1.0
Barium	0.076	U	0.076	0.50
Beryllium	0.033	U	0.033	0.20
Boron	0.98	U	0.98	2.0
Cadmium	0.041	U	0.041	0.20
Calcium	14.1	U	14.1	50.0
Chromium	0.058	U	0.058	0.20
Cobalt	0.10	U	0.10	1.0
Copper	0.351	B	0.22	1.0
Iron	3.8	U	3.8	5.0
Lead	0.27	U	0.27	0.50
Magnesium	3.7	U	3.7	20.0
Manganese	0.10	U	0.10	1.0
Molybdenum	0.26	U	0.26	2.0
Nickel	0.12	U	0.12	4.0
Potassium	41.0	U	41.0	300
Selenium	0.86	U	0.86	1.0
Silicon	5.7	U	5.7	10.0
Silver	0.16	U	0.16	0.20
Sodium	59.0	U	59.0	120
Vanadium	0.094	U	0.094	2.0

Method Blank - Batch: 280-187426

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-187426/1-A	Analysis Batch:	280-188976	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-187426	Lab File ID:	25A1082613.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	08/26/2013 1410	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Zinc	0.801	B	0.40	1.0

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Lab Control Sample - Batch: 280-187426

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-187426/2-A	Analysis Batch:	280-187856	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-187426	Lab File ID:	26A1081913.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	08/19/2013 1225	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	198.2	99	82 - 116	
Antimony	50.0	50.74	101	82 - 110	
Arsenic	100	99.47	99	85 - 110	
Barium	200	203.6	102	87 - 112	
Beryllium	5.00	5.16	103	84 - 114	
Boron	100	98.21	98	80 - 120	
Cadmium	10.0	10.38	104	87 - 110	
Calcium	5000	5119	102	82 - 114	
Chromium	20.0	20.29	101	84 - 114	
Cobalt	50.0	49.00	98	87 - 110	
Copper	25.0	24.73	99	88 - 110	
Iron	100	104.7	105	87 - 120	
Lead	50.0	50.87	102	86 - 110	
Magnesium	5000	4889	98	90 - 110	
Manganese	50.0	49.68	99	88 - 110	
Molybdenum	100	102.2	102	86 - 110	
Nickel	50.0	49.27	99	87 - 110	
Potassium	5000	5097	102	89 - 110	
Selenium	200	192.7	96	83 - 110	
Silicon	1000	92.57	9	10 - 70	N
Silver	5.00	5.10	102	87 - 114	
Sodium	5000	5314	106	90 - 112	
Vanadium	50.0	49.98	100	88 - 110	

Lab Control Sample - Batch: 280-187426

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-187426/2-A	Analysis Batch:	280-188976	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-187426	Lab File ID:	25A1082613.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	08/26/2013 1413	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Zinc	50.0	50.18	100	76 - 114	

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Matrix Spike - Batch: 280-187426

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-45538-1	Analysis Batch:	280-187856	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-187426	Lab File ID:	26A1081913.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.04 g
Analysis Date:	08/19/2013 1235	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	7600		196	9945	1198	50 - 200	4
Antimony	0.40	B	48.9	25.65	52	20 - 200	
Arsenic	3.0		97.8	91.09	90	76 - 111	
Barium	60.0		196	252.6	98	52 - 159	
Beryllium	0.21		4.89	4.73	92	72 - 105	
Boron	1.6	B	97.8	83.68	84	80 - 120	
Cadmium	0.13	B	9.78	9.44	95	40 - 130	
Calcium	3030		4890	8527	112	43 - 165	
Chromium	13.2		19.6	32.30	97	70 - 200	
Cobalt	5.4		48.9	48.88	89	72 - 106	
Copper	9.2		24.4	32.09	94	37 - 187	
Iron	15200		97.8	16870	1721	70 - 200	4
Lead	5.8		48.9	49.86	90	70 - 200	
Magnesium	3570		4890	8409	99	64 - 145	
Manganese	236		48.9	306.1	143	40 - 200	4
Molybdenum	0.22	U	97.8	87.63	90	75 - 103	
Nickel	11.2		48.9	54.61	89	61 - 126	
Potassium	1640		4890	6409	98	56 - 172	
Selenium	0.74	U	196	169.6	87	76 - 104	
Silicon	233		978	423.2	19	20 - 200	N
Silver	0.14	U	4.89	4.65	95	75 - 141	
Sodium	137		4890	4979	99	78 - 111	
Vanadium	29.9		48.9	82.63	108	50 - 169	

Matrix Spike - Batch: 280-187426

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-45538-1	Analysis Batch:	280-188976	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-187426	Lab File ID:	25A1082613.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.04 g
Analysis Date:	08/26/2013 1422	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Zinc	39.3	48.9	88.16	100	70 - 200	

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Duplicate - Batch: 280-187426

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-45538-1	Analysis Batch:	280-187856	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-187426	Lab File ID:	26A1081913.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.09 g
Analysis Date:	08/19/2013 1232	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	7600		7453	2	40	
Antimony	0.40	B	0.35	NC	40	U
Arsenic	3.0		2.63	13	30	
Barium	60.0		58.58	2	30	
Beryllium	0.21		0.219	3	30	
Boron	1.6	B	1.49	4	30	B
Cadmium	0.13	B	0.122	7	30	B
Calcium	3030		3022	0.4	30	
Chromium	13.2		12.69	4	40	
Cobalt	5.4		5.52	2	30	
Copper	9.2		8.94	3	30	
Iron	15200		15580	3	40	
Lead	5.8		5.48	6	40	
Magnesium	3570		3586	0.5	30	
Manganese	236		240.2	2	40	
Molybdenum	0.22	U	0.24	NC	30	U
Nickel	11.2		11.33	0.8	30	
Potassium	1640		1629	0.6	40	
Selenium	0.74	U	0.80	NC	30	U
Silicon	233		152.6	42	40	N M
Silver	0.14	U	0.15	NC	30	U
Sodium	137		130.8	4	30	
Vanadium	29.9		31.05	4	30	

Duplicate - Batch: 280-187426

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-45538-1	Analysis Batch:	280-188976	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-187426	Lab File ID:	25A1082613.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.09 g
Analysis Date:	08/26/2013 1420	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/16/2013 1300				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Zinc	39.3		39.75	1	40	

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Method Blank - Batch: 280-187909

Method: 7471A
Preparation: 7471A

Lab Sample ID:	MB 280-187909/1-A	Analysis Batch:	280-188146	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-187909	Lab File ID:	130820ad.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	.6 g
Analysis Date:	08/20/2013 2239	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	08/20/2013 1430				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	0.0055	U	0.0055	0.017

Lab Control Sample - Batch: 280-187909

Method: 7471A
Preparation: 7471A

Lab Sample ID:	LCS 280-187909/2-A	Analysis Batch:	280-188146	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-187909	Lab File ID:	130820ad.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	.6 g
Analysis Date:	08/20/2013 2241	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	08/20/2013 1430				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.430	103	87 - 111	

Matrix Spike - Batch: 280-187909

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-45538-1	Analysis Batch:	280-188146	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-187909	Lab File ID:	130820ad.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	.65 g
Analysis Date:	08/20/2013 2248	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	08/20/2013 1430				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.0064	U	0.391	0.414	106	87 - 111	

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Duplicate - Batch: 280-187909

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-45538-1	Analysis Batch:	280-188146	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-187909	Lab File ID:	130820ad.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	.58 g
Analysis Date:	08/20/2013 2246	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	08/20/2013 1430				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.0064	U	0.0058	NC	20	U

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

Duplicate - Batch: 280-187951

Method: D-2216
Preparation: N/A

Lab Sample ID:	280-45538-3	Analysis Batch:	280-187951	Instrument ID:	No Equipment Assigned
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	08/20/2013 1159	Units:	%	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	1.9	2.0	8	20	

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-187426					
LCS 280-187426/2-A	Lab Control Sample	T	Solid	3050B	
MB 280-187426/1-A	Method Blank	T	Solid	3050B	
280-45538-1	J1RR63	T	Solid	3050B	
280-45538-1DU	Duplicate	T	Solid	3050B	
280-45538-1MS	Matrix Spike	T	Solid	3050B	
280-45538-2	J1RR64	T	Solid	3050B	
280-45538-3	J1RR65	T	Solid	3050B	
Analysis Batch:280-187856					
LCS 280-187426/2-A	Lab Control Sample	T	Solid	6010B	280-187426
MB 280-187426/1-A	Method Blank	T	Solid	6010B	280-187426
280-45538-1	J1RR63	T	Solid	6010B	280-187426
280-45538-1DU	Duplicate	T	Solid	6010B	280-187426
280-45538-1MS	Matrix Spike	T	Solid	6010B	280-187426
280-45538-2	J1RR64	T	Solid	6010B	280-187426
280-45538-3	J1RR65	T	Solid	6010B	280-187426
Prep Batch: 280-187909					
LCS 280-187909/2-A	Lab Control Sample	T	Solid	7471A	
MB 280-187909/1-A	Method Blank	T	Solid	7471A	
280-45538-1	J1RR63	T	Solid	7471A	
280-45538-1DU	Duplicate	T	Solid	7471A	
280-45538-1MS	Matrix Spike	T	Solid	7471A	
280-45538-2	J1RR64	T	Solid	7471A	
280-45538-3	J1RR65	T	Solid	7471A	
Analysis Batch:280-188146					
LCS 280-187909/2-A	Lab Control Sample	T	Solid	7471A	280-187909
MB 280-187909/1-A	Method Blank	T	Solid	7471A	280-187909
280-45538-1	J1RR63	T	Solid	7471A	280-187909
280-45538-1DU	Duplicate	T	Solid	7471A	280-187909
280-45538-1MS	Matrix Spike	T	Solid	7471A	280-187909
280-45538-2	J1RR64	T	Solid	7471A	280-187909
280-45538-3	J1RR65	T	Solid	7471A	280-187909
Analysis Batch:280-188976					
LCS 280-187426/2-A	Lab Control Sample	T	Solid	6010B	280-187426
MB 280-187426/1-A	Method Blank	T	Solid	6010B	280-187426
280-45538-1	J1RR63	T	Solid	6010B	280-187426
280-45538-1DU	Duplicate	T	Solid	6010B	280-187426
280-45538-1MS	Matrix Spike	T	Solid	6010B	280-187426
280-45538-2	J1RR64	T	Solid	6010B	280-187426
280-45538-3	J1RR65	T	Solid	6010B	280-187426

Client: Washington Closure Hanford

Job Number: 280-45538-1
Sdg Number: J01910

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Report Basis					
T = Total					
General Chemistry					
Analysis Batch:280-187951					
280-45538-1	J1RR63	T	Solid	D-2216	
280-45538-2	J1RR64	T	Solid	D-2216	
280-45538-3	J1RR65	T	Solid	D-2216	
280-45538-3DU	Duplicate	T	Solid	D-2216	

Report Basis
T = Total